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Imagination and Creativity in Childhood

Chapter 1. Creativity and Imagination

Any human act that gives rise to something new is referred to as a creative act, regardless of whether what is created is a physical object or some mental or emotional construct that lives within the person who created it and is known only to him. If we consider a person's behavior and all of his activity, we are readily able to distinguish two basic types. One type of activity we could call reproductive, and is very closely linked to memory; essentially it consists of a person's reproducing or repeating previously developed and mastered behavioral patterns or resurrecting traces of earlier impressions. When I recall the house where I spent my childhood or the distant lands I have visited in the past, I retrieve traces of the impressions that I formed in early childhood or in my travels. In exactly the same way, when I draw from life, write or do something following a specific model, I am merely reproducing what exists in front of me or what I have mastered and developed earlier. What is common to all these instances is the fact that my actions do not create anything new, but rather are based on a

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 Voobrazhenie i tvorchestvo v detskom vozraste (Moscow: Prosveshchenie, 1967).

more or less accurate repetition of something that already exists.

It is easy to understand what enormous significance such retention of previous experience has in a person's life insofar as it facilitates his adaptation to the world around him, giving rise to and fostering development of habits that are repeated under a particular set of conditions.

The organic basis for such reproductive activity or memory is the plasticity of our neural substance. Plasticity is a term denoting the property of a substance that allows it to change and retain the traces of that change. Thus, in this sense, wax is more plastic than, let us say, iron or water, because it undergoes changes more readily than iron, and retains the traces of these changes better than water. The plasticity of our nervous system depends on both of these properties taken together. Our brain and our nerves, possessing enormous plasticity, readily alter their finest structure under the influence of one or another type of stimulation, and if the stimulation is strong enough or is repeated a sufficient number of times, retain memory traces of these changes. Something analogous to what happens to a piece of paper when we fold it in the middle takes place in the brain; a crease remains where the fold was made and this trace, resulting from the change that was made, makes it easier to repeat the same change in the future. One need only blow on this paper for it to bend at the crease.

The same thing happens with the trace made by a wheel on soft earth; a track forms, which bears the imprint of the changes made by the wheel and facilitates movement of the wheel along this track in the future. Similarly, strong or frequently repeated stimulation lays down new tracks in our brain.

Thus, our brain proves to be an organ that retains our previous experience and facilitates the reproduction of this experience. However, if the brain's activity were limited merely to retaining previous experience, a human being would be a creature who could adapt primarily to familiar, stable conditions of the environment. All new or unexpected changes in the environment not encountered in his previous experience would fail to induce the appropriate adaptive reactions in humans.

In addition to its function of storing previous experience, the brain has another, no less important function. Aside from reproductive activity, we can readily observe another type of activity in human behavior, what can be called combinatorial or creative activity. When, in my imagination, I draw myself a mental picture of, let us say, the future life of humanity under socialism or a picture of life in the distant past and the struggle of prehistoric man, in both cases I am doing more than reproducing the impressions I once happened to experience. I am not merely recovering the traces of stimulation that reached my brain in the past. I never actually saw this remote past, or this future; however, I still have my own idea, image, or picture of what they were or will be like.

All human activity of this type, activity that results not in the reproduction of previously experienced impressions or actions but in the creation of new images or actions is an example of this second type of creative or combinatorial behavior. The brain is not only the organ that stores and retrieves our previous experience, it is also the organ that combines and creatively reworks elements of this past experience and uses them to generate new propositions and new behavior. If human activity were limited to reproduction of the old, then the human being would be a creature oriented only to the past and would only be able to adapt to the future to the extent that it reproduced the past. It is precisely human creative activity that makes the human being a creature oriented toward the future, creating the future and thus altering his own present.

This creative activity, based on the ability of our brain to combine elements, is called imagination or fantasy in psychology. Typically, people use the terms imagination or fantasy to refer to something quite different than what they mean in science. In everyday life, fantasy or imagination refer to what is not actually true, what does not correspond to reality, and what, thus, could not have any serious practical significance. But in actuality, imagination, as the basis of all creative activity, is an important component of absolutely all aspects of cultural life, enabling artistic, scientific, and technical creation alike. In this sense, absolutely everything around us that was created by the hand of man, the entire world of human

culture, as distinct from the world of nature, all this is the product of human imagination and of creation based on this imagination.

[Theodule] Ribot says:

> Every invention, whether large or small, before being implemented, embodied in reality, was held together by the imagination alone. It was a structure erected in the mind through the agency of new combinations and relationships. . . .
>
> The overwhelming majority of inventions were created by unknown inventors; only a few names of great inventors are extant. The imagination forever remains true to its nature, whether it manifests itself individually or collectively. No one knows how many acts of imagination it took to transform the plow, which started out as a simple piece of wood with a fire-sharpened end, from this simple manual tool, into what it became after a long series of alterations that are described in the works devoted to this subject. In the same way, the dim flame from a branch of resinous wood, which was the first crude primitive torch, led us, through a long series of inventions, to gas and electric lighting. All the objects used in everyday life, including the simplest and most ordinary ones, are, so to speak, crystallized imagination.

This quotation makes it clear that our everyday idea of creativity does not fully conform to the scientific understanding of this word. According to everyday understanding, creativity is the realm of a few selected individuals, geniuses, talented people, who produce great works of art, are responsible for major scientific discoveries or invent some technological advances. We readily acknowledge and easily recognize the role of creativity in the accomplishments of [Leo] Tolstoy, [Thomas] Edison, and [Charles] Darwin, but we typically believe that such creativity is completely lacking in the life of the ordinary person.

However, as we have already stated, this view is incorrect. To use an analogy devised by a Russian scholar, just as electricity is equally present in a storm with deafening thunder and blinding lightning and in the operation of a pocket flashlight, in the same way, creativity is present, in actuality, not only when great historical works are born but also whenever a person imagines, combines, alters, and creates something new, no matter how small a

drop in the bucket this new thing appears compared to the works of geniuses. When we consider the phenomenon of collective creativity, which combines all these drops of individual creativity that frequently are insignificant in themselves, we readily understand what an enormous percentage of what has been created by humanity is a product of the anonymous collective creative work of unknown inventors.

The overwhelming majority of inventions were produced by unknown individuals, as Ribot rightly says. A scientific understanding of this phenomenon thus compels us to consider creativity as the rule rather than the exception. Of course, the highest expressions of creativity remain accessible only to a select few human geniuses; however, in the everyday life that surrounds us, creativity is an essential condition for existence and all that goes beyond the rut of routine and involves innovation, albeit only a tiny amount, owes its existence to the human creative process.

If we understand creativity in this way, it is easy to see that the creative processes are already fully manifest in earliest childhood. One of the most important areas of child and educational psychology is the issue of creativity in children, the development of this creativity and its significance to the child's general development and maturation. We can identify creative processes in children at the very earliest ages, especially in their play. A child who sits astride a stick and pretends to be riding a horse; a little girl who plays with a doll and imagines she is its mother; a boy who in his games becomes a pirate, a soldier, or a sailor, all these children at play represent examples of the most authentic, truest creativity. Everyone knows what an enormous role imitation plays in children's play. A child's play very often is just an echo of what he saw and heard adults do; nevertheless, these elements of his previous experience are never merely reproduced in play in exactly the way they occurred in reality. A child's play is not simply a reproduction of what he has experienced, but a creative reworking of the impressions he has acquired. He combines them and uses them to construct a new reality, one that conforms to his own needs and

desires. Children's desire to draw and make up stories are other examples of exactly this same type of imagination and play.

Ribot tells of a little boy of three and a half who saw a lame man walking on the street and cried, "Mama, look at that poor man's leg." Then he began to make up a story: the man had been riding a big horse, he fell on a large rock, he hurt his leg badly, and some kind of medicine had to be found to make him better.

In this case, the combinatorial operation of the imagination is extremely clear. What we have here is a situation the child has created. All the elements of this situation, of course, are known to the child from his previous experience, otherwise he could not have come up with them; however, the combination of these elements is something new, creative, something that belongs to the child himself, and does not simply reproduce what the child happened to observe or see. It is this ability to combine elements to produce a structure, to combine the old in new ways that is the basis of creativity.

Many authors, with complete justification, suggest that the roots of such creative combination may be noted in the play of animals. Animal play very often represents the product of motor imagination. However, these rudiments of creative imagination in animals cannot lead to any stable or major developments in the conditions under which they live; only man has developed this form of activity to its true height.

Chapter 2. Imagination and Reality

Nevertheless, we must confront the question of how this creative combinatory activity arises. Where does it come from, what causes it, and what laws does it follow as it proceeds? The psychological analysis of such activity indicates that it is enormously complex. It does not develop all at once, but very slowly and gradually evolves from more elementary and simpler forms into more complex ones. At each stage of development it has its own expression, each stage of childhood has its own characteristic form of creation. Further-

more, it does not occupy a separate place in human behavior, but depends directly on other forms of human activity, especially accrual of experience.

In order to understand the psychological mechanism underlying imagination and the creative activity associated with it, it is best to start by elucidating the relationship between fantasy and reality in human behavior. We have already said that the everyday perspective, which draws a strict line between fantasy and reality, is incorrect. Now we will attempt to explain the four basic ways in which the operation of imagination is associated with reality. This explanation will help us understand that imagination is not just an idle mental amusement, not merely an activity without consequences in reality, but rather a function essential to life.

The first type of association between imagination and reality stems from the fact that everything the imagination creates is always based on elements taken from reality, from a person's previous experience. It would be a miracle indeed if imagination could create something out of nothing or if it had other sources than past experience for its creations. Only religious and mystic ideas about human nature could claim that products of the imagination originate not out of our previous experience, but from some external, supernatural force.

According to this view, it is gods or spirits who put dreams into people's head, provide poets with inspiration for their work, and supplied lawgivers with the Ten Commandments. Scientific analysis of works of the imagination that are as fantastic and remote from reality as they could possible be, such as fairy tales, myths, legends, dreams, and the like, persuasively argue that the most fantastic creations are nothing other than a new combination of elements that have ultimately been extracted from reality and have simply undergone the transformational or distorting action of our imagination.

A hut on chicken legs exists, of course, only in fairy tales, but the elements from which this fairy tale image is constructed are taken from real human experience, and only their combination bears traces of the fantastic, that is, does not correspond to reality.

Let us take as an example the image of the fairy tale world as [Alexander] Pushkin depicts it:

> Beside the bow shaped shore a green oak grows, an oak engirt with golden chain, and day and night, leashed by this chain, a learned cat in circles goes. When he goes right he sings a folksong, when he goes left a tale he tells. What wonders there: the wood sprite wanders, a mermaid sits upon a bough; strange creatures stalk forgotten trails; a hut stands there on chicken legs that has no windows and no door.

We could go through this whole excerpt word for word and demonstrate that it is only the combination of elements that is fantastic in this tale, while the elements themselves were taken from reality. An oak, a gold chain, a cat, songs—all these things exist in reality, it is only the image of the learned cat who circles on a golden chain and tells tales, only the combination of all these elements is fantastic. As for the pure fairy tale images in the next lines, the wood sprite and hut on chicken legs—these too are only complex combinations of certain elements hinted at by reality. In the image of the mermaid, for example, the idea of a woman meets the idea of a bird sitting on a branch; in the enchanted hut the idea of chicken legs is combined with the idea of a hut, and so forth.

Thus, imagination always builds using materials supplied by reality. It is true, as can be seen from the excerpt cited, that imagination may create more and more new levels of combination, combining first the initial elements of reality (cat, chain, oak), then secondarily combining fantastic elements (mermaid, wood sprite), and so forth, and so on. But the ultimate elements, from which the most fantastic images, those that are most remote from reality, are constructed, these terminal elements will always be impressions made by the real world.

Now we can induce the first and most important law governing the operation of the imagination. This law may be formulated as follows: the creative activity of the imagination depends directly on the richness and variety of a person's previous experience because this experience provides the material from which the

products of fantasy are constructed. The richer a person's experience, the richer is the material his imagination has access to. This is why a child has a less rich imagination than an adult, because his experience has not been as rich.

If we trace the history of great works, great discoveries, then we can almost always establish that they were the result of an enormous amount of previously accumulated experience. Every act of imagination starts with this accumulation of experience. All else being equal, the richer the experience, the richer the act of imagination.

After the accumulation of experience, says Ribot,

> comes an incubation period. This period lasted for seventeen years for Newton, and at the moment when he finally confirmed his study through computation, he was overcome with such strong emotion that he had to entrust someone else with completing this computation for him. The mathematician Hamilton tells us that his method of quarternions suddenly appeared to him fully formed as he was standing on the Dublin Bridge. "At that moment I obtained the result of fifteen years of work." Darwin collected material during his travels, long observed plants and animals, and only then when he was struck by a book by Malthus that he had happened to pick up, did he define his theory in final form. Similar examples are also numerous with respect to literary and artistic creations.

The implication of this for education is that, if we want to build a relatively strong foundation for a child's creativity, what we must do is broaden the experiences we provide him with. All else being equal, the more a child sees, hears, and experiences, the more he knows and assimilates, the more elements of reality he will have in his experience, and the more productive will be the operation of his imagination.

Even this primitive form of linkage between fantasy and reality clearly shows how unjustified it is to consider them to be opposites. The combinatorial function of our brain is not something completely different from its memory storage function, but is merely a further elaboration of the latter. Fantasy is not the opposite of

memory, but depends on it and utilizes its contents in ever new combinations. The combinatorial action of the brain is ultimately based on the same process by which traces of previous stimuli are stored in the brain, and the only new thing about this function is that, in operating on the traces of these stimuli, the brain combines them in ways that are not encountered in actual experience.

The second linkage between fantasy and reality is quite different. It involves a more complex association, not between the elements of an imaginary structure and reality, but between the final product of imagination and some complex real phenomenon. When on the basis of study and stories of historians or travel, I construct a picture for myself of the French Revolution or the African desert, then in both cases the picture is the result of creative activity of the imagination. It does not reproduce what I perceived in my previous experience, but creates new combinations from that experience.

In this sense, it is completely governed by the first law that we have just described. These products of the imagination also consist of transformed and reworked elements of reality and a large store of experience is required to create these images out of these elements. If I did not have a concept of lack of water, sand, enormous spaces, animals that live in deserts, and so forth, I, of course, could not generate the concept of this desert. If I did not possess a large number of historic concepts, I also would not be able to create a picture of the French Revolution in my imagination.

The dependence of imagination on previous experience is exceptionally clearly manifest in this context. But at the same time, there is something new in these constructs of fantasy, something that distinguishes them very substantially from the excerpt from Pushkin's fairy tale that we examined above. Both the image of the bow-shaped seashore with the learned cat and the image of the African desert, which I have never seen, are equally imaginary constructions built by combining elements from reality. But the product of the imagination, the combination of these elements themselves, is in one case unreal (a fairy tale) and in the other the association of these elements, the product of imagination itself, not just its elements, corresponds to some real phenomenon. This

leads to an association of the final product of the imagination and one or another real phenomenon to which it corresponds. Such associations are examples of the second type of linkage between reality and fantasy.

This type of linkage is made possible by virtue of the experience of someone else or so-called social experience. If no one had ever seen or described the desert or the French revolution, then it would be impossible for us to form an appropriate image of either one. It is only because in these cases my imagination operates not freely, but directed by someone else's experience, as if according to someone else's instructions, that we can obtain the result we get in this case, that is, the fact that a product of the imagination corresponds to reality.

In this sense imagination takes on a very important function in human behavior and human development. It becomes the means by which a person's experience is broadened, because he can imagine what he has not seen, can conceptualize something from another person's narration and description of what he himself has never directly experienced. He is not limited to the narrow circle and narrow boundaries of his own experience but can venture far beyond these boundaries, assimilating, with the help of his imagination someone else's historical or social experience. In this form, imagination is a completely essential condition for almost all human mental activity. When we read a newspaper and find out about a thousand events that we have not directly witnessed, when a child studies geography or history, when we merely learn what has been happening to another person by reading a letter from him—in all these cases our imagination serves our experience.

Thus there is a double, mutual dependence between imagination and experience. If, in the first case, imagination is based on experience, in the second case experience itself is based on imagination.

The third type of association between the functioning of imagination and reality is an emotional one. This association manifests itself in two ways. On the one hand, every feeling, every emotion seeks specific images corresponding to it. Emotions thus possess a kind of capacity to select impressions, thoughts, and images that

resonate with the mood that possesses us at a particular moment in time. Everyone knows that we see everything with completely different eyes depending on whether we are experiencing at the same time grief or joy. Psychology has long noted the fact that every feeling has not only an external, physical expression, but an internal expression associated with the choice of thoughts, images, and impressions. This phenomenon has been named the dual expression of feeling. Fear, for example, is expressed not only through pallor, trembling, dry throat, and changes in respiration and heart rate, but also in the fact that all the impressions a person receives during the time he is fearful and all the thoughts in his head are typically permeated by the feeling that possesses him. When the proverb says that a scared raven takes fright even at a bush, it means that the influence of the emotion we are experiencing colors our perception of external objects. Just as people long ago learned to express their internal states through external expressions, so do the images of imagination serve as an internal expression of our feelings. Human sorrow and mourning is indicated by the color black, happiness by white, serenity by light blue, and rebellion by red. The images of imagination also provide an internal language for our emotion. The emotion selects separate elements from reality and combines them in an association that is determined from within by our mood, and not from without by the logic of the images themselves.

Psychology calls this influence of the emotions on combinatory fantasy the law of the general emotional sign. The essence of this law is that impressions or images that have a common emotional sign, that is, produce similar emotional effects in us, have a tendency to cluster together, despite the fact that there is no association among them either based on external similarity or contiguity. A combined product of the imagination is generated, which is based on the common feeling or common emotional sign uniting these diverse elements that have become associated.

Ribot says:

> Images accompanied by one and the same human affect subsequently are associated with each other. Affective similarity unites and ties

> together objectively dissimilar images. This phenomenon differs from association based on contiguity, which is a repetition of experience, and from association based on similarity in the intellectual sense. Such images are linked not because they were previously paired and not because we perceive some association of similarity between them, but because they have a common affective tone. Happiness, sadness, love, hatred, surprise, boredom, pride, fatigue, and so on, may become the centers of gravity that hold together images or events that have no rational relationship to each other, but that are imprinted with the same emotional sign or mark: for example, happy, sad, erotic, and so forth. These types of associations are very often present in dreams or daydreams, that is, in states of mind in which the imagination has free rein and works at random, any which way. It is easy to understand that this overt or latent influence of emotions is likely to facilitate the occurrence of completely unexpected groupings and represents an almost unlimited arena for new combinations because the number of images that have identical emotional imprints is very large.

As a very simple example of this sort of combining of images with a common emotional sign, we can cite ordinary instances of associating any two different impressions that do not have anything at all in common, aside from the fact that they induce similar moods in us. When we call blue a cool color, and red a warm one, we are identifying the impression of blue and cold only on the basis that they induce similar moods in us. It is easy to understand that fantasy, which is governed by a similar emotional factor—the internal logic of feeling will represent the most subjective, most internal form of imagination.

However the inverse relationship between emotion and imagination also holds. While, in the example we described, emotion influences imagination, in other cases imagination influences emotion. This phenomenon could be called the law of the emotional reality of the imagination. Ribot formulates the essence of this law as follows.

"All forms of creative imagination," he says, "include affective elements." This means that every construct of the imagination has an effect on our feelings, and if this construct does not in itself correspond to reality, nonetheless the feelings it evokes are real

feelings, feelings a person truly experiences. Let us imagine the simplest type of illusion. When he goes into his room in the half dark, a child may have the illusion that clothes hanging up are a strange man or a robber who has broken into his house. The image of the robber, created by the child's imagination, is not real, but the fear and terror the child experiences are completely real, the child's true experience. Something similar happens with every real construct of fantasy and it is this psychological law that should explain to us why works of art created by their authors' imaginations can have such a strong emotional effect on us.

The passions and fates of imaginary characters, their joys and sorrows move, disturb, and excite us, despite the fact that we know these are not real events, but rather the products of fantasy. This occurs only because the emotions that take hold of us from the artistic images on the pages of books or from the stage are completely real and we experience them truly, seriously, and deeply. Frequently, a simple combination of external impressions, such as a musical composition, induce a whole complex world of experiences and feelings in a person listening to the music. This expansion and deepening of feelings, their creative restructuring constitutes the psychological basis for the art of music.

We must still mention the fourth and last type of association between imagination and reality. This last type is, on the one hand, intimately associated with the one just described, and, on the other, very different from it. The essence of this association is that a construct of fantasy may represent something substantially new, never encountered before in human experience and without correspondence to any object that actually exists in reality; however, once it has been externally embodied, that is, has been given material form, this crystallized imagination that has become an object begins to actually exist in the real world, to affect other things.

In this way imagination becomes reality. Examples of such crystallized or embodied imagination include any technical device, machine, or instrument. These were created by the combinatory imagination of human beings and do not correspond to any model existing in reality, but they have the most persuasive, active, and

practical association with reality in that once they have been given material form, they become just as real as other things and affect the surrounding real environment.

Such products of the imagination have a very long history, which perhaps it would be worthwhile to outline briefly. One could say that their development takes a circular path. The elements out of which they are constructed were taken by the human inventor from reality. Within the mind of this inventor, in his thoughts, these elements underwent complex reworking and were transformed into products of the imagination.

Finally, once they were given material form, they returned to reality, but returned as a new active force with the potential to alter that reality. This is the complete cycle followed by the creative operation of the imagination.

It would be incorrect to suppose that only in the area of technology, in the area of practical effects on nature, is imagination capable of completing this full cycle. Such a circle can also be found in the area of emotional imagination where it is not difficult to trace.

It is a fact that precisely when we confront a full circle completed by the imagination is when we find that both factors—the intellectual and the emotional—are equally necessary for an act of creation. Feeling as well as thought drives human creativity. Ribot writes:

> Every dominant thought is supported by some need, aspiration, or desire, that is, an element of affect, so that it would be complete nonsense to believe in the constancy of any idea existing in a purely intellectual state, in all its dryness and coldness. Every dominant thought (or emotion) must be concentrated in an idea or image to give it flesh, to provide it with a system, without which it would remain in an indistinct state. . . . Thus, we see that these two terms—dominant thought and dominant emotion—are almost equal in value insofar as both include two inseparable elements and the only difference is which predominates.

This can be demonstrated most effectively using an example drawn from artistic imagination. Indeed, why do we need works of art? Do they not influence our internal world, our thoughts and

feelings just as much as technical equipment influences the external world, the world of nature? We will cite a very simple example, one that makes clear the effect of artistic fantasy in the most elementary form. This example is taken from Pushkin's story *The Captain's Daughter* [Kapitanskaia dochka]. This story describes a meeting between Pugachev and the hero Grinev, who is the narrator of the story. Grinev an officer who has been captured by Pugachev is trying to persuade Pugachev to leave his comrades and throw himself on the mercy of the Tsaritsa. He cannot understand what motivates Pugachev.

> Pugachev laughed bitterly.
>
> "No," he replied, "it's too late for me to repent. There will be no mercy for me. I will continue what I started. Who knows? I just might succeed! After all Grishka Otrep′ev ruled over Moscow."
>
> "But don't you know what happened to him? He was thrown out of a window, stabbed, burned, and after that they put his ashes in a cannon and fired them!"
>
> "Listen," said Pugachev in some sort of wild excitement. "I will tell you a story, that an old Kalmyk woman told me when I was a kid. Once the eagle asked the crow, 'Tell me, brother crow, why your life span on the earth is 300 years, and mine is only 33?' 'Because, sir, you drink living blood and I drink dead blood.' Hearing this the eagle decided that he would try to live on a diet like the crow's. Okay. The crow and the eagle flew on until they saw a dead horse. They flew down to earth and landed. The crow began to peck at it, saying how good it tasted. The eagle took one bite, then another, and then flapped his wings and said to the crow, 'No, brother crow, rather than eat dead horse for 300 years, I would rather drink living blood once, and as for the future, let God's will be done.' Well, what do you think of this Kalmyk tale?"

The tale Pugachev recounts is a product of the imagination, and, it would seem on the surface, an imagination that has no relation to reality. Talking eagles and crows exist only in the imagination of the old Kalmyk woman. However it is undeniable that, in another sense, this fantastic construct springs directly from reality and affects that reality. It is just that this reality is not external, but

internal—the world of human thoughts, concepts, and feelings. It is said of such works that they have the power, not of external, but of internal truth. It is easy to see that in the images of the eagle and the crow Pushkin was representing two different modes of thinking and living, two different attitudes to the world, and, in a way that cannot be brought home with such clarity from a cold, dry explication, the difference between the point of view of the conventional man and the point of view of the rebel—this difference has been imprinted with particular clarity and enormous emotional strength in the consciousness through its expression in this tale.

This tale helps to elucidate a complex relationship in life; its images, as it were, illuminate a vital problem, and, what cold prosaic reasoning could not have achieved, this tale accomplishes through its imagistic and emotional language. This is why Pushkin is correct when he says that poetry can impact the heart with mysterious power and why, in another poem, he says of the reality of an emotional experience evoked by fiction: "Fiction makes people weep." To be convinced that here the imagination traces the same type of full circle as it does when embodied in a physical device, we need only recall what kind of power over social consciousness certain works of art have had. Gogol wrote *The Inspector General* [Revizor], actors performed it on the stage, and both the author and the actors created a work of fantasy, while at the same time the play, performed on stage, revealed the horror of Russia at that time with such force and parodied with such power the seemingly unshakable institutions on which life rested, that everyone, especially the tsar who attended the premiere, felt that the play contained an enormous threat to the system that it depicted.

"Everyone got it today, me most of all," said Nikolai at the premiere performance.

A work of art is able to have such an effect on people's social consciousness only because it has its own internal logic. The author of every work of art, like Pugachev, combines fantastic images not idly, not without purpose, or randomly piling one on top of the other as occurs in dreams or idle woolgathering. On the

contrary, artistic images follow an internal logic of their own and this logic results from the relationships the work establishes between its own world and the external world. In the tale of the eagle and the crow the images are developed and combined according to the laws of logic governing the two forces of that period that met in the persons of Grinev and Pugachev. A very interesting example of this sort of full circle that a work of art may follow is given in a confession made by Leo Tolstoy. Tolstoy is speaking of how the image of Natasha in *War and Peace* [Voina i mir] came to him.

"I took Tanya," he says, "and ground her up with Sonya, and out came Natasha."

Tanya and Sonya, Tolstoy's wife and sister-in-law, respectively, were two actual women, who were merged to create an artistic image. The elements of their natures taken from reality, far from having been combined at the artistic whim of the artist, interacted according to the internal logic of the artistic image. Tolstoy was once told by a reader that she felt that he had dealt cruelly with Anna Karenina, the heroine of his novel, by having her throw herself under an oncoming train. Tolstoy answered:

> You remind me of an incident that happened to Pushkin. Once he said to a friend, "Just imagine, what Tanya has done to me, she has gone and gotten married. I never would have expected it of her." I could say the same thing about Anna Karenina. My heroes and heroines sometimes do things against my wishes. They do what they must do in real life and what happens in real life, and not what I desire.

We frequently encounter similar confessions on the part of artists, referring to the same kind of internal logic. [Wilhelm] Wundt gave an excellent example of this logic of fantasy when he said that the thought of a wedding could give rise to the thought of a funeral (the joining and separation of the bride and groom) but not to the thought of a toothache.

Thus, in works of art we often encounter juxtapositions of features that are far removed from each other and seemingly unrelated, but that, however, are not foreign to each other, like the

thought of a toothache and that of a wedding, but rather are united by internal logic.

Chapter 3. The Mechanism of Creative Imagination

As everything we have said above demonstrates, imagination is an extremely complex process. It is this complexity that is primarily responsible for how difficult it is to study the process of creation and that often leads to incorrect ideas about this process being something extraordinary and completely exceptional. It is not our task here to provide a full description of the components of this process. That would require a very long psychological analysis that would not interest us here. However, in order to give readers some picture of the complexity of this activity we will touch very briefly on certain process components. Every act of the imagination has a very long history. What we call the act of creation is typically only the climactic moment of a birth that occurs as a result of a very long internal process of gestation and fetal development.

At the very start of this process, as we already know, there is always a perception of the external and internal, which is the basis of our experience. What the child sees and hears thus provides the first points of support for his future creation. He accumulates materials out of which he will subsequently construct his fantasies. Next comes a very complex process of reworking this material. The most important components of this process are dissociation and association of the impressions acquired through perception. Every impression is a complex whole consisting of a number of separate parts. Dissociation is the breakup of a complex whole into a set of individual parts. Certain individual parts are isolated from the background of the others; some are retained and others are forgotten. Dissociation is thus a necessary condition for further operation of the imagination.

In order to subsequently join together the various elements, a person must first break the natural association of elements in which they were initially perceived. Before generating the image

of Natasha in *War and Peace*, Tolstoy had to separate out the individual traits of two of his female relatives. If he had not done this, he would not have been able to combine them, "to grind them up together," to create the image of Natasha. It is this isolation of individual traits and neglect of others that we call dissociation. This process is extremely important in all human mental development; it is the foundation of abstract thinking, the basis of concept formation.

This ability to isolate the individual traits of a complex whole is significant in absolutely all human creative reworking of impressions. The process of dissociation is followed by a process of change to which these dissociated elements are subjected. This process of change or distortion is based on the dynamic nature of our internal neural stimulation and the images that correspond to them. The traces of external impressions are not laid down inalterably in our brain like objects in the bottom of a basket. These traces are actually processes, they move, change, live, and die, and this dynamism guarantees that they will change under the influence of imagination. We may cite as an example of such internal change the processes of exaggeration and minimization of individual elements of experience, which have enormous significance for imagination in general and for children's imagination in particular.

The impressions supplied by reality are transformed through these processes, increasing or decreasing their natural size. Children's passion for exaggeration, like the passion of adults for exaggeration, has a very profound internal basis—the influence of our internal feelings on external impressions. We exaggerate because we want to see things in an exaggerated form, because this exaggeration corresponds to our needs, to our internal state. Children's passion for exaggeration is well reflected in fairy tale images. Karl Gros cites a story made up by his daughter when she was five and a half.

"Once upon a time there was a king," the little girl began, "who had a little daughter. Her daughter was lying in her cradle and he came up to her and saw that she was his daughter. After this they got married. Once when they were sitting on their throne, the king

said to her, 'Please bring me a big glass of beer.' So she brought him a glass of beer that was three arshins [approximately seven feet] high. After that they all fell asleep, except for the king, who kept guard, and, if they haven't died, they are living still."

"This exaggeration," says Gros, "is a result of interest in everything outstanding and extraordinary, combined with a feeling of pride associated with imagined possession of something special: I have 30 coins, I mean 50, I mean 100, I mean 1,000! Or: I just saw a butterfly as big as a cat, no, I mean a house!" Karl Buhler, with complete justification, suggests that this process of alteration, and especially exaggeration, provides the child with practice dealing with quantities of which he has no direct experience. It is easy to see what an enormous value these processes of alteration and especially exaggeration have in the examples of numerical imagination cited by Ribot, who writes:

> Numerical imagination nowhere flourished as richly as it does in Eastern peoples. They played with numbers with remarkable boldness and lavished them with brilliant extravagance. Thus, in the Chaldean cosmogony it is written that God—the fish Oannes—devoted 259,200 years to educating humanity, and then for 432,000 years various mythical figures ruled the Earth, and after these 691,200 years had elapsed, the face of the earth was renewed by a flood. . . . The Hindus, however, surpassed all this. They invented the most enormous unit, serving as the basis and material for fantastic number play. The Jainists divide time into two periods—the ascending and descending. Each of these has the fabulous duration of 2,000,000,000,000,000 oceans of years, and each ocean of years is itself equal to 1,000,000,000,000,000 years. . . . Meditation on such a duration certainly must cause the head of a pious Buddhist to spin.

Similar play with exaggerated numbers proves to be extremely important for humans. We can see the proof of this in astronomy and other natural sciences, which have to operate not with smaller, but with vastly greater numbers.

Ribot writes:

> In the sciences, numerical imagination is not expressed in the form of such myths. Science is accused of repressing the imagination through

> its development, when it actually opens up incomparably broader areas for its creative work. Astronomy soars in the infinity of time and space. It sees the birth of worlds, first blinking with the dull light of nebula, then transformed into brightly shining suns. These suns, cooling, are covered with spots, then grow dim and go out. Geology follows the development of the planet we inhabit through a series of cataclysms; it predicts the remote future, when the Earth, losing the water vapor that protects its atmosphere from excessive heat loss, will die of cold. Accepted hypotheses in contemporary physics and chemistry about atoms and particles are no less bold than the most arrogant products of the Hindu imagination.

We see that exaggeration, like imagination in general, is essential in art and science alike. If this capacity, which is so amusingly expressed in the story made up by the five-and-a-half-year-old girl, did not exist, humanity would not have been able to create astronomy, geology, or physics.

The next component of the processes of imagination is association, that is, unification of the dissociated and altered elements. As was shown above, this association can be based on various qualities and take various forms, from the purely subjective association of images to objective, scientific association corresponding, for example, to geographical concepts. And, finally, the last aspect of the preliminary work of the imagination is the combination of individual images, their unification into a system, the construction of a complex picture. But creative imagination does not stop here. As we have already noted, the full cycle of this process will be completed only when imagination is embodied or crystallized in external images.

However, we will discuss separately the process of crystallization, or the transformation of imagination into reality. Here, as we are speaking only of the internal aspect of imagination, we should mention the basic psychological factors on which the operation of these individual processes depend. The first such factor is always, as psychological analysis has established, the human need to adapt to the environment. If life surrounding him does not present challenges to an individual, if his usual and inherent reactions are in

complete equilibrium with the world around him, then there will be no basis for him to exercise creativity. A creature that is perfectly adapted to its environment, would not want anything, would not have anything to strive for, and, of course, would not be able to create anything. Thus, creation is always based on lack of adaptation, which gives rise to needs, motives, and desires. Ribot says:

> Every need, every motive or desire, separately or together with several others, can then serve as an impulse for creation. Psychological analysis must each time decompose "spontaneous creativity" into these primary elements. . . . Every invention thus has its origin in a drive: the essential nature of the creative invention in all cases proves to be based on a drive.
>
> Needs and desires in themselves cannot create anything. They are only the stimuli and the impetus. For invention to occur, one additional condition must be fulfilled, namely, the spontaneous resurrection of images. "Spontaneous resurrection" is the term I use to describe something that occurs suddenly without any obvious cause. Actually there are causes but their effects are hidden in the latent forms of thinking by analogy, affective mood, and unconscious brain function.

The presence of needs or drives thus triggers the working of the imagination. Activation of traces of neural stimulation provides material for the imagination to operate on. These two conditions are necessary and sufficient for understanding the operation of the imagination and all the processes it comprises.

There is still the question of the factors that imagination depends on. We have listed the psychological factors above, although not all together.

We have already said that the operation of the imagination depends on experience, on needs, and the interests in which these needs are expressed. It is also easy to understand that this process depends on combinatorial abilities and practice in exercising them, that is, embodying constructs of the imagination in material form; it also depends on the individual's technical abilities and on traditions, that is, on those creative models that influence a person. All these factors are enormously important, but so obvious and simple, that we will not speak of them in detail here. Much less obvious, and thus much more important, is the effect of another factor, the

environment. Typically, imagination is portrayed as an exclusively internal activity, one that does not depend on external conditions, or, in the best case, depends on these conditions only to the extent that they determine the material on which the imagination must operate. The process of imagination per se, its direction, at first glance, appears to be guided only from within, by the feelings and needs of the individual, and thus to be wholly subjective and not based on objective factors. In actuality this is not true. Psychology long ago established a law according to which the drive to create is always inversely proportional to the simplicity of the environment.

"Thus," writes Ribot, "when we compare . . . primitive people with civilized people, it turns out that, given the same population size, the proportion of innovators is remarkably unequal in the two cases."

A. Weisman explains this dependence of creativity on the environment extremely well. He writes:

> Let us suppose a child is born on the island of Samoa who possesses the unique and extraordinary genius of Mozart. What can he accomplish? The most he can do is expand a scale with three or four notes to seven and create somewhat more complex melodies, but he would be just as incapable of writing symphonies, as Archimedes would be of inventing an electrodynamic machine.

Every inventor, even a genius, is also a product of his time and his environment. His creations arise from needs that were created before him and rest on capacities that also exist outside of him. This is why we emphasize that there is a strict sequence in the historical development of science and technology. No invention or scientific discovery can occur before the material and psychological conditions necessary for it to occur have appeared. Creation is a historical, cumulative process where every succeeding manifestation was determined by the preceding one.

This explains the disproportionate distribution of innovators and creators among different classes. The privileged classes supply an incomparably greater percent of scientific, technical, and artistic

creators, because it is in these classes that all the conditions needed for creation are present.

Ribot writes:

> Typically, they say so much about the free flight of the imagination, about almighty genius, that they forget about the sociological conditions (not to mention others) on which all of these depend at every step. No matter how individual every creation is, it always contains a social coefficient. In this sense, no invention will ever be individual in the strict sense, it will always involve some element of anonymous collaboration.

Chapter 4. Imagination in Children and Adolescents

The functioning of creative imagination proves to be very complex and depends on a whole series of extremely diverse factors. It is quite obvious that this activity cannot be the same in children as it is in adults because these factors take different forms in the different stages of childhood. This is why, during every developmental stage of childhood, creative imagination operates in a particular way, one that is characteristic of that particular stage of the child's development. We have seen that imagination depends on experience, and a child's experience forms and grows gradually, and, in its profound individuality, is different from that of an adult. The child's relationship to his environment, which, through its complexity or simplicity, traditions, and influences stimulates and directs the process of creation, is very different from the adult's. The interests of the child and the adult also differ, and it is thus easy to understand why a child's imagination functions differently from an adult's.

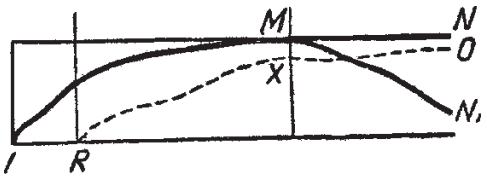
How then does the child's imagination differ from that of an adult? The opinion still persists that a child's imagination is richer than that of the adult. Childhood is considered the time when fantasy is most highly developed, and, according to this belief, as the child develops, his imagination and the strength of his fantasy diminishes. This opinion is based on a whole series of observations of the working of the imagination.

[Johann Wolfgang von] Goethe said that children make anything out of anything, and this undemanding, very tolerant quality of children's fantasy, which becomes more fastidious in adulthood, is frequently mistaken for freedom or richness of imagination. What is more, the products of children's fantasy diverge sharply and obviously from adult reality and this is taken as support for the conclusion that children live in a world of their imagination more than in the real world. Other factors are the inaccuracies and distortions of actual experience and exaggeration that are characteristic of children's fantasy and children's propensity for fairy tales and other fantastic stories.

All this, taken together, has caused people to assert that fantasy is richer and more diverse in childhood than in adulthood. However, this opinion is not confirmed when it is considered scientifically. We know that a child's experience is vastly poorer than an adult's. We further know that children's interests are simpler, more elementary, and thus also poorer; finally, their relationship to the environment does not have the complexity, subtlety, and diversity that characterizes the behavior of adults, and these are the most important factors that determine the workings of the imagination. A child's imagination, as this analysis shows, is not richer, but poorer than that of an adult. In the process of development, the imagination develops like everything else and is fully mature only in the adult.

This is why products of true creative imagination in all areas of creativity belong only to those who have achieved maturity. As maturity is approached, the imagination also matures, and in the transitional period between childhood and adulthood—in adolescence, starting at the time of puberty—we observe a powerful enhancement of the imagination combined with the rudiments of mature fantasy. Authors who write about the imagination have pointed out that there is a close relationship between puberty and the development of the imagination. We can understand this relationship when we consider that, at this time, a great deal of experience has been accrued and assimilated; the so-called permanent

Figure 1. **[The Development of Imagination]**



interests develop, childish interests are curtailed, and, as a result of general maturation, the working of the imagination begins to assume its final form.

In his study of the creative imagination, Ribot constructed the curve shown in Figure 1, which schematically depicts the development of the imagination and which facilitates understanding of the unique nature of imagination in the child, the adult, and the imagination during adolescence, which is what we are interested in here. The major law underlying the development of the imagination that this curve represents can be verbally expressed as follows: in its development the imagination goes through two periods, two separate critical phases. The curve *IM* represents the course of development of the imagination during the first period. It rises sharply and then remains at the level achieved for a relatively long period of time. The dotted line *RO* represents the development of the intellect or reason. This development, as the figure shows, starts later and rises more slowly because it requires a greater accumulation of experience and more complex transformations of this experience. Only at point *M* do the two lines—development of the imagination and development of reason—coincide.*

The left side of this figure graphically depicts the unique features characterizing the operation of the imagination in childhood, which many researchers have taken to indicate the richness of

*Although the text regarding the figure is correct, the figure as drawn does not reflect the text accurately.—Ed.

children's imagination. The figure makes clear that the development of imagination and that of reason are very different in childhood and this relative independence of children's imagination from the operation of reason is the expression not of the richness but of the poverty of children's fantasy.

The child can imagine vastly less than the adult, but he has greater faith in the products of his imagination and controls them less, and thus imagination, in the everyday, vulgar sense of this word, that is, what is unreal and made up, is of course greater in the child than in the adult. However, not only is the material that the imagination operates on to create its constructs poorer in a child than in an adult, but the nature of the combinations that this material enters into—their quality and variety—is significantly more impoverished than that of adults. Of all the types of relationship to reality we listed above, a child's imagination is equal to that of the adult only with regard to the first, that is, the reality of the elements it uses for its constructions. In addition, the actual emotional roots of the child's imagination are as strong as those of the adult. As for all the other types of association, it should be noted that these develop only over the years, very slowly and very gradually. From the point where the two curves, imagination and reason, meet at point *M*, the further development of the imagination proceeds in parallel to the development of reason *XO*, as line *MN* shows. The divergence characteristic of childhood disappears and imagination, which is now closely associated with thinking, keeps pace with it.

"Both of these intellectual forms," writes Ribot, "now confront each other as rival forces." The imagination "continues to operate, but, undergoes a preliminary transformation involving adaptation to rational requirements. It is no longer pure imagination, but a combined form." However this does not occur in everyone. In many people development takes another path, and this is depicted in the graph by curve *MN*, which falls rapidly, indicating a decrease or curtailment of the imagination. "Creative imagination diminishes—this is the most common instance. Only the particularly richly

endowed imagination constitutes an exception, the majority of people gradually get lost in the prose of everyday life, bury the dreams of their youth, consider love an illusion, and so forth. This, however, is only regression, but not annihilation, because the creative imagination does not disappear completely in anyone, it merely becomes incidental."

And indeed, where even an insignificant fraction of creative life persists, imagination occurs. The fact that in adulthood the curve representing creative life often declines is known to everyone. Let us now look more closely at the critical phase, *MX*, that divides the two periods. As we have already said, this phase occurs in the transitional period between childhood and adulthood in which we are now primarily interested. If we understand the unique crossroads that the curve of the imagination now passes through, we will have the key to the correct understanding of the entire process of creativity at this age. During this period the imagination undergoes a profound transformation: it changes from subjective to objective. "Physiologically the reason for this crisis is the formation of an adult body and adult brain; psychologically the reason is the antagonism between the purely subjective imagination and the objective rational processes, or, in other words, between instability and stability of mind."

We know that adolescence is marked by a whole series of antithetical attitudes, contradictions, and polarizations. This is responsible for the fact that this age is critical or transitional; this is the age where childhood's physiological equilibrium is disturbed and the equilibrium of the adult has not yet been achieved. Thus, during this period imagination undergoes a revolution, destruction of the previous equilibrium, and a search for a new equilibrium. The fact that the work of the imagination in the form it took during childhood declines in adolescents is clearly demonstrated by the fact that children of this age generally lose their bent for drawing. Only a few continue to draw, mainly those who are particularly talented in this area or who are encouraged to do so by external conditions such as special drawing lessons. The child begins to

have a critical attitude toward his own drawing, his childish schema cease to satisfy him, they seem too subjective, and he comes to the conclusion that he cannot draw, and, for this reason, he stops. We also see this curtailment of childish fantasy in the fact that the child loses interest in the naive games of earlier childhood and in fairy tales and fantastic stories. The duality of the new form of imagination that is born now can be readily deduced from the fact that the most widespread and common form of creative work during this period is literary creation. It is stimulated by a strong increase in subjective experiences and a growth and deepening of the interior life of the adolescent, who, during this period, develops his own internal world. However, this subjective aspect seeks to find embodiment in an objective form—in poems, stories, or whatever creative forms the adolescent perceives in the adult literature surrounding him. The development of this contradictory imagination runs parallel to the further diminishment of his subjective qualities and the growth and strengthening of objective qualities. Typically, the majority of adolescents also lose interest in literary creativity very soon. The adolescent begins to adopt the same sort of critical attitude he previously took to his drawing. He begins to be dissatisfied with the objective quality of his writing and stops doing it. Thus, an increase in imagination and its profound transformation are characteristic of this critical phase.

At the same time, the two major types of imagination are exhibited very clearly at this stage. These are plastic and emotional, or external and internal imagination. These two major types are primarily distinguished by the materials from which fantasy constructs its products and by the rules of this construction. Plastic imagination primarily utilizes the data provided by external impressions, it builds using elements borrowed from without; emotional imagination, on the other hand, builds with elements taken from within. The first of these types can thus be called objective and the second, subjective. The manifestations of both types of imagination and their gradual differentiation is characteristic of the adolescent period.

In this connection it should be pointed out that imagination may play a dual role in human behavior. It can lead a person either toward or away from reality. [Pierre] Janet writes: "Science itself, at least, natural science, is impossible without imagination. [Isaac] Newton used imagination to see into the future, and [Georges] Cuvier into the past. The great hypotheses that give rise to great theories are the offspring of imagination." However, [Blaise] Pascal was also fully justified in calling imagination a sly teacher. [Gabriel] Compayre says, "(Imagination) gives rise to a great many more errors than it uncovers truths. . . . It seduces the careless student into putting reason and observation aside and taking his fantasy as proven truth; it pushes us away from reality with its captivating deceits. As [Nicholas] Malebranche, somewhat strongly, puts it, 'Imagination is the spoiled child who bring disorder into the house.'" The adolescent period is particularly susceptible to such dangerous aspects of imagination. To satisfy oneself in imagination is extremely easy; and retreat into dreaminess, escape into an imagined world often distracts the focus and efforts of the adolescent from the real world.

Certain authors have even hypothesized that the development of dreaminess and the isolation, withdrawal, and self-absorption associated with it are an essential feature of this age. It would be more accurate to say that all these phenomena constitute the shadowy side of this age. This shadow of dreaminess, that falls on this age, this dual role played by imagination makes it a complex process, which is extremely difficult to master.

"If a practicing teacher," writes Gros, "wishes to properly develop the valuable capacity of creative fantasy, he faces a real challenge—that of breaking this wild and skittish horse of noble origin and adapting it to the service of good."

As has already been said, Pascal, called imagination a sly teacher. Goethe describes it as the precursor of reason. And both of them are equally correct.

It is frequently asked whether the operation of the imagination depends on talent. There is a very widespread opinion that

creativity is the province of the select few and that only those who are gifted with some special talent should develop it in themselves and have the right to consider themselves to have a vocation for creation. This is not true, as we have attempted to explain above. If we understand creativity in its true psychological sense as the creation of something new, then this implies that creation is the province of everyone to one degree of another; that it is a normal and constant companion in childhood.

Consider the phenomenon of the so-called wunderkinder, who have some special gift that matures rapidly while they are still very young.

Musical wunderkinder are the most common, while artistic wunderkinder are seen less often. An example of a wunderkind is Willy Ferrero, who twenty years ago when he was extremely young, became world famous for his musical talent. Such wunderkinder have at times been known to direct a symphony orchestra, write very difficult musical works, or show virtuoso skills on an instrument, at the age of six or seven. It was first noted long ago that such premature and excessive development of talent is something close to pathological, that is, abnormal.

However, vastly more important is the law, which has virtually no exceptions, that these precocious wunderkinder, who, if they were to have continued to develop at a normal rate would have surpassed all the geniuses known to humanity, typically lose their talent as they mature and not one of them has ever created a single work that is considered even relatively great. The typical characteristics of children's creativity are easier to identify in normal children than in wunderkinder. This, of course, does not mean that giftedness or talent does not show up at an early age. From the biographies of great men, we learn that frequently signs of their genius were manifest at an early age.

> As examples of precocity we can cite the three-year-old Mozart, five-year-old Mendelssohn, and four-year-old Haydn. Handel became a composer at twelve, Weber at twelve, Schubert at twelve, and Cherubini at thirteen. . . . In the visual arts, the vocation and capacity for creation

> shows up noticeably later—on average at about age fourteen. Giotto displayed talent at ten, Van Dyck at ten, Raphael at eight, Greuze at eight, Michelangelo at thirteen, Dürer at fifteen, Bernini at twelve, and Rubens and Jordans also developed early. In poetry we do not find works with some extrapersonal value written before the age of sixteen.

But it is still a far cry from these traces of future genius to true great works. They are only, like the lightning long before a storm, indications of the future blossoming of this greatness.

Chapter 5. "The Agonies of Creation"

Creation brings the creator great happiness. It is also associated with suffering, which has been given the memorable designation of the agonies of creation. Creation is difficult, the drive to create does not always coincide with the capacity to create, and this is the origin of the agonizing feeling of suffering caused by the fact that the word does not capture the thought, as [Fyodor] Dostoyevsky said. Poets have called this suffering the agonies of the word.

"There is no agony on earth more intense than the agony of the word, in vain does the mad cry burst from our lips at times: vainly is the soul at times ready to burn for love, our impoverished language is cold and pitiful."

This desire to render in words the emotion or thought that possesses us, the desire to infect others with this feeling, and at the same time the sense that it is impossible to do so is very strongly expressed in the literary works of young people. In an early poem [Mikhail] Lermontov describes this as follows:

> I seek in vain cold letters to reveal
> My roiling thoughts. No sounds yet made by man
> Can compass all the yearning that I feel
> For bliss. And though I try I never can
> Convey the lofty flame with which I burn
> In words. I'd sacrifice my life to learn
> How some mere shade of these might be expressed
> So they may lodge within another's breast.

A. Gornfel′d, in an article devoted to the agonies of literary creation, recalls one of Uspenskii's minor characters. This is the courier in "Observations of a Lazybones."

> The scene where this unfortunate fellow, failing to find the words to express the profound thought that has taken possession of him, suffers torments of impotence and goes off to pray to his saint "for God to give him understanding" makes an inexpressibly painful impression. And yet, in essence, what this poor fellow, with his damaged mind, suffers is no different from the "agony of the word" of a poet or a thinker. He even uses almost the same word, "My friend, let me tell you what it is, I wouldn't hide anything from you—people like me can't find the words. . . . Here's what I'm saying! it as if the thoughts come all right, but your mouth just can't get them out. It's a problem that plagues fools like me!" From time to time the darkness is replaced by fleeting intervals of light: a thought comes to the poor fool, and it seems to him, as to the poet, "that he is seeing a familiar face." Then he tries to explain it.
>
> "If I, for example, were to return to the earth, since I came from there, you know, from the earth. If I were to return to the earth, I mean go back there; could they charge me a fee for the earth I took up?"
>
> "Aah," we whispered in delight.
>
> "Wait. There's something more I have to say here . . . you see, gentlemen, how it is."
>
> The courier got up and stood in the center of the room, getting ready to tick off one more finger of his hand.
>
> "This is the main thing, that I still haven't said. And it is so important, because, for example . . ." but here he stopped and asked briskly, "Who gave you your soul?"
>
> "God."
>
> "Correct. Good. Now, look here . . ."
>
> We all got ready to look, but the courier again sputtered out, losing his momentum, and pounding his thighs with his hands, cried in near despair.
>
> "No, it just can't be done. It's all wrong . . . oh, my God. But, I tell you, there is something here. Here, I needed to say, God knows what. About the soul. No, that's not right."

We have dwelt on this issue not because these agonizing experiences associated with creation have any sort of serious effect on the

future fate of the developing adolescent; not even because these agonies are typically very intense or tragic, but because this phenomenon discloses to us the last and most important feature of the imagination, without which the picture we have drawn would be incomplete in its most essential aspect. This feature is the imagination's drive to be embodied, this is the real basis and motive force of creation. Every product of the imagination, stemming from reality, attempts to complete a full circle and to be embodied in reality.

A product of the imagination, which has arisen in response to our drive and inspiration, shows a tendency to be embodied in real life. The imagination, by virtue of the strength of the impulses it contains, tends to become creative, that is, to actively transform whatever it has been directed at. In this sense, Ribot very correctly compares dreaminess to lack of willpower. To him this is a failed type of creative imagination that is completely analogous to impotence of the will. In his view:

> [I]magination is to the intellect, what willpower is to action. . . . People always want something—whether something trivial or important; when they invent something it is also always for a particular purpose, whether it is Napoleon developing a battle plan, or a cook inventing a new dish. . . .
>
> In its normal and full form an intention of the will culminates in action, but in people who are indecisive and weak willed, vacillation never ends or a decision is never carried out, because it cannot be implemented and affirmed in practice. Creative imagination in its full form attempts to affirm itself by taking some objective form that exists not only for the creator himself but for everyone else as well. On the contrary, in the case of dreamers, imagination remains within them in a weakly developed state and is never embodied in an artistic or practical invention. Dreaminess is the equivalent of weakness of the will and the dreamer is incapable of manifesting true creative imagination.

The product of creative imagination is an ideal that is only manifest with true and living force when it guides human actions and activities in its drive to be realized or embodied. If we distinguish dreaminess from creative imagination as two extreme and essentially dif-

ferent types of fantasy, then it becomes clear that, throughout a child's education, the shaping of the imagination not only has the particular significance of exercising and developing a particular function, but also possesses a general significance that is reflected in all the child's behavior. In this sense, the development of imagination is scarcely less important for the future than it is for the present.

"The role of combinatorial fantasy," writes Lunacharskii, "will in no way be less in the future than it is now. It is very likely that it will take on the nature of a unique combination of scientific experimental components with the most mind-boggling flights of the intellectual and figurative imagination."

When we remember that, as shown above, imagination is precisely the impulse to create, we will agree with Ribot's statement, which is confirmed by his research: "Creative imagination permeates all life personal and social, abstract and practical in all its forms; it is omnipresent."

Chapter 6. Literary Creativity in School-Age Children

Of all the types of creative activity, literary, or verbal, creativity is the most characteristic of school-age children. It is well known that in the early years all children pass through a drawing stage. Drawing is the typical creative activity of early childhood, especially, the preschool period. During this period children draw eagerly; sometimes without any encouragement by an adult. At times the least stimulus is sufficient to set a child to drawing.

Observation has shown that all children draw and that the stages through which their drawing passes are more or less the same for children of a given age. At this period drawing is a favorite pastime for children. When they reach school age, love for and interest in drawing begins to attenuate. In very many, even the majority, of our children this more or less spontaneous attraction to drawing disappears entirely. This propensity continues only in a few of those who are most talented in this area and in groups of children for

whom educational conditions at home or school encourage drawing and foster its development. Evidently, there is some kind of internal relationship between the personality of children of this early age and their love of drawing. Evidently, the young child's creative forces are concentrated on drawing not by chance, but because it is precisely drawing that provides the child with the opportunity to most easily express what concerns him at this stage. When he undergoes a transition to another developmental phase, the child moves on and changes, and at the same time, the nature of his creations also changes.

Drawing is left behind as a completed stage and its place begins to be taken by a new type of creative endeavor, verbal or literary creation, which is dominant, especially during puberty, in the adolescent. Some authors even hypothesize that it is only from this point onward that one can speak of verbal creativity, in the strict meaning of the word, being shown by children.

Professor Solov′ev writes:

> Verbal creativity itself, in the true meaning of the word, begins at puberty. After all, one needs an adequate supply of personal experience, firsthand knowledge of life, and the ability to analyze relations between people in different milieus in order to be able to use words to create something of one's own, something new (i.e., from a unique point of view) that embodies and combines the actual facts of life. A child of early school age is still not able to do this and thus his creation seems arbitrary and in many respects very naive.
>
> There is one basic fact that very persuasively shows that a child must grow into literary creation. Only at a very high level of accumulated experience, only at a very high level of mastery of language, only at a very high level of development of his own individual inner word is a child able to engage in literary creation. This fact is simply that a child's written language lags behind his oral language.

[Reinhard] Gaupp writes:

> As we all know, a school child's written expression of thoughts and feelings lags significantly behind his ability to express them orally. This fact is easy to explain. When you speak with a clever little boy or girl about things that are close to his or her understanding and interests then

> you generally elicit lively descriptions and clever responses. Chatting with such children is a real pleasure. If the same children are asked to give a completely free description of the subject that they have just been discussing with you, you will elicit only a few meager sentences. How vacuous, monotonous, and forced are the letters of a school boy to his absent father and how lively and rich is the same boy's conversation in person when his father returns. It would seem that, as soon as a child picks up a pen, his thoughts are inhibited, as if the effort of writing frightens them away. "I don't have any idea what to write. Nothing comes into my mind," the child typically complains. For this reason it is erroneous to judge a child's (especially one in the lower grades) level of mental development, his intelligence, on the basis of the quality of his school compositions.

The explanation of this mismatch between the development of oral and written language mainly involves the difference in the difficulty of the two modes of expression for the child; when a child confronts a task that is very challenging for him, he handles it as if he were significantly younger than he is.

Blonskii says:

> All we need to do is to make the linguistic work a child is required to do more complicated, assign him a difficult task, that is, force him to speak on paper, and we will immediately see that his written language becomes younger than his oral language. There are words that are not linked in sentences and a large increase in imperative forms. One can see the same thing literally everywhere: when the child is compelled to perform a difficult mental task, he begins again to show all the characteristics of a younger age. If we show a seven-year-old a picture with content suitable for his age and ask him to tell us about the picture, he will speak like a seven-year-old, that is, he will describe what is going on in the picture. But if we show him a picture that is over his head, he will begin to speak like a three-year-old; that is, he will simply list the objects in the picture, without linking them.

The same thing happens when a child moves from oral to written language. Written language is more difficult because it has its own laws, which differ, in part, from those of oral speech and these laws have still not been completely mastered by the child.

Very often, a child's difficulties when switching to written language can be explained by deeper internal causes. Oral speech is always understandable to a child; this comes from living communication with other people and is a completely natural reaction, the child's response, to what is going on around him and affecting him personally. When he begins to switch to written language, which is vastly more abstract and arbitrary, the child often does not understand what he should write. He does not have any intrinsic motivation to write.

This is especially true when a child is compelled to write on a topic assigned at school. In the old schools, this was generally the main way the literary creativity of school children was developed. The teacher assigned a topic for a composition and the pupils had to write this composition, trying to make their writing as similar as possible to the literary language of adults or the style of the books they had read. These topics remained foreign to the children, they did not touch their imagination or emotions. The children were not shown models of how they should write. It was a rare case that this work was linked with a goal that was understandable, interesting, and within the capacity of the children. The teachers who thus incorrectly guided their pupils' literary creativity, often killed the spontaneous beauty, individuality, and vitality of children's language and impeded their mastery of written language as a special way of expressing one's thoughts and feelings. Instead, the children developed, to use Blonskii's expression, the type of school jargon that is produced by the purely mechanical inculcation of children with the artificial bookish language of adults.

Tolstoy writes:

> The primary skill of the teacher in teaching language and the primary exercise that should be used for this purpose in helping children learn to write consists of assigning them topics, actually not really assigning topics as much as providing them with a large selection of topics, indicating the length of the composition, and showing them some elementary literary devices. Many intelligent and talented pupils have written completely vacuous compositions on the order of: "The fire

> burned, they started to drag things outside, I went out," and nothing came of it, despite the fact that the subject of the composition was rich and what was being described had made a deep impression on the child. They did not understand why they should write and what the use of writing was. They did not understand the art—the beauty of expressing life in words and the attraction of this art.

The development of the child's literary creativity immediately becomes vastly easier and more successful when the child is encouraged to write on a topic that is intrinsically understandable to him and engages his emotions, and most of all, encourages him to express his interior world in words. Very often a child writes badly because he has nothing he wants to write about.

Blonskii writes:

> A child must be taught to write only about what he knows well and has thought about much and deeply. There is nothing more harmful to the child than giving him a topic about which he has thought little and on which he has nothing much to say. This practice tends to develop vacuous, superficial writers. To make a child into a writer one needs to develop in him a strong interest in the world around him. The best thing is for the child to write about what he is very interested in, especially if he understands it. The child must be taught to write about what he is deeply interested in and has thought about much and deeply, about what he knows and understands well. The child must be taught never to write about what he does not know, does not understand, and is not interested in. And yet, the teacher sometimes does exactly the reverse and thus kills the writer in the child.

For this reason, Blonskii advises that the types of literary works most suitable for children be assigned, that is, notes, letters, and very short stories.

> If the school wants to be truly educational, then it must focus on these particular works of literature. By the way, letters (personal and business) are the most widespread form of writing people do. It is clear that the stimulus for writing letters is to communicate with those who are far away. Thus, social education should motivate the child-writer in the same way: the wider the circle of people with whom a child is connected and the closer his ties with them, the greater is the stimulus

> for writing letters. Letters to nonexistent people or without any real purpose are artificial and false.

Thus, the challenge is to create within the child the motivation to write and then to help him master the techniques of writing. Leo Tolstoy described a remarkable case study in encouraging creative writing in peasant children, one that he himself had participated in. In his article "Who should learn to write from whom: peasant children from us, or us from them?" [Komu u kogo uchit′sia pisat′—krest′ianskikh rebiatam u nas ili nam u krest′ianskikh rebiat], this great writer came to the seemingly paradoxical conclusion that adults, and even great writers such as himself, should learn to write from peasant children, and not vice versa. This experiment in encouraging creative writing in peasant children very clearly shows how the process of creative writing occurs in the child, how it is born, and how it evolves, and what role the teacher who wishes to further the correct development of this process should play. The essence of Tolstoy's discovery came when he noticed traits in children's writing that are characteristic of this age alone and understood that the true task of education is not to prematurely inculcate adult language in children, but to help the child develop and shape his own literary language. Tolstoy assigned his students the task of writing a composition based on the proverb, "He feeds you with a spoon and then pokes you in the eye with it."

"'Just imagine,' I said, 'that a peasant takes in a beggar, and then begins to reproach him for needing charity, then couldn't this be described as *he feeds him with a spoon and then pokes him in the eye with it*?'" At first the children refused to write anything because they thought that the task was beyond them, so Tolstoy began to write himself. He says:

> Any unprejudiced person who has any feeling for art and for folk culture and reads this first page, written by me, and the following pages of the story written by my pupils would distinguish this page from the others, without even thinking about it. It sticks out like a sore thumb, it is so false, artificial, and poorly written. . . .

> It seemed very strange to me that a half-literate peasant boy would suddenly show such conscious artistry, a level of development so high that Goethe couldn't reach it. It seemed so strange and humiliating that I, the author of [*Childhood*], which has enjoyed some success and has been acknowledged by the educated public to show artistic talent, not only could not do anything to help or instruct eleven-year-old Semka or Fedka, but that it was merely a fortunate burst of inspiration that allowed me to follow and understand them. It seemed so strange to me, that I didn't believe what happened yesterday.

How was Tolstoy able to awaken in these children, who previously had absolutely no idea what creative writing was, the ability to express themselves in this complex and difficult way? They started creating as a group. Tolstoy began and they gave him suggestions.

"Someone said, let's make this old man a wizard; someone else said, no, we don't need to do that, let him be just a soldier; no better have him rob them; no, that wouldn't fit the proverb," they said. All the children participated in writing the story. They got interested and carried away with the process of creation itself, and this was the first nudge in the direction of creative inspiration. "Here," writes Tolstoy," they obviously were experiencing the charm of capturing artistic details in words for the first time." The children composed, created the characters, described their appearance, a series of details, and individual episodes and all this was realized in a certain clear linguistic form. "His eyes shown with unshed tears," writes Tolstoy, about a boy working on the story, "he wrung his skinny, dirty hands convulsively; he got angry at me and constantly urged me to hurry. 'Have you written it, have you written it?' he kept asking. He treated the other children angrily and despotically, he wanted to be the only one to speak, not to speak the way people ordinarily do, but to speak the way people write, that is, to use words artistically to depict images and feelings; he could not stand, for example, to have his words rearranged. If he said 'My legs were wounded,' he would not allow 'I was wounded in my legs.'" This last example shows how strong this

child's feeling for verbal form was, even though this was the first time he had attempted creative writing.

Rearrangement of words, word order, is to literature what melody is to music, or pattern is to a picture. And the feeling for this verbal pattern, the painterly details, the feeling of proportion—all this, according to Tolstoy, was highly developed in this child. The child was playing a part when he wrote; when he had his characters speak words at times he spoke "taking on such a weary and calm, habitual serious, and, at the same time, benevolent tone, supporting his head with his hand, that the other children roared with laughter." The children understood this real joint work with an adult writer to be a true collaborative effort, in which they felt themselves to be equal partners with the adults. "And will we publish it?" the boy asked Tolstoy. "If we do we need to say, written by Makarov, Morozov, and Tolstoy." This reveals the child's attitude to the authorship of this joint work.

"It was unmistakable," writes Tolstoy. "This was not chance, but conscious creation. . . . I never encountered anything like these pages in all of Russian literature."

On the basis of this experience, Tolstoy advanced the following hypothesis: in his opinion, in order to develop creative writing in children, all you have to do is provide them with the impetus and the material for their creations.

> All he needed from me was the material in order to fill it out harmoniously and completely. As soon as I gave him complete freedom, stopped trying to instruct him, he wrote a poetic work whose like had never been seen in Russian literature. And thus, I am convinced, we must not try to teach children in general and particularly peasant children how to write and compose, how to set about writing.
>
> If what I did to attain this goal can be called techniques, then these techniques were as follows. First: offer the greatest and widest choice of topics, without selecting those you think are particularly suited to children, but proposing the most serious topics that interest you yourself. Second: give the children works by children to read as models, and only such works. Third (of particular importance): never criticize the child when looking over his composition, either for neatness,

> penmanship, spelling, and especially not for the structure of sentences or logic. Fourth: because the difficulty of creative writing lies not in the length or content, but in the artistic value of the topic, then the sequence in which the topics are presented must be determined not by length, nor content, nor language, but by the nature of the mechanism underlying the creative work.

No matter how instructive Tolstoy's experience is, his interpretation of this experience shows an idealization of childhood and the negative attitude to culture and artistic creation that distinguished his religious/didactic theories during the last period of his life. According to Tolstoy's reactionary theory:

> Our ideal is not ahead of us, but behind us. Education ruins rather than improves people; teaching and instructing the child is impossible and senseless for the simple reason that the child stands closer than I do, closer than any adult to the ideal of harmony, truth, beauty, and goodness, toward which I, in my pride, want to lead him. Consciousness of this ideal is stronger in him, than it is in me.
>
> This is an echo of Rousseau's theory, long imprinted in science that says "Man is born perfect. This is Rousseau's great statement, and this statement, like a rock remains firm and true. At birth man is the prototype of harmony, truth, beauty, and goodness."

This incorrect view of the perfection of the child's nature contains a second error Tolstoy made regarding education. If perfection lies behind us and not ahead of us, then it is completely logical to deny the significance, sense, or possibility of education. However, if we reject the first proposition, which is not confirmed by the facts, then it will become perfectly clear that education in general and teaching children creative writing in particular is not only possible but completely inevitable. It is easy to see, even in our secondhand account, that what Tolstoy did with the peasant children, cannot be described otherwise than the teaching of creative writing. He awakened in these children a method of expressing their experience and attitude toward the world that had been completely unknown to them previously. He constructed composed, and combined jointly with the children; he transmitted his excitement to them and gave them a topic, that is, basically directed the

entire process of creation, showed them its techniques, and so forth. This is education in the precise meaning of the word.

Correctly and scientifically understood, the concept of education does not at all mean artificially inculcating children with ideals, feelings, and moods that are totally alien to them. The right kind of education involves awakening in the child what already exists within him, helping him to develop it and directing this development in a particular direction. Tolstoy did all this with the children he tells us about. What is important for us now is not Tolstoy's general theory of education, but his marvelous description of the excitement engendered by the process of literary creation that he provides in these pages.

The fact that children willingly write when the need to write arises in them can best be seen in the writing of street children. The verbal creations of these children primarily takes the form of their songs, which reflect all the aspects of their life. Mainly these are sad and profoundly melancholy songs. As Pushkin said, "From the coachman to our finest poet, we all sing depressing songs." The songs of street children reflect the dark and difficult aspects of their lives. Prison, early death or sickness, loss of parents, desertion, defenselessness—these are the main motifs of these songs. It is true these songs contain another motif too—a kind of bravado, bragging, or extolling of their exploits.

> With my chisel in my pocket
> Through the dark and through the snow
> I crept up to someone's cottage,
> Smashed the window with one blow . . .

the street child sings about himself. But even in this example, what we hear is a natural response to the unrelieved difficulty of his life and his outcast status, a logical and understandable bitterness at his fate.

> There was a time when I sought help from your hand,
> Now my heart has hardened and I've become a thief.
> You can spit on me, throw stones, I'm used to it, I can take it,
> I don't expect your pity, I know that no one cares about me.

Several years ago a very interesting attempt was made to collect the autobiographical stories of street children. Anna Grinberg collected seventy stories written by fourteen- and fifteen-year-old street children. She wrote:

> All of them showed real interest in writing about their lives. There were some who were barely literate, or even illiterate, who, despite all the impediments, fought their way up to the tables, managed to get themselves some paper and one of our small stock of pens, and having gotten a place to sit and a pen, crossed themselves and proceeded to write reverently and conscientiously for several hours, asking help from their neighbors, rewriting and checking against fragments of printed pages from torn books they had happened to pick up. These stories, with the exception of those written by children who did not want to reveal themselves completely and thus remained secretive or insincere, show the main feature of all creation of this sort. There is something built up inside a person, that painfully attempts to get out, demands to be expressed, strives to be expressed in words. When a child has something to write about, he writes with great seriousness.
>
> "This is the end of my writing," wrote one of the girls, "I wish I could write more, this is only a third of what I have lived through. Oh, life of mine, I will remember you for a long time!"

If we focus not on external similarity but on internal likeness, these stories can be seen to contain all the features of children's creative writing that Tolstoy noted. Externally, with regard to content and language, these stories are profoundly different from those of Tolstoy's Fedka and Semka, as different as the eras in which these groups of children were born and the environments in which they lived. But the authentic seriousness of the language they use, attesting to a real need to express themselves in words, the clarity and individuality of these children's language is quite unlike the trite literary language of adults. The authentic emotion and concrete imagery of these stories are reminiscent of the same features in the peasant children's stories cited by Tolstoy. One of the children gave the following title to his autobiography, expressing the deep feeling and authentic specificity of the experiences associated with literary creation: "Memories and longing for my home

in Vologod Province in the village of Vymsk, in the woods near the river."

It is very easy to understand the linkage between the development of literary creation and the transitional age of adolescence. The main fact of this age is sexual maturation. This major, central fact can explain all the other characteristics associated with this age. It is precisely because of this that adolescence is a critical turning point in the life of a child. It is at this point that a new and powerful factor—sexual maturation and the sexual instinct—enters the child's life. The old stable equilibrium that developed during the early school years is shattered; and a new equilibrium has not yet been achieved. This shattered equilibrium and the search for a new one forms the basis of the crisis the child undergoes at this age. But what is the nature of this crisis?

The answer to this question has not yet been established by science with complete accuracy. Some see the primary characteristic of this crisis to be the asthenia, that is, the weakening of the child's constitution and behavior that occurs during this critical period. Others, on the contrary, believe that underlying this crisis is a powerful increase in vital activity, involving all aspects of the child's development and that the appearance of crisis at this age is merely the consequence of this increase in creative power. We know that at this age the adolescent grows at a faster pace and that his body rapidly approaches its adult form. This overall growth has effects on behavior and on the adolescent's inner life.

A whole new world of inner experiences, urges, and attractions opens up at this age; the child's inner life becomes infinitely more complex compared to that in the earlier years of childhood. His relationships to those around him and to his environment become vastly more complex; the impressions he receives from the external world undergo more profound processing. There is one very obvious trait in adolescent behavior that is directly related to the propensity for creative writing at this stage—this is the heightened level of emotionality and emotional volatility in adolescence. When human behavior takes place in accustomed, unchanging

circumstances, it typically is not imbued with any notable or particularly strong emotion. We are typically calm or indifferent when we perform accustomed acts in familiar surroundings; but as soon as our behavioral equilibrium is disturbed, there is a very vital and strong emotional reaction. Emotions or anxiety are generated whenever our equilibrium with the environment is disturbed.

If such a disturbance culminates in strengthening our position, in a relative victory over the difficulties we have confronted, we generally experience positive emotions—happiness, pride, and so forth. If, on the other hand, this equilibrium is disturbed in a way that weakens our position, if circumstances prove to be stronger than we are and we feel ourselves to be in their power, helpless, powerless, weak, demeaned—we experience negative emotions—anger, fear, sadness. It is thus absolutely understandable that the critical stages in human life, stages where there are turning points and internal restructuring of the personality, are especially rich in emotional reactions or the life of the feelings. The late school years—the stage of puberty is just such a turning point, an internal crisis in the child's development. It is thus natural that it is associated with increased intensity and volatility of emotions: the equilibrium between the child and his environment, as we have already said, has been disrupted at this age because of the occurrence of a new factor, one that had not previously made itself felt to any significant extent.

This is the source of the increased emotional volatility at this age, and greatly contributes to the explanation of why, as he approaches this age, the child replaces drawing, which has been his favorite form of creative activity during the preschool years, with creative writing. Language enables him to express complex relationships, especially inner relationships, with much greater facility than does drawing. Language is also better able to express the motion, dynamics, and complexity of some event than is a childish, imperfect, and uncertain drawing. This is why children's drawing, an activity that is completely suited to the stage of the younger child's simple and uncomplicated attitude to the external world, is replaced

by language as the favored means of expression, corresponding to a deeper, more complex, interior attitude toward life and the world. We might ask what attitude we should adopt to the heightened emotionality of adolescence. How should we evaluate it—as a positive or negative fact? Is there something pathological about it, something that leads children to be isolated or fixated on themselves, to be dreamers, to retreat from reality, as is very often observed at this age, or is this emotionality a positive factor, one that infinitely enriches and increases the productivity of a child's relationship with the world around him? Nothing important is achieved in life without a great deal of emotion.

Pistrak says:

> It is not so much that artistic education provides knowledge or skills, but rather it gives a tone to life or, perhaps, it would be more accurate to say—a background for living. The convictions that we may inculcate in school through knowledge, only grow roots in the child's psyche when these convictions are reinforced emotionally. You cannot be a dedicated fighter if at the moment of battle your mind is not filled with clear, strong, and vivid pictures that inspire you to fight; you cannot struggle against the old ways, if you have no hatred of them and the ability to hate is an emotion. You cannot build the new with enthusiasm if you are unable to love the new with enthusiasm, and, after all, enthusiasm develops as the result of the right kind of artistic education.

Before the war, F. Giese conducted a study of the creative writing of children of different ages. He had access to more than 3,000 works written by children ranging from age five to age twenty. His work was done in Germany before the war and for this reason alone cannot be simply extrapolated to us because the mood and interests and all the factors on which creative writing depends are significantly different here from those in Giese's study. Moreover, because his study was on such a large scale, he limited himself to the most general and superficial tallying of aspects of these children's stories and poems, identifying the prevailing mood and literary form at various ages. However, his results may be of significant interest to us as the first attempt to perform such a large-scale

examination of children's creative writing, insofar as they nevertheless show some age-related traits, which, in one form or another and under one condition or another, may also show up in our children.

Finally, these results are of some interest because they provide us with material we can compare to our own data on adolescents. The data the author cites show how the main topic of the poetry and prose of boys and girls varies as a function of age. Personal experience figures little in the poetry, but in their prose such experiences have a dominant place, which is especially clear compared to the preceding fourteen to fifteen years. During these two years the proportion of prose devoted to personal experience increases in boys from 23.1 percent to 53.4 percent and in girls it increases from 18.2 percent to 45.5 percent, that is, it more than doubles, while the proportion of such topics in poetry in boys and girls aged sixteen and seventeen is equal to zero. The relatively high proportion of topics taken from personal experience in younger children can be explained by the fact that Giese included in this category all possible trivial events, everyday things, such as a fire, a trip out of town, a visit to a museum, and so forth. Only 2.6 percent of prose works and 2.2 percent of poetry related to events at school—to such an insignificant extent does school life touch children's inner world. Erotic themes, on the other hand, are more represented in poetry than in prose; erotic motifs occur earlier in the writings of girls than in those of boys, at ages twelve to thirteen. While this topic is virtually absent from the writing of boys, it occurs in 36.3 percent of the written work of girls; after which it decreases between ages fourteen and fifteen and then increases again at sixteen and seventeen, and is again higher for girls than boys.

"The fairy tale world," notes Giese, "is purely feminine poetry, boys know nothing about it."

The insignificant number of social motifs in the poetry and prose of the young German writers is very interesting. Such topics are absent from poetry at almost all ages, while in prose they represent a very small percentage, equal at the maximum to 13.8 percent in

girls of twelve and thirteen. The growth in the proportion of philosophical themes in poetry is noteworthy. This is undoubtedly related to the birth of abstract thought and interest in abstract issues at this age. Finally, the theme of nature is well represented in the poetry and prose of both boys and girls.

Girls of nine devote the majority of their works to this topic, and boys of twelve to thirteen write about nature in half their works. German children, especially girls, devote a high proportion of their writings to religious topics. However, this theme decreases in frequency by age sixteen.

The data juxtaposing the topics and predominant moods in writing assigned in school and that undertaken independently are interesting. Here we see that the same topics are very differently represented in the two types of creative writing. Heroic themes, for example, account for an enormous 54.6 percent of school writing, but only a modest 2.4 percent in independent writing. On the contrary, erotic and philosophical themes occur in only 3 percent of school compositions, but in 18.2 and 29 percent of independent ones. The fairy tale world is represented fifteen times more often in school writings than in writing undertaken at home. And finally, the so-called remaining topics occur in no school works, but in 28.1 percent of those written outside of school. The moods expressed by children in these two types of work are also dissimilar. Thus, for example, sad and serious moods are five times more prevalent in works written at school. This comparison has serious significance because it shows to what extent children's creative writing is stimulated and altered as a result of external influences and what a different form it assumes when it is self-generated.

The following conclusion cites data on the dominant mood in the works studied by Giese. These results make it clear that sad and gloomy moods are extremely rarely encountered in works by children and that cheerful moods are much more prevalent. Thus, while in boys' poetry these two occur in roughly equal proportions, 5.9 and 5.2 percent, in girls' poetry a cheerful mood occurs in 33.4 percent, while a gloomy mood is present in only 1.1 percent. A

cheerful mood characterizes boys' prose ten times more frequently than a gloomy one and the figures are similar for girls. The insignificant number of works with adventurous moods is noteworthy, evidently because of the difficulty this genre presents for children. Comic moods are also rare, as are critical ones, which is clearly related to the low percentage of satirical topics. However, it should be noted that the prevalent mood is the most subject to change of all the aspects of children's creative writing and thus the data cited should be considered only as tentative.

It would be desirable if children's creative writing were studied here in a similar way so we could determine the prevalent topics and moods in our children's literary works. The following data concerns the literary forms most often encountered in children's works.

Most frequent, as would have been anticipated, is the report or essay, that is, nonartistic writing. The second place goes to the story, and the third to the fairy tale. The percentages of dramatic works (0.1) and letters (1.9) are extremely low. The latter result must be explained by the fact that this, the most natural form of children's writing in the psychological sense is the least cultivated in the traditional education of children. Data on the grammatical form and length of children's writings are not without interest. As children get older length increases. A report that computed the mean number of syllables in the poetry and prose of boys and girls of various ages showed that the increase in the length of literary works is a direct function of their content. Shneyerson, who studied children's writings concluded that drama and poetry are not natural forms for children. In his opinion, if these forms are found in children's creative writing, they occur mainly as a result of outside influences. On the other hand, prose, in his opinion, is especially suited to children. V.P. Vakhterov's data on the same question generated the following results: 57 percent of all the children he studied wrote verse, 31 percent prose, and 12 percent wrote dramatic works. We all know that the relative richness of grammatical forms in children's language is an important indicator.

Psychologists have long distinguished the child's period of agrammatical speech as a very special stage in the development of his language.

Indeed, the lack of grammatical forms in speech is a clear sign that the child's linguistic thinking and naming behavior fails to take account of the associations and relations among objects and phenomena, insofar as it is precisely grammatical forms that are used to express these associations and relations. This is why, when subordinate clauses appear in a child's speech, that is, when he enters Stern's fourth and highest phase in speech development, it can be assumed that the child has already mastered the very complex relationships among various phenomena. Vakhterov, who was interested in the analysis of this aspect of children's speech came to the following conclusions. His report identifies two stages—from four to eight years of age and from nine to twelve and a half years of age that differ in the use of cases. This report shows how, as the child develops, his use of oblique cases increases, clearly indicating that he is moving into a stage where he understands the relationships that grammatically oblique cases express. Analysis of children's speech from the standpoint of usage of parts of speech leads to a similar conclusion.

Once again these data show us that the child's use of description, elaboration, specification of time and place, and so forth increases with age. Vakhterov says:

> A child's mental development does not merely consist of acquisition of quantitative and qualitative concepts, but also of quantitative and qualitative associations among these concepts. The more highly developed the child, the greater the number of concepts and ideas he can combine into a unified whole. The present and especially the future tense are used vastly more often by younger than by older children. The use of the past tense increases with age. The younger the child, evidently, the more he focuses on the anticipated, foreseen, and desired, and also on the living and immediate present.
>
> But the longer a child lives, the more frequently he returns to what he has already experienced and then we encounter the reverse phenomenon: fewer utterances are in the present and future than in the past.

All researchers unanimously agree that younger children use personal pronouns with particular frequency. Shlag says, "If a child of seven or eight pronounces the average word in his vocabulary 5.5 times, then the first person (singular) pronoun is uttered 100 times more frequently—542 times, and the second person pronouns 25 times more frequently—135 times." Gut notes that children aged four to six are more likely to use subordinate clauses if they are more gifted and advanced in their development. Some specialists propose to distinguish three basic stages in the development of children's verbal expression: first period—oral utterances, lasting from approximately the ages of three to seven; the second period, literacy, lasts from seven years to adolescence, and finally the literary period, which lasts from the end of puberty through young adulthood. It should be noted that this division generally corresponds to reality, in that, as we have already stated, the development of oral language is always ahead of the development of written language. It is extremely important to note, however, that this superiority of oral language over written continues after the first period of oral expression has ended. Even afterward, children's oral utterances are vastly more striking and picturesque than their written ones.

The transition to written language immediately dulls and impedes their language. The Austrian researcher, Linke, came to the conclusion that, if we compare the written and oral productions of children, the way a seven-year-old writes is equivalent to the way a two-year-old talks, that is, that the child's level of development manifested in the more difficult written from of expression immediately decreases from the previous level of oral expression. It is extremely noteworthy that the compositions of the peasant children that Tolstoy so admired were examples of their oral creations. The children talked and Tolstoy copied down what they said and his notes contained all the charm of the living oral speech of children. These stories also showed the aspect of children's creations that some authors call syncretism, which means that the child's creation is still not strictly differentiated as to different forms of

art or different genres of literature: elements of poetry, prose, and drama are merged in the child's work into a single whole.

The process of children's creative writing Tolstoy described is very close in form to dramatic creation. The child not only dictated the story but also described and acted out the parts of the characters in his story. Such associations between oral literary creation and dramatic creation, as we will see, can lead to one of the most original and productive forms of creativity at this age.

Professor Solov′ev cites an interesting example of oral speech. He says that the written speech of a school child is

> vastly poorer, more schematic. It is as if there are two different verbal reactions. A rural girl of eight and a half never would write, even if she were able to write in a way that fully expressed her thoughts, what she answered in response to an (oral) question in school about what the children liked to do at home. "I like to sweep the floor, when you start sweeping, the dirt flies around, a lot of dirt flies around, and it makes me happy to watch it fight the broom." This authentic living language of the child does a fine job of expressing her emotional involvement.

A. Busemann devoted an entire research project to the study of the extent to which action is manifest in children's creative writing. His indicator of action was the ratio between mention of actions and descriptive features in the oral and written productions of children. In a group of children aged three to nine, the action indicator was highest at ages six and eight for both boys and girls. In the group aged nine to seventeen, this indicator was highest at nine and thirteen. Comparison of oral and written language led Buzeman to the most important conclusion of his research. "Oral speech tends more toward the active—and written to the descriptive style."

This conclusion is confirmed by the relative time required for oral and written utterances. Oral expression took vastly less time than written, in the space of four to five minutes the children had said what it took them fifteen and twenty minutes to write. This slowed production rate of written language induces not only quantitative, but also qualitative differences. As a result of this slower production rate, children's linguistic productions develop a new

style and a new psychological character. The focus on action, which is primary in oral recounting, is eclipsed by a more detailed consideration of the object described, enumeration of its features, qualities, and so forth.

The focus on action in children's speech is only a reflection of the general high action level at this age. A number of authors have counted the number of action concepts in children's stories. An example of this type of tally may be seen in various reports enumerating the frequency of objects, actions, and descriptive features occurring in stories by children in various grades. These data clearly show that actions are most common in children's stories, that objects are rarer, and the features of objects are much rarer.

However, we must state a reservation with regard to the influence of adults' speech and literary forms on children's written language. It is well known the great extent to which children tend to imitate and thus, clearly, the literary style of books frequently influences children so greatly that it overshadows the true characteristics of their written language. Thus, true children's style is most purely manifest in peasant street children and others who have been least influenced by adult style. Here are several examples taken from the autobiographies of street children. These examples make very obvious the extent to which the written language of street children is close to their oral speech. Semen Vekshin, aged fifteen, writes:

> I was twelve, and my little brother ten, and we suffered because we had no father and no mother. Since I was the older, I had to bake our bread myself—you get up in the morning and you want to go back to sleep, but no: I look at myself and start to work. I see the other kids, they are playing, and I feel angry that my friends who have mothers and fathers are free and can play. That's the way I worked and suffered until 1920.

Another street child writes:

> Before this I had parents. Now I don't have any. It's no good not to have parents. I had a house. There was a horse and a cow. Now there's nothing. All that was left at home were three sheep, two pigs, and five chickens. Everything was finished.

Here, the younger the child, the more his writings reflect the characteristics of children's speech and differ from the speech of adults. As examples, we will cite two short children's essays: one was written by a boy of thirteen, the son of a laborer, and the other by a boy of twelve, a cooper's son. The first is about the coming of spring.

> After the snow, after the gloomy winter days, the sun looked through our window with the rays of spring. The snow began to melt, and little streams were running everywhere, and spring, the beauty, was coming closer and closer and making us happy. Now the month of May has come, and green grass is beginning to appear, and brings everyone new joy.

The next story is called "Waiting."

> On the mountain, on a cliff above the wide Volga, a fisherman's shack as black as tar was huddled. The boards it was made of had rotted. The wind had carried off part of the straw roof and inside was the sound of crying, inside they were waiting for a fisherman. The day was coming to an end. The air felt cool. Over on the horizon a cloud was gathering, a cloud the color of lead. The waves on the Volga pounded, but the fisherman still was not there.
>
> But suddenly a dot could be seen out there, the dot grew. There it was near the cliffs—it was a boat and in it was the fisherman.[1]

These stories provide clear examples of the syncretism of children's writings. In them prose is not separated from poetry, some phrases are in strict meter, others do not conform to a particular rhythm—this is the still undifferentiated semiprosaic, semipoetic story, which is so frequent in children of this age. Here is an example of a purely prose essay. The author is a twelve-year-old boy, a laborer's son.

> The taiga is an enormous forest. The tall slender pines do not allow the sun to shine in. It is as big as the sea, wherever you go there is forest and more forest. From Lake Ladoga to the Ural Mountains it is 1,500 kilometers. The snow piles up so you can not pass either on foot or in a vehicle, but in the summer it is as warm as it is here. The kids go out to pick mushrooms and berries, only they have to watch out for wild animals. They have lynx, bears, wolves, elk, and so on.

Here a prosaic assignment to describe a forested region also dictated to the child that he write an essay in a straightforward, prosaic form. However, children may also express emotional themes that are upsetting them in a calm, prosaic style. Here is a story about a fire, written by the twelve-year-old son of a laborer.

> The evening was already coming on, the thresher was humming and you could hear people's voices. But soon the bell rang and everyone went home. It was completely quiet. All you could hear was the lowing of the cows and the loud voice of the cowherd coming from the woods. When he passed the thresher, he dropped his cigarette butt. A fire started and in the middle of the night, all the hay caught fire. The alarm bell rang. People ran up with water to throw on the fire. The children screamed and cried. The whole town was up and outside. When the fire was out, everyone went home; everyone was grieving because they had lost their grain.

We cite a story that formed part of an exhibition at the Institute of Schoolwork Methods in 1925/26 as an example of joint creative writing by a group of children. This work was written by children, aged twelve to fifteen, in the fifth grade in a Moscow school. There were seven authors, six girls and one boy. It was the boy who was responsible for the general outline and editing of the work. This work, "The Story of Railroad Car Number 1243, as Told by Itself," was written at the children's initiative in connection with their study of industry.

This group work by children manifests all the main features of children's creative writing: combinatorial fantasy, attributing human feelings and experiences to the material from which the railroad car was manufactured and to the car itself; an emotional approach, which compelled the children not merely to understand and imagine the story of the car, but to experience it, to translate it into the language of feelings, and the drive to embody this emotional and imagistic construction in an external linguistic form, to realize it. Here we can readily see the extent to which children's creativity is fed by impressions coming from reality, how these impressions are reworked, and how this leads the children to a

deeper understanding of and empathy with this reality. However, we can also readily see in this story what might be noted with regard to all children's creative work in general, the imperfection of this creation, which is disclosed if we consider it from the point of view of the requirements that we make of serious literature.

"Children's creative works," writes G. Reveshch, "both in content and technically are, in the main, primitive, derivative, and uneven and fail to observe the principle of gradually increasing tension."

This creative work is more important for the child, than for literature per se. It would be incorrect and unfair to consider the child as if he were a professional writer and to make the kind of demands on his work that we make of adult professionals. Children's creative writing has the same relationship to the writing of adults, as children's play has to life. Play is necessary to the child himself, just as children's creative writing is necessary, first and foremost, for the proper development of the powers of the young author himself. It is also necessary for the child's milieu in which it was born and to which it is addressed. This, of course, does not mean that children's creative writing must arise exclusively out of the spontaneous motives of the children themselves or that all manifestations of creativity are of equal value and that they must all satisfy only the subjective taste of the children themselves. In play the most important thing is not the satisfaction the child receives through playing, but the objective use and objective meaning of the play, of which, the child himself is unaware. This meaning, as is well known, involves the development and exercise of all the child's powers and latent strengths. In the same way children's creative writing may be stimulated and guided from without and must be evaluated from the standpoint of the objective significance that it has for the development and education of the child. In the same way that we help children organize their games and select and guide the nature of their play, we can stimulate and direct their creative responses. Psychologists long ago established a whole series of techniques that all serve the same

purpose—to experimentally induce a creative response in children. For this purpose the children are given particular assignments or themes or are provided with a series of musical, artistic, real-life impressions, and so on, as a means of inducing creative writing. However, all these techniques suffer from extreme artificiality and they all are suited only to the goal for which they were developed, that is, to evoke creative writing in children in order to study it.

In order for psychologists to study this response it had to be evoked by some simple well-defined and stipulated stimulus so that they could hold in their hands the thread leading to the creative response. Educators face a completely different task when they attempt to stimulate creativity in children. Because the task is different, the techniques also have to differ. The best stimulus of creativity in children is to organize their life and environment so that it leads to the need and ability to create. As an example, we can cite the widespread form of the children's magazine or newspaper.

Zhurin writes:

> The magazine, if it is done properly, combines more skills than any other task. The most diverse capacities of the children can be applied here: young artists can illustrate and decorate; those with literary tendencies can write; those with organizational skills can run the meetings and allocate work; those who like to copy, paste, and cut out, and there are quite a few of such children, will do these tasks with enthusiasm. In a word, all sorts of diverse skills and interests of children can be put to use on a magazine. The older and more capable ones will draw the less capable and less energetic along with them. And all this will happen by itself, without the need for any outside influence.
>
> The magazine can play an important role in the development of children's written language. It is well known that work that children do voluntarily and with interest yields much greater results than work that they are compelled to do.

But virtually the greatest value of the magazine is that it brings children's creative writing closer to children's life. The children begin to understand why a person would want to write. Writing becomes a meaningful and necessary task for them. School and class newspapers have the same if not greater importance because

they also make it possible to involve children who have the most diverse interests and talents in a joint group effort, as do creative evenings, and similar activities that stimulate children's creativity.

We have already stated that the primary form of creative works by children is syncretic, that is, involving creation in which individual types of art are still not separated or specialized. Thus, we spoke of children's literary syncretism, which does not yet distinguish between poetry and prose, story and drama. But children show even broader syncretism, uniting different modes of art in one single artistic endeavor. The child composes and acts out what he is saying, as occurred with the children Tolstoy described.

The child draws and at the same time talks about what he is drawing. The child dramatizes and composes the speeches for his characters. This syncretism points to the common root that unites all the different branches of children's art. This common root is the child's play, which serves as the preparatory stage for his artistic creation. But even when this common root has given rise to more or less independent forms of artistic creation such as drawing and dramatization, even then each form is not strictly separate from others and readily absorbs and selects elements of other forms.

There is one characteristic of children's creation in which we can easily find the traces of the play from which it grew. A child rarely works on his creations for a long time; in the majority of cases he completes them in one sitting. A child's creative effort in this case is reminiscent of play, which grows out of the child's acute need and provides for a rapid and complete venting of his feelings.

The second link with play involves the fact that in childhood, literary creation, like play, has fundamentally not broken its ties with the child's personal interests and personal experience. Bernfeld studied novellas written by adolescents aged fourteen to seventeen. He found that all the novellas bore a deep impress of their authors' personal lives. Some of them were nothing more than disguised autobiography. Others altered the intimate basis of the story to a significant degree, but still not so much that it disappeared completely from their work. In connection with this subjectivism

of children's creative efforts, many working in this area attempt to assert that the difference between the two basic types of writing—the subjective and the objective—can already be found in children's writing. It seems to us that both these aspects or traits of children's writing are encountered during adolescence, because they are the reflection of the turning point that the child's creative imagination undergoes at that time. The traits of the past may be more pronounced in some children and traits of their future imagination in others.

There is no doubt that this fact is directly related to the individual traits of a particular child. Tolstoy noticed two types, which correspond to plastic and emotional imagination as defined by Ribot. His Semka showed the plastic type of creativity. His story was distinguished by the artistic nature of his description, the most true-to-life details followed one after another.

"When Semka told a story, he saw and described what was in front of his eyes: the stiff frozen bark sandals and the mud that dripped off them when they melted, and the toast they turned into when the old woman threw them into the stove." His imagination reproduced and combined external visual images, and made a new picture out of them. Fedka, on the contrary, created by combining, mainly, emotional elements and stringing external images on them. He saw "only those details that evoked in him the feeling with which he looked upon a familiar face." He selected, on the basis of common affect, only those impressions that corresponded to the predominant emotion that possessed him, pity, sympathy, and softness. [Alfred] Binet called these two types the "observer" and the "interpreter." He believed that both of these types can be encountered in equal measure among adult artists and scholars and in adolescents. Binet studied the creative efforts of two girls of eleven and twelve and a half years, one of whom belonged to the objective, and the other to the subjective type of creator.

Professor Solov′ev, analyzed two adolescents and showed to what degree the fact that they belonged to one or the other type determined all the details and the fine structure of the stories they wrote. Their types were reflected in their selection of epithets,

that is, descriptors, in their images, and the feelings with which they were imbued. Here are some typical examples of the descriptors occurring in the works of these girls. For the objective artist: snow was fluffy, white, silvery, clean. A violet was blue, a moth was colorful, clouds were threatening, unfrozen, sheaves were golden, the forest was sweet-smelling, dark, the sun was red and clear, golden and spring-like. All of these correspond to real visual perceptions, all of them give a visual picture of things. This was not the case for the other girl. All her descriptors, although they were very expressive and visual, were primarily emotional: hopeless melancholy, black thoughts, gloomy as a raven, and so forth.

The time has come to draw some conclusions. Everyone who has looked at children's creative writing comes up with the following question. What is the sense of such efforts if they cannot develop the future writer or creator within the child, if they are only a short and episodic phenomenon in adolescent development that subsequently decreases to a great extent if it does not disappear altogether? The sense and significance of these creative endeavors lies only in the fact that they allow the child to make the sharp turn in the development of the creative imagination that provides the new direction to his fantasy, one that persists throughout the rest of his life. Its significance lies in the fact that it deepens, expands, and purifies the child's emotional life, which for the first time is awakened and tuned to a serious key. Finally, it is important because it permits the child, by exercising his creative tendencies and skills, to master human language, this extremely subtle and complex tool for forming and expressing human thoughts, human feelings, and the human inner world.

Chapter 7. Theatrical Creativity in School-Age Children

Children's theatrical creativity or dramatization efforts are very close to their literary creative activity. Along with verbal creation, the dramatization, or staging, of plays is the most frequent and

widespread form of creativity practiced by children. It is easy to understand why children find this type of creativity so compatible. There are two main reasons: first of all, drama, which is based on actions, and, furthermore, actions to be performed by the child himself, is the form of creativity that most closely, actively, and directly corresponds to actual experiences.
[Anna] Petrova writes:

> Dramatic rendering of life's impressions is deeply embedded in the nature of children and occurs spontaneously, regardless of the desires of adults. The child seizes upon impressions he receives from the outside world, and, by imitating them, makes them concrete. Through instinct and imagination the child represents spiritual qualities he has never experienced (heroism, bravery, self-sacrifice) and creates situations and circumstances that life has not made available to him. The child's fantasy is not relegated to the realm of daydreams as occurs in adults. The child wants everything he imagines, everything he experiences to be embodied in living forms and actions.

Thus, the dramatic form expresses with greatest clarity the full cycle of imagination as described in the first chapter. Here the image that the imagination has created from real elements of reality is embodied and realized again in reality, albeit only the contingent reality of the stage; the drive for action, for embodiment, for realization that is present in the very process of imagination here finds complete fulfillment. A child who sees a train for the first time stomps and whistles, attempting to imitate what he sees. And this dramatization of the impressions made by the train gives the child enormous enjoyment. The author we just cited speaks of a nine-year-old boy, who after he had learned about excavating machines,

> for several days without respite pretended to be one. To the extent possible he made his body assume the form of a wheel, and tirelessly waved his fists, which represented the scoops attached to the "wheel," to shovel up the dirt. Despite how exhausting this exercise must have been, the boy engaged in it throughout a long walk and constantly repeated it at home and in his yard. The streams that ran along the streets inspired him still further: he pretended to be clearing the way for canals and a riverbed. He stopped only to play the part of the

> operator driving the machine, turning it and setting it to clearing the way for a new river, and then he again bent himself into a wheel, portraying the tireless machine, working with its scoops. Another child, a little girl, digging her feet into the sand and standing motionless with her hands at her side said: "I am a tree, watch me grow. Here are my branches, here come the leaves," and the girl began to raise her arms slowly spreading her fingers, "watch how the wind is bending me," and the "tree" began to bend and shake her finger-leaves.

Another reason that the dramatic form is so compatible to children is the link between all dramatization and play. Drama, more than any other form of creation, is closely and directly linked to play, which is the root of all creativity in children. Thus, drama is the most syncretic mode of creation, that is, it contains elements of the most diverse forms of creativity. This, by the way, is the greatest value of having children stage dramatic works. The staging of drama provides the pretext and material for the most diverse forms of creativity on the part of the children. The children themselves compose, improvise, or prepare the play, improvise the roles or sometimes dramatize some existing piece of literature. The children understand the need and nature of this verbal creation because it takes on the meaning of a part of the whole; this is preparation for or a natural part of a complete and fascinating game. Making the props, the scenery, and costumes provides a pretext for visual arts and crafts. The children draw, model, cut out, sew, and again all these activities take on meaning and purpose as part of a general objective the children are engaged with. Finally, the game itself, involving the actual presentation of the play by the actors, completes this work and provides it with its complete and final expression.

Petrova writes:

> The examples cited are sufficient to show the extent to which children's representations of the world are rooted in action. Play is the child's real-life school, which educates him spiritually and physically. Its significance in the development of the character and world view of the future adult is enormous. We can consider play to be the primary dramatic form, distinguished by the valuable characteristic that the actor, the audience, the playwright, set designer, and stage manager

> are all the same person. In drama, the child's creation is in the nature of a synthesis—his intellectual, emotional, and volitional powers are activated directly by the force of life itself, without any excess stress to his psyche.

Some educators are very opposed to children doing dramatizations. They point out the dangers of this form, including premature development of children's vanity, the unnatural nature of theater, and so on. And in truth, theatrical productions that attempt to directly reproduce the forms of adult theater are not suitable for children. Starting with a literary text so that he has to memorize someone else's words, which do not always coincide with the child's understanding and feelings, constrains a child's creativity and turns the child into a transmitter of someone else's words, bound by the text. This is why plays written by the children themselves or created and improvised by them as they are played are vastly more compatible with children's understanding. There is a broad range of possibilities here: from a well prepared and rehearsed literary text to providing only general notes about each role that the child himself must improvise as the play proceeds and turn into a new verbal text. Such plays will inevitably be more awkward and less literary than ready-made plays written by adult professionals, but they will have the enormous advantage of having been generated through the creative efforts of the children themselves. It must not be forgotten that the basic law of children's creativity is that its value lies not in its results, not in the product of creation, but in the process itself. It is not important what children create, but that they do create, that they exercise and implement their creative imagination. In a true children's production, everything, from the curtain to the denouement of the drama, must be created by the hands and imaginations of the children themselves and only then will the dramatic production acquire its full significance and power for the children.

As was already stated, when this occurs, the most diverse forms of children's creativity—technical, scenic/artistic, verbal, and dramatic in the full sense of the word—will appear and organize

themselves around the production. The intrinsic value of children's creative processes are particularly clearly manifest in the fact that auxiliary operations, for example, technical work to prepare the scenery, in the children's eyes take on no less importance than the play and acting itself. Petrova writes of one school production and of the interest the children took in the technical work associated with it.

> Drilling of holes requires that one obtain an instrument that is not always provided as part of school equipment—a drill. The process of drilling can easily be learned by very small children; preschoolers showed me how to perform this simple technique. The drill that I happened to bring in created an entire epoch in the life of the group: the children drilled holes in thick blocks and boards and then used sticks to combine them in various ways. These holes gave rise to forests, gardens, and walls. In the children's eyes the drill was some kind of miracle of technology.

As is true of the play itself, the children should be invited to create all the materials needed for the play. Just as burdening children with someone else's lines leads to a disruption in the children's psychological set, so the objective and basic nature of the play should be compatible and understandable to the children. The children will be fettered and confused by a stage and all the other trappings of adult theater if they are directly imported into their play. A child may be a poor actor in the view of others, but he is a wonderful actor to himself and the whole production should be organized in such a way that the children feel that they are playing for themselves and are consumed with interest in this, in the process, and not in the final result. The highest reward the play provides must be the pleasure the child experiences in preparing for the production and from the process of acting itself, and not the success or approval the child receives from adults.

Just as a child, if he is going to write a literary piece, must understand why he his writing and be conscious of the goal of this writing, so a children's production must be undertaken for a definite goal.

G. Rives writes:

> The Pioneer production is not just a play for the sake of having a play, but always has a definite objective, for example, elucidation of one or another aspect of the revolution or an outstanding political event, or dramatization of the work that was performed in the past semester. Every Pioneer production, which has such a goal, of course, also has the goal of aesthetic education. Every Pioneer production, aside from its propaganda goal, absolutely must contain some aspects of creativity.

Story telling, that is, oral verbal creation and dramatization in the narrower sense of the term are similar in nature to children's dramatic creative efforts. The educator, A.V. Chicherin, describes one of his children's productions as follows.

> Several tables were pushed together with benches on top of them. Here and there a cardboard pipe or a flag was stuck on, a board ran up to the structure from the floor. There was a great deal of bustle as people boarded the steamship. Two boys running away to America appeared and sneaked into the hold (under the tables). This is also where the engineers and the fireman were located; above them were the helmsman, the captain, the sailors, and the passengers. The steamship whistled, the gangplanks were taken up, there was a crackling sound from the hold. The people on deck rocked back and forth in rhythm. In addition, behind this a board on which was written "Ocean" rocked back and forth, too. Here the main significance of the auxiliary materials was not that they would create an illusion for the audience, but that play itself, boldly encompassing any subject, could be based on motion and portrayed actively.

Such play is very close to dramatization, so close that frequently the boundary between one and the other is lost completely. We know that certain educators introduce dramatization as a teaching method, to such a great extent is this active way of portraying events with one's own body compatible with the child's imagination.

Chapter 8. Drawing in Childhood

Drawing, as we have already noted, is the primary form of creative activity in early childhood. "As the child grows and enters

later childhood, he generally begins to be disillusioned and uninterested in drawing." H. Lukens, who published research on children's drawings, dates this cooling of interest to the period between ages ten and fifteen. After this cooling off period, in his opinion, interest in drawing again increases between the ages of fifteen and twenty. But this new increase in artistic efforts occurs only in children with special artistic talent. When the initial loss of interest begins most children give up drawing for life and the drawings of an adult who does not regularly draw are not very different from those of an eight- or nine-year-old child, who is just completing the stage where children like to draw. These data show that during adolescence, drawing decreases and is typically abandoned by children. Barnes, who studied more than 15,000 drawings, has established that this turning point occurs at the age of thirteen or fourteen.

"It can be established," he writes, "that girls of thirteen and boys of fourteen become less daring in their expression, Children who refuse to draw at all are all older than thirteen. Other research in this areas also shows that at the age of thirteen, that is, at the period of puberty, children undergo changes in their ideals."

The cooling toward drawing that children experience conceals a transformation of drawing ability to a new, higher stage of development, which is accessible to children only if they are exposed to favorable external stimulation, such as, for example, instruction in drawing at school or artistic role models at home, or if they have special talents for this mode of creation. To understand this turning point with respect to drawing during the adolescent period, we must briefly describe the basic developmental stages of children's drawing. [Georg] Kerschensteiner, who performed systematic studies of children's drawings divides the entire process up into four stages.

If we ignore the stage of scribbling, random marks, and formless depiction of certain elements, and start immediately with the stage where a child begins to draw in the true meaning of the word, we will find the child in the first stages or the stage of schemata. In this stage a drawing of a human figure generally includes a head,

legs, and frequently arms and a trunk. Drawings of people are limited to these elements. These are the so-called two-legged heads, that is, schematic beings the child draws in place of the human figure. K. Ricci, who studied children's drawing, once asked a child who was drawing this type of two-legged head, "What's this, all he has are a head and legs?" The child answered, "Well of course, that's enough so that he can see and walk."

The essential feature of this stage is the fact that the child draws from memory and not from nature. One psychologist who asked a child to draw his mother, who was sitting right in front of him, had occasion to note that the child never once lifted his eyes to look at her. However, not only observation, but analysis of such a drawing very readily reveals that the child is drawing from memory. He draws what he knows about things and not what he sees or how he subsequently pictures things to himself. When a child draws a horse and rider in profile, he frequently pictures both the rider's legs, although an observer from the side can see only one. When he draws a man in profile he puts both eyes in the picture.

"If he wants to draw a man wearing clothes," writes Buhler, "he goes about it as if he were dressing a doll: first he draws an unclothed person, and then hangs clothes on him, so that the whole body shines through and you can see his wallet in his pocket and even the coins in the wallet."

What is produced here are justifiably called x-ray drawings. Figures 6 and 7 [see Appendix] portray such drawings. When the child draws a person wearing clothes, he draws the legs underneath them, although he cannot see them. Another clear proof of the fact that at this stage the child is drawing from memory is the external noncorrespondence and lack of verisimilitude of children's' drawings. A major portion of the human body such as the trunk frequently is often completely absent so the legs (and sometimes the arms) grow out of the head; body parts are connected in a completely different way than the child could observe by looking at someone else's body. The drawings in the

Appendix show schematic depictions of a person that clearly demonstrate what a schematic sketch involves. J. Sully is completely justified when he says about this stage:

> It would seem foolish to suppose that a three- or four-year-old child has an internal representation of the human face that is no better than the one he draws. If this is open to doubt, then it is nevertheless true that his drawing of a person, without hair, ears, torso, or arms lags far behind his knowledge. How can this be explained? I explain it with reference to the fact that the little artist is vastly more of a symbolist than a naturalist. He does not worry about complete and exact correspondence and desires only the most superficial indication.

It is, of course, obvious that this poverty of detail, arising out of the lack of any serious artistic goal, is also a result of technical limitations. A round face with two supporting lines corresponds to what a child can draw easily and conveniently. Buhler is fully justified in saying that the child's schema is completely expedient because schemata, exactly like concepts, contain only the essential and constant features of an object. The child, when he draws, puts into his drawing what he knows about the subject and not what he sees. For this reason he frequently draws something extra that he does not actually see; and equally frequently, his drawing leaves out much that he undoubtedly does see, but that, for him, is inessential to the object being depicted. Psychologists have come to the conclusion that at this stage a child's drawing represents a kind of list, or, more accurately, the child's graphic narration about the object he is portraying.

Buhler writes, "When you ask a seven-year-old to describe a horse, what you get is essentially the identical list of body parts that you get when he draws one: a horse is one head and one tail, two legs in front and two behind, and so on. This is why drawing from memory can be understood simply as a graphic narration."

And indeed one can explain these things to oneself as follows: while the child is drawing he is thinking about the object he is depicting, as if he were describing it to himself. In his verbal description he is now strictly bound neither by temporal nor spatial

continuity and thus he may, within limits, seize on any parts or omit them: for example, a dwarf has an enormous head and two very short legs, his fingers are as white as snow, and his nose is red. If the little artist's hand is to be naively or, more precisely, uncritically guided by this simple contrast-based description, then the short legs may easily grow right out of the enormous head and the arms may be attached at approximately the same place, and the nose, perhaps, will end up right in the middle of the circular head. And this is precisely what you can actually see in many drawings made in early childhood.

The next stage is called the stage of developing form and line. The child gradually develops the need not only to list specific features of the object described but also to render the formal relationships among the parts. At this second developmental stage of children's drawing, we see a mixture of formal and schematic rendering. The drawings are still schematic, but they contain the beginning of true representation and resemblance to reality. This stage, of course, cannot be sharply separated from the previous one; however, it is characterized by a great many more details, a more realistic placement of the parts of an object; such blatant omissions as that of the torso, are no longer noted, the whole drawing begins to approach the actual appearance of the object.

The third stage, according to Kerschenshteiner, is the stage of realistic depiction, in which the schema has already completely disappeared from children's drawings. The drawing has the form of a silhouette or contour. The child still does not render perspective or the three-dimensional nature of the object. The object remains two dimensional, but generally the child produces a portrayal of an object that is lifelike, realistic, and resembles the original. "Only comparatively very few children," writes Kerschensteiner, "go beyond the third stage on their own without the help of instruction. We encounter this before the age of ten only in very exceptional cases; starting at age eleven, it begins to be possible to identify a certain percentage of children who have some talent for the three-dimensional representation of an object."

At the fourth stage of three-dimensional depiction, individual parts of the object are depicted as convex through the use of light and shadow, perspective appears, and movement is suggested, as is the more or less complete three-dimensional impression made by the object.

To clarify the distinction among these four stages and the gradual evolution of children's drawings, we will cite several examples. We describe four sequential renderings of a trolley car. The first drawing [Appendix Figure 8] is pure schema: several irregular circles depicting the windows and two elongated lines depicting the car itself. That is the entire drawing by a child wishing to depict a trolley car. The next drawing [Appendix Figure 9] is also pure schema, except that the windows are placed along the sides of the car and thus more accurately render the formal relationship among the parts. The third drawing [Appendix Figure 10] provides a schematic depiction of the car with a detailed enumeration of different portions and parts. We have people, seats, wheels, but we still have a schematic representation. And finally, in the fourth drawing [Appendix Figure 11], done by a thirteen-year-old boy, we have a three-dimensional representation of a trolley car, showing perspective and representing the actual appearance of the object.

The features of the four developmental stages of children's drawing are even more obvious in the examples we provide of drawings of a person and an animal, which are two of children's favorite drawing subjects [Appendix Figures 1–6]. In the first drawings we see purely schematic representations of a person, often limited to two or three parts of the body. Gradually these schemata are enriched with certain details, and we get an x-ray drawing, which has sprouted a whole series of details.

In the second stage we again have schematic x-ray representations, as can be seen clearly, for example, in the picture by the 10-year-old boy, who drew his father in a conductor's uniform [Appendix Figure 7]. The trunk and legs are seen through the clothing, there is a number on the cap, and two rows of buttons on the

jacket. However, despite the richness of detail the picture remains at the first stage of pure schema. In the second stage of combined schematic and formal representation we see an attempt to render the depiction of the object more realistically. We see a schema combined with actual appearance or form. Here, for example, is a picture done by a ten-year-old child—a drawing of his father and mother [Appendix Figure 15]. It is very easy to find traces of schematic representation in this drawing, but they are dominated by the formally correct rendering of the object. Finally, drawing at the third stage, provides flat contours realistically representing the actual appearance of the object. Despite some errors, violation of proportion and balance, the child has become a realist; he draws what he sees, renders posture and movement, and considers the viewer's viewpoint. There is no schema anywhere in his picture.

Finally, the fourth stage is that of three-dimensional representation, considering and rendering the three-dimensional form of the object depicted. An example of this is the drawing of a sleeping boy [Appendix Figure 18]. This drawing was done by a thirteen-year-old boy.

The same four stages can be seen in the drawings of animals. This completely persuasively shows that the difference in the representation does not result from the content and nature of the drawing's topic but is instead associated with the evolution of the child himself.

The first picture (Appendix Figure 19) depicts a horse that has, instead of the appropriate head, a face like a person's. At this first stage children draw all animals completely the same, and the schema of the cat, dog, and frequently even the chicken do not differ. Here the child has diligently and schematically rendered the trunk, head, and feet. In our picture the head definitely has a human look, although it belongs to a horse. In the second stage the child renders a horse schema and mixes it with certain features corresponding to the actual appearance or shape of the horse, for example, the typical shape of the head and neck. His drawing of a horse is already beginning to differ clearly from a drawing of a cat or other animals, especially birds.

At the third stage the child provides two-dimensional contours, but gives us a realistic depiction of a horse. During the fourth stage, as seen in [Appendix] Figure 20, the child provides a three-dimensional depiction of a horse with perspective. Only now does the child begin to draw what he sees. The conclusion that follows when we consider these four stages at first seems paradoxical. We would have expected drawing from observation to be easier than drawing from memory. However, experimental observations show that drawing from observation a realistic depiction of an object is only the fourth and last stage in the development of children's drawing, a stage that only the exceptional child attains.

How may this be explained?

In recent years, A.V. Bakushinskii, who has studied children's drawing, has attempted to provide an explanation. The first period in the child's development, according to him, focuses on the motor-tactile mode of perception and the same mode of orientation to the environment. These take precedence over visual impressions and the latter are subordinate to the child's motor and tactile mode of orientation. Bakushinskii writes:

> All the child's actions and the products of his creation may be understood and explained, overall and in their parts, with reference to this interaction between the motor-tactile and the visual ways a child perceives the world. The child is a creature of real spontaneous movement. He creates real action. He is interested primarily in the process of action and not the result. He prefers to make things, rather than depict them, he tries to use them in as utilitarian a manner as possible—mainly through playing, but is indifferent, or almost indifferent, to their contemplation, especially for a long period of time. During this period the child's actions have a strong emotional flavor. Physical action dominates the analytic processes of consciousness. Creative products are extremely schematic and typically contain the most general symbols of things. Their changes and actions are not represented. These are either described in words or demonstrated during play.

The major direction of the child's evolution involves a steady increase of the role of vision in the enterprise of mastering the world. From its initial subordinate position it gradually becomes

dominant and the child's behavioral motor-tactile system becomes subordinate to the visual. During the transitional period we may note a struggle between two opposing principles of the child's behavior, which ends in the complete victory of the visual mode of perceiving the world.

Bakushinskii writes:

> The new period is associated with attenuation of external physical activity and intensification of mental activity. An analytic and rational period occurs in childhood development, lasting throughout late childhood and the time of adolescence. The dominant role in the perception of the world and in the creative representation of this perception is now played by visual aspects. The adolescent becomes more and more visual, contemplating the world from the sidelines, experiencing it mentally as a complex phenomenon and perceiving in this complexity not so much the variety and presence of things, as was the case during the previous period, as the relationships among them.

Again the child is occupied by process, not the process of his own actions, but rather the processes occurring in the external world.

In the visual arts, during this period the adolescent strives for an illusory and naturalistic form; he wants to make something that looks like reality; his visual set permits him to master methods of perspective for depicting space.

We thus see that the shift to a new form of drawing is associated during this period with profound changes in adolescent behavior. Kerschenshteiner's data on the frequency of the four stages are of interest here. We have already seen that Kerschensteiner's fourth stage only begins to occur at the age of eleven, that is, just when, according to the majority of authors, children begin to lose interest in drawing. Evidently, as already noted, here we are dealing, on the one hand, with the particularly talented, and on the other, with children for whom school instruction or particular home situations have created favorable conditions for the development of drawing.

Drawing is no longer a mass, spontaneous, self-initiated creative

activity on the part of children, but rather becomes creativity associated with ability, with certain creative skills, with mastery of the material, and so on. The data Kerschenshteiner cites can be used to give a picture of the relative distribution of the four stages according to age: we see that all six-year-old children are at the first stage of pure schema. After eleven, this stage is less common, as drawing improves, and, starting at thirteen, we get real drawing in the full and precise meaning of the word.

F. Lebenstein [in Volkelt, 1930], who also studied children's drawing, obtained interesting data showing the extent to which children of various ages include various features in a schematic representation of the human figure.

Thus, we see that the torso is present in 50 percent of drawings by four-year-olds and 100 percent by thirteen-year-olds; eyelashes and brows occur in 92 percent of drawings by thirteen-year-olds, and one-ninth that rate in drawings by four-year-olds. The general conclusion that can be made on the basis of these data can be formulated as follows: the head, legs and arms occur at the very earliest developmental stages of children's drawings; other parts of the body, details, and clothing increase in frequency as children grow older.

This gives rise to the question of how we should treat artistic creation during the adolescent period.

Is it a rare exception, should it be stimulated by attaching significance to it, encouraging it in adolescents, or should we conclude that this form of creativity dies a natural death at the beginning of adolescence?

Here is the way an adolescent girl evaluates the results of her studies in an art appreciation club under the direction of Sakulina.[2]

> These days colors speak to me. The way they are combined call up different moods. The colors and the drawing explain the content of the picture and its meaning, and then my attention begins to be attracted by the grouping of objects, which also creates the mood of the picture, as well as light and shadow, which contain a great deal of life. I am very interested in this light, and when we draw from nature I always

> want to do everything I can to portray it because it makes things more alive, but this is very difficult.

When we attempt to foster children's creativity, including in the visual arts, we need to observe the principle of freedom, which is generally an essential condition for all kinds of creativity. This means that the creative activities of children cannot be compulsory or forced and must arise only out of their own interests. For this reason instruction in drawing cannot be a mass and general phenomenon. However, for talented children, even for children who are not planning to become professional artists, drawing can have enormous cultural significance; when, as was described in the response cited above, colors and drawing begin to speak to adolescents, they have mastered a new language, which expands their horizons, deepens their feelings, and, in the language of images, communicates to them what they would never be conscious of otherwise.

Two very important issues are associated with the question of drawing in adolescence and we will discuss these in our conclusion. First, for adolescents the mere exercise of creative imagination is not enough. A drawing done any old way fails to satisfy. To embody his creative imagination an adolescent needs to acquire special professional artistic skills and abilities.

He must learn to master his material, the particular method of expression provided by painting. Only by cultivating this mastery of the material can we ensure that children's drawing is on the right developmental path for their age. We thus see the problem in all its complexity. It has two parts: on the one hand, we need to cultivate creative imagination; on the other hand, a special culture is needed for the process of embodying the images created by imagination. Only when both aspects are adequately developed, can children's creativity develop properly and provide the child with what we have a right to expect from him. Another aspect, associated with drawing at this age is that children's drawing is very closely associated with productive work or artistic production. Pospelova describes her experience with teaching children

how to produce etchings. Production of etchings required the children to master a whole series of technical processes to create the etching and then to print it.

"The printing process," she writes, "interested the children no less, if not more, than the engraving process itself, and after the first prints were made, the size of our club increased considerably."

The etching became the object not only of the children's artistic but also of their technical creativity. Frequently, because of the nature of its technology, etching was used for other than purely artistic objectives. The children produced headlines, advertisements, seals, and used the engraving techniques for their newspaper, and prepared illustrations for the natural and social sciences, showing the further association of their work with printing. And the author is completely justified in concluding that: "It was obvious from the adolescents' interest in the technical aspects that attracting attention to some form of industrial technique through personal artistic creation requiring this technique is a very successful pedagogic method." This synthesis of the artistic and the industrial is the best possible complement to the nature of creativity at this age. The two etchings the author cites, depicting a mill and a peasant, show how complex the processes of technology and creation can be when they are interwoven.

All art, by cultivating special methods for embodying its images, has its own special technology and this merger of technical disciplines and exercise of creativity is, undoubtedly, the most valuable method in the educator's repertoire for students of this age. Labunskaia and Pestel′ describe their experience working with children in the area of artistic production.

> What significance can artistic production have for adolescent children of thirteen, fourteen, and fifteen, the age that is most difficult in an artistic and pedagogic sense, an age in which even the most capable seem to infect each other with the opinion that "We can't do it properly and it is not worthwhile to do it the way we can"? Continuing artistic education can only help them to retain the motivation to create and to master their material by involving them in artistic production. The pencil, clay, and paints used for purely artistic projects seem to

> have become boring to them. New material and new utilitarian projects will give new impetus to their creativity. While when they were younger the need to overcome technical difficulties extinguished and inhibited their creative efforts, now the reverse is true: constraints, technical difficulties, the need to use their inventive power within a certain framework increase their creative efforts—this is the value of the vocational productive orientation.

The importance of the technical aspect with which creativity must be combined to make it possible during this period becomes completely obvious if we remember that this provides the kernel of creative activity in a form as accessible as possible to the child. The authors rightfully say that this type of creativity accustoms the child to manifest his or her creative ability in the construction of a social proletarian life (decoration of a club, preparation of banners, posters, theatrical properties, and class newspapers). In their studies, the authors used embroidery, painting on wood, stenciling on cloth, toys, sewing, and carpentry, and all of these led to the same productive result. Not only did the children develop their creative potential, but they developed technically as well. Work itself became meaningful and pleasant and creation stopped being an amusement and a toy, not worthy of a serious adolescent's interest, and began to satisfy the serious critical attitude adolescents take to their work, because it was based on technology, which the child had gradually mastered, and on work. Here, as in the experience with children's staging of plays, it is very easy to find a way to extend this to the area of pure technical creation for children.

If would be incorrect to think that all children's creative abilities are limited exclusively to the area of artistic creation. Unfortunately, traditional education, which kept children far away from work, allowed children to manifest and develop creative capacities primarily in the area of art. However, in the area of technology, too, we are seeing the intensive development of children's creativity, especially at the age we are most interested in here. The building of model airplanes and machines, making of new

constructions, sketches, and activities in young naturalists clubs—all of these forms of technical creativity for children take on enormous significance in that they direct the interest and attention of the children to a new area in which human creative imagination may operate.

As we have seen, science, like art, permits application of the creative imagination. Technology is a product of the same activity, crystallized imagination, to use Ribot's phrase. Children who attempt to master the process of scientific and technological creativity are relying on the creative imagination to the same extent as in the area of artistic creation. The development of radio today and the general propaganda in favor of technical education have in recent years led to the formation of a whole network of electrotechnical clubs. In addition, there are a whole series of technical clubs for working youth in factories—aviation clubs, chemistry clubs, design clubs, and the like.

Young naturalists' clubs, which attempt to combine creative work with projects involving improvement of the economy, perform a similar task with regard to developing children's creative potential. Young naturalists' clubs and young technologists' clubs, which are sprouting up at Pioneer organizations, should become schools for future technological creativity in our adolescents.

We will not dwell on this or on other forms of creativity, such as music, sculpture, and so on, because we are not attempting to provide a complete and systematic enumeration of all types of creativity in children. Nor has our goal been to enumerate ways to work with children in each of the listed types of creativity. What was important to us was to call attention to the mechanism underlying children's creativity, the most important characteristics of this creativity during the school years, and also examples of the most well-studied forms of creation by school children in order to reveal both the operation of this mechanism and the presence of these characteristics.

In conclusion, we should emphasize the particular importance of cultivating creativity in school-age children. The entire future

of humanity will be attained through the creative imagination; orientation to the future, behavior based on the future and derived from this future, is the most important function of the imagination. To the extent that the main educational objective of teaching is guidance of school children's behavior so as to prepare them for the future, development and exercise of the imagination should be one of the main forces enlisted for the attainment of this goal.

The development of a creative individual, one who strives for the future, is enabled by creative imagination embodied in the present.

Notes

1. These examples of children's literary creations, like the others we cite, come primarily from the book by I.M. Solov´ev, *Literaturnoe tvorchestvo i iazyk detei shkol´nogo vozrasta* (1927).

2. The work by this author and the ones mentioned subsequently can be found in the collection of articles *Iskusstvo v trudovoi shkole* (Moscow, 1926).

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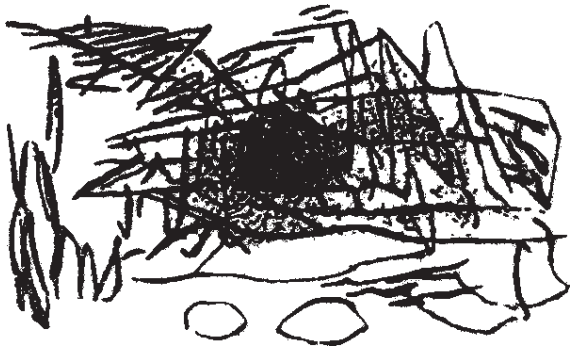
[Appendix follows]

Appendix

Figure 1. **Automobile** (scribbling)



Figures 2 and 3. **Two-legged Heads**

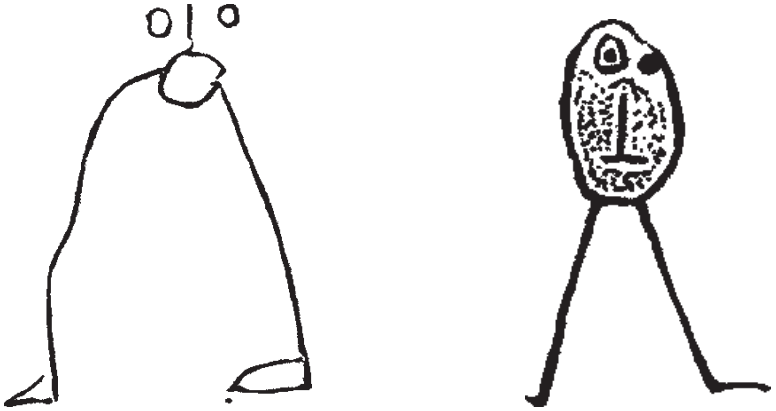


Figure 4. **Drawing by a Seven-Year-Old Girl from Memory. Typical Representation of a Person Without a Torso. Pure Schema. The Girl Does Not Draw at Home and Does Not Have Illustrated Books**

Figure 5. **Drawing from Memory. Pure Schema. Torso in the Form of an Oval. Drawn by a Four-Year-Old Boy in Kindergarten**

Figure 6. **Drawing from Memory. Drawn by a Seven-Year-Old Girl Without Access to Illustrated Books. Torso in the Form of a Rectangle. Pure Schema**

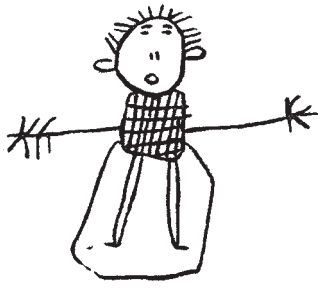
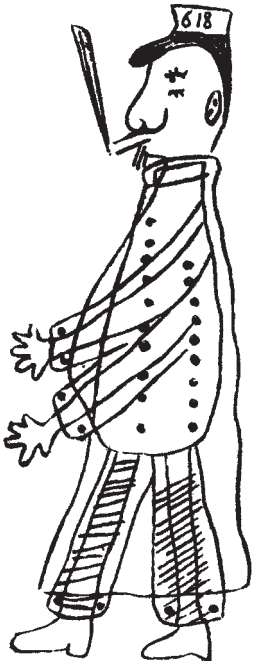
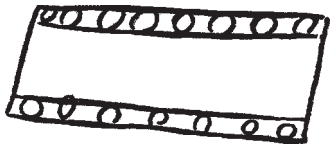


Figure 7. **Pure Schema. Torso in the Form of Rounded Line. Figure Dressed in Uniform, Trousers, Cap. All the Buttons Are Shown** (they are incorrectly drawn on the trousers as well). **Drawn by a Ten-Year-Old Boy Who Draws at Home. Drawing of His Father, a Trolley Conductor**



Figures 8 and 9. **Depiction of a Trolley Car from Memory. Totally Primitive Drawing. Drawn by a Girl Age Seven to Ten Who Does Not Draw at Home or Have Access to Illustrated Books**



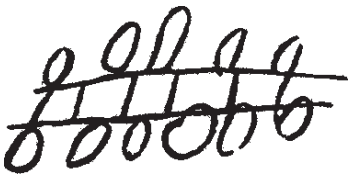


Figure 10. **Drawing of a Trolley Car from Memory. Pure Schema. Drawn by a Twelve-Year-Old Girl. It Is Interesting That the Car Is Mainly Drawn in Cross Section**

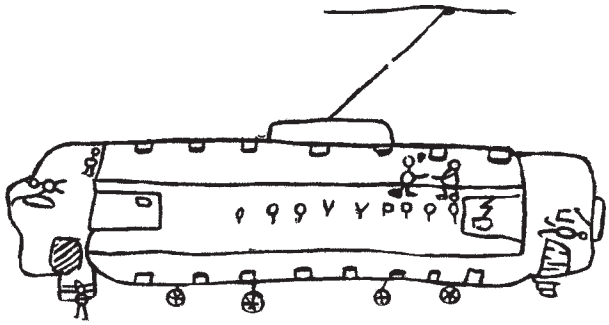


Figure 11. **Drawing of a Trolley Car from Memory. Includes Perspective. Drawn by a Thirteen-Year-Old Boy Who Draws at Home. The Sustained Visual Angle from the Side Is Noteworthy**

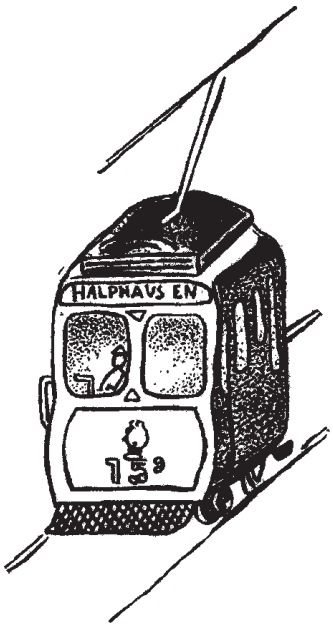


Figure 12. **Soldier**

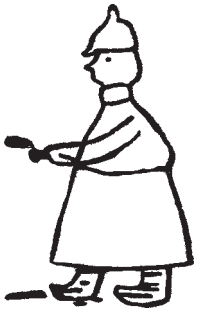


Figure 13. **A Pioneer Saluting**

Figure 14. **Mother and Baby**

Figure 15. **Stage 3. Nonschematic Drawing. Drawn by a Ten-Year-Old Boy. Draws at Home and Has Access to Illustrated Books. Despite Some Errors** (arms are excessively long, etc.) **the Drawing Approaches Stage 4** (convexity of the sleeves and edge of the jacket)

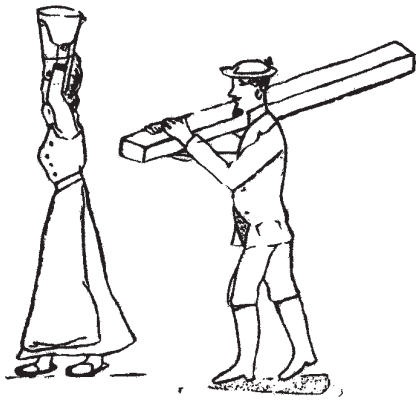


Figure 16. **Stage 3. Nonschematic Drawing by a Six-Year-Old Boy. Beginning of Stage 4** (concave depiction of the folds in the sleeves and skirt)

Figure 17. **Beginning of Depiction That Corresponds to Actual Form of the Object. Drawing Done by a Twelve-Year-Old Boy, the Son of a Day Laborer**

Figure 18. **Three Dimensional Representation of a Person from Life (Stage 4). The Drawing Depicts a Sleeping Boy from Life. Drawn by a Thirteen-Year-Old Boy, the Son of a Harness Maker and a Day Laborer. The Depiction of the Legs, Especially the Muscles in the Right Leg, Are Extremely Noteworthy**

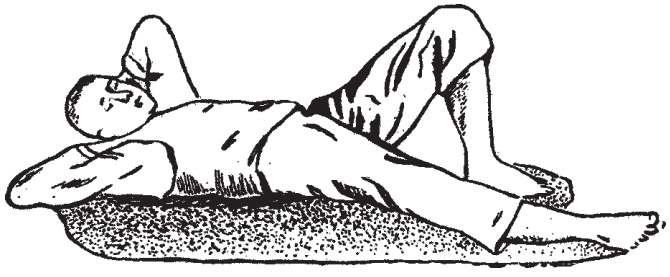


Figure 19. **Stage 1. Pure Schema. Drawn by a Six-Year-Old Girl. Draws at Home and Has Illustrated Books. The Centaur-Like Depiction of the Horse Is Noteworthy. The Head Belongs to the Horse and Not to a Rider**

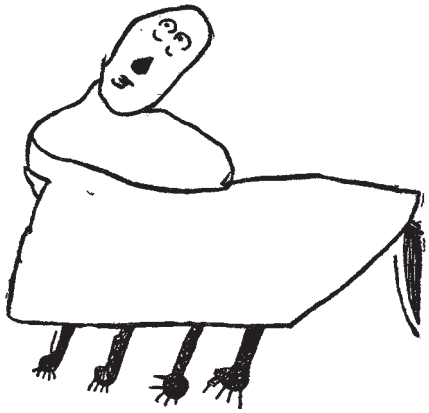


Figure 22. **Absence of Schema (Stage 4). Attempt at Three-Dimensional Depiction. Drawn by an Eight-Year-Old Boy, the Son of a House Painter and Artist. Draws Passionately at Home Supported by His Father**