American Handbook of Psychiatry

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Relation to Psychopathology and Mental Health

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e-Book 2015 International Psychotherapy Institute

From *American Handbook of Psychiatry: Volume 6* edited by Silvano Arieti

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CREATIVITY AND ITS CULTIVATION: RELATION TO PSYCHOPATHOLOGY AND MENTAL HEALTH

The interconnections and possibilities of cross-fertilizations between modern psychiatry and other disciplines are rapidly increasing. Recently a new area, the study of creativity, was added to this long list, especially in relation to psychopathology, mental health, and school psychiatry.

At first glance, any linking of creativity with psychopathology might appear unwarranted, for the creative process is not pathological but something to be desired and encouraged. But similar linkings have occurred in the history of medicine. For instance, general pathology has been of great help in understanding the physiology of the normal organism.

Creativity is an important part of the study of man and can be approached in many ways. This chapter will deal with some aspects of this subject that are related to psychiatry.

Many authors have recently studied creativity from other points of view and have defined the creative process in various ways for instance, Ghiselin, Anderson, Stein and Heinze, Hammer, Taylor and Barron, Getzels and Jackson, Gruber, Terrell and Wertheimer, Eiduson, and Koestler.

By the term “creative process” the present author means a special

process by which man tries to transcend in a desirable form the usual ways of feeling, understanding, relating, and doing (Arieti; see also Von Bertalanffy).

Although there is a fundamental difference between the infrahuman animal that has a limited number of responses and the symbol-making human being, man, too, tends to act and relate in fixed ways. Whether his way of coping with any situation occurs immediately after the stimulus or whether it follows a complicated set of symbols and choices, man tends to use the repertory of activities provided by his usual psychological faculties or by ways that have become the common style of his culture. If his activities are mediated by cognitive processes, they generally follow what, in Freudian psychoanalysis, has been called the secondary process or, in more general parlance, Aristotelian or ordinary logical thinking.

The creative process allows man to liberate himself from the fetters of these secondary-process responses. But creativity is not simply originality and freedom. It is much more than that; it also imposes restrictions. First of all, although it uses methods other than the secondary process, it must not be in disagreement with the secondary process. Otherwise, the result would be bizarre, not creative. Secondly, it must attain an additional aim: a desirable enlargement of human experience— either aesthetic pleasure, as in art, or usefulness, understanding, and predictability, as in science. In this second respect, creativity may be seen in a dual role: at the same time that it enlarges

the universe by adding or uncovering new dimensions, it also enriches man, who will be able to experience inwardly these new dimensions.

Thirdly, the creative process tends to fulfill a longing or a search for a new object or for a state of experience or of existence that is not easily found or easily attainable. Especially in aesthetic creativity, the work often represents not only the new object but this longing, this indefinite search, this sustained, yet never completed effort with its conscious or unconscious motivation.

Previous Psychiatric or Psychoanalytic Interpretations

In 1864, the Italian psychiatrist Cesare Lombroso wrote an essay on "Genius and Insanity,"[1] which was followed by many books on the same subject. Lombroso tried to prove that such geniuses as Cellini, Goethe, Vico, Tasso, Newton, Rousseau, Comte, Ampere, and many others had experienced attacks of insanity: specifically, such psychiatric conditions as delusional and hallucinatory syndromes, depressions, and manic states. Although Lombroso reported several cases of creative men who, according to indisputable evidence, had had attacks of psychosis, in other cases it was difficult to tell whether they had suffered from real psychoses or from what other authors would call peculiarities of character and temperament. Moreover, Lombroso dealt only with the negative qualities of great men. He did not deal with the

positive qualities or with the processes that transform psychopathology into creative activity. In his last books, Lombroso expressed the opinion that the quality of being a genius is associated with epilepsy. The peculiarities of these geniuses would be explained as epileptic equivalents. He felt that being a genius may be the expression of a "degenerative psychosis."

For several decades Lombroso's works enjoyed a great popularity in Europe, but finally their lack of scientific basis, absence of clear-cut definitions of genius and of insanity, and the inability to prove the veracity of anecdotal reports made even Lombroso's own pupils skeptical about his work. Lombroso's contributions, however, will retain historical importance, for they represent one of the first and most prolonged attempts to find connections between psychopathology and creativity.

We must wait for the advent of the psychoanalytic school for a new and more rewarding approach to the problem of creativity. According to Freud, creativity originates in man's conflicts, which stem from fundamental biological drives. The urge to create is seen as an attempt to find a solution to these conflicts.

Just as the child attains wish fulfillment or some control over reality through play and games, in which he generally impersonates an important adult—a political leader, an army general, a movie star, a parent, etc.—so the

creative person produces a work of art in which he can realize his daydreams. However, Freud adds, we are often ashamed of our day-dreams, just as we are of drives that give rise to nocturnal dreams. In our nocturnal dreams the censorship diminishes the shame by making the manifest aspect of the dream very different from its meaning. Freud gives a similar interpretation for the aesthetic transformation of the original daydream: ". . . The essential *ars poetica* lies in the technique by which our feeling of repulsion is overcome. . . . The writer softens the egotistical character of the daydream by changes and disguises, and he bribes us by the offer of a purely formal, that is, aesthetic, pleasure in the presentation of his fantasies."

According to Freud, childhood experiences are very important in accounting for the content of the creative product. Thus, it is not an accident that in a famous painting by Leonardo da Vinci the Virgin Mary and St. Anna both appear with the infant Jesus, in contrast to the usual representation of the holy family in Italian painting. Leonardo had the unconscious need to reproduce a childhood experience. He was raised by two mothers: his real mother, a peasant woman, and his father's legal wife, in whose home Leonardo grew up.

According to Freud, the role of sexuality in creativity is always prominent. He traces the creative person's desire to know the unknown back to the child's sexual curiosity, which begins with the third year of life. In

Freud's opinion the child's interest in sex has three possible outcomes. The first is energetic repression, favored by educational and religious inhibitions. The second, a transformation of psychological mechanisms, occurs when sexual investigation is not totally repressed but is dealt with by thought processes or by compulsive defenses. This transformation takes place when the intellectual development is sufficiently strong. In the third case, "the most rare and most perfect type," sexual curiosity is sublimated into that curiosity which leads to creativity.

These brief remarks are sufficient to illustrate that Freud was mainly concerned with the importance and relevance of motivation in creativity, not with the essence of creativity itself. Unconscious motivation is indeed a very important subject, but it does not include the various aspects of the problem of creativity. We want to determine why and how a few gifted men are able to transform their motivations and their personal experiences into creative products.

Within the theoretical framework of the Freudian school, Kris is, perhaps, the most prominent author who has studied creativity not exclusively from the point of view of unconscious motivation. Kris must be given credit for stressing the importance of the primary process in the formal mechanisms of creativity. The primary and secondary processes were described by Freud in Chapter 7 of *The Interpretation of Dreams;* but he

connected these concepts to the problem of unconscious motivation, not to the formal aspects of creativity. By primary process, Freud meant a special type of organization that governs unconscious processes. It is characterized, from a cognitive point of view, by the phenomena of displacement, condensation, and substitution. From the point of view of the libido theory, it is characterized by easy discharge or easy shifting of libidinal charge. Kris considered the use of the primary process in creativity as a "regression in the service of the ego." In other words, in the creative work the creative person uses such processes as condensation and substitution. This would take place in the preconscious system.

Still in the framework of the Freudian school, Kubie adds support to Kris's idea that creativity is a product of the preconscious and not of the unconscious, as had previously been assumed by some psychoanalysts.

Jung has also made a significant contribution to the problem of creativity, especially in reference to the aesthetic process. Jung believed that the creative process, at least when it pertains to art, may occur in two modes: the psychological and the visionary.

In the psychological mode, the content of the creative product is drawn from the realm of human consciousness. Although the vast and rich realm of human experience, in its relation to such things as love, family, environment,

society, crime, or human destiny in general, usually appears in the content of the work of art, this mode of creativity "nowhere transcends the bounds of psychological intelligibility. . . . Everything that it embraces belongs to the realm of the understanding." The psychological mode requires submitting the material to a direct, conscious, and purposeful aim.

It is the visionary-mode that concerns Jung more than anything else. In this second mode, the content does not originate from the lessons of life but from the depths of time. It reproduces primordial experiences that surpass understanding. These experiences may be many-sided, demonic, grotesque. They come from the collective unconscious—that part of the psyche which is the depository of experiences that have occurred repeatedly over the course of a large number of generations. These deposits are the archetypes.

In the visionary mode, the method is again different. The creative person is at the mercy of the reemerging content. He is in a passive situation. "The work brings with it its own form." The creative person is more conscious of an "alien" will or intention beyond his comprehension. In the visionary mode, the creative process consists in an *unconscious animation of the archetype.*

The Primary Process

Jung is correct in pointing out that a great work of art is not the

exclusive result of life experience or of the usual ways of thinking but also of primordial processes. However, the present author believes that these primordial processes do not come from the collective unconscious and have little to do with the content of the product of creativity. He believes, as Kris does, that these processes consist of primary-process mechanisms described by Freud. These mechanisms deal with the cognitive forms of the creative process, not with its content.

As we have already mentioned, although Freud discovered the primary process, he did not pursue the study of the cognitive mechanisms of the primary process and therefore could not sufficiently apply his discovery to the understanding of creativity. On the other hand, Kris, who understood the relevance of the study of the primary process in relation to creativity, did not show how, in the different forms of creativity, the primary process must integrate with the mechanisms of the secondary process.

In my opinion it is from an appropriate matching of secondary-process mechanisms with those of the primary process that the creative process emerges. I have proposed the use of the expression *tertiary process* for this special combination. In a certain number of creative processes the matching is not exclusively between primary- and secondary-process mechanisms but also between faulty or archaic and normal mechanisms, all of which belong to the secondary process. For these combinations, too, the designation tertiary

process will be retained.

In the different areas of creativity specific modes can be recognized by virtue of which these mechanisms integrate so that innovation emerges. In the course of this chapter we shall illustrate some of these modalities.

The relations between the primary process and the creative process are many. Such extremely important topics as the image, imagery, the endocept, and the phenomena of a dualism were discussed at length in my book, *The Intrapsychic Self,* and will receive further elaboration in a book now in preparation. Also, for reference to painting see my article on "Schizophrenic Art and Relation to Modern Art." Limitations of space demand that I focus on only one of the relations between the primary process and the creative. For this purpose, I have chosen one of the most basic and far reaching: identification based upon similarity. Some attention will also be paid to other mechanisms; such as putting the concept into words (verbalization), making it concrete (concretization), and its attempted transformation into a perception (perceptualization). For the sake of clarity and continuity let me summarize some things I have said about the primary process in my work on schizophrenia.

The seriously ill schizophrenic, although living in a state of utter confusion, tries to recapture some understanding and to give organization to

his fragmented universe. This organization is to a large extent reached by connecting things that have similar parts in common. Many patients force themselves to see similarities everywhere. In their relentless search for similarities they see strange coincidences, that is, similar elements occurring in two or more instances at the same time or at brief intervals. By considering these similarities as identities they attempt to find some clarity in the confusion of the world, a solution for the big jigsaw puzzle.

A red-haired young woman in a post-partum schizophrenic psychosis developed an infection in one of her fingers. The terminal phalanx was swollen and red. She told the writer several times, "This finger is me." Pointing to it she said, "This is my red and rotten head." She did not mean that her finger was a symbolic representation of herself, but, in a way incomprehensible to use, it was really herself—or an actual duplicate of herself. Another patient believed that the two men she loved in her life were actually the same person, although one lived in Mexico City and the other in New York. In fact, both of them played the guitar and both of them loved her. Another example that the author often quotes is that of a patient who thought she was the Virgin Mary. Asked why, she replied, "I am a virgin; I am the Virgin Mary."

Many patients at this stage of regression indulge in an orgy of identifications. The patient tries to find glimpses of regularities in the midst of

the confusion in which he lives. He tends to register identical segments of experience and to build up systems of regularity upon them. Not only does he experience an increased immediate grasping of similarity, but he responds to such similarities as if they were identities. If we want a logical formulation for this disorder we could say with Von Domarus that, "Whereas the normal person accepts identity only upon the basis of identical subjects, the schizophrenic, when he thinks in a typical schizophrenic way, accepts identity based on identical predicates." In other words, in the primary-process type of organization, similarity becomes identity. In Aristotelian logic, only like subjects are identified. The subjects are fixed; therefore, only a limited number of deductions are possible. In paleologic thinking the predicates lead to the identification. Since the predicates of the same subject are numerous, the deduction reached by this type of thinking is not easy to predict. The choice of the predicate that will lead to the identification is psychodynamically determined by conscious or unconscious motivational trends.

This cognitive organization of the primary process is susceptible to different interpretations that actually refer to the same phenomena. We may, for instance, state that the primary process organizes classes or categories that differ from those of secondary-process thinking. In secondary-process thinking, a class is a collection of objects to which a concept applies. For instance, Washington, Lincoln, Roosevelt, Jefferson, et al. form a class to

which the concept “President of the United States” applies. In paleologic or primary-process thinking, a class is a collection of objects that have a predicate or part in common (for instance, the state of being virgin) and that, therefore, become identical or equivalent. The formulation of a primary (process) class is often an unconscious mechanism. Whereas the members of a secondary (process) class are recognized as being similar (and it is actually on their similarity that their classification is based) the members of a primary class are freely interchanged: for instance, the patient becomes the Virgin Mary.

Another characteristic of the paleologic organization is the change in the significance of words. The words lose part of their connotation. That is, they may not refer to a class any more, but the verbalization, that is, the word as a phonetic entity, independent of its meaning, acquires prominence. Other primary-process mechanisms may take place after attention has been focused on verbalization. In many expressions of patients who think paleologically, two or more objects or concepts are identified because they can be represented by the same word. The verbal symbol thus becomes the identifying predicate. This leads to what seems to be plays on words. For instance, a patient who was asked to define “life” started to define *Life* magazine. An Italian patient, whose name was Stella, thought she was a fallen star. Another patient thought she was black like the night. Her name was Laila, which means night in Hebrew. An American patient, whose name was

Marcia, thought she was a rotten person. In Italian, a language she knew well because she had spent her childhood in Italy, the word *marcia* means rotten.

Homonymy and similarity of words are also used in other more complicated forms of paleologic thinking in order to obtain identification or to give plausibility to thoughts that are determined not by logic but by otherwise unsustainable motivations. As an example from pathology, I shall quote a patient whom I examined during the second world war. During the examination, she told me that the next time the Japanese attacked the Americans it would be at Diamond Harbor or Gold Harbor. When she, was asked why, she replied: "The first time they attacked at Pearl Harbor; now they will attack at Diamond Harbor or at Sapphire Harbor." "Do you think that the Japanese attacked Pearl Harbor because of its name?" I asked. "No, no," she replied. "It was a happy coincidence." Note the inappropriateness of the adjective happy. It was a happy coincidence for her, because she could prove thereby the alleged validity of her present paleologic thinking. Her train of thought was stimulated by the word "Pearl," which aroused associations with precious stones. Another primary-process mechanism, common to dreams and schizophrenia, is the concretization of the concept. In schizophrenia concepts that cannot be endured by the patient as long as he uses them at an abstract level are translated into concrete representations. For instance, a patient had the delusion that his wife was poisoning his food. He had a gustatory hallucination that made him taste the poison in the food. In this

case, the patient was actually experiencing a general situation in which he felt his wife was "poisoning" his life. Another patient had an olfactory hallucination. He smelled a "bad odor" emanating from his body. He was actually concerned, at an abstract level, with his character. He felt he had a stinking personality. In dreams also, thoughts are transformed into concrete perceptual media, predominantly visual.

Wit

Freud first developed his concepts about the primary process in his studies on dreams, and later he applied them to his studies of psycho-neurotic symptoms. He opened a direct path to the understanding of the creative process with his book on the psychology of wit. Freud became interested in the problem of wit when he noticed that certain dreams resembled jokes, especially when they were interpreted. He did not disregard this apparently accidental similarity, and on studying the problem he discovered numerous analogies between wit and dreams. In wit, as in dreams, Freud focused his attention on the unconscious motivation of the joke—a very important point indeed. However, he made a rather hasty analysis of the formal mechanisms of the joke.

Let us examine some examples of jokes quoted by Freud. One of them is a famous witticism of the poet Heine, who, in talking about a lady, said, "This

woman is like the Venus de Milo in many ways. Like her, she is extremely old, has no teeth, and has spots on the yellow surface of her body." Freud believed that the technique of this joke consists of "representation through the opposite." Ugliness is made to agree with the most beautiful. I believe that trying to identify a subject with its opposite reinforces the effect of the joke, but that the fundamental factor in this joke is the possibility of identifying two apparently unidentifiable subjects. Heine wanted to say of a particular woman that she was ugly. The artistic method he resorted to was indeed unpredictable and bizarre: he identified the ugly woman with the most beautiful—the Venus de Milo. How could this logically impossible identification be made? By abandoning Aristotelian logic and reverting to the paleologic of the primary process, like the logic of the schizophrenic. The woman and the statue of Venus are identical because they have some predicates or parts in common: namely, being old, having no teeth, and having spots on the yellow surface of their bodies.

Here is another example from Freud, a joke that was very common at the time of the Dreyfus trial, the French Jew unjustly accused of treason by the French Army: "That girl reminds me of Dreyfus. The Army does not believe in her innocence." Freud believed that the technique of this joke is mainly that of ambiguity, but it is obvious that here again an improbable identification is made. Dreyfus and the girl are identified because they have a common predicate, "innocence not believed in by the Army." The predicate is

common to both subjects only as the same verbalization is applied to two different concepts. In fact, in the case of Dreyfus, innocence means "state of not being guilty of treason"; in the case of the girl it means "lack of sexual experience." Also the word "army" has a different slant in the two cases. In the case of Dreyfus, it means "general staff'; in the case of the girl, it means "group of men," with emphasis on their being male. We see, thus, how identity based only upon a similarity of a part or a predicate is an important formal component of jokes. However, as I have written in much greater detail elsewhere, the cognitive mechanisms of witticisms are more complicated in some cases.

Let us examine another joke, this time not from Freud.

> A woman sues a man by whom she claims she has been raped. The plaintiff and the defendant are in front of the judge. The judge looks at both of them and sees that the woman is tall and stout, the man short and thin. With some astonishment he asks the woman, "Is this the man who raped you? How did he do it?"
>
> The woman answers, "He pushed me against a wall and he raped me."
>
> "How is it possible?" asks the perplexed judge. "You are so tall and he is so short!"
>
> "Well," says the woman, "I bent my knees a little bit!"

The woman is logical. If she bends her knees, the sexual act is possible. In the attempt to use logic in self-defense, however, she accuses herself,

because the bending of the knees implies her willingness to be a partner and automatically excludes the act of rape. Though in this case no paleologic is involved, it is still the logical mechanism that is the basis of the joke—a logical mechanism that is used by the woman in self-defense and which, on the contrary, turns out to be a self-accusation.

This example shows that in some jokes faulty cognitive mechanisms, which technically belong to the secondary process, are used instead of primary-process mechanisms. These faulty mechanisms consist at times of correct logical processes that are based on false premises; at other times, of logical ways of thinking that implicitly invalidate the allegation made or prove only an inconsequential issue. These faulty mechanisms are used not only in jokes but also in the rationalizations of normal as well as psychoneurotic and psychotic persons who want to defend an allegation, a hostile attitude, or a desire.

We must clarify a specific point in order to avoid conveying a wrong impression. It has not been suggested here that the witty character of the joke is due simply to the use of primary process paleologic or to faulty logic. More than that is necessary. Let us examine again the Dreyfus joke and let us assume that the girl who was identified with Dreyfus was Jewish. If a person had said, “This girl has something in common with Dreyfus; she is Jewish,” this Would have been a logically correct statement but platitudinous. It would

have been a statement made with the application of a secondary-process mechanism. Let us assume that a schizophrenic patient had said, “This girl is Dreyfus: she is Jewish.” This would be a paleologic, primary-process identification because of a common predicate (being Jewish). This statement would be delusional but not witty.

Thus, it is not the use of primary-process paleologic or of faulty logic that confers the witty character to the joke. *In my opinion, one perceives a stimulus as witty when he is set to react to logic and then realizes that he is, instead, reacting to paleologic or to faulty logic.*

The listener is temporarily deceived because he first apprehends the intellectual process of the joke as logical. A fraction of a second later, however, he realizes that the intellectual process is not logical at all, and he laughs. The listener discovers that he is not reacting to logic but either to paleologic or to faulty logic. Logic, faulty logic, and paleologic may be very similar and, when they are associated as they are in the joke, may deceive us as do identical twins. It is just a fleeting deception, however. As soon as we become aware of it, we laugh. If we know that we are going to listen to a joke, we prepare ourselves to be temporarily deceived.

In the creation of a joke, the creative process is thus based on the following factors: (l) Primary-process mechanisms, or cognitive mechanisms

that are usually discarded because of faults, become available to the creative person. (2) Out of those primary-process and/or faulty cognitive mechanisms which have become available, the creative person is able to select those which give the fleeting impression of being valid secondary-process mechanisms. The witty or comic response on the part of the listener occurs when there is recognition of logic-paleologic discordance.[2] The listener recognizes that what seemed a logical process is instead a primary or paleologic process, and he laughs. The creative process of wit consists in putting together the primary- and secondary-process mechanisms and automatically comparing them. It is the comparison that reveals the discordance and provokes laughter.

It is possible now to understand why most paleologic expressions of the schizophrenic are bizarre but not witty. The language of the schizophrenic is often so remote from reality that no similarity or possibility of confusion with logic is left. Only when such confusion is possible for the listener are expressions witty. Occasionally they are; as a matter of fact, I owe the origins of my interest in the psychology of creativity to some witty expressions of schizophrenic patients. For instance, a patient whom I examined many years ago had the habit of oiling her body. Asked why she would do so, she replied, "The human body is a machine and has to be lubricated." The word "machine," applied in a figurative sense to the human body, had led to the identification with man-made machines.

The creative process as we have described it is not involved in what this patient said. She did not know that what she was saying was witty. She meant literally what she said. Her delusional remark is witty only for us. In this case we, not the patient, create the joke, because we recognize her illogicality in her apparent logicality.

It is from the appropriate matching of a secondary-process mechanism with a primary-process mechanism that a tertiary process emerges and a primitive or faulty form of cognition is transformed into an innovation. In the different fields of creativity there are specific ways in which the secondary process is matched with the primary process so that innovation emerges. We have seen that, in wit, the specific method consists of pairing similar logical and paleological mechanisms and in recognizing the logic-paleologic discordance. We shall now consider the specific modalities that are used in the arts and sciences.

From Puns to Parables

In such products of creativity as puns, proverbs, parables, and even in some commercial advertisements, expressions are used in which there is no logic-paleologic discordance, but the contrary: namely, paleologic reinforcement. Here paleologic actually strengthens logic. The result is not humor but great verbal effectiveness.

These expressions may be compared to those rare dreams whose manifest content coincides with the latent, or to those neurotic manifestations which coincide with the demands of reality. A beautiful example of paleologic reinforcement is found in Benjamin Franklin's historical statement, "We must all hang together, or assuredly we shall all hang separately." This sentence has great vigor and effect because it follows both logic and paleologic. It has practically no comic effect because the meaning is not sustained by paleologic alone. Franklin wanted to convey the message, "We must remain united," but he did not use this ordinary phrase. He said instead something like this, "One way or another we're going to hang; so, let's hang together rather than separately." But to "hang together" means to remain united, and "hang separately" means to be executed on the gallows. In a fleeting preconscious moment all the meanings of the words "to hang" are identified. When they are recognized as being different, the artistic effect is experienced.

We may take another example that has been considered with veneration throughout the centuries: In the Gospels it is written that people who wanted to confuse Jesus asked him whether it was proper to pay taxes to Caesar. Jesus requested that money be shown to him and then asked whose image was on the coin. They replied, "Caesar's." Jesus then said, "Render therefore unto Caesar the things that are Caesar's, and to God the things that are God's." The Gospels say that the people were astonished at such an

unexpected answer, just as an increasing number of people have been throughout the centuries.

Jesus' answer is enigmatic and has been interpreted in many ways. And yet we immediately perceive its great vigor and we sense that it conveys a great meaning. Why is this so? It is difficult to examine Jesus' sentence from an exclusively formal, strictly literal and concrete point of view, because as soon as we hear it we become inundated by its various and deep abstract meanings. Nevertheless, it seems that if we make an effort we can recognize in this sentence a concrete and literal basis, as we do in parables in general. The image on the coin was Caesar's only as it represented the likeness of Caesar, not because it belonged to Caesar. In other words, only the image was Caesar's, not the ownership of the coin. Therefore, if we take this sentence in an extremely literal, concrete sense, Jesus would be wrong; he based his statement only on a play of words, on the fact that the expression "Caesar's" would paleologically acquire the meaning "being the property of Caesar." The coin, then, would have to be given back (rendered) to Caesar, its rightful owner. But taxes would have to be paid even if the coins did not show the image of Caesar, and, as a matter of fact, some Roman coins did not show Caesar's image or name.

Why, then, does the story not appear humorous, in spite of having a partially paleologic foundation? The expression reinforced the important

message that Jesus wanted to convey to the people: that money *did* belong to Caesar, not in a literal but a metaphorical, sense. Money meant material things. It belonged more to Caesar and to the materialistic world of Rome than to the spiritual world of Jerusalem. Jesus' followers should not be concerned with such things but only with the "things which are God's and must be rendered to God." Jesus was trying to placate the discontent of the people by showing, in an unusual, unpredictable way, that it was acceptable to pay the unfair tribute to Caesar. With his words he did not show a pro-Roman attitude, nor did he come out against payment of taxes. This would have been a rebellious position. At the same time, in a new and highly artistic way, he supported the old Hebrew religious tradition that stressed the antithesis between God and Moloch. Moloch is a contemptuous word for king, a king being interested in temporal, earthly values only. In this parable, Caesar is Moloch.

In this example we can see the fusion or contemporaneous occurrence of several levels of meaning. Had Jesus resorted just to a play on words, his remarks would have been witty but not epoch-making. Had he tried to mitigate the sorrow of discontented taxpayers, his intent would have been a noble one but not a revelation. Jesus wanted to reveal what, for him, was a highest truth. This revelation was made not through a scientific demonstration but through paleologic reinforcement. Paleologic reinforcement is the opposite of logic-paleologic discordance. It does not

pertain to the comic but to the general realm of art and, occasionally, of science as demonstrated here-after.

Poetry

The poet, too, is looking for a similarity that will reinforce his theme. This occurs in that creative process called the metaphor. Aristotle wrote, "The greatest thing by far is to be a master of metaphor; it is the one thing that cannot be learnt from others; and it is also a sign of genius, since a good metaphor implies an intuitive perception of the similarity in dissimilar." (*Poetics*, 1459a)

Poetry, of course, is not based exclusively on metaphor, but metaphorical language is one of its fundamental components. Let us take as an example Blake's beautiful poem "The Sick Rose":

O Rose, thou art sick!

The invisible worm

That flies in the night,

In the howling storm,

Has found out thy bed

Of crimson joy;

And his dark secret love

Does thy life destroy.

Ostensibly the poem is about a beautiful flower that has been invaded and is being destroyed by an ugly worm. But there are many more levels of metaphorical meaning. What comes easily to mind is that the rose stands for a beautiful woman and that the worm stands for a fatal illness that soon will destroy her. In fact, the poet addresses the rose as a person. He says, "thou art sick!" Such comparisons between flowers and women, and worms and illnesses, occur not only in poetry but also in dreams and in schizophrenic ideation.

We have seen how in psychopathologic conditions and in dreams common predicates lead to metamorphosis: that is, to identifications with what, to normal or waking people, seem dissimilar subjects. In poetry there is no *metamorphosis,* but *metaphor.* The poet knows that the rose is not a woman, but he feels the woman is like a rose.

In order to compare the sick flower to the sick woman, the poet has accessibility to the formation of a primary class that was described at the beginning of this chapter as consisting of equivalent or interchangeable members. Now, is a primary class involved in the making of a poetic metaphor? Yes and no.

The poet does not *actually* substitute the sick rose for the sick woman. The sick rose is not the sick woman; but in the sick rose he sees the sick woman. In schizophrenia, the interchangeability or displacement is complete instead of partial: for instance, in the example in which the patient becomes the Virgin Mary. In the schizophrenic, the primary class of virgin women was an unconscious class.

In poetry, the displacement—for instance, from the woman to the rose—is conscious. The poet wants to react to the sick woman as he would to a sick rose. Whereas in psychopathologic conditions and in dreams the displacement is from the real object to the symbolic, in poetry it is from the symbolic object (the rose) to the real (the woman). The difference is deeper than that. Let us take Blake's poem again. As we have already mentioned, the rose does not *replace* the woman (as the Virgin Mary replaces the patient, who is no longer the patient but who has under-gone the delusional metamorphosis of becoming the Virgin Mary). In the poem we see the woman in the rose. The woman and the rose are fused; but it is not that bizarre fusion that we see in schizophrenic drawings and delusions. The woman and the rose, though fused, retain their individuality. The retention of their individuality permits a comparison, yet does not lead to identification. How is this possible? It is possible because by putting the sick rose and the sick woman together, we become at least partially *conscious* of a class: the class of "beautiful life destroyed by illness." As a matter of fact, it is enough for the

human cognitive faculties to be aware of only two members of a class to become aware of the whole class.

But is this class primary or secondary? Both, and, in a certain way, neither. In the act of being created, the class is primary. Finding common predicates among different subjects, and identifying by virtue of these common predicates is a primary-process mechanism. The primary process tends to remain primary: the rose and the woman tend to interchange or to remain together; but as the concept of the class "beautiful life destroyed by illness" emerges, their fusion does not become, so to speak, consummated. They remain distinct. However, the level of secondary class is not reached completely in the poem, or does not remain independent from the primary-process origin. The poet does not deal on a cognitive level with "beauty destroyed by illness." Only the student of art may translate the poem into a secondary-level content. The poem itself oscillates between a primary level and a secondary level, which is inferred. Here is, thus, an important difference between art and psychopathology: *whereas in the psychopathologic use of the primary process there is no consciousness of abstraction* (as a matter of fact, the power of abstraction is impaired and has to find concrete channels) *in art the use of the primary process does not eliminate the abstract. On the contrary, it is through the medium of the primary process that the abstract concept emerges.*

A physician would not compare a woman to a rose in order to clarify the outcome of a fatal illness or in order to lead to the formation of a new class. Why does a poet need a rose invaded by a worm to tell us that fatal sickness in a beautiful woman is a horrible thing? Why does he need to resort to his unusual accessibility to primary classes?

The poet discovers that things abound in similarities. New similarities take on new meanings because each recognized similarity is a concept and implies the formation of a new class. One of the main ways of expanding knowledge that the aesthetic fields have in common with science, as we shall show below, is the formation of new classes or categories.

Let us remember what happens in jokes: the joke is based on the eventual recognition that logic and paleologic are not identical but only similar. The recognition of the logic-paleologic discordance leads to the comic reaction. In some puns and parables there is more agreement than disagreement between the logic and the paleologic. In poetry, there is agreement between paleologic and logic. Paleologic actually reinforces logic.

Art, indeed, is founded to a great extent on *paleologic reinforcement.* At the same time that the work of art elicits the abstract concept, it sustains itself upon the paleologic reinforcement, or identification with a concrete example. There is almost a perfect welding of the abstract concept with the concrete

example, of the replaced object with its metaphor. The concrete object of the metaphor is not only a symbol, it is a participant in producing the effect. In paleologic mechanisms, as used by the schizophrenic, the object that is replaced or symbolized fades away (at least from consciousness) or it is replaced by its symbol. In our example the virgin patient disappears and is replaced by the Virgin Mary. In dreams, too, what is symbolized is no longer present. For instance, in a dream a gorilla may stand for one's father. The image of the father is completely absent, and only psychoanalytic work can recapture it. In art the replaced object fades away also, but not entirely. It fades away only in its concrete essence; its presence is felt in its absence. The woman is not mentioned in Blake's poem, but her presence is felt. She exists in the artistic assumption. At the same time that the work of art eliminates her, she is there as a rose. Symbolism and reality hold hands.

There are other factors to be considered in the study of the metaphor. In a brief poetic passage we may find only one metaphor, but in highly artistic works more than one metaphor is combined. Let us reexamine Blake's poem. We have seen that the rose stands for a beautiful woman who is sick and that we are, so to speak, invited to pity the fate of this woman. In some respects, this is a recurring theme in literature. It is simple to think of an ailing woman named after the flowers she liked so much: *la dame aux camelias* of French literature. We can also think of heroines in Italian operas: in *La Bohème,* Mimi is not a sick flower but a sick maker of artificial flowers. Her beauty is

compared to the crimson beauty of dawn and of sunset. Something vaguely associated with this image is also found in Dante. In the first of the dreams reported in his early book *La Vita Nuova,* he describes how Beatrice appeared to him in the arms of a male figure, Eros or Love. Beatrice is partially covered by a red cloth. The whole scene takes place in a cloud, red as fire. Dante knows that Beatrice is going to die because of something Love has made her eat.

In Blake's poem, however, many other metaphorical meanings are suggested. As in Dante's dream, the invader is a male *(his* dark secret love). The bed of crimson joy conveys the image of femininity and sexuality, from the point of view of a male (crimson are the cheeks, lips, and, perhaps, the vagina of the woman). The rose becomes more female, the worm more male. Accessory predicates that lead to more identification increase the artistic value, just as they do in jokes.

But there is much more in the poem. The invisible worm that flies in the night, in the howling storm, which with his secret love invades the bed of crimson joy and destroys life, may suggest an evil-producing sexuality, a sadistic passion, a "dark" love, not something appropriate for crimson joy.

At this level of understanding the poem would represent a drama between two people, woman and man, the battle of the sexes. But the poem

can be interpreted at a much more abstract level where it represents beauty and evil that must, but cannot, coexist in the same universe, for, in the end, evil often destroys beauty. The worm may represent the seed of spiritual decay. And yet the worm may even appear not so evil in its evil, because it is capable of loving and it is only that love which leads to destruction. The worm, too, wants to flee from the "howling storm," that is, from the horrible and tempestuous world; but, in-as-much as it is part of that world, it will end by producing evil.

We could find other levels of meaning. The rose and the woman appear like sisters, in the sense in which Francis of Assisi saw the brotherhood and sisterhood in the disparate existences of the universe. The new class or "family," to which the rose and the woman belong, reasserts the universal encounter with life, love, sorrow, decay, and death. We enter, thus, into an indefinite realm of symbolism, for the classes of symbolized objects accrue by a sequence of paleologic analogies that are like more and more windows, more and more doors, opening into unguessed aspects of reality, into unpredicted worlds. In the great work of art we can seek and find more and more analogic expansions. Thus, though the new object has been found, the longing and the search continue. The finiteness of the new object contrasts with the indeterminacy of the search. And yet the search itself becomes part of the newly created work, of the new unity, an aesthetic entity that in its totality appears for the first time in the universe. This is occasionally referred

to as the unfinished statement of the work of art.

We are ready to appreciate new aesthetic unities. All of us respond to phonetically beautiful words and to their rhythm; we pity beautiful women who become sick and die; we are concerned with evil that destroys beauty; we are receptive to the sensuous beauty of flowers and have some distaste for earthy worms. Everything was ready for the fitting of all these elements together, but somebody had to make them click. Blake did this by harmoniously blending primary and secondary processes, as in a symphony, never heard before, of unsuspected predicates. The synthesis Blake achieved can easily be communicated and shared. The originality of the new unity contrasts with the response to such a unity, which is almost a general one.

Can then a poetic fusion of primary and secondary processes be compared to a discovery? In a certain way, yes; but only to a special type. An aesthetic discovery may not make us know things that we did not know before. However, it creates a new affective experience.

Schizophrenic language and dreams, too, have different meanings and different levels of cognition. However, in psychopathological conditions these different meanings are discordant; furthermore, often they do not co-exist but replace one another. That is, the dreamer and the talking schizophrenic are aware only of what they see in the dream or of what they say at a manifest

level. They need the therapist to recapture all or many of the meanings. If there is a unity, it is in the atmospheric feeling or in a sort of primitive affective gestalt. Although the schizophrenic experience is also a new experience, it is actually a reduction to a concrete level, a restriction, not an enlargement, unless some new understanding or the recapturing of the abstract meaning is obtained through recovery or therapy.

At times the artist has a capacity for imagery almost to the extent that the dreamer has, or that capacity for "orgies of identification" that the schizophrenic has. He is able, however, to use them in unpredictable syntheses that become works of art. Victor Hugo, in his poems, compares the stars in multiple and, to the average person, inconceivable ways: to diamonds, other jewels, golden clouds, golden pebbles, lamps, lighted temples, flowers of eternal summer, silvery lilies, eyes of the night, vague eyes of the twilight, embers of the sky, holes in a huge ceiling, bees that fly in the sky, drops of Adam's blood, and even to the colored spots on the tail of the peacock.

Another characteristic that literary men, especially poets, and people using primary-process thinking have in common, is the use of homonymy or similarity of words, as I have already mentioned. I shall start with a classic example from Shakespeare.

In Shakespeare's *Othello,* Othello is a black man, a Moor. Actually, in the

original Italian story, written by Giovanni Battista Giraldi Cintio, from which Shakespeare took the plot, Othello was a white man, a Venetian patrician who was a lieutenant in Cyprus in the year 1508. Giraldi's story gives no names, but historical documents indicate that the episodes reported by Giraldi Cintio really took place and that the family name of this lieutenant was *Moro. Moro,* in Italian, means Negro or Moor, but in the case of this lieutenant, Moro was his last name, which had no reference whatever to his race or color. It could be that Shakespeare mistook a family name for a name referring to the color of the person involved. I am more inclined to believe that such coincidence stimulated Shakespeare's mental associations. Shakespeare may have had the inspiration that if Othello were really a Moro (Moor) or Negro, the story would have an uncommon artistic twist and the contrast with the fair, "divine" Desdemona would be accentuated. A real pun was made of the name *Mow.*

Similar puns, quasi-puns, and strange plays on words are common in literature and especially in poetry. A typical one is from Petrarch, who in a great variety of ways plays on the word *Laura,* the name of the woman he loved.

L'aura che 'I verde lauro e l'aureo crine

soavemente sospirando move. . . .

Here the name Laura is felt and heard in three different words (*I'aura*—tire zephyr; *lauro*—the laurel; *I'aureo crine*—the golden hair).

Dante too resorts to plays on words that, at first impression, are reminiscent of schizophrenic cognition. In *La Vita Nuova,* a book consisting of poems and poetic prose, he wrote that once he saw Beatrice walking on the street, *preceded* by her girlfriend, Giovanna, who was once the beloved of Dante's friend and fellow poet Cavalcanti. Dante wrote that Giovanna, because of her beauty, was often called *Primavera,* which in Italian means spring. Dante then makes a peculiar play on words. *Primavera* signifies for him *prima vena,* which in Italian means "she will come first, before." (That is, before or preceding Beatrice while walking.) But a second play on words is even more revealing. The real name of Beatrice's friend is Giovanna (the feminine of Giovanni or John in English). Dante then compared her to John the Baptist who *came before* or *preceded* the coming of Christ.

The underlying, unconscious motivation appearing several times in Dante's works resides in his wish to identify Beatrice, whom he occasionally calls the daughter of God, to Jesus Christ. He wants to make this identification not only in order to glorify the object of his love, in real life a woman named Beatrice, but in order to transform his profane or earthly love into a sacred or divine love.

Dante must resort to the ambiguity of primary-process thinking in order to make this identification possible. But he knows that this way of thinking, which he follows, is not logical. He knows that if people believed that he accepted these ideas as true they would consider him insane, but he manages to pass the reality test by using a trick made available by his secondary-process mechanism. He says that he does not really believe in these ideas. He writes "it seemed that Love spoke in my heart" and said those things. He tells the reader that this is fantasy, but there seems to be little doubt that he would like to believe part at least of this fantasy. As a matter of fact, the whole *La Vita Nuova* and *The Divine Comedy* are suffused with a mysticism that is not just part of an aesthetic technique. This mysticism is a special type of reality for the poet: I would say not just the reality of a wish, but the real reality.

Some recovering schizophrenics retain a greater accessibility to the primary process than normal persons and are, nevertheless, in a position to use the secondary process. Reports of such cases are rare because the examiner has to see these patients during a special transitional stage that lasts a very short time and is easily missed if not looked for. These reports are extremely important. More than anything else, they disclose the double role that the primary process can play in illness and creativity.

Let me quote a thirteen-year-old, schizophrenic girl, who was admitted to the hospital following a rather acute psychotic episode. During this episode

she experienced hallucinations, delusions, and ideas of reference. In a routine mental examination three days later, she was asked to "explain the difference between character and reputation." She replied: "Reputation is stamped on and can never be erased. Your reputation is a bed; and when you get in, you can't get out of it. Character is like a bedspread which can be taken off, or character is like dirt on a sheet which, if you wash it, can be removed." The patient was asked to define the word despair. She answered: "Despair is like a wall covered with thick grease, and a person is trying to climb up this wall by digging his fingers in. Down below is a deep, bottomless pit. Up at the top of the wall on the ceiling is a big, black spider. I have been in this deep pit during the past year, but now I am climbing up a rope, trying to get out of it."

These definitions of character, reputation, and despair are not those that we would read in a dictionary. They have a great deal to do with the life experiences of the patient, and they are representations of concepts by means of visual images as they occur in dreams and in other functions where the primary process prevails. They are examples of what we have called perceptualization of the concept.

I want to mention briefly another patient, a poetess who experienced occasionally quasi-schizophrenic episodes. They were elusive in nature; often it was difficult to determine whether or not she was in a psychotic state. At times her poems resembled almost schizophrenic word salad; at other times

they had a genuine beauty. They were, nevertheless, always difficult to understand, like many examples of contemporary poetry. At the beginning of her treatment, she used to speak of human beings as worms. She also wrote poems in which people were represented as worms. There would not have been any difficulty in accepting such ideas at a metaphorical level, except for the fact that she insisted that people were really worms. It was impossible to determine whether this statement was made in a metaphorical sense or not. There was a flavor of literalness on her remarks. Even if she meant "worms" metaphorically, there was a resolute attachment to this metaphor, as if it literally represented reality. Her expressions seemed to belong to an intermediate, hard-to-delineate stage between metamorphosis and metaphor. As her condition improved, she wrote poems in which the metaphorical meaning of the word worm could no longer be doubted.[3]

Science

In a by-now-classic work on creativity, the great French mathematician Poincaré described the moments of creative illumination that he experienced. In the morning, following a sleepless night spent working on a mathematical problem without finding the looked-for result, he got on a bus. At the moment he put his foot on the step, the idea came to him, apparently without any conscious effort, that the transformation he had used to define the Fuchsian functions were identical with those of non-Euclidian geometry. This sudden

illumination was a breakthrough leading to great expansion in the field of mathematics.

Poincare described his subjective experiences extremely well, but he did not stress the fact that his creative insight consisted of seeing an *identity* between two previously reputed dissimilar transformations: the Fuchsian and the non-Euclidian. During the previous night, and for fourteen days prior to that night, Poincare had accumulated facts. But accumulation of data is not creativity; many people are able to accumulate facts. The creative leap occurs when observed facts are correlated; that is, when by perceiving a here-to-fore unsuspected identity, a conjunctive path or a new order is discovered.

We could multiply endlessly the instances where great discoveries were made by the act of perceiving an identity among two or more things that had seemed dissimilar or unrelated. Newton observed an apple falling from a tree and saw a common quality in the apple attracted by the earth and the motions of heavenly bodies. Newton perceived the similarity between two forces, that which caused an apple to fall to the earth and that which retains the moon in its orbit. He validated this

Darwin saw a similarity between Malthus's theories and the life of the jungle, and this association led him to conceive his theory of evolution. Freud saw formal similarities between dreams and jokes, and this observation

opened the path to the study of the creative process, although he did not become aware of the possibility of this new development.

Of course, the observation of similarity is not enough. For instance, the transformations used by Poincare and those of non-Euclidian geometry are not in every respect identical. An apple is dissimilar in size, origin, and chemical structure from the moon, and yet Newton saw a similarity. In what way are the moon and the apple similar? What does their partial identity consist of? Of being members of a class of bodies subjected to gravitation. Thus, at the same time that Newton saw the similarity between the apple and the moon, *a new class was formed* to which an indefinite number of members could be added. The new object for which he was searching, and which he found, was a class.

The discovery of this class revealed a new way of looking at the universe, because each member of the class came to be recognized as having similar properties. Is this new class a primary class as we have described it at the beginning of this paper? Obviously not. It differs on many counts.

First, when Newton perceived the identical element, he did not respond to the stimulus but to the class. Had he been a regressed schizophrenic, after seeing a similarity between the moon and the apple he could have paleologically identified the moon with the apple and could have thought that

the moon could be eaten like an apple; or thought it could be sucked like the maternal breast, as Renee, a by-now-famous schizophrenic patient reported by Sechehaye, did during a stage of her illness.

Second, Newton's creativity consisted in seeing a common property in the moon and the apple, and in not identifying them but in seeing them as members of a new class. An increased ability to see similarities, which is a property of the primary process, is here connected with a concept and the tertiary process emerges. The secondary class loses all its original connections with the primary process. However, although the new class is very well-defined, the search is not ended. The understanding of the Newtonian system is a prerequisite to the eventual opening of the Einsteinian world of classes.

Some Conclusions About Formal Mechanisms in Creativity

We could at this point, as a sort of summary, state that in wit an ostensibly secondary class is recognized as primary. In poetic metaphor, a primary and a secondary class reinforce one another; in science, what originated as a primary class proves to be a secondary class.

If we look at the three basic processes, primary, secondary, and tertiary, we can conclude that an important common characteristic of them all resides in the ability to differentiate similarities from manifold experience.

Similarity indicates that there is some kind of recurrence and, therefore, regularity in the universe. It is from these segments of regularity that the human mind plunges into the understanding of the cosmos. In psychopathology, normality, and creativity, the ability to register similarity is the common guiding principle—a tiny and tremulous light with which to pierce the secret of universal night! It is on the varying responses to similarity that the ultimate rise or the ultimate fall of man depends. We can represent these variations by resorting to imagery: for the primary process, all that glitters is gold. It will be the labor of the secondary process to discover that all that glitters is not gold. The tertiary process will do at least one of two things: either it will bestow the glitter of the gold to other substances to beautify them artistically or it will create a new class of glittering objects.

The Cultivation of Creativity

It is well known that creative people appear in particularly large numbers in certain periods of history in given geographical areas. This uneven distribution seems to indicate that special environmental circumstances and not exclusively biological factors determine the occurrence of creativity. It is enough to think of four major examples—the classic Greek period, the Italian Renaissance, the group of people who conceived the American revolution and gave the world a new concept of man, the contributions of the Jewish people since the nineteenth century—to

realize that creativity does not occur at random, but is enhanced by environmental factors.

Kroeber states that “inasmuch as even the people possessing higher civilization have produced cultural products of value only intermittently, during relatively small fractions of their time span, it follows that more individuals born with the endowment of genius have been inhibited by the cultural situations into which they were born than have been developed by other cultural situations.” He also states that “genetics leaves only an infinitesimal possibility for the racial stock occupying England to have given birth to no geniuses at all between 1450 and 1550 and a whole series of geniuses in literature, music, science, philosophy, and politics between 1550 and 1650. Similarly with the Germany of 1550-1650 and 1700-1800, respectively, and innumerable other instances in history.” If Kroeber is correct in his conclusions, we must accept that the possibility for the development of a large number of creative people always exists in certain populations. We may add that, in addition to general sociohistorical factors, special personal factors and attitudes acquired from early childhood through the whole period of adolescence are important in actualizing a potentiality toward creativity.

It is to be expected that educators and sociologists will resort more and more to child and adolescent psychiatry, school psychology, school

psychiatry, and mental hygiene in their efforts to accumulate that body of knowledge which, once applied, could promote creativity and remove inhibiting factors. There is also the possibility, as it will appear from what follows, that some characteristics or habits that have so far been considered unhealthy or undesirable may be recognized as favorable to creativity. The reverse may also be true.

Studies made independently by several authors have determined that highly intelligent persons are not necessarily highly creative (Getzels and Jackson, Hammer). Although creative people are intelligent persons, an exceptionally high IQ is not a prerequisite for creativity. On the contrary, it may inhibit the inner resources of the individual because of too rigid self-criticism or too quick learning of what the cultural environment has to offer. We must add that a great ability to deduce according to the laws of logic and mathematics makes for disciplined thinkers, but not necessarily for creative people.

The science of promoting creativity is in the initial stages. The author can suggest only rudimentary and tentative notions, deduced from his psychoanalytic-psychotherapeutic treatment of a relatively large number of creative people. These notions have to be confirmed or disproved by much more evidence than is available now. Statistical data are difficult to find because standards are lacking. In fact it is an arduous task to get agreement

on a definition of that particular cognitive gift which is creativity.

Two things now seem established:

1. An inclination toward creativity must be fostered in childhood and/or adolescence, even if it is not revealed until much later in life.

2. As a whole, American culture has not enhanced creativity. The psychiatrist Jurgen Ruesch has pointed out that, in proportion to her population, Switzerland has a much larger number of Nobel Prize winners than the. United States.

American culture, following perhaps the attitude toward work and the acquisitive spirit of the early pioneers, has placed greater value on doing than on creating, especially when what is created is artistic or theoretical. Americans are predominantly a nation of doers, and as doers they are generally very efficient, both in technology and productivity. Now it is time to reexamine our methods of fostering creativity just as we reexamined our teaching methods after Sputnik.

In the present chapter we have seen how the use of primitive forms of cognition is a prerequisite for many forms of creativity. We certainly do not advocate a fostering of psychopathology for the enhancement of creativity. Some people have tried to do so pharmacologically, by means of alcohol, opium derivatives, and, more recently, by lysergic acid diethylamide. These

are methods that a psychiatrist cannot recommend: in addition to the danger of addiction, their value as promoters of creativity is more than doubtful. If it is true that they facilitate the reemergence of the primary process, they impair the use of the secondary process, and we have seen that creativity (or the tertiary process) emerges only by a harmonious matching of the two processes.

Instead of resorting to toxic procedures, we must consider, and possibly recommend, special attitudes, habits, and environmental conditions. The first condition to be considered is *aloneness.* Aloneness may be viewed as a partial sensory deprivation. To a much smaller degree it tends to reproduce what the experimentally induced sensory deprivation brings about. The solitary individual is not constantly and directly exposed to the conventional stimulations supplied by society. He has more possibility of listening to his inner self, to come in contact with his inner resources and with some manifestations of the primary process. Unfortunately, being alone is not advocated in our modern forms of educating adolescents. On the contrary, gregariousness and popularity are held in high esteem. The emphasis today is on "togetherness" and on what Riesman calls "other-directedness." Calling a person an introvert has become a derogatory remark.

Aloneness should not be confused with painful loneliness or with withdrawal or constant solitude. It should only mean being able periodically

to remain alone for a few hours. Aloneness, as we have characterized it, should be recommended not only as a preparation for a life of creativity, but also as a state of being when creative work is in process. At the present time, emphasis is on teamwork, especially in scientific research. It is highly doubtful that an original idea can come from a team, although teamwork is often useful for expanding and applying an original idea and, more than anything else, for developing the technology by which an original idea is applied for practical purposes.

In art, teamwork is almost unthinkable, although occasionally resorted to in second-rate work. One cannot even theoretically imagine such classics as *The Divine Comedy,* Michelangelo's statue of Moses, Shakespeare's *Macbeth,* or Beethoven's Ninth Symphony being created by more than one person.

In science, too, great discoveries and inventions have been made by single individuals. When more than one individual has made the same discovery or invention, the innovating ideas were arrived at independently (for instance, Newton and Leibnitz in the case of the calculus and Wallace and Darwin with respect to evolution).

A second condition that seems to promote creativity is in direct opposition to the present spirit of American culture: *inactivity.*

By inactivity, of course, we do not mean schizophrenic withdrawal or

catatonic immobility, or excessive loafing, but taking time off to do nothing so far as a critical observer can see. If a person must always fix his attention on external work, he limits the possibility of developing his inner resources. Here again American upbringing pursues the opposite approach: high school and college students are encouraged to work during summer vacations. Any kind of manual labor is considered valuable in building the character of the future adult citizen. As a general rule, it is commendable to encourage youngsters to work. It promotes a sense of responsibility and of good citizenship. However, people with creative tendencies should, whenever possible, be given relatively long stretches of time for thinking and feeling about other things than work.

What we have just said about youngsters could, with some modifications, be said about adults who have already shown creative tendencies. Too much in the way of routine stifles mental activity and creativity. Moreover, even a creative career that has already started should be allowed to proceed at its own pace, which may be very slow, irregular, and intermittent.

The third characteristic is *daydreaming.* Daydreaming is often discouraged as unrealistic or, at least, as enlarging the gap between the individual's ambitions and capacities. Often it is discouraged because it is thought to promote a vicarious fantasy life that slows up the implementing of

realistic and approved-of behavior. Although it is true that excessive daydreaming may have these characteristics, it is equally true that daydreaming is a source of fantasy life that may open up unforeseeable, new paths of growth and discovery to the individual. It is in daydreams that the individual permits himself to stray from the usual paths and go on little excursions into irrational worlds. Daydreaming affords human beings relief from the everyday conventions of society.

Remembrance and inner replaying of past traumatic conflicts is another important condition. It is generally assumed that once a person has overcome a psychological conflict or the effects of an early trauma, he should try to forget them. Forgetting in these cases requires an act of suppression, not of repression.

Some creative people recognize this belief is wrong, but they themselves fall into another error. They believe that the neurotic conflict is a prerequisite for creativity. At times they are reluctant to undergo psychotherapy or psychoanalytic therapy because they are afraid that if they lost their conflicts they would also lose the motivation and need to create. We must remember that conflicts *always* exist in the psyche of man. It is our job to distinguish between nontraumatic conflicts and traumatic or neurotic conflicts. Nontraumatic conflicts need not concern us here. But the creative person's traumatic or neurotic conflicts should be resolved, though not ignored after

their solution. If these conflicts are not dealt with, they will continue being too deeply felt and too personal. The creative person will not be able to transcend his own subjective involvement and his work will lack universal significance or general resonance. The resolved or almost-resolved conflict, on the other hand can be viewed both with a sense of familiarity and as from distance by the creative person and thus be more easily transformed into a work of art or a scientific theory or discovery.

Another requirement for the creative person is even more difficult to accept: *gullibility.* This word is used here to mean the willingness to accept, at least temporarily or until proved wrong, that there are certain underlying orderly arrangements in everything outside us and inside us. Creativity often implies the discovery of these underlying orderly arrangements more than the inventing of new things. Connected with this special gullibility is the naive regard for similarities to be differentiated from the manifold of the universe. In preceding sections of this chapter we have discussed the importance of recognizing similarities.

The alleged discovery of underlying arrangements may, of course, be part also of paranoiac-paranoid ideation, and the acceptance of a similarity as a fact having significance may be part of schizophrenic thinking in general. However, the creative person does not accept such insights or seeming insights indiscriminately. He is gullible only to the extent of not discarding

them a priori as nonsense. In fact, he goes a step further: he becomes more attuned to what seem to him truths. However, his final acceptance or rejection must depend on his secondary-process mechanisms.

Alertness and *discipline* are two other conditions necessary to creativity. Although they are also necessary prerequisites for productivity in general, they take on a particular aspect in creativity. Many would-be creative persons, especially in the artistic fields, like to believe that only such qualities as imagination, inspiration, intuition, and talent are important. They are reluctant to submit themselves to the rigor of learning techniques, discipline, logical thinking on the pretext that all these things would stultify their creativity. They ignore the fact that even such people as Giotto, Leonardo, Freud, and Einstein had teachers.

A humorous remark, which has by now become commonplace but in which there is a great deal of metaphorical truth, is that creativity is 10 percent inspiration and 90 percent perspiration. The personal traits and attitudes we have mentioned can, and should, be encouraged in our educational systems as well as in our daily lives.

The characteristics so briefly sketched, as well as others to be discovered in future studies, facilitate new combinations of primary and secondary processes that lead to the tertiary process. By this statement we do

not mean that a process of creativity is just a "re-combination" of already existing elements. The process and works of creativity are not just re-combinations. From a new combination unexpected, at times completely new, entities come into being. In the midst of all these factors, the results of genetics, of history, and of chance man emerges as the unifier of motivation, knowledge, choice, and inexplicable subjectivity.

As we have already mentioned, there are also important social factors which bring about cultural combinations that facilitate creativity. The author of this chapter can only briefly allude to them, as he is not a historian or a sociologist. The Italian Renaissance emerged in an environment of relative freedom and prosperity as a kind of amalgam of the rediscovered classic Greco-Roman culture and the medieval Christian culture. The elements that precipitated the American revolution were a combination of English philosophy, values and traditions and the new adventurous, enterprising, and individualistic spirit of the American colonists. The notable achievements of Swiss citizens may partially be ascribed to the meeting and cross-fertilization of three different cultures. The recent achievements of the Jewish people, culminating in the appearance of such persons as Freud and Einstein, can be ascribed, in part, to the meeting of the old Hebrew culture with the rest of Western civilization.

The United States of America is in a privileged position today by virtue

of its many cultural minorities living in what is basically an Anglo-Saxon culture. If a mingling of all the minorities rather than an assimilation into the predominant culture is permitted, then the most favorable conditions possible for creativity will arise. That is, if in addition, the necessary educational facilities are provided and special care is taken of the promising individual.

Bibliography

Anderson, H. H., ed., *Creativity and Its Cultivation.* New York: Harper & Bros., 1959.

Arieti, Silvano. "Special Logic of Schizophrenic and Other Types of Autistic Thought," *Psychiatry,* 11 (1948), 325-338.

----. "Primitive Intellectual Mechanisms in Psychopathological Conditions. Study of the Archaic Ego," *Am. J. Psychother.,* 4 (1950), 4-15.

----. "New Views on the Psychology and Psychopathology of Wit and of the Comic," *Psychiatry,* 13 (1950), 43-62.

----. *Interpretation of Schizophrenia.* New York: Robert Brunner, 1955.

----. "The Microgeny of Thought and Perception: A Psychiatric Contribution," *Arch. Gen. Psychiatry,* 6 (1962), 454-468.

----. "The Rise of Creativity: From Primary to Tertiary Process," *Cont. Psycho-anal.,* 1 (1964), 51-68.

----. *The Intrapsychic Self. Feeling, Cognition and Creativity in Health and Mental Illness.* New York: Basic Books, 1967.

----. "Schizophrenic Art and Relation to Modem Art," *J. Am. Acad. Psychoanal.,* 1 (1973), 333-365.

----. *Interpretation of Schizophrenia.* Revised 2nd ed. New York: Basic Books, 1974.

----. *Creativity,* (tentative title). New York: Basic Books, forthcoming.

Eiduson, B. T. *Scientists; Their Psychological World.* New York: Basic Books, 1962.

Forrest, D. V. "Poiesis and the Language of Schizophrenia," *Psychiatry,* 28 (1965), 1-18.

Freud, Sigmund. "The Relation of the Poet to Day-Dreaming" (1908), in B. Nelson, ed., *Freud on Creativity and the Unconscious,* pp. 44-54. New York: Harper & Bros., 1958.

----. "The Unconscious" (1915), in *Collected Papers,* Vol. 4, pp. 98-136. New York: Basic Books, 1959.

----. *Wit and Its Relation to the Unconscious* (1916), in *The Basic Writings of Sigmund Freud,* pp. 633-803. New York: Modem Library, 1938.

----. *Leonardo Da Vinci: A Study in Psychosexuality.* New York: Random House, 1947.

----. *The Interpretation of Dreams.* James Strachey, transl. New York: Basic Books, i960.

Getzels, J. W. and P. W. Jackson. *Creativity and Intelligence. Explorations with Gifted Children.* New York: Wiley, 1962.

Ghiselin, B. *The Creative Process.* Berkeley: University of California Press, 1952.

Gruber, H. E., G. Terrell, and M. Wertheimer. *Contemporary Approaches to Creative Thinking.* New York: Atherton, 1962.

Hammer, E. F. *Creativity.* New York: Random House, 1961.

Koestler, A. *The Act of Creation.* New York: Macmillan, 1964.

Kris, Ernst. *Psychoanalytic Explorations in Art.* New York: International Universities Press, 1952.

Kroeber, Alfred L. *Configurations of Culture Growth.* Berkeley: University of California Press,

1944.

Kubie, Lawrence S. *Neurotic Distortion of the Creative Process.* Lawrence: University of Kansas Press, 1958.

Mora, G. "One Hundred Years from Lombroso's First Essay, 'Genius and Insanity,' " *Am. J. Psychiatry,* 121 (1964), 562-571.

Philipson, M. *Outline of Jungian Aesthetics.* Evanston: Northwestern University Press, 1963.

Poincare, Henri. "Mathematical Creation," PP. 383-394, in *The Foundation of Science.* Lancaster, Pa.: The Science Press, 1946.

Riesman, David, Nathan Glazer, and R. Denney. *The Lonely Crowd.* New Haven: Yale University Press, 1950.

Ruesch, Jurgen. "The Trouble with Psychiatric Research," *Arch. Neurol. Psychiatry,* 77 (i957), 93-107.

Sechehaye, M. A. *Symbolic Realization.* New York: International Universities Press, 1951.

Stein, M. I. and S. J. Heinze. *Creativity and the Individual. Summary of Selected Literature in Psychology and Psychiatry.* Glencoe, Ill.: The Free Press, 1960.

Taylor, G. W. and F. Barron, eds., *Scientific Creativity: Its Recognition and Development.* New York: Wiley, 1963.

Von Bertalanffy, Ludwig. "The Mind-Body Problem: A New View," *Psychosom. Med.,* 24 (1964), 29-45.

Von Domarus, E. "The Specific Laws of Logic in Schizophrenia," in J. S. Kasanin, ed., *Language and Thought in Schizophrenia: Collected Papers,* pp. 104-114. Berkeley: University of California Press, 1944.

Notes

1 For a scholarly review of Lombroso's life and work see Mora.27 The data about Lombroso, presented in this chapter, are to a large extent taken from Mora's article.

2 If faulty logic is used instead of paleologic, then there will be a logic-faulty logic discordance. In the following discussion, we shall take into consideration only logic versus paleologic and secondary process versus primary, because these seem the most typical and most frequent combinations in creativity. How-ever, the same notions could be repeated for logic versus faulty logic and secondary versus faulty secondary process.

3 For other examples of poetry in schizophrenia see Arieti and a fine article by Forrest. insight by comparing the rate of falling bodies on the earth with the rate at which the moon deviated from the straight line that it would have followed had the earth not existed.