

Disclaimer

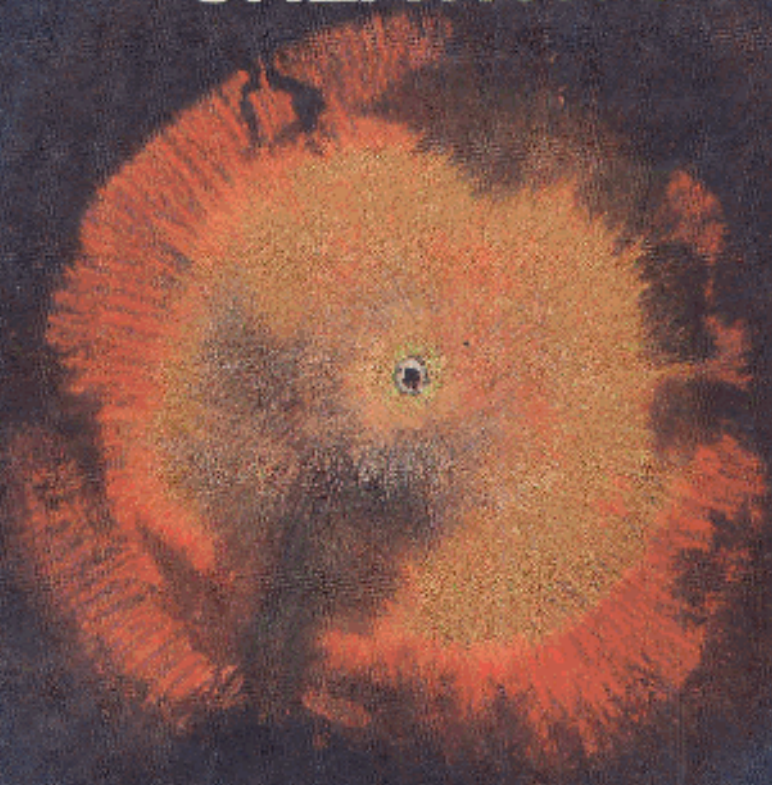
Popular Science & Technology (PST) series is being published by DESIDOC to promote the knowledge and understanding of the applications of science and technology in Defence among defence personnel, students, and general public. The contents covered in each of the titles are current to the year of publication.

This title *Kindling Creativity* was published in the year 1996.

For subscription details please contact:

Director
Defence Scientific Information & Documentation
Centre (DESIDOC)
Ministry of Defence, DRDO
Metcalf House, Delhi – 110054.
Tele: 011 – 2390 2527/29; Fax: 011 – 2381 9151

KINDLING --- CREATIVITY



- R SWAMINATHAN
- ARUN TIWARI

Popular Science & Technology Series

Kindling Creativity

KINDLING CREATIVITY

An exploration into the woods of
your creative self

**R Swaminathan
Arun Tiwari**



Defence Scientific Information & Documentation Centre
(DESIDOC)

Defence Research & Development Organisation
Ministry of Defence, Delhi-110 054

1 9 9 6

ISSN: 0032-4639

Popular Science & Technology Series

Kindling Creativity

R Swaminathan and Arun Tiwari

Editor-in-Chief : **Dr SS Murthy**
Editor : **Anuradha Ravi**
DTP : **Ashok Kumar & S Nagarajan**
Printing : **SB Gupta**
Cover : **SK Saxena**

© 1996, Defence Scientific Information & Documentation
Centre, Delhi.

The statements/opinions expressed in this book are those
of the authors. The Editors and Publishers do not assume
responsibility for the same.

Goddess

Working on this book had been a blissful experience that transcended all worldly sources of inspiration—a colleague, an intellectual companion, a friend, lover, wife

FOREWORD

All are created equal by the Master Creator. Yet the world is full of a variety of people. What makes people so different from each other? Are they born with a destiny to become big and small? Do the set-up in which one is born and the type of parenting and education one gets decide the course of one's life always? I have seen miracles of change happen to men and women in all walks of life. Miracles will happen to any individual when he begins to use creativity—the power of his subconscious mind. The book is designed to remind us that new thinking with imagery could fashion and create one's destiny.

It is neither money nor inheritance that is the major factor behind one's success or failure in life. These are dimensions on which people are rated differently but they are not the only dimensions. I consider creativity as the most crucial dimension in which big and small people really differ. This book explores this important but hidden and upto some extent mystified dimension. The book endeavours to explain the great fundamental truths of the minds in the simplest language possible and not only explains creativity but also suggests ways and means to kindle this divine power that each one of us is blessed with.

The unique feature of this book is its down-to-earth practicality. Swinging effortlessly between mythology and cybernetics, this book presents some very simple, usable techniques and formulae that you can easily apply in day to day world. I had a long working experience with the authors of this book. They are not professional writers, psychologists or scholars but the fact that they write some very original thoughts stemming from their surroundings, this being their third book, testifies the presence and potency of the force that creativity is. Whatever one impresses on subconscious mind, is expressed on the screen of mind imagery as a condition, an experience, an event, and a product like this book.

Creativity existed before any one of us was born, before any world existed. The great eternal truth of creativity antedates all history, literature, science and philosophy. It is with this

belief that this book urges us to lay hold of the wonderful magical transforming power of creativity that binds up mental and physical wounds, proclaims liberty to the fear-ridden mind and unshackles us completely from the limitations of poverty, failure, misery and frustration. All one has to do is unite intellectually and emotionally with the objective one wishes to embody and the creative powers of subconscious will respond accordingly. Begin now, today, kindle the creativity in your mind and let achievement happen in life! Keep on with creativity, keeping on until the day breaks and the darkness flees away.



APJ Abdul Kalam

PREFACE

This book falls into three parts, each of which deals with topics bearing on the overall theme of creativity among employees of a typical Indian organization. Part I is called **The Foundation**. It deals with patterns which connect a person with his environment. Part II is called **The Form**. It brings out the mechanics of creative action. Part III is **The Search**. It encompasses the various techniques of heightening creativity and throws light on the retroactive and prohibitive forces.

Part I is split into three chapters. These chapters are designed to introduce the idea of the interconnection between the individual and his environment and to show how this basic idea could be used to throw light on a whole variety of this phenomenon of creativity. What are the different ways in which an individual is interconnected to other independent systems of his environment? How, by pursuing their creative interests, do people finish up with less satisfactory results than they might have achieved by working otherwise? Is individual creativity illusory? Much of the text organized in Part I is devoted to trying to answer these questions. This part concludes with the formulation of creativity as an entity in practical terms, real enough, and ubiquitous in organizations, society, and economy.

Part II forms the body of the book. It has four chapters. The first [i.e., Chapter 4] is devoted to psychologist Eric Berne's theory of psychoanalysis and the implications that it may (or may not) have on the feasibility of basing creative decisions on the aggregation of individual preferences. The basic concept here may be stated, in the simplest terms, as follows. If we take the mind as an energy system, then much of the energy available in the mind is used 'to stop' one from acting in a particular way. If this preventive force can be relieved reasonably, to utilize this energy for creation, then what we want is some method of doing it. We shall take up this question in the concluding Part III after the issues have become clearer in Chapters 5,6 and 7. These chapters are based on the legendary work of writer Arthur Koestler. The striking concept put forward by Koestler in his classic 'The Act of Creation' is that there are at least three ways in which creative persons

have acted all along the history of science and art. This concept will be stated very precisely in the form of three stories to highlight its undeniable practical significance.

In Part III [Chapters 8,9 and 10] we shall ask whether any 'entity of creativity' really exists, or whether the appearance of such an entity derives from an extension of the concept of rationality and common sense. Creativity is widely represented as a mystical virtue on the one hand and as little more than common sense plus statistics on the other. Giving some further thought to Eric Berne and Arthur Koestler, the last three chapters bring in focus, certain concepts of social scientist C.P.Snow, preacher Norman Vincent Peale and magician Al Koran to see creativity as something like a 'culture'.

We know that the best work on creativity required more ability than we possessed and therefore we needed help that only the Master Creator could give. We have the policy of taking God into working partnership in all our problems and activities. So we have said prayers, asking for His guidance, and we put the project into His hands. The repeated mention of Vinayaka Murthy in the text goes beyond a writing gimmick. We have endeavoured to make the book as usable as possible by providing a variety of anecdotes and avoiding complicated terms which go with such subjects. May God use this book in human helpfulness!

**R Swaminathan
Arun Tiwari**

ACKNOWLEDGEMENTS

This book is third in the trilogy we conceived as a result of our work on organisational development that we have been doing together over the last eight years in Defence Research and Development Organisation (DRDO). Without the stimulus, the opportunity and the freedom that DRDO has provided, the book would never have happened. We would like to express our deep gratitude to the many people in DRDO who have given us their help and support during the three years we worked on this book. It is impossible for us to mention all of them by name. However we extend our warmest thanks to this invisible team who helped us to bring this book to fruition.

We are grateful to Dr Abdul Kalam for inspiring us to write something Indian on problems of Indian Organisations. Our ongoing exchange of ideas has been our richest source of knowledge and inspiration.

We are also grateful to Prof KVA Pandalai, Prof Ashok Kumar Dhol, Prof Sarat Chandra Malviya, and Shri Ved Prakash Agarwal for inspiring conversations and for generously sharing their knowledge with us.

We acknowledge with deep gratitude the rich observations we made of creative traits of Dr Raj Kumar Dhar, Shri K Visweswar Reddy and Smt. Frameela Kalive. We have drawn heavily from these three creative persons to portray the three lead characters in the book—a person who spurns the dreamer, refuses to be taken in by any romantic nonsense, a wide-awake person, quick to see his advantage and to get the better of his fellows; a sagacious dreamer, with his head in the clouds and his feet on the solid earth, working on missions that transcend the boundary of set-up and individual life span; and a person emotionally vulnerable, unselfish, quixotic, but full of trust and courage to venture into the unknown; respectively.

We are thankful to Shri Nirmalendu Shekhar Mishra, Dr BS Subhas Chandran, Shri Manher Sameer and Cdr Siva Sankar Kalive for stimulating discussions of fundamental questions that surround creativity and give it a mystified form.

We are thankful to Smt. Anuradha Ravi and Km. Lalitha Jayaram for their efforts in giving the book its present form.

Our thanks are also due to Dr SS Murthy, Director, Shri Ashok Kumar, Smt Sonia Relan, Shri SB Gupta, Shri S Nagarajan, Shri SK Saxena and others in DESIDOC who helped to publish this book on time.

Finally, we come to our families. Both of our spouses, Smt. Saraswati Swaminathan and Dr. Anjana Tiwari provided us conditions, many a time at the cost of their comforts, in which we could sustain our creativity while writing this book. Arun's two children, aged fourteen and twelve let this book take away some of their playing time with the father. So, to Aseem and Amol, our love and very special thanks.

5 February 1996
Hyderabad

R Swaminathan
Arun Tiwari

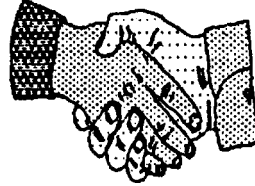
CONTENTS

	<i>Foreword</i>	v
	<i>Preface</i>	vii
1	Exploring the links	3
2	Who is stifling creativity?	12
3	What people have to work with	22
4	Who creates and why	33
5	The cheerful employee story	42
6	The wise employee story	51
7	The emotional employee story	61
8	The process of creation	77
9	Learning to create	86
10	From habit to originality	94
	<i>Epilogue</i>	100

THE FOUNDATION

1

EXPLORING THE LINKS



THE WISE FRIEND

The story of three creative employees begins with a visit to the house of friend Vinayaka Murthy. Those who have read our earlier books may perhaps still have Vinayaka Murthy intact in their memories and so skip the following two paragraphs. But for those who are reading about Vinayaka Murthy for the first time, the paragraphs form a necessary prelude.

Vinayaka Murthy is a supervisor we envy. Everybody who works under Vinayaka Murthy's supervision is committed to the task he or she has been given. The efforts of every employee in Vinayaka Murthy's establishment contribute towards the desired goals. And this is not a general opinion that we have formed under any positive bias towards our friend. We have examined his supervision from many different angles and collected definite evidence to form this opinion.

We observed that Vinayaka Murthy does not give directions to subordinates on a task-by-task basis. His directions arise from work goals and objectives about which he already has an understanding and agreement with his subordinates. Most of his employees have now become capable of operating on a virtually self-regulated basis.

Vinayaka Murthy deals with his subordinates in an open and candid way. There is a free exchange of ideas in his work situation. Nobody avoids saying anything for the fear of being misunderstood by others. In the event of any mistake, no blame or punishment is attempted. Instead, corrective actions are taken to eliminate the cause of the mistake.

We won't say that Vinayaka Murthy's subordinates never complain. They certainly do, and in fact are encouraged to do so. In the face of hostile reactions from his subordinates, Vinayaka Murthy reacts in a very serious minded way. He works to understand such feelings through open, candid, and authentic interaction with the subordinates under non-judgemental and non-defensive conditions. He believes in the genuineness of the supervisor-subordinate relationship. It is this emotional genuineness of Vinayaka Murthy in his human relationships, which frequently takes us to him for some 'loud thinking' and 'soul searching'; and this is the reason why we continually seek Vinayaka Murthy's views on working with individuals and understanding them. Now, coming back to the present story, that day when we went to see Vinayaka Murthy, we asked him about the most important virtue of a successful supervisor. He said that the ability to develop good ideas that can be put into action makes an employee a good supervisor. Creative decision making and problem solving are two of the most important talents that an employee should possess to succeed as a supervisor' Vinayaka Murthy added.

'But this is something one gets as a natural gift. To be creative is a blessing', we said. To this, Vinayaka Murthy said, 'Not exactly in that sense'. He then dispelled many of our mistaken notions about creativity. We list below four of these most widespread myths as explained by Vinayaka Murthy to us.

THE MYTHS

One mistaken perception about creativity is that people can be classified accurately as creative or non-creative. In reality, creativity is like height, intelligence, or strength. People vary considerably in these dimensions, but as everyone has *some* height, *some* intelligence, and *some* strength; they also have *some* creativity in them.

A second myth about creativity is that it can be exercised only in a limited number of fields, such as physical science, the arts, advertising etc. This type of creativity could be labelled as artistic or scientific creativity. In reality, creative problem solving can be exercised in almost any field. One can engage in creative problem-solving in such diverse settings as manufacturing, office work, administrative work, gardening, kitchen and home repairs.

Another popular notion, with no base in actuality, is that all creative ideas are complex and technical. In reality, most useful ideas are magnificently simple. The giant Apple computer company in America started with the simple idea of using computers in homes and as personal aids in small businesses besides the large organisations.

A final myth is that creativity cannot be controlled, managed, or pushed. In reality, in many situations a deadline can be imposed for reaching a creative solution to a problem. There are techniques designed to aim at specific, controlled results.

CREATIVE PEOPLE

'In fact, anyone who approaches any problem in a new or unique way is a creative person,' Vinayaka Murthy said. When we pressed for a distinguishing overall characteristic of a creative person, Vinayaka Murthy said, 'Creative people are more emotionally open than less creative people.'

And what is this emotional openness? The emotional openness of creative people is often manifested in practical jokes and other forms of playfulness. With such emotional openness, an employee with wider knowledge, finer intellectual abilities and a positive personality may become a creative worker.

Creative people tend to be 'bright' rather than 'brilliant'. An extraordinarily high intelligence is not required to be creative, but creative people are good at generating alternative solutions to problems in a short period of time. Creative people have a 'youthful curiosity' throughout their lives. Their curiosity is not centred just around their own fields of expertise. Instead, their range of interests encompasses many areas of knowledge, and they generate enthusiasm towards almost any puzzling problem. Creative people are more open and responsive to feelings and emotions, and in general to the world around them.

Creative people tend to have a positive self-image. They feel good about themselves but are not blindly self-confident. Because they are reasonably self-confident, creative people are able to cope with criticism of their ideas. They have the ability to tolerate isolation. They are frequently non-conformists. They

value their independence and do not need to seek approval from others. Creative people go out of their way to seek adventure, the thrill of achievements, and are also persistent.

'Does it mean that a person with many of the above characteristics will bring forth creative solutions to problems?' we asked. 'No, not necessarily,' replied Vinayaka Murthy. Triggering or eliciting creative behaviour from an individual requires the right interaction between the person and the environment. Vinayaka Murthy cited at least five ingredients for an optimal work environment that can kindle creativity.

CREATIVE ENVIRONMENT

First, a person of sound intelligence is needed: someone who has a high capacity for learning, for abstracting, for solving problems, and for making the right choices. Second, the potentially creative person must have a strong ego and be confident that he/she can overcome problems. Third, the person must be faced with a need to act (as goes the old adage, 'Necessity is the mother of invention'). Fourth, a barrier must exist between him/her and the goal, and a standard solution to overcome this barrier should not be available. Fifth, the person must have insight, a broad awareness of himself/herself and the environment around. When all these are present, creative behaviour is almost a certainty.

CREATIVE BEHAVIOUR

Putting all these five ingredients together, we were able to construct a model of creative behaviour. This model reflects the thinking about how employees respond to external forces in a creative manner. There are four key elements: (1) the stimulus or outside force (2) the person (3) internal or external behaviour and (4) results. We will now describe and illustrate the model. It incorporates two basic viewpoints about how people learn and are motivated.

The first viewpoint is the cognitive viewpoint. This emphasizes the internal mental processes that take place whenever a person is subjected to an external force. People behave according to how they react to stimulus. If people are in control of their senses, they make rational choices—they seek to maximize gain and pleasure and minimize loss and

pain. To make these rational choices, the person attempts to evaluate the merits of external stimulus (any force that produces an effect).

The second viewpoint about human behaviour is the non-cognitive viewpoint. This viewpoint emphasizes that behaviour is determined by the rewards and punishments an individual receives from the environment. Instead of behaviour being influenced by an evaluation of the environment, the consequences of one's past behaviour influence a person's future behaviour. The noncognitive viewpoint of behaviour is also called the reinforcement model in many psychology textbooks because rewards and punishments reinforce or strengthen responses.

THE MODEL

The model of creative behaviour begins when an external force acts upon a person. This force can take many forms, including messages from others: objects, technology, rules of the organisation, or some event. The person reacts to this external force in a manner governed by his/her needs and motives, knowledge, skills, attitudes, values, self-concept, perception, personality and many other similar internal factors. A positive interplay of the factors inside a person in response to an external stimulus manifests itself in creative behaviour. This behaviour leads to some result or impact on the outside world. The result may be favourable or disheartening. It may be an encouraging stimulus or a frustrating force. It may generate confidence or shatter hopes. To illustrate the model, visualise the following scenario.

AN OLD FRIEND CALLS

You are sitting in your office on a dull afternoon. The lunch is still only somewhere in the small intestine. There is nothing interesting at hand and you have already called it a day mentally. You are called to receive an outside telephone call. You are confused because you do not expect any calls today. With a mixed feeling of curiosity and apprehension you answer the phone. An old friend, Narayana Swamy is on the line. You do not remember when exactly you met him last, but it was definitely not in the last ten years. All you know about Swamy

through common friends is that he has made a lot of money in the insurance business and is now living a high profile life.

After a few moments of small talk, he says to you, 'I have got an exciting proposition to offer you. You know, I am the branch manager of one of the world's largest financial services firms, and I look after their operations in India. Our latest marketing thrust is to sell individual retirement accounts to people who are just launching their careers. Since you live next door to the University and *Bhabhi!* is enrolled there, you have loads of contracts with career beginners'.

'Just think, what a bundle you will make for the rest of your life. Since very few people cancel such policies, you shall be collecting commissions for 30 to 40 years from practically all the people you sign up. And just think, you can work for us full-time or part-time. It all depends on how quickly you want to become rich!'

Swamy hangs up the phone after issuing a dinner invitation in the latest five-star hotel of the city for the next evening.

So, here you have a forcible external force (a telephone call from a person you have not met for the past one decade) that becomes the cause or antecedent of your immediate behaviour. Swamy's message will cause you to do something, even if you just politely decline the dinner invitation.

THE DYNAMICS

The external forces act upon factors within the person, which are primarily intellectual, emotional, physiological, and related to the physical attributes. Among them are needs and motives, knowledge, skills, attitudes, values, personality, self-concept and perceptions. These attributes explain and regulate creative behaviour. All of the attributes are intangible, but they are nevertheless very important aspects of human behaviour. They help explain and regulate human behaviour.

A given external force will interact with those factors within the person which are most relevant at that point of time. These factors will influence a person's response to the external force. An important point about these factors is that they are all based partly upon past experience. Here is a brief rundown of how these factors could possibly influence your response to Swamy's proposition.

What are your needs? A need represents a deficit within the individual, such as a need for recognition, or accomplishment. If you have a strong need for accomplishment, you may respond positively to Swamy's message. A strong motive for wanting to learn more about the deal would be a desire to *increase your income*. If you needed money to lift your social status, you might be very interested in Swamy's proposition.

What is the level of your knowledge of insurance? Your knowledge of insurance policies and the spending preferences of career beginners will also influence your response to Swamy's offer. Your knowledge could be valid, invalid, or some combination of the two. If you have limited knowledge of financial services you might pay little attention to the message. If you believe that students will be eager to start retirement accounts, you will respond positively. If your knowledge tells you that students have no interest in opening retirement accounts, you might not think much of Swamy's offer. You might go for dinner, see the hotel, have a few drinks, dine with Swamy and forget about him once and for all.

How do you perceive your skills? If you perceive yourself as possessing good sales, communication, or analytical skills, you may be positively inclined towards Swamy's proposal. If you do *not see yourself having the relevant skills*, you will be more hesitant to get involved.

Our attitudes, or predispositions to respond, influence our response to an external force. Our values (i.e., strongly held beliefs) guide our actions. Our perceptions (i.e., how we interpret things in the external world) influence our decisions. Our self-concept (i.e., what we think of ourselves or who we think we are) affects our decisions. And finally our personality (i.e., our persistent and enduring behaviour patterns) will find expression in such a situation.

HOW DO YOU DO

To put it in a nutshell, you will be inclined to respond positively if you had favourable attitudes towards sales work. You would go to Swamy if you value money, challenge, and are not afraid of uncertainty. You will explore Swamy's idea further if your self-concept includes the idea that you are a go-getter and a winner. Your perception of Swamy (if you perceive him to be honest) will make you interested. Your degree of

extroversion will decide whether you decide to get involved further or not.

Now, the characteristics of a person also influence his/her behaviour. In response to an external force, different individuals behave differently. These behaviours encompass movements, verbal statements, facial expressions, emotional responses, and unexpressed thoughts. If Swamy's proposition appealed to you, your consequent behaviour would include positive treatment of him, a happy facial expression, a clap or a whistle, and perhaps an increased heart rate. You may offer tea to your colleagues around or take some secrets home.

In fact, the characteristics of the person and his behaviour are closely connected because behaviour stems from these characteristics. Furthermore, some characteristics of a person cannot be separated from behaviour. For example, skills exist only when they are manifested in behaviour, and attitudes usually exist only as thoughts.

Finally, behaviour leads to some result or impact on the outside world. Some of the results are intended and some are not. For instance, the intended result of offering assistance to a co-worker is to help him or her and perhaps receive appreciation in return. Now, if you are rebuffed, the result will be frustration. The results act as a feedback to a person. People learn from their behaviour and from its effect. And this is the point to which we wanted to bring your attention. Whether you are creative or not depends more on your environment than anything within you.

Our next chapter will highlight some of the detrimental feedback which our system offers to the creative individuals, in the process frustrating them.

FURTHER READING

Drucker, Peter F., 'The Discipline of Innovation'. Harvard Business Review, May - June 1985, pp 67 - 84.

Johnson, D.W., 'Reaching Out'. Englewood Cliffs, NJ : Prentice - Hall, 1972.

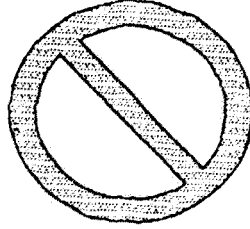
Organ, Dennis W., 'Organizational Behaviour as an Area of Study : Some Questions and Answers' in Dennis W. Organ, eds.,

The Applied Psychology of Work Behaviour : A Book of Readings. Plano, TX : Business Publications, 1978, pp. 2 - 7.

Pascarella, Perry, 'The New Achievers'. New York : Free Press, 1984.

2

WHO IS STIFLING CREATIVITY?



CHOKING WEEDS

To promote creativity in a person, we need certain conditions. Firstly, the person must be free from fear. A person is inhibited by many different kinds of fear, such as the fear of displeasing others, fear of rebuke, fear of punishment, fear of failing. The environment should attempt to remove these inhibitions which restrict a person. This has become all the more important in the case of students. Secondly, the person must be free from worries. If he/she has a problem which must be handled, it should be done head on, to find a solution or seek a legitimate way out of the situation. Thirdly, he/she should have no scope for harbouring old grudges. What has happened is through and done. One should be encouraged to forget it. Lastly, there should be no room for hating anything or anybody. It is far too expensive in body energies, to say nothing of the drag on the generation forces that supply power to the creative senses. Unfortunately the prevalent atmosphere is not conducive to the nurturing of such conditions. The stifling process starts right from the school level.

THE EDUCATION

In the majority of contemporary Indian homes, the parents desire to educate their children in Engineering or Medicine. There is a substantial amount of parental pressure on the children to take up courses in the school which will fetch them an entrance into these courses. Children by themselves are unable to decide. We have come across a case wherein a parent asked his son to appear for the Joint Entrance Examination

being conducted by the IITs. The boy appeared for the test while he was in the eleventh class. He qualified with a good rank and was admitted into the Mechanical Engineering department of one of the IITs. After joining the course he found that he had no desire to pursue an engineering course. He was constantly tralling behind the others and was unable to make the grade. In spite of this, he continued in the college till the third year. At that point he decided to quit the course as he was keen on studying English Literature. He was not qualified to take up a degree course in Literature since he had joined the engineering course after his 11th class course. Somehow he managed to join a course in Journalism and later ended up with an excellent career in a newspaper.

This is probably an extreme case of a marked mismatch between the aptitude and the course pursued. There are however, many cases in which the students reconcile to the course in which they land up, even though they have no specific aptitude or liking for it and end up with a mediocre performance throughout. Obviously, courses pursued under such incongruous situations, can in no way help in triggering the student's imagination, in the absence of which any notable accomplishment, much less a creative one, is well nigh impossible. Such system-induced round-peg-in-a-square-hole situations deprive the academic field of any possible creative innovations.

THE RIGIDITY

In our college curriculum, we find that there is at present a rigid menu of courses, like Mathematics-Physics- Chemistry or Physics-Chemistry-Zoology, etc. If a student desires to pursue a course of his own choice, for example, Mathematics-Commerce- Sociology, he will not be permitted to do so. Our education system, as in the case of several other social systems, tries to fit the student in one of the preselected slots. We must remember that all students are endowed with the gift of imagination which is unique to each one of them. For a given input, it is extremely rare that two students respond alike. This is a rational process. When we tamper with the imaginative process by man-made barriers as in the present instance, the combination of courses, we induce sub-optimal performance in the student. Once a student is told that it is a forbidden zone, he becomes even more curious and anxious to explore that zone. Since his mind is preoccupied with the

thought of exploring that zone, he is unable to concentrate on the selected course of study. This frustration greatly dampens his creative performance.

REGIMENTATION

If we look at the academic environment today, we will probably find that there is a set process and routine. Sessions start during June-July and end in March-April. Due to varied reasons, these days, many students may have to forego their vacations. This is happening in most of the universities. During the semester, most of the time, students have classes both on theory and practicals, at the end of which they have to appear for an examination. The system repeats itself year after year. In the classroom, teachers have a set curriculum, a set of textbooks and prepared notes. For examinations, we even have question banks. The whole system, transplanted from the industrial scenario, is so designed and operated that it does not consider the participants of the system— including students—as active and live elements, but as clay, to be prepared through a series of moulding and hardening processes so as to produce a product within certain predetermined acceptable limits. The whole process is so well organised and predictable that a student with a high degree of innate creativity can easily get bored and may not exhibit his latent gifts. Such an insensitive environment does not contribute towards triggering the natural creative instincts present in the students. On the other hand, it does all it can to suppress and kill innovative and creative skills.

ONE-WAY COMMUNICATION

In the words of George Bernard Shaw, "Imagination is the beginning of creation. You first imagine what you desire. You then will what you imagine, and at last you create what you will".

From this statement, it is clear that the roots of creativity lie in the imagination. All human beings have been endowed with a mind which has the capacity to imagine. The only question that arises is whether all imagination can be creative or not. In fact imagination is a double-edged weapon. It can be both creative and destructive. It is necessary to design a

systematic mechanism by which we can direct imagination towards creative effort while suppressing the destructive effects. Further, we observe that there are two intermediate stages before Imagination is converted into creativity, namely desire and will. Major variations are noticed in the intensity of desire and the will power possessed by different persons. These variations are the primary causes of differences in creative ability in different individuals in society. What one does with the creative ability is entirely a personal matter, but for those who desire to enhance their innate creative ability, the procedures can certainly be mastered.

Let us examine the classroom scenario, to see whether the process is conducive for activating the 'trigger'. A major portion of any theoretical course is based on the 'lecture' prepared and delivered by the lecturer. In general, there is practically no room for discussion. Barring exceptional cases, students rarely seek clarifications from the teachers in the classroom, mostly due to shyness and fear. Neither do the teachers encourage the students to participate, which alone can provide an opportunity for a healthy discussion on the topic. Thus it can be seen that the method provides a single viewpoint on the subject to the students. He takes this input, and tries to memorize and reproduce it in the examination. A few students attempt to provide a different viewpoint while answering any question of the teacher. The teachers usually, instead of trying to assess the answer in an unbiased manner, treat the answer as incorrect, since it is not in conformity with the standard solution. Some recent examples in this regard may be informative.

LORENTZ TRANSFORMATION

In an examination in Physics, the students were asked to state the Lorentz transformations. The actual Lorentz transformations are as given in any standard textbook of Physics such as University Physics by Sears, Zemansky, Young, Chapter 43, Page 830. Length Contraction and time are discussed. However the above mentioned consequences were taken as the Lorentz transformations and the actual ones marked wrong. When this error was pointed out, the examiner chose to ignore it on the plea that those standard books were not followed in their schools.

RELATIVE VELOCITY ADDITION

The relative speed of two photons, each moving with a velocity c in opposite directions, is given according to relativistic transformation of velocities by c (Reference Sears and Zemansky, Chapter 43, Page 831.) However, the classical theory predicts it to be $2c$, which follows from intuition. The same questions appeared in an examination and students who gave the correct answer (relativistic, i.e., c) were marked wrong. The logic was that students were not expected to know relativistic implication.

FREE EXPANSION

In many Indian textbooks on thermodynamics (e.g., Heat and Thermodynamics, Brij Lal and Subramaniam) and in the university examinations, one is asked to calculate the fall in temperature during a free expansion. Use is erroneously made of the equation of state which is valid only for quasi-static processes. In fact, it has been clearly stated in the textbook by Zemansky and Dittman (Heat and Thermodynamics, Page 113), that it is entirely fallacious to use such equations. A quasi-static process is, by definition, a process carried out slowly, while a free expansion is just the opposite. Students giving correct solutions are penalised, despite referring to authoritative texts.

VARIATIONAL PRINCIPLE

Recently, we came across a case in which, for a problem in calculus, one student was of the view that solution through variational calculus was a better and more comprehensive one. The teacher, who was more familiar with the conventional student, who in turn was familiar with the conventional calculus technique, did not agree with the student. The reason adduced by the student is that, almost all physical processes obey the Variational Principle. It is a more generalized concept than that of maxima or minima, which is limited to finding extremum of functions. In other words, it is merely restricted to finding the points on a given curve, in an interval during which it attains its maximum or minimum value. In general, one has only the initial and final conditions and has to find the curve for which a given mathematical quantity, called a

function, attains its maximum value. It is precisely such problems that the variational principle seeks to solve. An example of its power is the Fermat's principle. What it states is that, in going from one point to another, light takes that path for which the time taken is the least (or in some cases the largest). An elementary application of this law leads to the laws of reflection and refraction, which shows how these seemingly diverse optical phenomenon really the same. Several examples are available in *Relativity, Electromagnetism and Quantum Mechanics (QM)*. However, the teacher asserted that *Mechanics is Mechanics and General Relativity is General Relativity and the two can never meet. This incidentally, is very much against the philosophy of the Grand Unification Theory (GUT)*. This only shows resistance of most people to new ideas.

Ideas that may have been bold and innovative in the past are almost commonplace now. For example, Special Relativity was discovered in 1905 and is now understood even by school children. The same is the case with the Bohr's model of atom, put forward in the year 1913. Similarly, there is no reason why a subject like General Relativity should not be taught at the graduation level, as is, in fact offered to willing undergraduates abroad. Likewise, the Schrodinger formulation of Quantum Mechanics is really outdated now. There are excellent ways of introducing the central features of QM more directly, using the Dirac notation. A beautiful example of this approach is in Feynman's *Lectures on Physics, Vol III*. The mode of presentation, course topics and emphasis should necessarily change with time to reflect newer ideas.

EXAMINATION-ORIENTED EVALUATION

One of the greatest inhibitors of creativity is the evaluation system followed by our universities. Examination patterns designed by educators years ago are still blindly adhered to. The patterns of examination and the types of questions are all predictable and there is no scope for any variation. Further, it has been noticed that students who are normally good in memorizing the lessons have a definite edge over the thinkers who can provide innovative answers. This system is based on the theory of 'Law of Effect' which states that one tends to repeat behaviour which brings rewards, and not to repeat behaviour which is without reward or brings punishment. In an ideal situation, the evaluation process should be able to determine whether the training programme brings new forces

to amend the old field of forces and establish a new behaviour in the student or not.

AMBIENT CONDITIONS

Whatever we have said so far in the context of education applies equally to our work situation. The reasons we chose to look at the problem from an educational viewpoint is because all of us have undergone this phase and many of our children are facing these problems today. Now, coming back to our work situation, where teacher-student roles are very vague and dynamic in nature; where there is always an examination in progress; and where there is hardly a preparatory period or in between pause to evolve contingencies, what is the best way to prevent stifling of creativity in this scenario?

There are certain things which one learns after coming out of school. The conflicts posed by the education system take a different form, but remain to be resolved nevertheless. Competition in getting a good grade or a seat in a particular branch becomes competition for limited resources available in any work situation. Dependence on parents becomes interdependence in the working group. One has to play conflict-prone roles, sometimes by chance, sometimes by circumstances. Then, there are differences in personal characteristics—boss-subordinate chemistry problems; job discrimination, harassment on the basis of caste, religion, sex; and so on and so forth.

OUT OF SCHOOL

These conflicts are perhaps the strongest of all the emotional drives in a work situation. When appropriate, often a conflict, like stress, can benefit individuals and the organisation. Too much conflict, however, can be detrimental or even dysfunctional. Now, where do we draw the boundary line? Whether or not the conflict leads to positive outcomes for the individual or the organisation, depends, to a large extent, upon how well it is resolved or managed. For instance, properly managed conflict can become a creative force. How do we do that?

Look at the figure where we have tried to depict certain aspects of job-related conflicts. You will notice that if conflict

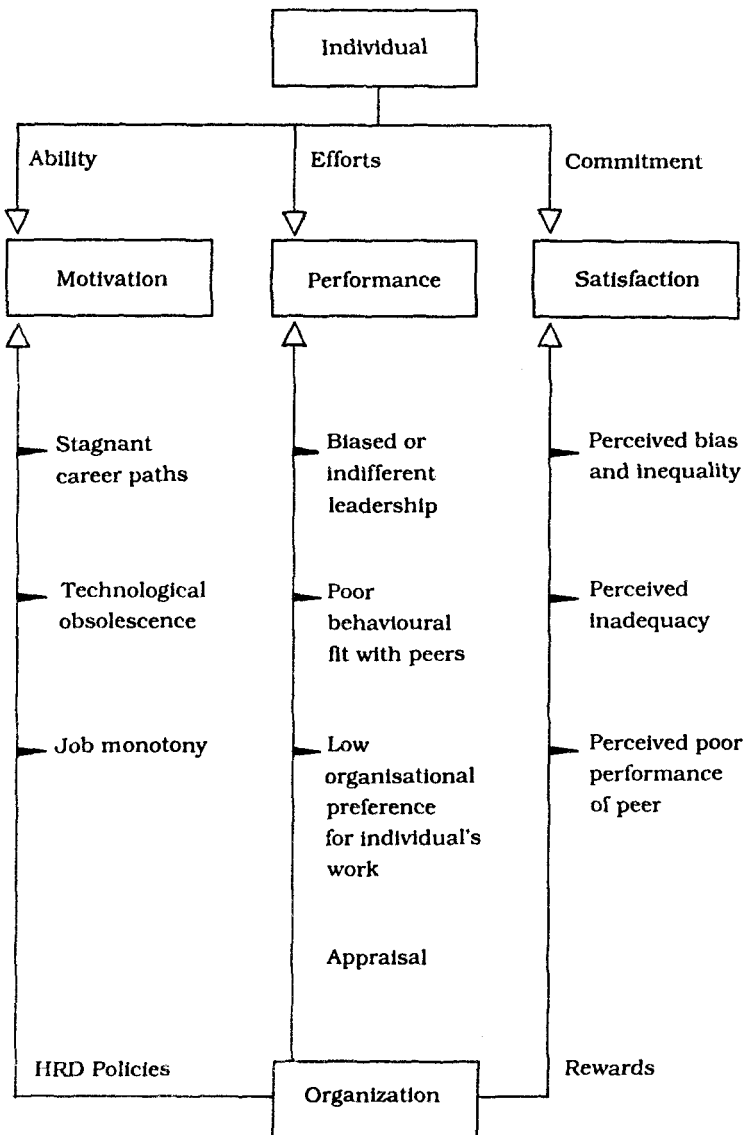


Figure: Job-oriented conflicts

is confronted and problem solving is attempted, it may generate more creativity and more organisational resources.

We have come across many situations where talent and abilities emerged in response to conflict. There have been cases when conflicts led to innovation and change. As an aftermath to conflict, several times, managers learned useful methods of resolving and preventing conflicts.

A creative supervisor derives diagnostic information about problem areas from the organisation. Once, we had a prolonged conflict between the quality assurance and engineering departments over leak prevention in a high pressure gas bottle. A creative study of the situation indicated that on the one hand, some of the fabrication processes were using inferior methods and on the other, some of the quality checks were unrealistic. Both were adjusted.

One of our supervisor friends has developed creative methods to channel the otherwise destructive impulses of his subordinates. He somehow makes his aggressive subordinates argue about work procedures and often succeeds in satisfying their impulse of entering into physical combat.

In fact, it is important to understand these powerful impulses which drive individuals one way or the other. What makes an individual act in a particular way? Can one check one's destructive impulses and divert this energy into create something constructive? The answer is yes, one can do it. And there are more ways than one to do it. In fact, we know three persons who have done it in three different ways. Now, how they have done it is the story we are talking about right from the beginning of this book. But before we settle down to the story, let us look more closely into this impulse phenomena.

FURTHER READING

Aspy, D.N. and Roebuck, F.N., Kids Don't Learn From People They Don't like. Amherst Mass. : Human Resource Development Press. 1977.

Gloss, David C., (ed), Environmental Influences. New York : Rockefeller Uni. Press and Russell Sage Foundation, 1968.

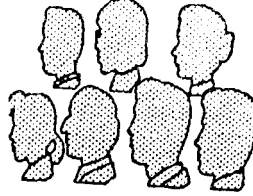
Hopson, B. and Aally, M., Lifeskills Teaching : Education for self-empowerment. London : Mc Graw-Hill, 1980.

Howe, L.W. and Howe, M.M., Personalizing Education : Values clarification and beyond. New York : Hart, 1975.

Simon, S. Howe, L.W. and Kirschenbaum, H., Value clarification. New York : Hart, 1972.

3

WHAT PEOPLE HAVE TO WORK WITH



THE ENERGY SYSTEM

What are we, after all? In the scientific sense, our body is an energy system. Our energy comes from the food we eat and the air we breathe through very complicated but well defined biochemical processes. Then, there are some glands inside us which play an important part in determining the vigour with which this energy is released and the direction which it takes. Thyroid and adrenal are two such noteworthy glands. The thyroid gland acts like an accelerator and keeps the individual running at high speed or low speed. If it spurs him on to run faster than the energy he is getting from his food, he draws the energy needed from other reserves, like fat and as a result, becomes weak and lean. On the other hand if it slows him down so much that he takes in more food than he can use he puts on weight and become sluggish.

If we compare the thyroid to an engine accelerator, we may say that the adrenal glands, which are found attached to the kidneys are like rocket fuses. When we need an extra push, the adrenal gland release a sudden huge supply of energy. This happens usually when we have to fight or run. They also steel us for action when we are angry or afraid.

Now, just recall those moments when you are angry but can't express your anger; when you are afraid without being able to do anything about it. So what are you going to do with this extra energy generated in your system? Something has to happen to this energy. Since you have blocked the normal path of its expression (by not shouting, crying or weeping), it is going to exert itself on the muscles of the heart or the inner organs, causing a set of disagreeable pains and sensations. In any case,

the extra energy does not simply vanish; if it is not used up at the time of its generation by fighting or running away, or by palpitation of the heart or contractions of the other internal organs, it is stored up until it finds a chance to express itself directly or indirectly.

TEN-RUPEE SLAP

Bimal Biswas is the executive engineer in a large irrigation project of the state government. He is working on a project in the constituency of the Chief Minister. The leader has promised the completion of this project before the elections, scheduled to take place in a couple of months. But the project schedules are slipping in a rather uncontrolled manner. Biswas is a plump, fidgety and somewhat irritable viscerotonic. Due to political pressure, everyone is working at top speed, the staff is continually changing, and mistakes, sometimes serious ones, are frequently made. The days have become a continual series of annoyance to Bimal Biswas, but he always tries to control himself at office. He has no choice either because of the political angle of the situation.

One evening, upon coming home from the site, Biswas seemed peaceful enough until his three-year old boy did something trivial to irritate him whereupon Biswas suddenly gave him a terrible slap on the face. Biswas felt that he was justified, but Mrs. Biswas felt that he had gone too far. She took the boy in her arms and soothed him. The cause of Biswas burst of anger was that the child had torn a rupee note into pieces. Biswas now feel sorry for what he had done.

Now, you see the situation. The boy had only torn a rupee note, but instead of slapping him for a rupee's worth, the intensity of Biswas' slap was worth ten rupees. The point to ponder is, 'Where did the other nine rupees' worth of annoyance come from?' Had not Biswas brought it home from the project site? His feelings had been charged at the site, and merely discharged at home.

This little example shows how the storage of energy and its manner of release are all-important in keeping the body running smoothly. Biswas' blood pressure doesn't come down after a restful evening or night or weekend any more. He becomes easily irritated and is only looking for excuses to release his pent-up frustration.

Now that we have seen how glands regulate energy generated by food it is the time to turn to the mind, which, in the ultimate analysis, determines the exact purpose for which the energy is used.

MIND ENERGY

It may sound absurd in the beginning, but a good deal of mind energy is used in doing nothing. A better way to put it would be to say that most of the mind energy is used in keeping one away from doing things. One of the main functions of the brain is to keep the individual's activities toned down, and prevent the rest of the nervous system from running wild. Look at the mad dog running aimlessly on a hot afternoon, or feel the force of a drunkard's push. Visit a mental hospital and see some lunatics. Keeping a firm grip on the lower nervous system requires energy, just as keeping in hand a team of restless horses does.

Similarly, mental energy is also required to sort certain ideas and feelings in order for the mind to remain tidy. If all kinds of ideas and impressions were allowed to run together without hindrance, the human mind would be as disorderly as a chaotic city crossing without traffic lights.

The presence of this parting energy can be felt when ordinarily separated ideas or feelings are allowed to come together, as in jokes. The energy formerly used to keep them apart is released in an explosion of laughter. Look at the following example:

A grocer, a banker and a politician got lost in woods on a rainy evening. Eventually they came to a farmer's house and asked if he could put them up overnight.

'Well you are welcome,' the farmer said. 'But there is a small problem: I have got room in the house for only two persons. One of you will have to sleep in the barn with the animals, and the smell is awful out there.'

They drew a lottery and the banker went to sleep in the barn.

Half an hour later a knock was heard on the farmhouse door, and there stood the banker gasping, 'I can't take the smell.'

'All right,' said the grocer. 'I shall sleep in the barn.' And off he went. The politician pretended to be fast asleep.

In a while there was another knock on the door. 'I have put up with some rank odours from spoiled food,' the grocer complained, 'but that barn tops them all.'

'You two are acting clever,' lamented the politician, 'I shall sleep in the barn.'

Thirty minutes later came another knock. When they opened the door, there stood all the animals from the barn.

The hatred towards corrupt but powerful politicians stored in the mind is spontaneously released in laughter. Isn't that so?

Where does all this energy system operate in our bodies? Of course, in the brain.

'BRAIN' STORMING?

We all know that the brain is something very important; that its development defines the superiority of a creature. We also know that it is a very complex bio- material which is enclosed in the top part of the skull. It is split way down the middle and is about the size of a large coconut. The spinal cord is shaped like a thin cane with a knob on top of it. The brain surrounds this knob and is connected with it by thousands and thousands of little nerve cords.

Functionally, the brain can be visualised in two ways. It can be compared to a telephone exchange (although not too accurately) and also regarded as a battery which stores energy. When we look at it with the perception of a telephone exchange, it makes connections between ideas, and between the things that happen and what we do about them (of course, there are more possible connections in one brain than there would be in a world switchboard if every living human being had a telephone. In addition, one part of the brain seems to be able to substitute for another in an emergency with more ease than would be possible with any man-made switchboard).

When regarded as a battery it stores mental energy. Generally, animals are unable to store the impulse to move their limbs when they are simulated. In the case of human

beings, the ability to store mental energy is highly developed. Normal adults can store their feelings until it is more convenient to express them at some later time, instead of flying into frequent rages without restraint. Human beings can store memories, and recall them later; they can store the desire to move their limbs in response to stimuli (remember when your doctor gave you an injection).

One of the most important things in family and social behaviour, and the relationships between human beings, is the ability to store energy without distress when the individual's judgement tells him that it is advisable to wait before acting. If this supposition is correct, it is the brain which stores the energy released by the glands and other sources until the proper moment arrives, and in this way the storage capacity of the brain would play a part in preventing people from doing foolish things just because their tensions encouraged them to do so. We may even imagine the brain in everyday life being charged and discharged like a living storage battery, as illustrated in the incident of the Ten Rupee Slap.

Here you may notice the difference between knowledge and feeling. Both are mental energies. Yet they are different. Both are stored but the two kinds of storage are different. A man's ability to store knowledge has nothing to do directly with his ability to store feelings. That is why so many 'intelligent' people make such fools of themselves in their relationships with others, and is also partly the reason why being slow in understanding does not prevent a person from getting along with others. As noted psychiatrist Eric Berne put it, 'We admire people for their intelligence, but we like them for the way they handle their feelings.'

So let us identify brain as the organ of learning and waiting. Let us suppose that it stores memory images and feelings; and deals with the connections between ideas, and what goes on outside ourselves and what we do about it. This will form the basis of our further discussions on creativity.

WHY PEOPLE ACT THE WAY THEY DO

A person acts and feels, not according to what things are really like, but according to his mental image of what they are like. Everyone has images of himself, the world, and those

around him, and behaves as though those images, rather than the objects they represent, were the 'truth', the 'reality'.

Some images have the same pattern in almost every normal individual. The mother is virtuous and kind, the father stern but just, the body strong and whole.

If there is a reason to think anything to the contrary, deep down in our minds we hate to believe it. All of us like to continue to hold on to these universal images, regardless of whether they correspond to what is really there. If we are forced to change them, we become sad and anxious and even physically ill.

Many such mental images guide our behaviour. They are charged with feelings. When we say we love someone, we mean that the image of the person in our mind is highly charged with constructive, affectionate, and generous feelings. When we say we hate some one, we mean that that person's image is charged with destructive and hostile feelings. What the person is actually like does not come into the picture, except indirectly.

Though we like to cling to our images and are loath to alter them, over a period of time we do have a tendency to make them more romantic than a vanished reality. Old people think of the dubious past as 'the good old days'. Some long for home when they are away from it and are often disappointed with it when they return. Most people are glad to see old friends and old enemies after an interval. Since, during the intervening period, they have softened the negative elements and emphasised the good in these people.

Though the individual himself may change his preconceived images gradually as time passes, he does not like to have others try to change them for him before he is ready. That is why people shout and become anxious during an argument. The better the logic of the opponents, the more anxious they make the individual to protect the safety of his cherished images, and the louder he shouts to defend them. The more anxious his opponents make him the more he dislikes them. We all have an 'understandable but unreasonable' tendency to dislike people who 'beat us' in an argument. We subconsciously behave like the kings of yore who executed the messenger bringing bad news. Successful employees are tactful in undertaking the pleasant or unpleasant task of bringing a superior, a friend, or an elder subordinate face to face with the fact that their images do not correspond to reality.

Our ability to change our images to correspond to a new reality is the crux of our creativity. Most people are capable of changing only some images. Take, for example, a religious person- he may be willing and able to adjust to any change but a change in his religious outlook. A good business executive may be able to change his image of a business situation in a few minutes on the basis of new information brought from the market but is unable to change his image of how his children should be raised on the basis of feedback received from the school where they are studying. A poor businessman may not be able to change his image of a business situation as rapidly as the market changes, but be able to change his image of his wife from time to time as she changes in reality, so that his marriage is a continued happy success. It may be judged from this that to be a creative individual (or, for that matter, to be successful in any field), flexibility is often a more important factor than intelligence.

Images are made of stuffs of different flexibility. Some people have brittle images, which stand up against the assaults of reality with no change up to a certain point, and then suddenly crack wide open, causing great anxiety to the individual. These are the rigid personalities. Others have wax-like images, which melt before the eloquent words of a salesman or critic. These are the easily impressionable people. A creative person is one whose images correspond most closely to reality, because then his actions will lead to the results which he imagines. Here we would like to differentiate between scientific creativity and artistic creativity.

ARTISTIC CREATIVITY

The artistic creativity lies in the sensitivity of the person to feel the mental images of other persons. Successful artists create their works by describing their mental images which often correspond to what a lot of people would like theirs to be. All poets, artists and writers do that. But things are different in the field of science. The whole training of scientists is a meticulous attempt to make their images correspond with reality. Their absolute accordance with reality is the *sine qua non* of their success. A surgeon whose mental image of the appendix is different from the reality in any respect would not be a good surgeon. Scientific creativity is an exercise in image-sharpening. A man who buys a lottery ticket in his anxiety to make the world match his images cannot be a creative

scientist. A creative person in the field of science is one who either helps to find out what the world is really like, or else tries to change the world to match his image. In both cases he tries to bring images and reality closer together by changing either the one or the other.

We have no intention of playing down the importance or minimising the greatness of artistic creativity. What we are doing is to bring out the difference of approach. In artistic creativity the emphasis in observation lies on emotion. Now, on the simplest and most general level, the emotive potentials of the sense - modalities - sight, sound, odour, touch - which differ widely with different people. So, art is widely subjective. In art 'light is heard as music, music seen as light'. The 'warmness' of colour, the 'sweetness' of a voice, the 'sharpness' of light, and the 'blindness' of hands mean different things to different persons.

If we arrange the creative activities in the field of art and science on the scales of their verifiability and their emotional diversity we still get an interesting spectrum. A painting can produce wide ranging emotional responses among its onlookers. It is highly subjective. Chemistry, on the other hand, can be verified to the last fact. It is highly objective. In between these two branches of creative activities we have biology, psychology, history, music and so forth.

There are some great minds who can observe verifiable facts even in the highly subjective realities. Look at the following observations of Leonardo da Vinci about proportions of the human figure:

'From the chin to nostrils is a third part of face'.

'And the same from nostrils to the eyebrows, and from the eyebrows to the starting of hair'.

'If you set your legs so far apart as to take a fourteenth part from your height, and you open and raise your arms until you touch the line of the crown of the head with your middle fingers, you must know that the centre of the circle formed by the extremes of the outstretched limbs will be the navel, and the space between the legs will form an equivalent triangle'.

'The span of man's outstretched arms is equal to his height'.

Why don't all people see such simple things?

Our life will be much more worth living if we just learn automatically from experience and form images to match what actually happens to us. But is it so easy to become like an adding machine, which forms absolutely correct and rigid conclusions from the keys which are punched by the outside world? No, it is almost impossible, and in fact not desirable either. All of us have a very strong inner-spirit which gives new and individual meaning to everything which happens to us, so that the same event is experienced differently by every person, and each one forms his view of what happened to suit his own emotional make-up. If an adding machine does not like the look of a 9 in a column of figures, it cannot change it to a 6 for the sake of beauty, but a human being can. Ordinary human beings are habituated to manipulating their experiences by rounding off inconvenient sharp corners.

To understand creativity it is necessary to know this phenomenon of experience - the manipulation of detail. In the next part we will be discussing the forces within the individual which change his way of experiencing reality and mould his images out of their true forms.

FURTHER READING

Blum, G.S., 'Psychoanalytic Theories of Personality'.
New York : Mc Graw Hill, 1953.

Combs A., and D.Snygg, 'Individual Behaviour'. New
York : Harper and Row, 1959.

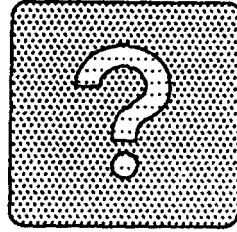
Hebb, D.O., 'A Textbook of Psychology'. London :
Methuen, 1958 (2nd ed.).

Wooldridge, Dean E., 'The Machinery of the Brain'.
New York : Mc Graw - Hill, 1963.

THE FORM

4

WHO CREATES AND WHY



IMAGES OF THE MIND

The mental images that we have been talking about in the earlier chapter cannot be thrown upon a screen, nor can they be clearly explained to ourselves, but this does not mean that we must doubt their existence. No one has ever seen an atom or electricity, but no one doubts their existence. We are not professional psychologists and it would be beyond our capabilities to argue about the existence of the mental images. However, this concept does explain many otherwise illogical concepts about human behaviour; and we shall speak now with the assumption that dynamic mental images are as real as electrons and gravity.

So, like any other real thing, a dynamic mental image has some shape and some energy. The shape is a representation; the energy is a charge of feeling. For example, take the mental image of an aeroplane. Its shape is the representation of an aeroplane in our mind in the form of memory. It means much more than the physical shape of the aeroplane. It, in fact, includes an idea of what it does and how it works besides its appearance. The energy of this mental image is a *feeling* - a positive or negative charge of love or hate; of like or dislike; of pleasure or fear.

So, the mental image of an aeroplane will be different for the persons who have never flown in one in all their lives, who had a nice trip once upon a time, who had to use it in a sad emergency borrowing money for their airfare, who use them as a necessity and finally, who fly them as machines or attend to them as crew.

MEMORY AND FEELING

The distinction between memory and feeling is frequently seen in social relationships. People can often remember exactly how they feel about an individual, without being able to remember his name, or they may remember a name without being able to recall what its bearer means to them.

Mr and Mrs Sharma were once planning a party. We happened to meet them a week before the party. Suddenly, midway through our small talk about the terrorist menace in Punjab, Mrs Sharma asked Mr Sharma, 'Shall we invite Mr Singh, that interesting Sardarjee from Patiala?'

'I remember the name well,' replied Mr Sharma. 'He is a tall fellow with a tattoo on his right arm; but I can't remember what happened during our last meeting. Well, I am not sure whether I like him or not'.

It was apparent that Mr Sharma had a good memory of Mr Singh, and remembered his shape well, including his tattooed arm but he could not bring up the attached emotional charge, so he did not remember just how he felt about him.

Mrs Sharma then suggested : 'Shall we invite what's - his - name, that person whom hateful Mrs Belle hates?'

It was plain that she didn't remember much about the shape of Mr What's - his - name, nor even his name, but she did remember the strong and pleasant charge of his image; she didn't recall who he was exactly, but did feel that she liked him, mainly because her enemy, Mrs Belle, hated him.

What this means is that a mental image can be broken up, and the memory and feelings separated from each other, so that the feeling remains conscious while the memory becomes unconscious, or vice versa. In such cases, the feeling separated from its memory 'floats' in consciousness, and may 'support itself' by becoming attached to another memory which has something in common with its own. This helps us account for slips of the tongue and other mistakes which are made in everyday life. If it is the memory which floats, it supports another image. Mrs Sharma caught the floating memory of Mr Singh by attaching it to the terrorist menace in Punjab. Her floating repulsion towards tattoos found support by becoming

attached to the memory of someone repulsive to her enemy, Mrs Belle.

Different people have different abilities to store memory and feelings. It is the floating memories and feelings which lead one to creativity. Before we attempt to develop this concept further let us come back to the forces which act on one's mental images and mould them out of their true forms (memory and feeling).

DISTORTED AWARENESS

Modern psychology identifies five forces which act on an individual's psyche and distort his/her experiences of reality. They are the two urges and three wishes which are rooted deep in the unconscious mind of every human being and which one can never be completely got rid of. The two urges are the urge to create and the urge to destroy. The three wishes are : the immortality of one's being, the irresistibility of one's charms, and the omnipotence of one's thoughts and feelings.

The urge to create gives rise to generous love and giving, ardent procreation, and joyful building up. The urge to destroy activates hostility and hate, blind anger, and the uncanny pleasures of cruelty and decay. Freud called the tensions which lend force to these two opposite urges as libido and mortido, respectively.

Now, since these two urges may drive the individual to opposite courses of conduct towards the people and things around them, they often come into conflict with one another. Such disagreeable conflicts can be handled in several ways which will be impossible to discuss here. Nevertheless, usually they are dealt with by pushing one of the wishes out of consciousness and pretending its non-existence. However, the wish we are trying to ignore always interferes with our conduct in spite of ourselves. So neither love nor hate is ever pure. Nobody is completely creative or totally destructive. As it is said colloquially, 'We bite the kind hand that feeds us and feed the hateful mouth that bites us'.

In most people's lives, libido and mortido are well controlled and hidden by each other. Many people go through life without realising how powerful these urges are and how much they influence motive and conduct. Going back to our analogy of the human mind as an energy system, it can now be said that

all human behaviour is an effort to restore the energy balance disturbed by the tensions of libido and mortido.

THE MOTIVE POWER

A human being is one who causes things to happen, and what he causes to happen, how, and when depends a great deal upon his two most powerful urges. In addition, it depends on the aggressiveness with which he expresses these urges and the way he solves the conflict between them.

There is a difference between wishing, and trying to gratify wishes; between feeling love and hate and expressing these feelings. The strength with which the individual expresses his love or hatred for others and for himself, and tries to gratify his libido and mortido, may be called aggressiveness. A man with strong feelings may fool himself and others by expressing them weakly, and a man with weak feelings may do likewise by expressing them forcefully.

Besides aggressiveness of expression, we should also consider the direction of love and hate. Some people direct their love mostly toward others, and others direct it mainly toward themselves. The direction of various quantities may change from time to time. Similarly, one can hate others with great intensity, the most aggressive expression of such hatred being murder; or one can hate oneself, the most aggressive act then being suicide. Thus, both murder and suicide are expressions of aggressiveness; the only difference as far as the mental energy is concerned being in its direction.

ESCAPE ROUTES

So, the problem then boils down to the one which is the same as the problem of any energy system: namely to find the path of least resistance for the discharge of tension. An electric battery, which is also an energy system, finds the path of least resistance in a circuit instantly, within a fraction of a second. A flooding river, which is another energy system, finds the path of least resistance in a matter of hours. The human energy system may take years to find such a path, and can delay such expression indefinitely because it is able to store energy.

A man's whole life is, therefore, a problem of control over this energy system. Then, there are some other energy systems which are required to be handled in a proper way. There are other people and nature. In philosophical terms, it is called the Reality Principle for, the more realistic a person is, the more accurate one is in one's observations of these three things, the more rapidly and completely will one be able to satisfy one's libido and mortido with the least danger. The Reality Principle requires a person to form clear-cut images.

Most people have fairly accurate images of some of their surroundings. A good farmer understands the working of nature. A successful businessman understands what people are apt to do under certain conditions. A policeman understands the *modus operandi* of criminals. But only the rare individual has an accurate idea of what his own libido and mortido can make him do without even being recognised. It is in this last respect that the greatest and most frequent errors are made.

THE WARDEN

Fortunately, we have within us a way of handling this three-fold reality that has to be kept in such a delicate balance. The system is called the Ego, and is supposed to work in accordance with the Reality Principle. It is supposed to make an accurate observation and judgement of the individual's inner tensions and of the tensions of the energy systems around him, and is then supposed to guide his behaviour accordingly to his best advantage. It has to help him postpone his satisfaction when advisable, and to try to arrange the world around him so that he can best adjust to it.

To do these things, it has to have some kind of a mastery over people and things. Thus, we may say that the Ego is the 'organ of mastery'. The energy for this function is obtained in part from the libido and mortido. The remaining large parts of libido and mortido are controlled by the small parts separated in infancy as the Ego. They desire immediate expression and satisfaction of all wants, but the Ego counsels them to wait. These left-out parts of the libido and mortido are called the Id or Id instincts. They always fight back the Ego which functions to master and control them.

The reason life is so difficult is that the Ego is in such a complicated situation. It has three forces to contend with, control, and finally find expression through, to the satisfaction and safety of the individual : the Id instincts, the forces of nature, and other people. All of us are aware of the reality of nature and other people, but not many of us realise Id as a reality. We all try to conceal and deny our Id instincts and find all sorts of ways of fooling our Ego.

No matter how clever a man is with other people and with the things around him, he will not be very happy unless he is clever with his own Id as well. In the end, it is not the ability to charm the opposite sex, to control people or to make money that leads to happiness, but the ability to make peace with one's own mind.

As long as the individual postpones relief of any Id tension (on orders from Ego), the energy which is tied up to keep the wish repressed is wasted. It is pretty hard work for the Ego to keep a lid on the Id instincts.

During sleep, the Ego is largely out of commission. In dreams, many unconscious influences find a freer expression. They are no more 'arranged' by the Ego's 'experiences' of reality. This is why our dreams may often seem absurd, unarranged or even disorderly. Dreams are not bound by any of the demands of reality : Time, Space, Gravity, Death and other basic relationships which the Ego has to take into account in waking life, may have no effect on the content and action of the dream. What happens in this state of additional free energy? Does it add to creativity? To answer this, look at this dream Professor Friedrich August Von Kekule of Germany saw one afternoon in 1865. This dream later became probably the most important dream in the history of science. Chemistry was never the same after this dream.

'I turned my chair to the fire and dozed', Professor Kekule relates. 'Again the atoms were gambolling before my eyes. This time, the smaller groups kept modestly in the background. My mental eye, rendered more acute by repeated visions of this kind, could now distinguish larger structures, of manifold conformations; long rows, sometimes more closely fitted together; all twining and twisting in snake-like motion. But look : What was that? One of the snakes had seized hold of its own tail, and the form whirled mockingly before my eyes. As if

by a flash of lightning, I awoke Let us learn to dream, gentlemen!

The serpent biting its own tail gave Professor Kekule the clue to a discovery which has been called 'the most brilliant piece of prediction to be found in the whole range of Organic Chemistry' and which, in fact, is one of the corner-stones of modern science. Put in a somewhat simplified manner, it consisted of the revolutionary proposal that the molecules of certain important organic compounds are not open structures but closed chains or rings - like the snake swallowing its own tail.

This creative interplay of the conscious and the subconscious has been observed by several great minds. Lenin said: 'If you think of Revolution, dream of Revolution, sleep with Revolution for thirty years, you are bound to achieve a Revolution one day'. Bernard Shaw called it 'Ninety percent perspiration, ten percent inspiration'. Picasso said: 'I do not seek—I find'.

WISH FULFILMENT

The great difference between the Id and the Ego is that while the Id can only wish, the Ego alone can learn and arrange. Your Id may say: 'I want to have a wife and some children!' Your Ego now has to arrange your life for the next few years so that the wish of your Id will be gratified. Your Id may wish for a promotion but your Ego has to set right your chemistry with the boss. The Ego handles the environment in two ways: by arranging and by learning. If the Ego doesn't have a watchful eye, the Id compels the individual to repeat the same simple, childish mistakes over and over again. As the individual grows, the Ego becomes more efficient in accomplishing its three tasks : relieving libido tensions, relieving mortido tensions, and reducing the threat of the outside world. Creativity lies in learning new methods of gratifying libido and mortido, issuing new mental faculties as control of them is learned, and abandoning previous infantile ways.

The most important thing for a creative person is to fight *the compulsion to repeat over and over again, the old and now less efficient and even dangerous methods of attempting to gain satisfaction.*

Creativity can be visualised as a process of adjustment to new material and circumstances. This adjustment always involves a phase of aggression and destruction. Until one approaches something, lays hold of it, and alters it, a new configuration cannot come into being. Both the old achieved habit of contacting other energy systems and the previous state of these systems must be destroyed in the interest of the new contact. Such destruction of the status quo often arouse fear, interruption, and anxiety, but the process is accompanied by the security of a new invention. The disturbing energy flows into the new figure. Without this energy, achieved satisfaction soon becomes a matter of the past and remains unfelt.

A TRILOGY

Now, we finally come to our story of three creative employees. These three persons are Birbal Bhatt, Manak Mitra and Bhawana Biswas. We shall try to show, through these three characters, that all patterns of creative activity are tri-valent. The information provided in the preceeding chapters may appear a basketful of wild generalizations, but it is meant to prepare a background for our enquiry into the patterns of creative processes. Depending on the way a human being manages himself and makes contact with his surroundings, at least three distinct patterns emerge out. We have shaped the three characters in such a way that each one represents a particular pattern. Each one responds to the external world in his/her own way. The internal dynamics of Ego and Id, libido and mortido and the intensity of the three persons form mental images in three different ways and store memories and feelings in three different propositions. The common denominator of all three is, however, their creativity. All three are capable of discovering hidden similarities. All three are adept at adjusting to novel realities.

Let us meet Birbal Bhatt first.

FURTHER READING

Carkhuff, R.R., 'The Art of Problem Solving'. Amherst, Mass : Human Resource Development Press, 1974

Koestler, A., 'The Act of Creation'. New York : Dell Publishing Co., Inc., 1967.

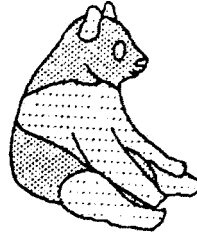
Menaker, Esther and William, 'Ego in Evolution'. New York : Grove Press, 1965.

Hilgard,E.R., 'Theories of Learning'. London : Methuen, 1958 (2nd ed.).

Skinner, B.F., 'Science and Human Behaviour'. New York : Macmillan, 1953.

5

THE CHEERFUL EMPLOYEE STORY



HUMOUR

We will start our inquiry into the patterns of creativity with the story of Birbal Bhatt who is, above everything else, a cheerful person. In this story, we will attempt an analysis of the humour, because it is the only domain of creativity where a complex pattern of intellectual stimulation elicits a sharply defined and clearly apparent response in the nature of a physiological reflex of laughter. All men, scientists or artists, may be wise in very different modes but they all laugh in the same way.

How do we start? The difficulty lies evidently in the enormous range of laughter-producing situations—from physical tickling to mental titillation of the most varied kinds. Through this story of Birbal Bhatt, we shall try to show that there is unity in variety, that the common denominator is of a specific and specifiable pattern, which is of central importance not only in humour but in all domains of creative activity. The bacillus of the laughter is a bit difficult to isolate, but once brought under the microscope, it will turn out to be a widespread, commonplace, yeast like universal ferment, equally useful in making wine, vinegar, an idli or a cake.

BIRBAL BHATT

Who is Birbal Bhatt? How old is he? Is he married or single? What is his status? How much does he earn? What degree has he obtained? What type of work does he do? Is it a white-collar occupation or a blue-collar one? Well, we can answer all these questions but will refrain from doing so. We do not want to

bring any sort of subjective bias into what we are going to discuss regarding Birbal Bhatt, or for that matter, regarding two other employees, Manak Mitra and Bhawana Biswas. Nevertheless, their respective personalities will progressively emerge in the course of the narration that will follow. Afterwards, you may find them so familiar to you that you won't like asking anything about any one of these employees. But that will be at a later stage right now it is Birbal Bhatt's world we are going to talk about.

The other day, a doctor friend of Bhatt's pulled him to his hospital on a weekend. This was perhaps the only way his friend could spend some time with Bhatt. Both friends talked their hearts out, sharing their experiences in their respective fields. By evening, Bhatt had enough exposure to medical science—something he always avoided out of some unconscious fear. After dinner, the doctor friend offered to drop Bhatt back.

Driving along, they heard a terrible rattle. The doctor applied the brakes. Bhatt got out and walked to the rear of the car. The muffler and tailpipe were dragging. 'What is it?' His friend hollered. Bhatt's face was grave, and he shook his head as he said, 'Its whole alimentary canal has fallen off.'

Another day, after seeing a commercial on television, about a rodent poison being safe for other pets but more effective than anything else at killing mice, Bhatt wrote to Doordarshan to ascertain from the sponsor of the commercial if cats had been included in the research.

Then, the other day in the departmental get-together, while talking to his hundred kg plus supervisor, Bhatt was consoling him for being unsuccessful in his dieting attempts, 'Why do you think of your extra weight as fat; think of it as insulation!'

And then, on yet another day, Bhatt brought a monkey to the mess and ordered a drink for himself and his pet. 'You can't bring a monkey into the mess!' screeched the outraged bartender.

'Just a minute', said Bhatt. 'This monkey is my friend. Besides, he can play any musical instrument in the house.'

The bartender got hooked and wagered two drinks that the monkey couldn't do it. Bhatt accepted, and a flute was placed in front of the eager animal. To the surprise of all, the monkey

picked it up and played it with fervour. 'That's two drinks you owe us,' Bhatt said.

Next, a mouth organ was brought in, and the monkey began playing '*Mere Sapno Ki Rani*'. 'That'll be two more drinks over here, please,' said Bhatt.

The bartender was getting tired of giving away free drinks. Then he remembered an old set of bagpipes stored in the backroom. He went to get them and tossed them on the counter. Quick as a flash, the monkey grabbed the bagpipes, and began hugging and kissing them. 'Look Mister!' said the bartender. 'I knew he couldn't play those'.

'Not so fast, *Bhaiya*', replied Bhatt. 'As soon as he finds out that he can't marry it, he'll play it!'

All of you, we are sure, laughed while reading these four anecdotes concerning Bhatt. What made you laugh? You don't know Bhatt. He is only a name to you. You don't know his doctor friend or his boss with a pot belly either. You regularly watch Mahabharat but never came across the Rodent Ad. And the monkey episode is absolutely unbelievable. And still you laughed. At least fifteen of your facial muscles contracted in a coordinated fashion four times. Where from did this gust of energy come? In fact, the narrative acted as a channel directing the flow of some of your emotions. Then, all four times, the channel is punctured and the emotion gushes out like a liquid through a burst pipe. The tension is suddenly relieved and finds a creative expression in laughter. Now, how is this channel punctured? What causes the pipe to burst? The answer will lead us to a very important phenomenon of creative thinking.

MULTI-DIMENSIONAL PERSPECTIVE

Every situation, every incident, every event in the world is observed from a certain frame of reference. These reference frames are formed by habit. And who forms habits? The environment we live in, and our ego. Now, there can be many other frames of reference to observe the same situation, incident, or events. Some of these frames may be incompatible with each other, but may also be self-consistent in themselves. Now, when any two self-consistent but mutually incompatible

logic or codes of behaviour clash in an associative context, the tension is exploded in laughter.

The pattern underlying all the four stories above is the perceiving of a situation or idea in two self-consistent but habitually incompatible frames of reference. The alimentary canal of a car, a cat as a rodent controller, fat as insulation, music and marriage; all these ideas are perfectly logical and consistent in their own way. Yet they produce a comic effect when brought together.

LAUGHTER, THE BEST MEDICINE

Laughter, as the cliché has it, is liberating. It results in a sort of relief from tension. Relief from stress is always pleasurable, regardless of whether the source of the stress was hunger, sex, anger or anxiety. Under ordinary circumstances, such relief is obtained by some purposeful activity which is appropriate to the nature of the tension. But what purpose could we attribute to laughter? In fact, laughter is not the purpose in itself. Laughter is a phenomenon of the trigger-release type, where a minute cause can open the tap of surprisingly large stores of energy from various sources. And what are these sources? Well, it could be the energy of repressed sadism, repressed sex, repressed fear, even repressed boredom. Some of the typical occasions for laughter include:

A pillow fight in the dormitory.

A lady dropped her saree.

I fell on a banana peel.

A dog walked in during a lecture.

Someone passed gas.

My opponent in a bridge game bid four spades when I held two aces and the king jack and five of spades.

The cap of the politician flew off.

The zipper of the trousers gave way.

An eighty year old man got married to a seventy year old lady.

A lady in Latin America gave birth to seven children, all females.

This ought to be enough to make one realise that laughter may be entirely mirthless and humourless. You realise, on a critical examination of the occasions when you laughed, that laughter serves as a means of the disposal of aggressive emotions which are cast off by your intellect. Laughter rings the bell of man's departure from the rails of instinct, it signals his rebellion against the single mindedness of his libido and mortido. You laugh when you refuse to remain a creature of habit. You laugh when you break off from single minded observation and attain a multi- dimensional perspective.

THE VARIETY

Besides the explosion of repressed emotions, almost all types of laughter contain an additional element of admiration for the cleverness of the joke. Also, there is always a sense of satisfaction with one's own cleverness in understanding the joke. It is this additional element of admiration plus self-congratulation which is the intellectual gratification offered by the joke. This intellectual curiosity and the desire to understand create some sort of an exploratory drive in individuals.

All jokes could be said to carry an A/I ratio where A stands for the crude emotion and I for intellectual stimulation. There are some jokes like practical jokes, the smutty story, the lavatory humour of the farmer which may be said to contain a large A/I ratio - or crude emotion alone, with little intellectual content. In the higher forms of comedy, satire, and irony, the message is couched in implicit and oblique terms, the joke gradually assumes the character of an epigram or a riddle.

As we move from coarse humour towards the finer variety, the A/I ratio gradually reverses. The intellectual challenge now dominates the picture. The task of hearing the joke changes to 'seeing the joke' and then becomes the task of 'solving the problem'. And when we succeed, we no longer roar with laughter as at the clown's antics: laughter gradually shades into an

amused, then an admiring smile reflecting the harmonic balance of opposites, the quiet glow of intellectual stimulation.

THE HUMOURIST

Up to now we have been discussing the effects of humour on the audience : the reader, listener, or spectator. Let us now turn from the reactions to humour to the creation of humour. What are the processes which go on in the mind of the humorist - the creator of humour, the inventor of the joke?

Humour depends primarily on its 'surprise' effect. To bring about surprise, the humourist must have a modicum of originality - the ability to break away from stereotyped patterns of thought. All humourists, whether caricaturists, satirists, writers of nonsense humour or even the ticklers, operate on more than one plane. Whether his/her purpose is to convey a social message, or merely to entertain, he/she must provide a mental job, caused by the collision of incompatible thought-matrices. Look at the following anecdote in the form of an imaginary dialogue circulated during the solidarity movement in Poland:

'Tell me, Comrade, what is capitalism?' a Russian soldier with a gun asked a school boy.

'The exploitation of man by man,' answered the boy.

'And what is communism?' asked the beaming soldier.

'The reverse.'

You may notice the inherent cleverness of the second answer. It pretends to be the opposite, but it comes down to the same, only the exploiting is done by a different gang. An innocent statement casts a new, sharp light on an old and hoary problem. Then, take this venerable example, quoted by Freud:

The Prince, travelling through his domains, noticed a man in the cheering crowd, who bore a striking resemblance to himself. He beckoned him over and asked:

'Was your mother ever employed in my palace?'

'No, Sir,' the man replied. But my father was.'

Here, two implied codes of behaviours are brought into collision by the simple answer of the village man - Feudal lords were supposed to use their servant ladies sexually and it was natural for them to have bastards, but the feudal ladies were not supposed to sleep with their male servants and bear bastards. The answer of the village man provided a neat link by reversing the symmetry of the situation. The mild amusement which the story offers is partly derived from the malicious pleasure we take in the Prince's discomfiture, but the real pleasure is coming from the fact that it is put in the form of a riddle of two oblique hints which the listener must complete under his/her own steam.

A car dealer in Bangalore is showing off a new model to a prospective buyer:

'You get into the car after dinner and before 4 a.m. you are in Madras!'

The customer is indignant : 'And what am I to do in the middle of the night in Madras?'

The question is perfectly logical, but irrelevant to the subject under discussion, which is the speed of the car. The source of the humour here is the sudden shift of emphasis-or displacement of attention.

'How else but through a broken heart My Lord Christ enter in?'

Here, the well-known cliché of the broken heart is effortlessly shattered by drawing attention to physical implications - splitting apart and creating a gap - which are never normally thought of. Shifting the attention to a physical image, that the Lord lets salvation enter through the aching gap, like a thief in the night, immediately appeals to our stubborn common sense.

'THINKING ASIDE'

Coming back to our discussion on creativity and humour, the resulting effect is achieved by a kind of 'thinking aside'. A shift of attention to some feature of the situation or an aspect of the problem which was previously ignored, or which is only present on the fringe of awareness, is what is therefore required for a creative activity. The humourist may stumble on it by

chance. Birbal Bhatt says he is often guided by some intuition while joking, but he is unable to define it precisely. This, however, gives us a first intimation of the unconscious processes intervening with the creative act. Birbal Bhatt's achievement in releasing our repressed emotions appears as an exercise in pure intellectual geometry—identify two thought planes inclined at a given angle and generate an idea curve which intersects the two. In actual fact, however, this act in humour, as in the other branches of creativity, depends in varying degrees, on assistance from the fringe-conscious or unconscious processes.

THE CREATIVE ACT

The creative act of the humourist consisted in bringing about a momentary fusion between two habitually incompatible thought-matrices. Scientific discovery, as we shall presently see, can be described in very similar terms— as the permanent fusion of matrices of thought previously believed to be incompatible. Until the seventeenth century, the Copernican hypothesis of the earth's motion was considered as obviously incompatible with common sense experience. It was accordingly treated as a huge joke by the majority of Galileo's contemporaries. The idea of 'flying with the earth like so many ants crawling around a balloon' was seen as witty at the best. In fact, the history of science abounds with examples of discoveries greeted with howls of laughter because they seemed to be a marriage of incompatibles— until the marriages bore fruit and the laughter turned out to derive from prejudice.

The humourist, on the other hand, deliberately chooses discordant codes of behaviour or universes of discourse to expose his hidden incongruities in the resulting clash. In the words of writer Arthur Koestler, who was condemned to death during the Spanish Civil War but rescued by the Britishers, 'Comic discovery is paradox stated— scientific discovery is paradox resolved'. He adds, 'The creative act, by connecting previously unrelated dimensions of experience, enables one to attain a higher level of mental evolution.' Psychologist Cyril Burt sees creativity as 'an act of liberation—the defeat of habit by originality.'

Our readers may find it interesting to know that many world languages reflect a close relationship between discovery and comic invention. The world 'Wit' stems from 'Witan'—

understanding. The roots of this word go back to Sanskrit 'Veda' via French 'Videre'. The German 'Witz' means both joke and acumen, it comes from 'Wissen'- to know. 'Vidooshak' and 'Vidutana' are not distant in most of the Indian languages. The transformation of an illiterate dolt into scholar Kalidas carries a deep symbolic message. In our next chapter, we will elaborate further on this aspect through the story of our second employee—friend Manak Mitra.

FURTHER READING

Burt, Sir Cyril, 'Psychology of Laughter' : The act of Creation, Koestler, A., New York : Dell Publishing Co., Inc., 1967.

Ghiselin, B., ed., The Creative Process. Univ. Of Calif. Press, 1952.

Humphrey, G., 'Thinking'. London : Methuen, 1951.

Jerre Levy, 'Right Brain, Left Brain : Fact and Fiction', *Psychology Today*, May 1985, p.44.

Koestler, A., The Lotus and the Robot. London : Hutchinson, 1960.

Mc Call and Kaplan, Neil Mck. Agnew and John L. Brown, 'Executive Judgement : The Intuitive/Rational Ratio', *Personnel*, December 1985, p.48.

William, Tenn, 'The Human Angle'. New York " Ballantine, 1968.

6

THE WISE EMPLOYEE STORY



MONKEY BUSINESS

The story of our second creative employee, Manak Mitra, starts in fact, with Birbal Bhatt. It sounds funny, but if Birbal Bhatt had not taken us to the zoo, we would have missed this story. That was a typical Sunday - waking up late, no time to brush, a tumbler full of steaming tea and Mahabharat on television. We went to the zoo as a departmental picnic, with almost all our colleagues including Bhatt. The idea was to have a pooled lunch and a family get-together rather than any real interest in the animals. After finishing lunch, the children started playing in small groups and the ladies settled down for a gossip session. Many gentlemen started playing cards and a few sat down with their Sunday crosswords. Having little interest in all the above activities, we decided to be true to the situation and walked towards the animals with Bhatt.

According to Birbal Bhatt, Darwin was a pseudo-intellectual who unnecessarily complicated the simple and logical history of mankind. Bhatt says that 'Darwin type' of talk is the creation of 'half minds'. According to Bhatt, our 'Rishis' have written 'fifty thousand' years ago that the monkey was the father of men and the cow was their mother. Since cows are not generally kept in zoos, he took us towards monkeys with an earnest feeling of gratitude towards the revered animals.

If the concurrence of the listener is not explicit, Bhatt becomes restless. Not getting affirmative reinforcement to his 'theory' of human origin, he decided to conduct a small experiment, to prove that 'what a hundred opinions can't do in years, one experiment achieves in a minute'.

He picked up a little stick (about a foot or so) from the ground and threw it into the cage of a little monkey. The monkey jumped at the stick, picked it up, scraped the ground with it, pushed the scattered banana skins into a heap, and then carelessly dropped the stick.

A few minutes later, Bhatt placed a banana outside the cage beyond the monkey's reach. The monkey grasped at it, vainly of course, and then began the characteristic complaint of the monkey; he thrust his lower lip forward a couple of inches, gazed imporingly at us, uttered whimpering sounds, and finally flung himself on to the ground on his back. This is a gesture most eloquent of despair, which you may observe on other occasions as well on, if you indulge in monkey - watching. We were about to move on unimpressed, when suddenly the monkey cast at the stick, ceased his moaning, seized the stick, stretched it out of the cage, and succeeded, though somewhat clumsily, in drawing the banana within his arm's reach. No time lost any more the banana was peeled almost instantly and the monkey grinned happily at Bhatt after gulping the fruit. Bhatt was about to postulate his 'monkey father and cow mother' theory when someone in the crowd exclaimed, 'What a discovery of purposeful behaviour!' We turned around towards the person, a little out of curiosity but more appreciation of his accurate observation. He was a man in his forties - well built, slightly bald, standing in a comfortable but erect posture. He was Manak Mitra - the subject of our second creative employee story.

We introduced ourselves to Mitra that afternoon and later maintained a fine urban acquaintance with him. We regularly meet on Second Saturdays and exchange our views on a variety of topics of mutual interest. One such interest is the study of creative instincts among human beings.

SUPERIOR ANIMALS

'Human beings are basically animals of a superior kind. They behave no differently than most of the other animals,' Mitra maintains. He proved his point with a logical analysis of the monkey's behaviour that afternoon.

It is obvious that the monkey was not led to his discovery by any process of conditioning, or trial and error. His behaviour from the moment his eyes fell on the stick was 'unwaveringly'

purposeful. He seized the stick, carried it without hesitation to the bars, stretched it out of the cage, and placed it behind the banana. This was a smooth, integrated sequence of actions, quite different from the erratic hit-and-miss behaviour animals are 'supposed' to exhibit. It was an original self-taught accomplishment.

Manak Mitra describes the process which led to this discovery of the monkey's actions as a synthesis of two previously unconnected skills, acquired in earlier stages of life. In the first place, the monkey had learned to get at bananas outside his cage by squeezing an arm or foot through the bars; the ensemble of variations of this simple skill constitutes what we will call as matrix number one. The monkey had also acquired the habit—let us say matrix number two—of scraping the earth with a stick and of pushing objects with it. But in this playful activity, the stick was never used for any utilitarian purpose. To throw, push, or roll things about is a habit common to a variety of young animals. The monkey's discovery consisted in applying this playful activity as an 'auxiliary matrix' to get at the banana. The moment of truth occurred when the monkey's glance fell on the stick while his attention was set on the banana. At that moment, the two previously separate matrices fused into one, and the 'stick to play with' became a 'rake to reach with'—an implement for obtaining otherwise unobtainable objects.

Manak Mitra then illustrated this point with the famous story of Archimedes. Although we know that you know this story, we feel that we must now narrate it to you in a somewhat simplified form.

A GOLD CROWN

King Hero of Syracuse was a tyrant. Archimedes was his subordinate counsellor. Once, the king had been given a beautiful crown made of pure gold. The king suspected that it was adulterated with silver. Unable to either believe or disprove the purity of the crown, Hiero asked for Archimedes' opinion. Archimedes knew, of course, the specific weight of gold - that is to say, its weight per volume unit (19.6 gm per cubic cm in the modern units of weight and volume). If he could measure the volume of the crown he would know immediately whether it was pure gold or not; but how on earth is one to determine the volume of a complicated ornament with all its filigree work?

Ah! If only he could melt it down and measure the liquid gold by the pint, or hammer it into a brick of honest rectangular shape. At this stage, he must have felt like our friend monkey, flinging himself on his back and uttering whimpering sounds because the banana was out of his grasp and the road to it blocked. Blocked situations increase stress. In a stressed state, one day, while getting into his bath tub, Archimedes watched absentmindedly the familiar sight of the water level rising from one smudge on the tub to the next as a result of the immersion of his body, and it occurred to him in a flash that the volume of water displaced was equal to the volume of the immersed parts of his body, which therefore could simply be measured by the pint. He had 'melted' his body down, as it were, without harming it, and he could do the same with the crown.

BEATEN TRACKS

Once more, as in the case of the monkey, the matter is childishly simple after the fact; but let us try to put ourselves in Archimedes' place. He was in the habit of taking a daily bath, but the experiences and ideas associated with it moved along beaten tracks: the sensations of hot and cold, of fatigue and relaxation (and perhaps a pretty slave girl to massage his limbs). Neither to Archimedes, nor to anybody else before him, had it occurred to connect the sensuous and trivial occupation of taking a hot bath with the scholarly pursuit of the measurement of volume of solids. No doubt, he had observed many times that the level of water rose whenever he got into his tub; but this fact, and the distance between the two levels, was totally irrelevant to him until it fused, as it were, with his problem. At that instant, Archimedes realised that the amount of rise of water-level was a simple measure of the volume of his own complicated-shaped body.

Manak Mitra now draws our attention to a different perspective of the Archimedes' story. When one climbs into a bath, one knows that the water-level will rise owing to its displacement by the body, and that there must be as much water displaced as there is body immersed. Moreover, one mechanically estimates the amount of water to be let into the bath because of this expectation. Archimedes, too, must have known all this - but he had probably never before verbalised this knowledge. 'Discovery often means simply the uncovering of something which has always been there, but was hidden

from the eye by the blinkers of habit'. Birbal Bhatt says that some Indian 'Rishi' could have saved Archimedes all this trouble had bath-tubs been popular in our country. 'How could one observe water displacement while taking a holy dip in Ganga?' he wonders. Manak Mitra calls this rationalisation, a state which numbs one's mental power.

A NEW SYNTHESIS

Manak Mitra puts the creativity phenomenon this way, 'One has to be ready in order to create'. Mitra argues, 'Nearly all monkeys, sooner or later, learn the use of implements, and also certain methods of making implements. But a dog, however skilful in carrying a stick or a basket around, will never learn to use the stick to get a piece of meat placed outside its reach. We might say that monkeys are ripe to discover the use of tools when a favourable opportunity presents itself - such as a stick lying around just when needed,' Mitra emphasises. He concludes, 'Each of the separate skills whose synthesis constitutes the new discovery, was well established previously and frequently exercised. In fact, what made Archimedes ready for his discovery, was his mental skill in manipulating abstract concepts like volume and density, plus his acute powers of observation of even the most trivial of facts. The more firmly established and well exercised separate skills an individual possesses, the higher a statistical probability exists for a relevant discovery by him. Does it mean that there is nothing like chance? Yes, chance does play an important role in all acts of creation; but as psychologist Koestler says, 'The more ripe a situation is for the discovery of a new synthesis, the less need there is for the helping hand of chance.' Most often, a creative person achieves a synthesis for which the time is more or less ripe. Hero's steam engine could obviously be exploited for industrial purposes only at a stage when the technological and social conditions made it possible and desirable. And if it was the steam engine in the last century, it is superconductivity in the present times; the underlying phenomenon remains the same. Does it mean that creative persons are 'midwives' who assist the inevitable birth? Are the various bits and pieces of thoughts which will go into the new synthesis, all lying around and only waiting for the catalyzing action of an exceptional brain to be assembled and welded? The answers to these questions are not straightforward and need further discussion.

MATHEMATICAL EARS

The great mathematician, Pythagoras, is supposed to have discovered that musical pitch depends on the ratio between the length of vibrating chords, while passing in front of the local blacksmith on his native island of Samos in Greece. He noticed rods of iron creating different sounds under the blacksmith's hammer; and the starting point of mathematical physics was created.

Let us not ascribe this discovery to chance and presume that it was some obscure intuition which made Pythagoras stop at the blacksmith's shop. Exactly how does this kind of intuition work? This is the core problem of creativity.

Numerous scientists and artists have identified the creative act as the unearthing of hidden analogies. Kelvin hit on the idea of the mirror galvanometer after noticing a reflection of light on his monocle. Newton saw the moon behaving like an apple. Edison invented the gramophone listening to accidental sounds of the lever of a telegraphic machine. He turned the background 'noise' of the vibrating lever into stored 'information'. Great discoveries of science and exquisite works of art are alike explosions of hidden likeness. But where does the hidden likeness hide, and how is it found?

HIDDEN ANALOGIES

Analogy, in logic, means a process of 'reasoning from parallel causes'. In common parlance, it means that two situations or events are similar in some respects, but not in all respects. Amitabh Bachchan is 'similar' to Sunil Gavaskar in that both are males; he is similar to Sridevi in that both are cine artists; and he is similar to other sons of any poet father. Mathematics began, wrote philosopher Bertrand Russell, 'when it was discovered that a brace of pheasants and a couple of days have something in common - the number 2.' Now, this 'similarity' is very simple for anybody to see, once it is noticed. But it is never something offered on a plate. It is not hidden in a cupboard either. It is, in fact, a relation established in the mind by a process of selective emphasis on those features which overlap on a certain respect - along one dimensional gradient - while ignoring other features. Just try to compare your name written in two handwritings other than yours. While recognising the similarity between the two, try to notice the

process of abstraction you have got involved in. You will find it difficult to explain generalisation and induced charge in your nervous system.

Thus, creativity is 'seeing an analogy where no one saw one before'. The scientist who sets out to solve a problem, looks at it from various angles. The artist sees the world through the glasses of different emotions. In the jargon of psychology, both experiment with various thought- matrices, hoping that one will fit. If it is a routine problem of a familiar type, he will soon discover some aspect of it which is similar in some respect to the other problems encountered in the past, and this allows him to come to grips with it. If we see the problem-solving phenomenon as akin to bridging a gap, many times, prefabricated bridges of already existing thought- matrices will do the job, though it may require a certain amount of sweat and toil to adjust them to the new terrain.

But, in original discoveries, no single pre-fabricated matrix is adequate to bridge the gap. There may be some similarities with past situations, but they must be more misleading than helpful, and lead the victim into fruitless experimentation based on the traditional 'rules of the game'. Here, the only salvation lies in hitting on an auxiliary matrix in a previously unrelated field. The essence of such discoveries is the marriage of previously unrelated frames of reference, whose union will solve the previously insoluble problem. How does this happen?

TO SLEEP, PERCHANCE TO DREAM

Let us look at the dream's tendency towards creating unusual analogies. There is a strange type of vague and cloudy analogy generated in the dream, which disintegrates on awakening and cannot be put into words. How many times you mutter or hear someone uttering, 'Something reminded me of something, but I don't know what reminded me of what, and why?' This is a very common but very tentative and hasty affair. While it is true that the subconscious regions of our minds are always pulsating with nascent analogies and hidden likenesses in the cloudy forms of things unknown, it is equally true that most of these clouds never rain. They form and dissolve again. Only a few intuitions reach the stage of creation.

An idea may sleep for decades in the unconscious mind then suddenly return. Once it is returned in the form of an intuition

It is worth while to trust it without much scepticism and act accordingly without further rationalisation. Intuitions, it sometimes seems can work only when the normal rules of the game are suspended and the unconscious 'match-maker' enters into action. There is a very strong and stubborn resistance of habit in all of us against such 'breaches' of the rules and 'illicit liaisons'.

'We are somewhat more than ourselves in sleep' says one psychologist. It is difficult to expound the grammar of the Sanskrit language in a normal waking state. You can speak the metaphors of Kalidas to your beloved only in your sleep. You lose the command over the verse as soon as you awake and encounter the person. Only fragments of the subconscious emerge to the surface in the form of disjointed memories and the testimonies of creative minds.

UNDERGROUND GAMES

In other words, the activities of the subconscious are like underground games of the mind which were seen to be of a highly sophisticated, visionary and witty nature by a small army of psychoanalysts, Freud onwards. However, its rules could not be explained under formal logic. The dreamer constantly creates frames of reference which are regarded as incompatible in the working state. He drifts effortlessly from one thought-matrix to another, without being aware of it, of course. He sees a range of images reflected at a variety of angles. He sees a wide landscape as its images in a pond—upside-down, intermingled.

Taking this as the clue, the general belief that early morning dreams are very close to reality appears to be true. During early morning sleep, a person wanders in the borderland between sleep and full awakening. In this state, one's matrices of disciplined thought are already operating but have not yet sufficiently hardened to obstruct the dreamlike fluidity of imagination. In the words of Walter Scott, 'The half-hour between waking and rising has, all my life, proved propitious to any task which was exercising my inventions... It was always when I first opened my eyes that the desired ideas thronged upon me'.

CREATIVE ANARCHY

Is a creative person an inspired dreamer? The picture which emerges from such a personality type is a dry, dull, diligent bookworm or laboratory worker. Someone who lives amid definitions, conclusions, corollaries and propositions. Someone whose awareness swings between the explicit and the implicit. Someone whose quest swings between the unconscious and the conscious. Someone whose wisdom grows through his diligence. He observes, perseveres and becomes a kind of know-all in his area of interest.

But this image is contrary to the popular 'Benevolent Magician' personality cast of a creative person - Pythagoras with his mathematical ears, Galileo with his telescope, Newton lying under the apple tree, Franklin flying a kite on a rainy day; Edison, Pasteur, Einstein, Freud. All of them were great scientists, but all of them maintained the temperament of a conquistador—their curiosity, boldness, and tenacity were their greatest virtue. They were not great scholars, but intensive creative people. All of them produced a sort of creative anarchy from which emerged the new synthesis.

A MYSTIC IMMERSION

When Birbal Bhatt's monkey discovered after many unsuccessful efforts that he could drag the banana into the cage, his motivation was obviously to get at the banana. But this new discovery pleased him so immensely that he kept repeating the trick and forgot to eat the banana. If Archimedes was originally motivated by the desire to please the king, his Eureka cry was certainly not due to anticipation of the reward.

We shall be probing into this mystic immersion in our next chapter where we are going to tell the story of Bhawna Biswas. She is a solitary person—impractical, unselfish, and quixotic. She will tell us how the sublimation of the self-transcending emotions transforms 'magic' into 'science'; the 'abstract' into 'art'.

FURTHER READING

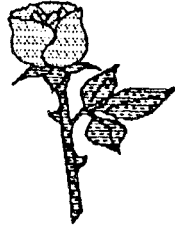
Barry, Brian and Hardin, R., 'Rational Man and Irrational Society?', New Delhi : Sage Publications, 1982.

Koester , Arthur, 'The Act Of Creation', New York : Dull Publishing Co., Inc., 1967.

Thomson, Robert, 'The Psychology of Thinking', English Language Book Society : 140711147, 1971.

7

THE EMOTIONAL EMPLOYEE STORY



ADDICTIONS

The earlier story of the wise employee starts with a visit to the zoo with Birbal Bhatt. This story too begins with a visit-but not to the zoo and not on a Sunday. It was a Tuesday, when we had a get-together in Manak Mitra's house. The occasion was the birthday of Mitra's daughter and it was a good gathering of about fifty persons. The guests included Mitra's colleagues, his wife's friends, who is a lecturer in the Women's College of Basic Sciences and Humanities, and some 'outside friends' like us. The cake was cut at about 8 p.m. By 8.30 p.m., the food was served. The party went with a swing until about 9 o' clock when the television serial *Hum Log* came on the air with a haunting, trumpeted signature tune. Almost everybody's attention immediately shifted to the television. We are no great TV watchers, and watching this serial was not an addiction with us. We 'cornered' ourselves and watched people watching *Hum Log*. And then we observed that some-one on the other corner was watching us watching people watching *Hum Log*. She was a quiet but attractive lady in her early thirties. Mrs Mitra had introduced her to us when the party began. She was Bhawana Biswas, the central character of this story.

Why are people so crazy about this serial, we wondered. In fact some of our friends call it a major sociological phenomenon that transformed the face of Doordarshan. Perhaps they are the enthusiasts. But this twice-a-week TV serial was nevertheless one of India's most popular television programmes. After the serial, when we posed this problem for a discussion over post-dinner coffee, Bhawana offered an interesting answer. We shall start the story with that answer.

'Popular programmes like the marathon Star Trek, Santa Barbara, Bold and Beautiful and many others like them—with fixed settings and regular characters—are cunningly designed to turn the viewer into an addict'. *Hum Log*, curtained and concentrated on the rugged smug ambience of North Western India and its lower-middle class life. It followed typical social conflicts, problems and events through episode after episode with the tenacity of a parish magazine. Its characters provided parts that actors could sink their teeth into and digest and assimilate. They had deeply planted the straightforwardness of Haveli Ram, the crookedness of Shyam Lal, the emotional vulnerability of Lala Vrishbhan into the psyche of the viewers.'

These characters had devotees who insist on believing in their reality. When Kamyra got involved with an already married Jay, she got scores of letters warning her of the danger. Vinod Nagpal, the actor who played Shyam Lal was stopped by housewives in the market who threatened to 'gherao' his house if he didn't leave Lalli (Mrs Vrishbhan) alone.

ILLUSIONS

Now, all these viewers knew very well that *Buniyad* and *Humlog* were just works of fiction and they were watching actors. Did they nevertheless believe that the characters were real? The answer is yes or no. The so-called law of contradiction in logic—that a thing is either A or not A but cannot be both—is a late acquisition in the growth of contemporary urban cultures. An average Indian is still indifferent to it. The addicts of *Buniyad*, *Hum Log*, *Junoon*, *Shanti*, etc. merely carry one step further, the momentary split experienced by a sophisticated movie audience at the climax of a Hitchcock thriller. They all live under some sort of an illusion- willingly and consciously.

Why does one do that? And where does creativity fit into this process? The answer requires several steps. The first is to understand the value of an illusion. Why should I create and live with an illusion? One answer is to unfold myself - transcending the tendencies on a no-risk plane. Through an illusion, you can transfer your attention from the 'Now and Here' to the 'Then and There'. This transfer of interest and emotion to a different time and location is an act of self-transcendence. Once you are on a plane remote from self-interest, you have renounced your preoccupations with

worries and desires. In an illusion, you identify yourself with a certain character and let your suppressed emotions unfold.

Does an illusion always perform a cathartic function? Most of the time, the answer is yes. But if it is a tragic or a horrifying one, it may generate fear and anger, palpitations and cold sweat. However, in such cases also, there is always a component of sympathy, an irradiation of unselfish generosity which facilitates catharsis.

EMOTIONS

Does this not sound like an escapist theory of art? Yes, it does, and in spite of its derogatory connotations, the answer contains a grain of truth. Philosopher Plato defined art as 'man-made dreams for those who are awake'. Working at it scientifically, anything represented in a work of art has to pass through two distorting lenses—first, the artist's mind and second his medium of expression. A reader, a spectator, an audience receive any art through these two lenses.

This shows us a new dimension of human creativity—emotion. H.G.Wells, the well-known writer, once observed, 'The forceps of our minds are clumsy things which crush the truth a little in the course of taking hold of it'. Wells was talking of the difficult problems of putting ideas into words. When it comes to putting ideas into words, experiences into observations, thoughts into narration, natural births seldom happen—often Caesarean deliveries take place.

Let us look into this powerful force of emotion. As a binding magnetic force draws together two opposite magnetic poles, a creative emotion lives between the polarities of the agreeable and the disagreeable. All creative activity takes place within the domain of attractive, yet repellent sense- impressions. We all know, by experience, that a sharp line between taste and distaste, pleasure and displeasure cannot always be drawn. 'Life-likeness' is a matter of interpretation, dependent on the limitations of the medium and the prejudices of vision. Most of us become 'snowblind' to aspects of reality which do not fit into our rules of the game formulae, stereotypes and clichés. Creativity consists in the shifting of attention to aspects previously ignored, in seeing appearances in a new light, in discovering new relations and correspondences between motif and medium.

Why are so many people so addicted to a particular TV serial? Is it the emotional appeal of the serial? Does this TV serial offer something for aesthetic considerations? Bhawana talked to a number of Bunlyad fans and concluded its popularity that was in truth, a phenomenon of snobbery. We found this to be rather simplistic and asked her to elaborate.

MOIST EYES

Two basic facts have to be understood to feel the power of emotions in the act of creation. The first is to understand the emotions that are participatory in the creative process is to know the similarity between laughter and weeping—both are overflow channels for the disposal of emotions; luxury reflexes without apparent utility. The second fact is to distinguish between weeping and crying—it is a peculiarity of the English language to treat them as synonyms. Weeping has two basic reflex-characteristics which are found in all its varieties: the overflow of the tear glands and a specific form of breathing. Crying, on the other hand, is the emitting of sounds signalling distress, protest, or some other emotion. It may be combined with, or must alternate with, weeping. Crying is a form of communication (even if the audience is only imagined); weeping is not. The crying sounds express lament, appeals for sympathy. In a similar way, vocalisation of laughter—roaring, giggling, chuckling, etc. is expressive of joy. In crying and in laughter, tension is exploded and the emotion is de-bunked. In weeping, there is no disowning of emotion and the thought and sentiment remain united to the end.

The genesis of laughter has been discussed in detail in Chapter 5. Let us discuss a few typical situations which may cause the shedding of tears. We weep when our awareness becomes de-personalised and expands into 'the oceanic feeling of limitless extension and oneness with the universe (Raptness)'. We weep when we have an experience of 'belonging to', 'belonging together', of a communion which transcends the boundaries of self. We weep when we identify with the sorrow of another person by an act of projection, introduction, or empathy (Sympathy). This other person could be a heroine on the screen or in the pages of a novel. And, we often weep in self-pity—in 'impotent rage'. When we weep alone, our true character surfaces, our helplessness in our surrender to an emotion which, by its nature, can find no other outlet. Could creativity provide an outlet? Rather than flowing out in the

form of tears, the emotion can be surely transformed out in the form of tears, the emotion can be surely transformed into a poem, a song, a painting, an idea.

Life strives on conflict. The nature of the conflict may be explicit or implied in relationships; but an element of it must be present, otherwise people would be gliding through a frictionless universe.

The conflict can be fought in the divided heart of an individual; or between two or more persons; or between man and his destiny. *The conflict between personalities may be due to a clash of ideas or temperaments, to incompatible codes of behaviour or scales of value.* But whatever its motive, a conflict will assume the form of creativity only if the clash is between two simultaneous and incompatible identifications. "We make out of our quarrels with others rhetoric, but of our quarrels with ourselves poetry", said Yeats.

Creativity reveals paradoxes which are latent in the mind. It reflects both sides of the medal whereas in our practical pursuits we see only one at a time. The paradox may be seemingly superficial, as the sympathies of Bhishma are divided between Kauravas and Pandavas, two equally worthy contestants, with the resulting desire to help both harming both. The double complicity in the slaughter of *Mahabharata* is prompted not by hate but love, and we are made to realise that it was destiny which made them destroy each other; the paradox is 'earthed' in the human condition.

Our creative self is both a murderer and a victim. Lord Krishna cures Arjuna's pacifist scruples by explaining that the slayer and the slain are One, because both are embodiments of the indestructible Atma; therefore 'the truly wise mourn neither for living nor for the dead'. Shakespeare very nicely compelled his readers to live on several planes at once—Caesar, Brutus, Iago, Desdemona, Anthony, Othello. The reader projects some aspects of himself into each of them. To be both Caesar and Brutus in one's imagination has a profound creative effect.

THE ANTIDOTE

Instead of aesthetic appreciation and the fallible judgement of experts, popular opinion and newspaper reviews determine

the value we set for an object. We live in a sort of confusion. In our minds, the factors of class, popularity, and standing are so intimately interconnected that we find it almost impossible to unscramble them. We go to 'houseful' movies, subscribe to the 'largest circulated' newspaper, read 'bestsellers' and hang a 'Hussain' in the drawing room. We call this attitude a negation of the principle of creativity.

While going through Birbal Bhatt's story, we have seen how laughter is sparked off by the collision of two different thought-matrices. In Manak Mitra's story, we have seen how discovery is made by the integration of two thought-matrices. Now, what is happening here? If we call it snobbery —the antidote of creativity; a wish to understand the dynamics of the thought-matrices involved, it can best be described as a hotchpotch of matrices. Here the rules of one game are applied to another. A snob uses a clock to measure weight, and a thermometer to measure distance. If a creative mind perceives things in a new light, the snob sees it in a borrowed light. A snob never aims at power, he merely wants to rub shoulders with the powerful. A snob basks in the reflected glory of others. The same things that he admires in public often bore him when he is alone.

ROAD BLOCKS

Well, we have gone rather too deep into the woods of snobbery. Let us leave it as a sort of psychological road-block which prevents one from reaching what has always been there. In the evolution of the collective matrices of science, such mental blocks existed over a number of centuries, and were transmitted from one generation to the next. Look at the way Newton's first Law of Motion came into being.

As we all know now, the central postulate of the theory was that the moving body will immediately revert to immobility when it ceases to be pushed or pulled along by its mover. The inability to perceive that a moving body tends to persist in its course was the psychological road-block which prevented the emergence of a true science till the seventeenth century A.D. Did not every soldier who threw a spear feel that his weapon had a momentum of its own? Did not the victim of the spear, if not the soldier, realise it? Every traveller in a coach which came to an abrupt halt had experienced, to his sorrow, that his motion continued after the mover's had stopped. The

experience, the bodily feel of inertial momentum is as old as mankind- but it was prevented from being explicitly acknowledged by the mental block built into the collective matrix. The 'mover' had all along been identified with God. Stones fell to earth because it was their natural home. Flames rose upward because their home was in the skies. The stone accelerated its fall because it was hurrying home, like horses hurry to their stables. Such collective mental blocks keep apart what belongs together and often lead to the segregation of a 'closed system'. In the second chapter, we started with the question 'Who is stifling creativity' and almost immediately attacked our education system. Here is the answer. One of the conspicuous stumbling blocks in the evolution of ideas, is the conservatism of the scientific mind in its corporate aspect. The collective matrix of science at any given time is determined by a kind of establishment, which includes universities, learned societies, and more recently, the editorial offices of technical journals. Like other establishments, they are consciously or unconsciously bent on preserving the status quo— partly because unorthodox innovations are a threat to their authority, but also because of the deeper fear that their laboriously erected intellectual edifice might collapse under the impact. Let us go through the conversation between Howard Roark, hero of Ayn Rand's 'Fountainhead', and the Dean of the Stanton Institute of Technology, which takes place when the Dean calls on Roark after he has been expelled from the Institute on the recommendation of his teacher, who was provoked by Roark's 'absurd' design of a Renaissance Villa in his final project.

THE POWER

The Dean asks Roark to explain why he does not want to design such a villa. Roark replies that he wants to be an architect and not an archaeologist. Even though such houses were being erected every day by others, he will not build one. He says with conviction that he sets his own standards and can find joy in his work only if he is allowed to do so in his own way.

Notice the power of Roark's conviction. He is not chained by popular beliefs, cliches, values—'I inherit nothing'. How does he manage to talk like this? What is the source of his energy? How could he talk with such a clarity? And if he could do it, why can't we? Why do we muddle along in our confused

and pedestrian fashion? Is the creative thinker a special kind of man or only a man whom special training, skill, and the acquisition of a personal style, have made somewhat more competent than others? Most women can run, after a fashion; but a P.T.Usha excels the ordinary women when it comes to athletic running. But then, how much of her performance is due to instructional training, exercise, special incentives? 'Perhaps few of us, if given the chance, could match Usha, but who knows?' wonders Bhawana. 'So too, the ordinary man, the girl next door, might produce creatively, if favourable conditions are available under which hidden powers and hidden talents could be developed,' she believes.

CREATIVE THINKING

Is the original thinker merely the product of the developments preceding him, or has he some 'gift' in his make-up which makes him different from ordinary people? We do not know if any satisfactory answer to this interesting question is available. Nevertheless, we have some tentative suggestions to fill this gap in our knowledge.

What do we mean by 'creative thinking'? The notion is ambiguous. There are clearly differences between the genius and the average performer, e.g. Ravi Shankar and our sitarist friend who conducts music in the *Bhagwati Jagrans*. Also, there are differences between different species of productivity—between painting and mathematics, science and poetry, music and military strategy. Many different conditions, different skills, capacities and aptitudes, motives and needs are involved in different kinds of creativity. Yet it is possible that there are important similarities between the different species and it may be that similar principles of thought and action are involved.

What is it that makes for different degrees of excellence in creative thinking? What makes Ravi Shankar greater than other sitarists? Some unknown factors in personality? Social conditions? Specific training?

What are the conditions in which creative thinking occurs and which seem to influence its course? Are these similar in the different arts and sciences? What do people do when they think creatively?

We cannot hope to answer the first two of these questions and it is futile to attempt to do so here. We can, however, say something relevant in answer to the third question. We can describe the kind of activity which goes on during some species of creativity and the conditions which seem essential for that activity. Enormous literature on the psychology of thinking deals with the answer to this question. What follows below was a gesture on the part Bhawana Biswas in response to our layman's demand that we be told something straightforward about a familiar but complex psychological function!

PSYCHOLOGY OF THINKING

'It is an established fact in psychology that most actual thinking alternates between two poles, which we may call the Realistic and the Imaginative. The realistic involves adhering fairly to logical and scientific criteria and being tied in our responses to the external situation. Reason and fact dominate our field. The imaginative pole allows our inner currents to play with data originally provided by perception. In imaginative activity, we experiment, fairly freely, with our data and throw up hypotheses, suggestions, fantasies, images, and comparisons, and often strive towards unclear and barely conceived goals.'

'In successful thinking, organisation and control- the logical discipline of the realistic attitude is necessary. But wilder, vaguer imaginative rowing is also needed. In fact, it has its own contribution to make to the total activity.'

Thus there is a switching from one pole to the other and much intermediate 'mixing' of the two styles or attitudes in actual thought-process. We found that this distribution, as it stands, is abstract and rather crude and asked Bhawana to elaborate. She gave us some concrete examples to explain the concept.

HOW DO THEY THINK?

In an interesting book, *The Creative Process* edited by Brewster Ghiseline, a number of creative thinkers discuss the way they think when engaged in their creative activities. Stephen Spender, the late poet, makes a distinction between the clear, sharp intuition which is the conception of the poem

and the systematic plodding job of working out what the intuition has hinted. The poet has to proceed like most of us when engaged in intellectual work from rough draft to formulation, from formulation to revised version, from revised version to a copy corrected in the light of 'second thoughts'. Spender gets an idea - a mere line, phrase, or even a single word - which is moving and impelling. This is his start - the intuition.

Such a flash of intuition appears to be active and germinal, as if it had to grow into a fully written poem. 'Everything is work except inspiration,' says Spender. The detail has to be worked out painfully and the poem presents itself as a series of problems to which the poet must apply his intelligence and his techniques as a writer. Skill in using language and cultivating sensitivity is largely a matter of experience, training, and deliberate hard work. Spender works over his material with care and thought. Sometimes he has to draft a set of lines some twenty or thirty times before he is satisfied that they are a completed version of the 'dim cloud of an idea' which has at last been 'condensed into words'.

Going by Spender's account, the creation of poetry involves the disciplined application of skills and techniques to a specific problem situation - sheer hard work. There is also the striking experience of 'inspiration'; the sudden emergence of a germ of thought which catches the writer's interest and seems to demand completion into a finished product at the hands of the artist. 'There is an intense physical and nervous excitement followed by the sense of release which accompanies a creative work of this kind,' says Bhawana.

Novelist Dorothy Canfield asserts that her creative work begins with a general intensification of emotion in which typical everyday events become capable of moving her quite deeply. In such a mood, any event - an expression seen on somebody's face, their tone of voice, a single sentence overheard in a conversation between strangers - serves as a centre around which the idea for a story develops. Once this idea begins to formulate, the rest is a problem to be worked out by hard thinking. The pattern is similar to that outlined by the poet, Spender: heightened sensitivity, a germinal idea that comes, as it were, out of the blue, and a period of hard work between the 'conception' and the 'creation'.

Poets and novelists are not the only ones to experience this kind of a pattern. Mathematician Henri Poincare, of Fuchsian Function fame, once spent a restless night when ideas rose in crowds and in the morning, almost in spite of any effort on his part, he had grasped the long eluding solution to his problem. Mathematician Jacques Hadamard also reported the sudden and immediate appearance of a solution at the very moment of sudden awakening. Andre Marie Ampere wrote about finding a solution by chance to a problem he had not been able to solve directly for a very long time. Louis Pasteur also confirmed the existence of these strange chances and they seem to be the rule rather than the exception. However, Pasteur cautioned against attaching any mystic significance to this phenomenon and wrote, 'Chance only favours invention for minds which are prepared for discoveries, by patient study and preserving efforts.

CONDITIONS OF CREATIVITY

Considering the observations of these highly creative persons, we may set down at least three conditions for creativity (1) First, a period of conscious work. The data are assembled, the problem defined, and some trials are made at solution (2) Next, the unconscious urge - the intuition to move forward. What happens is that useful and fertile combinations are selected and useless ones are inhibited. But how does this take place? Is there a sub-conscious working out of all possible combinations, resulting in the selection by the consciousness of only those which are appropriate for the specific problem? Or does chance decide which combinations are selected? We do not know. But what is certain is that only those hypothesis which are relevant emerge, and that there is a conscious reaction to those which are distinctive. An appropriate hypothesis strikes the thinker with its aesthetic properties much as a good work of art does. Aesthetic sensibility is the clue to the soundness of a hypothesis (3) Finally, the hypothesis merely gives a hint or direction to be followed - not the complete proof. The proof has to be worked out by the application of mathematical ingenuity. This may take time and effort and involve the solution of quite difficult problems. Summing up the three, in any creative activity there is the pattern of intuition followed by hard work and the application of learned techniques.

Bhawana Biswas also agrees that creative thinking in all human beings passes through a series of steps. First a person makes himself familiar with his situation and its materials. Then, he begins to define the problem, seeks suggestions, and fragments of the final product appear. Now, a specific goal is envisaged and he begins to work towards it. Finally, the results are worked out fully, revised, altered, and completed. In psychological jargon, you may call these stages as preparation, incubation, illumination, and verification, respectively.

Now, these four phases of a creative activity do not necessarily occur in a well-defined sequence. There is sometimes a sudden continuous movement which embraces all phases in one, or else the thinker may think backwards and forwards over the four 'phases' before suddenly winding up with a flourish.

Thinking is a dynamic, intense, and highly personal activity which cannot be tied down to any formula or pattern. Some creative thinkers are systematic, orderly, thorough, and apply their techniques with deliberate purpose; others follow impulse from start to finish and give 'inspired' performances. Some are like a man who dives suddenly into the depths of an experience, and others dig deeper and deeper, layer by layer, towards the heart of their experience. For many others, there is a middle way involving both the above styles.

What Bhawana Biswas says (and Birbal Bhatt and Manak Mitra too, for that matter) does not really tell us anything that we did not know before. Their chief merit is simply to suggest that the ordinary man works in a style similar to that of some great artists and scientists in dealing with creative tasks.

We can now take leave of our three friends and discuss some of the conditions which emerged from their stories and which appear to influence creativity. We have referred to many highly acclaimed and respected scientists and artists in the previous chapters. Now that we know that ordinary persons too, work in a way similar to that of these great martyrs and realise that every ordinary mortal gets some satisfaction out of winning scholarships and prizes, from passing examinations, working out chess and crossword puzzles and in fact from any activity which tests intelligence and the imagination, the next logical step would be to investigate the conditions of creative thinking in our own work situations.

FURTHER READING

Barron, Frank, 'Creative Person and Creative Process', New York : Holt, Rinehart and Winston, 1969.

Koestler, Arthur, 'The Act of Creation', New York : Dell Publishing Co., Inc., 1967.

Murphy, G., 'Human Potentialities', New York : Basic Books, 1958.

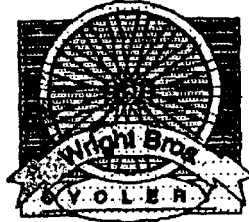
Particle, C., 'What is Creative Thinking?', New York : Philosophical Library, 1955.

Vinacke, W.E., 'The Psychology of Thinking', New York and London: Mc Graw Hill Co., Inc., 1967.

THE SEARCH

8

CREATIVITY AS A RATIONAL ACTION



A CONSCIOUS EFFORT

Creativity can be kindled. It can be influenced. Many of the factors that have been discussed in the previous chapters and identified as facilitating or hindering creative behaviour can be affected by a conscious effort.

Through the story of three creative employees in the previous chapters we have developed the concept of creativity as a rational action. There is nothing mysterious behind one's creativity. In fact, it is absolutely fine to think of oneself as a perfectly creative person. Nature has created each one of us as to be as creative as one is capable of being on this planet—make no mistake about that.

We asked Vinayaka Murthy to throw some light on this unexplored province of creativity. 'Creativity is trusting your inner signals, and such trust is completely dependent on your willingness to imagine—and to undertake any task from your own uniquely individual standpoint', Vinayaka Murthy told us.

But how do we do that? Is there any formula for creating original works, thoughts or anything from which creative thoughts are going to originate? We have read stories about many great artists, scientists, writers, inventors in the earlier chapters but what is the conclusion?

There is no formula to creativity. All great persons mentioned in the previous chapters have without exception, been those who, above all, not only learned how to trust their inner signals when it came to telling them what their life's work was going to be and exactly how they were going to go about

it, but also refused to allow anyone else to dictate to them on their own original thoughts and projects. The fountain of creativity, like the fountain of youth lies within,' Vinayaka Murthy replied.

'Will you guide us about the mode in which we should receive our inner signals ?' we asked Vinayaka Murthy.

'It is rather difficult to find any specific way to inculcate awareness about one's inner self. However, there are some typical characteristics of a non-creative person which may work as a check list of 'don'ts' for any enthusiast'. Vinayaka Murthy said.

'A non-creative person has little tolerance for creative persons. He dislikes the people who are working in intrinsically ambiguous areas, like philosophers, artists, social or political thinkers, inventors etc. He insists on knowing precisely where he is going in life and when, and is threatened by the mysterious, the unknown and the unknowable. He often clings to the security out of habit, not because it is in his best interest, but because he may be in a state of uncertainty which is too threatening to ensure that he comes out of the situation.'

PSEUDO-PERFECTIONISTS

'A non-creative person tends to think of himself as a perfectionist. But this is true only in the trivial sense that he has to have things done only his way, and not in the greater sense that he is helping create a better way for everybody to live.'

'Those who are high on the intolerance of ambiguity scale often must plan out every thing, including holidays and budgets down to the last rupee . Any 'disturbance' in their schedule and setting creates internal havoc which could result in ulcer- breeding if it is not resolved.'

'Another characteristic of a non-creative person is his compulsion to divide everything and everyone into mutually exclusive groups - good/bad, right/wrong, friend/enemy - and 'let it go at that', without taking into account the subtleties, qualifications or even downright mistakes that may be involved.

This type of thinking is termed as dichotomous thinking by psychologists' and is seen as an outgrowth of intolerance of ambiguity. Where people and complex human questions are concerned, dichotomous thinking represents a 'rush to judgement'. A person with this attitude cuts off all chances of increasing his wisdom and knowledge and alienates himself from those he has placed in opposition to himself. This man has no room in his internal circuitry for middle positions, for operating in gray areas where in fact almost all creative activities occur.

A non-creative person is also exceedingly rigid in the way he perceives the world, and thus, also in his expectations of himself and others. Such a person exhibits a strong unwillingness to entertain any thoughts that come into conflict with his preconceived ideas. With this man, rational and constructive discussion is virtually impossible. He is inaccessible. *Most of the time, there is literally no way to reach him.* In a work situation, whole regions of thoughts become taboo wherever such a person is involved. Such persons are selectively deaf and cannot ever hear their colleagues' opinions on anything contrary to their own views. This sort of rigidity is, in fact, a widespread disease that begins with thoughts and spreads to all aspects of people's lives.

'In addition to being intolerant, 'binary' and rigid, a non-creative person resists looking inward into the motivations that underlie his own behaviour. In psychological terms, he is anti-introspective. He does not believe in asking himself why he is really doing anything. He also typically dismisses out of his mind, any avenues towards self-improvement that might lead him to learn more about himself.

'Such persons are inclined to see meditation, Yoga and other spiritual ways of approaching and facing themselves, as not only a waste of time, but perhaps a fraud perpetuated by spiritual Hindu mystics to brainwash people of other faiths. Their inner turmoil and fear keep them from taking the risks that are necessary to get out of the routines they despise so much. They continue to place all hope and all blame for everything on externals, but won't take the inner road to change their own lives.

'In the absence of an internal focus, a non-creative person is motivated and virtually governed by opinions and social forces external to himself. He is weak when it comes to relying

on his own independent set of values, beliefs and instincts. While he can certainly make a lot of noise about many issues, he rarely strays from established norms about anything in his life.

'A non-creative person seldom takes responsibility for his own mistakes—but by an ironic twist of psychology, he will be among the first to hold others responsible for everything that happens to him, no matter whether the others are really responsible or not.

The 'others', for this person are either weak or strong (binary thinking!). His capacity for self-deception allows him to condemn all those who are weaker than him and worship all those who have power. Identify a non-creative person by the focus on money as power in his mind. From money, his worship of power extends to strong figures—political leaders, governments officials, policemen, even thugs.

'Keep these characteristics of a non-creative person in mind, and you will be on your way to ridding yourself of whatever insidious stiflers may have got hold of your creativity,' advised Vinayaka Murthy.

OVERCOMING MIS-EDUCATION

As we have already emphasized in Chapter II while discussing the forces that stifle creativity our formal education system is hardly designed to help us become creative; in fact we are carefully trained to be just the opposite—non-creative. The emphasis should have been on real intellectual development, one's ability to ask questions that fascinate him and induce his best answers. But the methods we are subjected to are often the least effective ways to help anyone learn anything. We are drilled to memorize lists of facts so that we can spill them back for future tests, even though we cannot see what meaning these facts have for our life or anyone else's. The result is that as soon as the examinations are over, most students forget the facts they have learned, and move on to new ones which are equally meaningless. (Do you think you could pass an algebra test or a world history examination today?) Our education did not follow the lines of our natural childlike curiosity. If we had been introduced to the history of the Mughal Dynasty in India and then left to ask our own questions about that, for instance - both Muslim and Hindus

would naturally be free from many self-defeating deductions, and an average Indian would have been truly secular.

But the sad truth is that in all likelihood most of an Indian's formal education is spent learning how to please teachers and administrators. We were *seldom, if ever, encouraged to think* for ourselves, to write creatively, to draw outside the lines, to attack problems from our own unique perspective. Pick any annual school magazine or college newsletters, and they will all be ironically the same - moral stories, patriotic poems, rankholders' photographs, citation of school managers, welcome to the new batch, farewell to the last one.

In professional schools, when a student joins a course, he is taught that, above all, he is to conform to the rules of that course or be 'treated' as trouble and that conformity yields more long term gratification than creativity. In India, students are chided for thinking independently. We learn to adjust to the system rather than create our own system or ask why the system couldn't shift just a little so that it could better meet the needs of the individuals. Today, our children are carefully warned about the importance of being 'good children'. They are weaned away from their natural, spontaneous 'wonder in the face of the world' by worry about their possible failure to get into college ten years from now. Everyone seems to believe that getting good results is more important than acquiring genuine understanding of a learning principle. Getting parents' approval by passing examinations, getting ninety plus marks, winning the teacher's appreciation and other such externals, seem to have become the 'moving forces' of a student's life. But because the hollowness of all this is felt by the child, because somehow he knows that many of these teachers are phony and examinations are open for manipulation, education has become a degrading experience for a creative child.

Many of our readers will disagree with us. Let us say you are one. You have gone through a 'standard' education system without particular trouble. You have been very successful. But we bet that you never really believed in it; that you were often bored and afraid of being a 'troublemaker' unable to be heard, and abused many times by a system that always rewarded conformity and punished individuality. Still, from your formal school experience, you must have acquired some idea of the joy of learning and thinking for yourself. Otherwise, why do you still remember those few excellent, highly motivated teachers you had in school who really cared about you and

wanted to make a difference in your life? Why do you still remember that teacher who was dedicated to satisfying your natural, child-like curiosity exactly as it developed, for no specific return or motive? Was not this one teacher labelled cranky and a system disrupter by others when he tried to respond to individual student's needs in his teaching his classroom routines? Just remember that fine soul and remember the way he helped you. You are now powerful and perfectly free to pursue his ideals and examples of what education can be if you want it to!

HOLY MARRIAGE

Hindus take seven sacred steps—*Saptapadi*—around the fire at the time of marriage. Each step symbolizes one commitment that strengthens married life. Let us, in a similar ritual, take seven steps around the 'fire' of creativity, so that we can begin a new, creative life. But what about the commitments? You will be pleasantly surprised by their simplicity. However, we would like to put in a word of caution: *the simplest things in the world are often the most difficult to follow.*

The first commitment in your marriage with creativity is to laugh. A lively sense of humour and a hearty laugh at least half a dozen times a day is the best guarantee against neuters and unhappiness. Furthermore, laughter is free and doesn't require a prescription from your doctor; and you don't have to go to the medical store for this precious cure.

Then, make someone else laugh everyday. Recall all miserable past experiences which are worth a laugh now and laugh them off. Enjoy the company of children and be with them at least twice a week with the idea of doing nothing but enjoying their company. You will soon discover that being a creator of laughter, of genuine humour, is a primary path to creativity.

The second step is the promise to let the fantasy back into your life. Love to dream, make up stories, draw a cartoon, make up some verse or song (a parody will also do) and wander aimlessly into yourself and collect all the dreams you can get!

The third step is the assurance of being a little crazy. By being crazy, we don't mean losing control of your life. Our idea

of being crazy means letting go of some of the controls that restrict your life. You can be serious on the job, mature about how you face your responsibilities, earnest in attacking problems that call for straightforwardness, no nonsense approaches and still loosen up and let go of yourself now and then. Not only will you have more fun; the whole office loosens up, and everybody will be more effective when it is time for solemnity. To start with, make up your mind to do one crazy thing every day for a week - once or twice at home, once or twice at work, the rest of the times wherever the mood strikes you, Nine times out of ten you will find that people react with more enthusiasm than you could have expected.

The fourth step ahead is to be spontaneous. Be willing to try anything on a moment's notice. Be a little impulsive and adventurous, without always having to plan things in advance. Take at least one decision a week by the flip of coin. Go at least once a month to a locality you don't know or haven't visited for a long time and just wander. Recapture your ability to stop suddenly by the roadside when something interesting catches your eye.

The fifth promise is not to be afraid of making a mistake. In fact, as a child, you were never intimidated by making mistakes. You were willing to try anything and everything and if you weren't very good at it at first, you tried again, everytime getting a little smarter. You stopped trying to learn new things only when you internalised the fear that you are somehow inferior if you fail at anything, or that you should compare your performance with that of other people (who, in fact must have already gone through the trial-and-error of mastering what you are just approaching for the first time) A non-creative person has learnt to avoid more and more things that might involve 'failures' on his part. He seeks 'good results' in everything all the time and evaluates himself as a 'bad person' if he is in the bottom half of his group in anything. With this fifth circle, remember that you can fail at anything in life without being a failure as a person!

Make a resolution after the sixth step that starting now, you will accept the world as it is. Once you develop some sort of a rigidity about the way things should be, you are likely to get angry with the world for not conforming to your expectations or demands, and this leads to the 'angry young man syndrome' in which people get frustrated by their inability to control things that no one human being can possibly control.

Whenever you find yourself thinking 'Sure, children can enjoy playing in the rain because they are not losing a day's work', that means you are ignoring the obvious fact that no matter how upset you get about it, God is not going to 'vacuum' all the rain back into the sky for you. Your anger is not going to make up for your lost day's work; it is just going to ruin your day. The child inside would like to go out and enjoy the rain, but the adult may insist on thinking neurotically about it and keep inside, cursing the heavens.

Do whatever you can do to change your own immediate world for better. But don't brood over the recommendations of some Commission, don't combat for birthplace of some god, don't worry about militancy in some state, don't get worried about neighbouring countries' nuclear programmes (they are worried about ours!), don't become angry over apartheid in South Africa (no more there anyway), or petrol prices (they'll never come down!). Leave certain things for others. You are not the Greek god, Atlas, to bear the burden of the entire earth on your shoulders. Pray, 'Lord give me the strength to change those things that can be changed, the patience to accept those things that cannot be and accept people at face value. 'List out the things that habitually irritate you or that you find yourself complaining about most. How many 'Forget Its' do you have? However many they may be, forget them! The next time you find yourself getting upset over these or similar things, just stop and laugh it off; that's just the way the world runs.

Now, the final step is left. Trust others. Go out of your way to meet at least one new person every month who is substantially different from you. If you are a professor, introduce yourself to an auto driver or stop to chat with the guy who sells flowers at the corner, the tea-stall boy, the newspaper vendor, the postman, the bus conductor anybody who strikes you as appealing. Trust him and yourself to make the best of the situation. If you are met with initial suspicion, if you sense that a person is thinking, 'what does this man want from me?' Remember you don't have any ulterior motive, you know you are not trying to take advantage of this person for a ride. You will be surprised to encounter a child in that person who will sense, intuitively, your honest ingenuity. After all, once upon a time both of you were children; destiny made the child in you, a professor and the child in him an auto-driver.

You are now wedded to creativity. Henceforth, you will be a creative person to the end of your life. You have attained an

inner peace now. You can do just about anything you wish to undertake. Give yourself more of this childlike inner peace today, by letting yourself be that good old silly, fun-loving child again, and you will no longer look nostalgically back on your lost childhood.

We know that this is not going to be an easy process. Cutting through the tangle of emotions, habits and obligations that bind you to the ground is an enormous task. The 'authority figures' around you, be they politicians, religious gurus, social workers, psychiatrists, or your own parents, big brother or spouse, can best lead you towards being normal or average according to the accepted rules; to 'cope with' standards of established society as 'they' perceive them. Creativity starts where the 'normality' ends. To go beyond normality, you have to strike out on your own.

The next chapter on creativity-killers will make you familiar with your future foes. When Alexander the Great visited Diogenes and asked whether he could do anything for the famed teacher, Diogenes replied, 'Only stand out of my light'. Perhaps, some day we shall know how to actually heighten creativity. Until then, one of the best things we can do is to ask the creativity-killers to stand out of our light.

FURTHER READING

Dyer Dr Wayne, 'The Sky's the limit', London : Granada Publishing, 1981.

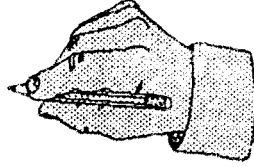
Maltz Maxwell, 'Psycho- cybernetics and Self Fulfilment. Illinois: Bantam Books, Inc., 1980.

Sheehy, Gail, 'Pathfinders', New York : Crown Publishers, Inc., 1976.

Silva Jose and Miele Phillip, ' The Silva Mind Control Method', London : Granada Publishing, 1980.

9

LEARNING TO CREATE



YUPPIES

Two cultures—the humanistic culture and the scientific culture—have long been recognised as essential mental furniture for anyone with pretensions to intellectual cultivation. A small army of psychologists have taken up issue against the equation of 'culture' with literature and the arts. The battle has, it would seem, been won to a great extent. The idea that anyone can claim to be well educated while professing total ignorance of what the physical sciences tell us about the universe, seems almost as archaic today as the earlier notion that a decent familiarity with established literature was all that any gentleman needed in order to pass in the world as a model of accomplishment.

Today's intellectuals carry a 'mixed bag' of knowledge in a variety of fields—social history, industrial psychology, computers, art, space architecture and so on. These well read individuals indulge in journalism, antiquarianism and gossip. They operate with an assemblage of information rather than a body of knowledge. They give more emphasis to protection against being blinded by 'expert's opinions' and crippled by 'established practices'. Using complicated vocabulary and quoting highly technical jargon is fast becoming a habit with the Indian intelligentsia. These heavy words are very often misused by people who obviously have a very insecure grasp of what they are talking about. Yet they 'hornswoggle' one to take them on face value. They are the most potent killers of creativity. A complete understanding of this phenomenon of perversion of individual preferences by collective decisions is an involved sociological problem and is beyond the scope of this book. The best way to bring home an awareness of this

trap within our limited discussion is to present an example of it. Let us go through the following story of two prisoners.

THE RATIONALITY TRAP

Durjan Singh and Lakhan Singh are caught by the police during a combing operation in the Chambal ravine. They are lodged in Delhi's Tihar jail in separate cells. Both are 'history-sheeters', but this time, the police do not have any concrete evidence to prosecute them. Having nabbed them, the police do not want to free them either. The public prosecutor, Raghunandan Sharma gets a brilliant idea. Sharma meets both the prisoners and offers them a deal. He says to Durjan Singh in private, 'If you say in court that you were a member of the gang which committed the dacoity and killed Sarpanch Thakur Pratap Singh last month, I will get you freed as an approver provided Lakhan Singh does not confess. If, however, Lakhan Singh too confesses to the sarpanch's murder, both of you will receive a seven-year term.' 'If I don't confess anything?' asks Durjan Singh. 'In that case, if Lakhan Singh also does not confess anything, the police will anyway get you a seven-year term for the dacoity. But if Lakhan Singh confesses to the Sarpanch's murder by the gang and you don't confess, he will be freed and you may be hanged or may at least get a life term.' Advocate Sharma makes a similar offer to Lakhan Singh in a separate meeting.

What do the two prisoners do? What makes this a dilemma is that the pay-offs from the alternative courses of action that face the prisoners have the following form: each prisoner gets a seven-year term by confessing to the sarpanch's murder, whatever action the other person takes. Suppose Lakhan Singh is going to confess; then Durjan Singh's choice is, in effect, between a seven-year term (if he himself confesses) and life sentence (if he doesn't). Suppose, on the other hand, Lakhan Singh is not going to confess; then Durjan Singh's choice is, in effect, between going scot-free (if he confesses) and the seven year sentence that both of them might get on charges of dacoity (if he does not confess either).

Thus, taking each prisoner's calculation separately, it is clear that each is better off by confessing than by not confessing. Yet the outcome when both follow this strategy ensures a seven-year term for both of them.

There is clearly, at least on surface, some sort of a paradox of rationality at work here: the parties (Lakhan and Durban), by pursuing their interests rationally, finish up with less satisfactory results than they might have achieved by sacrificing their interest. Is the appearance of paradox illusory?

A GROUP ACTIVITY

The prisoners' dilemma game (as it is actually called in the terminology of mathematical game theory) evokes surprise in people confronted with the analysis for the first time. Perhaps this is because acting in collective interest is still associated in most people's minds with moral rather than logical concepts. Doing something for the common good evokes the idea of 'sacrificing' one's individual interest. On the other hand, calculation of what is best for oneself is felt to be unambivalently rational (although perhaps on occasions not praiseworthy).

Let us apply this logic to creative thinking. What is 'creative'? Sometimes, particularly in group situations, it is a matter of definition. Many times, creative ideas get into serious controversies. The interesting question here is what people actually do when confronted with such a situation, involving 'partner opponents' whose interests partly clash and partly coincide. Shall I cooperate (act the way I want the others to act) or compete (look after my own interest)? Shall I create (something which is different) or comply (go by whatever exists): What should be my policy in a 'creative decision' conflict?

We have discussed in detail in the earlier chapters how individual creative thinking is supposed to be carried out in different kinds of situation. More complicated are the cases in which creative thinking is connected to alternative outcomes in the presence of a thick web of interpersonal relations. There are 'independent' and 'interdependent' situations. Are they equivalent to 'straightforward creativity' and 'constrained creativity'? Does the availability of a chance to modify what others do in a given situation decide the course of a creative action? Should we not explore a framework in which creativity can be analysed as a group activity?

THE FRAMEWORK

Writer Ayn Rand said through the famous character John Galt in her novel 'Atlas Shrugged' —*To live, man must hold three things as the supreme and ruling values of his life: Reason-Purpose-Self-esteem. Reason, as his only tool of knowledge—Purpose, as his choice of the happiness which that tool must proceed to achieve—Self-esteem, as his inviolate certainty that his mind is competent to think and his person is worthy of happiness, which means: is worthy of living. These three values imply and require all of man's virtues, and all his virtues pertain to the relation of existence and consciousness: 'rationality, independence, integrity, productiveness.'*

And this is what we mean by a framework to analyze creativity as a group activity. When we look for straightforward creativity in interdependent situations we must judge all men as conscientiously as we judge inanimate objects, with the same respect for truth, with the same incorruptible vision. As we do not pay a higher price for a rusty chunk of scrap than for a piece of shining metal, so we should not value a rotter above a hero just because he is someone close to us. Creativity can be straightforward only in a situation where every man is judged for what he is and treated accordingly. Our moral appraisal is the coin by which we pay our colleagues for their virtues or vices. This payment demands of us as scrupulous an honour as we always bring to financial transactions. This means that to withhold your contempt from men's vices is an act of moral counterfeiting, and to withhold your admiration from their virtues is an act of moral embezzlement.

THE MIND KNOWS NO BARRIERS

Creativity in a working group is our acceptance of this morality. Creative work is the process by which man's consciousness controls his existence. All work is creative work if done by a thinking mind, and no work is creative if not done by a thinking mind or if done by a blank who repeats in uncritical stupor, a routine he has learned from others. If you cheat your way into a job bigger than your mind can handle, you will be condemned to become a fear-corroded ape on borrowed motions and borrowed time. On the other hand, if you settle down to a job that requires less than your mind's

full capacity, you will underutilise your capacities and sentence yourself to decay.

Our body is a biological machine which is controlled by our mind. Let us drive this machine as far as our mind will take us, with achievement as the goal of our road. Beware of the persons in your group who have no creative purpose. They are like a driverless car that coasts downhill at the mercy of any boulder, to crash into the first ditch. Keep off persons who stifle their minds; they are like stalled machines slowly going to rust. And never come close to anybody who lets a leader prescribe his course. He is a wreck being towed to the scrap yard. Our work is the purpose of our life, and we must speed past any killer who assumes the right to stop us. Any value you might find outside your work, any other loyalty, obligation, love can only be travellers sharing your journey. They must go on their own power in your direction.

VALUE-BASED THINKING

As we have discussed in the earlier chapters, just as our body has two fundamental sensations-- pleasures and pain--so our consciousness has two fundamental emotions: joy and suffering. Note that there are only two alternatives and nothing else. No in-between stands. Our emotions are estimated by the forces which further our life or threaten it. We have no choice about our capacity to feel what is good for us and what is bad. But, what we will consider good or bad, what will give us joy or pain, what we will love or hate, desire or fear, is our choice. It depends on our standard of values. Emotions are inherent in our nature, but their content is dictated by our mind. Our emotional capacity is an empty automobile and our values are the fuel with which our mind drives it. If a man chooses a mix of contradictions, it will clog his engine, corrode his transmission and wreck him on his first attempt to move with a machine which he, the driver, has himself corrupted.

If we hold the irrational as our standard of value and the impossible as our concept of good, if we long for rewards we have not earned, for a fortune or a love we don't deserve, for a loophole in the law of causality, for something that becomes something else at our whim, we will be doing the reverse of creativity. We will not be harmed by this. We will not suffer from this right now, in fact life will be very easy to live in this fashion. But at the end, a life lived so will be a great frustration.

Creativity does not come at the command of emotional whims. Creation is not the result of any irrational wishes one might blindly attempt to indulge in. Creativity is a state of non-contradictory emotions. Creativity does not carry any penalty or guilt. Creativity does not clash with any of the values and does not work for anyone's destruction. Any activity which produces guilt in you, disturbs your values, gives you the joy of escaping from your mind is not creative. Creative persons never attempt to evade reality. They aspire for the joy of a producer, not the high of a drunkard.

THE ARBITRATOR

A creative person deals with his colleagues as per his nature and their demands, by means of reasons. He seeks or desires nothing from them except such relations as they care to enter into, of their own voluntary choice. It is only with their mind that he deals and only for his own self interest, when his interest coincides with theirs. When they don't, he seeks no relationship. A creative person always lets dissenters go their way and he does not sever his relationships with them. He wins by means of nothing but logic. When two creative persons disagree, they let reality be their final arbitrator; if Ram is right, Rahim will learn; if Ram is wrong, Ram will have to learn; one of them will win, but both will profit.

Any threat between a man and his perception of reality is the greatest creativity-killer. To interpose such a threat on someone in any manner, is to negate and paralyze his means of survival. To force someone to act against his own judgment is like forcing him to act against his own sight. Force and mind are opposites. Creativity ends when force begins. When you treat your fellow worker as an irrational animal, force him to suspend his own mind and to accept your will as a substitute, put pressure in place of proof, you kill his creativity.

THE KILLING FORCES

What we observe in many of the Indian work situations is the use of force on mind. Religion, culture, politics, caste, communication, trade unions, each puts pressure on individuals to conform to the system. Any disagreement is taken with hostility --the whole set-up seems bent upon

frustrating creativity. In fact there seems to be widespread and deep-rooted collusion at work against creativity in this country.

By collusion, we don't mean that some sort of a conspiracy is at work against creativity. What we want to highlight is a psychological antipathy towards creativity.

The term 'collusion' has a verbal kinship with delusion, illusion and elusion. 'Lusion' comes from the Latin verb 'ludere' which means 'to mock' or 'to deceive'. Delusion implies total self-deception. Illusion implies deceiving oneself under a strong wish, but does not involve self-deception as total as delusion.

Collusion is always clinched when two persons find in each other, that 'other' who will conform to the image of their respective selves which they are trying to make real. The ground is then set for prolonged mutual evasion of truth and of true fulfilment. The following story illustrates this point.

Dr Ganesan is a biochemist. He did some hard work in the field of serum lipids when he was abroad for his doctorate twenty years ago. He now heads the department of chemistry in a college. He is a Reader and stands at number five in the department hierarchy. Dr Srivastava could not go to a foreign university in spite of his best efforts and finally reconciled himself to his present job. Both their lives are dominated by the illusion of being a higher level scientist. They live a very closed life in the college with each one maintaining this image. This is a prolonged mutual evasion of truth and true fulfilment. Each has found an 'other' to enforce his own false notion of himself and to give this appearance a semblance of reality.

Dr Garg is a lecturer-designate to their department. He has completed his Ph.D in a university in England under a government fellowship awarded to him based on the good marks he secured in his Masters in the same college.

Both Dr Ganesan and Dr Srivastava are upset about Dr.Garg. A third party is always a danger to a two-person collusion. The collusive and complementary conjunction of Dr Ganesan's and Dr.Srivastava's 'identities for self' and 'identities-for-the- other' will collapse in the presence of Dr Garg, who has been a student of both. As they cannot stop Dr Garg's entry into the department, so they will make life difficult for him once he is here. Three potentially creative persons will live a work life tormented and haunted by anxiety and despair.

SURVIVING THE ONSLAUGHT

Here emerges an interesting picture of a creative person--a person who applies his mind along the track of reason and purpose; a person who preserves his self-esteem and never undermines others'; a person whose decisions are based on cold reality; a person who acts by his own judgment. Also emerge the forces which threaten the survival of a creative person --an irrational society, pseudo-intellectuals, exploitative values, self-defeating beliefs, collusion among fakes and incompetents.

How does a creative person survive this onslaught? Those who are not creative live a condemned life. They insult the creator. They are worshippers of the zero. Their life is limited to avoidance of death. But life is not the equivalent of merely avoiding death. Joy is not the 'absence of pain', intelligence is not the 'absence of stupidity'. Creativity is not achieved by abstaining from destruction. In fact, it starts with that. Brahma cannot create if Shiva does not destroy. This destruction requires tremendous energy. How does one get this energy? Where does it come from? Let us move on to our concluding chapter and attempt to find the answers to some similar questions.

FURTHER READING

Ayn Rand, 'Atlas Shrugged', New York: New American Library, Inc., 1957.

Benn Stanley I, and G.W. Mortimore, eds., 'Rationality and the Social Sciences' London: Routledge and Kegan Paul, 1976.

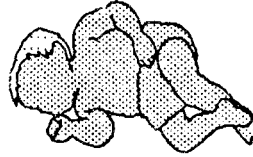
Carroll, Lewis, 'Complete Works', New York: Vintage Books, 1976.

Laing, R.D, 'Self And Others', Middlesex, England: Penguin Books, 1984.

Rapoport, Antol, 'Game Theory As A Theory Of Conflict Resolution', Dordrecht, Holland: D Reidel. 1974.

10

FROM HABIT TO ORIGINALITY



THE ROOTS

A creative person can derive certain crucial principles from the esoteric concepts found in the most ancient of the Indian teachings. A great many wise men in ancient India sat at the feet of the Master Adept and uncovered the crux of creativity. Unfortunately, their teachings have remained hidden, known to very few, due to the total absence of field trials in a society living under the constant threat of barbaric invaders and cruel tyrants. Later, they became enshrouded in the mysteries of occultism and Tantra.

We asked Vinayaka Murthy to unearth the ancient manuscripts in the timeless quest for the age-old Indian wisdom. Vinayaka Murthy smiled and said, 'Do not expect understanding to come as a flash of inspirational lightning.' This helped in raising our awareness and made us see two mighty principles of creativity. We thought about these principles, digested and used them. We discovered that an understanding of these principles gives one a step ahead in the game of life. These principles of creativity, in fact, are the rules of life. We offer the principles to you in the hope that they will serve to kindle your creativity and thereby to help you grow and mature.

THE PRINCIPLES

The first of the mighty principles is that of 'mentalism', said Vinayaka Murthy. 'The Universe is a mental creation of God'. Just as a character, in a novel, is a creation of the novelist and

is, therefore, an aspect of the novelist, so too are we, and everything else in the universe, a part of the Creator.

This principle can lead to a better understanding of our own minds and how they work. Creativity is the manifestation of mental power. Mental power becomes useful once it is controlled. Mind control works because the universal is mental. All things are seen from the relative position of the mind and you see what you think you see. You may think you see a tree, whereas a squirrel thinks it sees a home. Your friend may think that a 'Hussaln' is a fine wall decoration and you may think it's a good investment. You may see a situation as a problem and your spouse may think that it's a challenge. Of course, everyone is correct, because what you think you see, you do see. This principle implies that the mind can control forces and events outside oneself. This is a fact only because the world we see is our mental creation; and this being so, if we created it (the image). We can also recreate it. Creative people use their minds to change, reshape and control 'their' world.

The second great principle shared by Vinayaka Murthy is the principle of polarity. 'All things are dual. Everything has its pair of opposites and these opposites are identical in nature, differing only in degrees'. Tall and short are the same—both are aspects of the same principle, height. There is no such thing as tall or short, only as it is relative to you. Hot and cold are the same, unless compared with your body temperature. Vinayaka Murthy makes use of this principle frequently to shed light on the meaning of words like love, fear and anger; defining the word by examining its opposite. We can use polarity to swing from dislike to like, from guilt to self-forgiveness, from anger to tolerance and from negativity to creativity.

THE AWARENESS

The essence of understanding creativity lies in the awareness of negativity. Negative thinking is a protection against disappointment. The negative thinker expects nothing good to happen and is not disappointed when nothing good happens. Such negativity develops early in childhood, but occasionally the ravages of time chip away at the creative attitude of an adult, and those who are beset by constant disappointment often turn to the protective cloak of negative thinking, thereby avoiding additional pain. Once these persons

lose the excitement of creative expectations, their lives become dull and bland—a spiceless existence. When people have nothing to look forward to, no goals and few desires, that dullness creates an apathy that brings with it the depressive state that so many in the contemporary Indian society are afflicted with.

If you are bothered by this unfortunate affliction, you probably know someone who is negative. The easiest way to protect your creativity against people like this is to avoid them. Would that this were so a simple! For, so very often the afflicted is a loved one, a spouse, a close friend, a business associate, a neighbour, or a relative. Let us see how a negative thinker is born, for an understanding of this type of person may help you decide to what degree you may wish to be involved.

Understanding that negative people are those who have had a great many disappointments in their life brings you a better awareness of why they think as they do. Negative thinking has taken a great deal of programming and reinforcement through the years to produce. It is unlikely that you are going to turn negative thinkers around on the road back to the positive mental dynamics of creativity by reversing the process. Negative thinkers are born through disappointment. The way to turn negative thinkers around is to make sure that you personally never disappoint them. Negativity is in fact contagious. By making sure not to disappoint negative people rather than avoiding them, you will shield your psyche from the negativity.

The subliminal Indian concept of *Ardhanarishwar* sentimentiously explains the concept of polarity at work. It explains that all things have masculine and feminine aspects and that the masculine is outgoing, the instigative force. The feminine is the incoming, the receptive, the creative force. These forces are basic, intrinsic to everything from the smallest molecule to the universe itself. Zen monks call these forces as 'yang' and 'yin'. They carry no values, neither one is good or bad, superior or inferior, desirable or undesirable, but both are necessary parts of all existence. Nor do the masculine and feminine forces have anything to do with the male or female sex, although man and woman are their manifestation on the physical plane.

When you speak to someone, you are, to some degree, in the masculine or outgoing mode, and when you are listening,

you are in the receptive, inflowing or the feminine mode. Popular leaders have developed a strong outgoing force when speaking. Immensely masculine, sending out a heroic force, they overcome the masculine energy fields of the crowd and switch them to the receptive. Remember, this has nothing to do with sex.

The country is yet to see a more outgoing Prime Minister than Smt. Indira Gandhi. She swayed the great masses of people by her charisma. And what is charisma? Isn't it an extremely strong outgoing force?

THE METHOD

What is the equivalent of charisma in the receptive mode? Yes, it is creativity. Look at the words woven around creativity—*invention, originality, fertility, conceit, fantasy, guess, surmise, hypothesis*—and you will get our point. Switch over to the receiving mode. Get a good cassette tape of Ravi Shankar, Bismillah Khan or Balamuralikrishna. Play the cassette as you normally would. You may enjoy the music or you may not, but when you are not inclined to classical music, listen anyway. You will now develop your sense of hearing by listening for things you have not previously heard. Play the tape once again. As it begins, take yourself to the relaxed receptivity of a woman ready for a sensual experience and listen to the music. Listen for the different sound qualities. Hear the vibration of fine-tuned strings of sitar, the modulation of shehnai, the intensity of violin. Notice how the musician introduces a melody, develops it, and comes back to it with a new approach. Now feel yourself merge with the music. Imagine that you are music, that you are riding up and down with the melody. Feel every cell in your body responding to the vibrations of sound. What does the music tell you? Let the music take you to another time, another place. Imagine that you are somewhere else, in a place that the voice of the instrument has led you to. Enhance the scene. Bring in colour, and wind, and the sea, and mountains—use your imagination. When you come out of this spell, you will find that you have heard more than the ordinary listener hears. If you were lucky, you may have even heard what the musician intended when the performance was recorded.

What of a Vincent Van Gogh, who could look at a flower, seeing only what he could see, and paint such a representation

of that flower that a hundred years later the painting would evoke a sensory cascade of all the flowers that have been? Or a Mehdi Hasan, who could take a couplet and stretch it with his voice into such a thing of beauty that even persons completely unaware of the Urdu language in which the couplet is written, would swell with the sensual perfection of the sound?

When we hear the term 'creative people', we generally think of those who have in some manner perfected one or more of the five senses. Do they have a different set of senses? A larger brain? A greater capacity for utilizing information? No. They simply make better use of what they have. Is it not time to sharpen at least one of your body senses? Why not enhance the desire to see things more clearly and in greater depth? Why not go and touch a tree? Move your physical hand and feel the surface of the tree, the branch, the leaf. Now, move the mental hand gently down the tree. Reach down to the root system and feel the depth of the roots. Move your mental hand into the tree. Get the sensation of the sap, and the life within the tree. Get an impression of the voice of the tree, the way it sings when caressed by the breeze. Never again will you see that tree in the way in which you have seen it so far.

Put down this book for a moment. Look around you, reach out with your mental hand and feel the ceiling. Note the texture. Now the floor, the carpet. The wall. A book. Whatever else is in the room. You do feel a difference, don't you? And yet, it is with your mind alone that you are touching these objects.

THE SOURCE

The creativity, then, is in your mind. All you have to do is to manifest this inner magic, to allow it to blossom out. You can do this by filling your mind with peace. A peaceful mind is a powerful source of energy. Let this energy be generated and created. In the last few paragraphs of this book, we will discuss the technique of filling your mind with peace, before we conclude.

A primary method for gaining a mind full of peace is a practice of emptying the mind. We recommend emptying the mind at least twice a day, more often if necessary. Definitely practice emptying your mind of fear, hatred, insecurities, regret, and feelings of guilt. Simply tell the Master Creator

everything that is bothering you. Forget those things that are past.

Now that your mind is emptied, fill it immediately, for it cannot remain a vacuum for long. Something is bound to enter in the emptied space. So, start filling your mind with creative and healthy thoughts. Let nothing disturb you. Let nothing frighten you. Everything passes away except God. God alone is sufficient. Tell Him your problems and listen to His advice. Insist upon at least fifteen minutes. Do not read. Think as little as possible. Throw your mind into neutral gear. You may place the first three fingers of either hand together (the thumb, the forefinger, and the middle finger). It will close your system and strengthen your concentration. Do it a couple of times daily for a week and you will never look back. Your channels of creativity are open now. Develop a wholesome self-respect and believe in yourself, in this life or in the next.

FURTHER READING

Hegel, G.W.F. 'The phenomenology of mind', London: Allen & Unwin, 1949. Journal, S.M. 'Disclosing man to himself', New York: Van Nostrand.

Peale, Norman Vincent, 'The Power of Positive Thinking', New York: Fawcett Crest Books, 1963.

Silva Jose and Goldman Burt, 'The Silva Mind Control Method of Mental Dynamics', New York: Simon & Schuster Inc., 1988.

Zdenek, Marilee, 'The Right—brain Experience', London: Corgi Books, 1988.

EPILOGUE

We have presented three images of a creative person in the form of three characters carved out of our own surroundings. Bhawana Biswas - a solitary figure, emotionally vulnerable, impractical, unselfish, and quixotic. This is the creativity of the Artist who is traditionally represented in folklore and popular literature as a painter, poet, mystique like Thiruvallavur, Kalidas, Tansen and Raja Ravi Varma. Exactly opposite to this form of creativity stands the creativity of Birbal Bhatt, a person who spurns the dreamer, refuses to be taken in by any romantic nonsense, is wide awake, quick to see his advantage and to get the better of his fellows like Narada, Chanakya, Kabir and Tenali Rama. This is aggressive creativity. In between these extreme types stands Manak Mitra, who combines the qualities of both, a sagacious dreamer, with his head in the clouds and his feet on the solid earth - Mahatma Vidur, Arya Bhatta, Ramanujan and Vikram Sarabhai. However, creativity can't be represented by any single, two or three figures in the waxworks of popular imagination. Let us stop searching for creativity in benevolent magicians, absent minded professors, and scientists wearing thick glasses. Look around yourself. Look at the ordinary people of India. The common people who are unselfishly doing some lofty task. Look at people obsessed with ideas, look at all those dry, dull, diligent, pedantic, uninspired fellows. Look at those aloof and detached people, hundreds and thousands of them. These people don't lack creativity. Don't conclude that they have outgrown passion or that they are devoid of temperament, desiccated, and hard of hearing when it comes to listening to reason. This is the outer shell within which creativity of this great country hides itself to survive onslaught of more than 1000 years of subjugation. Look inside them! Are they any less peevish, less petulant, or less jealous of anybody who dares to interfere with their crabbed little world, than those White-skinned Creative Lords? The creativity of these people who have been smothered beneath many hundred dogmas, surrounded by sentinels of overseas definitions, conclusions, corollaries, propositions explicit and propositions implicit, must be kindled. Once kindled, the divine light of creativity will banish the darkness which is forcing us to look for solutions outside us. The door of creativity opens inward.

About the Series

Popular Science & Technology (PST) Series aims at promoting the understanding of the applications of science and technology in Defence. The presentation of the material is generally in a non-technical style, supported by attractive illustrations. Targeted at students, the Defence personnel and the public, each issue of PST is devoted to a particular topic of current interest and is written by a specialist in the field. The following titles are currently available.

- | | |
|--|-----------------------------|
| ① The Living Desert | ⑩ Toxicology and Human Life |
| ② Laser and its Applications | ⑪ Electronic Warfare |
| ③ Computers and Defence Applications (Rev Edition) | ⑫ Composite Materials |
| ④ Guided Missiles | ⑬ Battle with Barnacles |
| ⑤ Satellites | ⑭ Night Vision Devices |

How to Obtain Copies

Copies of PST can be obtained from the Publications Division, DESIDOC, Metcalfe House, Delhi-110 054, by sending in advance crossed IPOs/DDs drawn in favour of **The Director, DESIDOC—Public Fund a/c** with IPOs payable at GPO and DDs at any bank in Delhi. No postage is charged for ordinary mail. Rupees seven are charged extra for delivery by registered post. BOOKS ARE NOT SENT THROUGH VPP. Detailed price list available on request.

**Defence Scientific Information & Documentation Centre
Defence Research & Development Organisation
Ministry of Defence, Metcalfe House
Delhi 110 054**