

## Imagination and creativity of the adolescent

*Lev Vygotsky*

### *Contents of the lesson*

The problem of imagination and creativity in the light of psychopathology. – Imagination and thinking in adolescence. – The eidetic problem in adolescence. – Concrete and abstract imagination in adolescence. – The problem of concrete thinking and the formation of 'visual concepts'. – Comparative studies of imagination in childhood and in adolescence. – Creative imagination in adolescence. – Creative imagination as a synthesis of emotion and thinking.

### *Plan of study*

- 1 Read the text of the lesson and devise a plan and a summary of the whole chapter.
- 2 Draw any conclusions from the data referring to the development of the imagination in adolescence which may have educational applications.
- 3 Analyse the research material on any subject and select the aspects which are dependent on creative imagination.

### I

Cassirer<sup>1</sup> describes a patient exhibiting a complex disorder of the higher intellectual functions whom he had the opportunity to observe in the Frankfurt Neurological Institute. This patient was able to repeat any sentence without any problem but, in his version of the sentence, he was capable of communicating only real and concrete situations which directly corresponded to his concrete, sensory experience.

Once, during a conversation which took place on a nice sunny day, when he was asked to repeat the sentence 'Today the weather is bad and it is raining', he could not bring himself to carry out this request. The first words were uttered easily and confidently, but then he became confused, stopped speaking and could not bring himself to finish the sentence in the way it had been given to him. He kept on changing over to another form, which corresponded to the observed reality.

Another patient in the same institute, whose entire right side was severely paralysed, and as a result of which he had lost the use of his right hand, was unable to repeat the sentence 'I can write well with my right hand'. He substituted the correct word 'left' for the incorrect word 'right' every single time.

Other patients who also suffered from complicated disorders of different, but equally high intellectual functions structured on speech and thinking in concepts, also exhibited a clear and total dependence on direct concrete perceptions. One of these patients was perfectly able to make use of any everyday objects correctly, so long as he encountered them in a familiar situation and under the right conditions, but he would become totally unable to do so when the circumstances changed. So, for example, he used his spoon and drinking glass like any normal person whilst eating his dinner, but at other times he performed completely senseless actions with the very same objects.

Another patient who was incapable of pouring himself a glass of water when asked to do so, was able to perform this operation without the slightest difficulty when he was driven to it by thirst. In all these cases, what strikes one is the complete dependence of behaviour, thinking, perception and action on a given real situation, which manifests itself according to strict conformity to a systematic law, every time the higher intellectual functions become disturbed, when the mechanism of thinking in concepts breaks down and its place is taken by a more ancient, genetic mechanism of concrete thinking.

What we see in these cases, in a clear, sharp and extremely graphic form, we may regard as representing a complete antithesis to fantasy and creativity. If we wanted to find a form of behaviour in which there is a complete absence of any elements of imagination and creativity, we would have to quote the above example. A person who is capable of pouring himself a glass of water from a carafe when thirst motivates him to do so, but who is incapable of performing the same action at another time, or a person who cannot repeat a sentence which says that the weather is bad when the weather is good – all this tells us a lot which is significant and fundamental for the understanding of what underlies fantasy and creativity, and what links them to those higher intellectual functions which have become disturbed and disrupted in such cases.

We can even say that the behaviour observed in these patients strikes us, above all, by the fact that it is not free. The person cannot do something which is not directly motivated by an actual situation. What appears to be beyond his ability is to create a situation or to modify it in such a way as to become free of the immediate influence of external and internal stimuli.

As has already been mentioned above, pathological cases are of interest to us only as long as they illuminate the same laws which apply to normal behavioural development. Pathology is the key to understanding development and development is the key to the understanding of pathological changes. So in this case we are able to observe the same zero point of imagination and creativity in the process of behavioural development as that which is present in young children and in primitive man.

Both of these find themselves at a stage of development where the normal state expresses itself in this mechanism of unfreedom and where behaviour is totally dependent on an actual situation, this being completely determined by the external environment and wholly subservient to the stimuli which happen to be present and which, in the cases cited above, is regarded as a pathological symptom.

Lewin,<sup>2</sup> who has recently devoted a number of studies to how intentions are formed, turns his attention to the extremely interesting problem of freedom in forming any kind of resolution. 'In its own right this is a most curious state of events', he says,

that a human being has this amazing degree of freedom in the sense of having the opportunity to carry out many types of determined actions, even totally meaningless ones. This freedom characterizes civilized human beings. It is accessible to children and, it seems, to primitive man as well, but to a much lesser degree and is probably the single factor which, to a much greater degree than his higher intellect, differentiates a human being from its closest relatives in the animal world. It appears that this difference goes together with the problem of mastery over one's own behaviour.

The behaviour of the patients we described above strikes one precisely by the inability to form any resolutions. It is not surprising then that, as has already been said, this phenomenon can be observed most frequently in cases where higher intellectual functions, which are the seat of thinking in concepts, have been disrupted. This is most clearly seen in cases of aphasia, a disorder which results from disturbed verbal activity and thinking in concepts.

In the course of our research we had the opportunity to observe how patients with similar conditions are faced with extreme difficulties which, from their point of view, are insoluble. As has been pointed out by Head, the same situation arises when an aphasic is asked to perform a task which can be started from either end, and he is unable to solve the problem because he cannot find a starting point and does not know where to begin. This starting point must be chosen at will, and for him this is precisely the main source of the difficulty.<sup>3</sup> During our studies we have frequently been able to observe how difficult it is for certain aphasics to repeat a sentence which contains an indefinite statement from the point of view of a concrete concept.

For example, a patient who is perfectly able to repeat dozens of other sentences correctly, cannot repeat the phrase 'Snow is black'. He is incapable of solving this problem, despite repeated requests on the part of the experimenter for him to repeat the phrase.

The same difficulties are encountered by this type of patient when, in reply to a given word, he is asked to say what this thing is not or what it cannot do. The aphasic manages to solve the opposite problem easily, and he solves this problem as well if he is allowed to formulate his answer in the following way: 'Snow is never black'. But simply to name the wrong colour, the wrong attribute or the wrong action, proves beyond his powers. When the aphasic is asked to name a wrong colour or action when looking at some real object which is of a different colour or which performs some

other action, the question becomes even more difficult. To transfer the attributes of various things, to replace one with another, to form combinations of attributes and actions, proves an impossible task. He is firmly and solidly tethered to the situation which he perceives in a concrete manner and he cannot step outside its confines.

We have already discussed above how thinking in concepts is connected with freedom and purposefulness of action. Gelb formulates the same idea in a paradoxical but quite correct manner, when he recalls Herder's thesis which says that the language of thinking is the language of freedom. Gelb develops this idea further when he says: 'It is only man who is capable of doing something which is senseless'.<sup>4</sup> And this is absolutely true. An animal is incapable of carrying out any action which is meaningless in the context of an actual situation. Animals perform only those actions which are motivated by internal motives or an external stimulus. But they are incapable of performing actions which, from the point of view of their situation, are arbitrary, premeditated, free or senseless.

Incidentally, it must be said that for a long time, both in philosophical arguments about free will and in everyday thinking, our ability to do something meaningless, absolutely useless and which is elicited neither by external or internal circumstances, has usually been regarded as the clearest indication of the wilfulness of resolve and freedom of the action which is being performed. It is for this reason that the aphasic's inability to perform a senseless action at the same time amounts to an inability to perform a free action.

We think that the examples we have given will suffice to illustrate the straightforward idea that imagination and creativity are linked to a free reworking of various elements of experience, freely combined, and which, as a precondition, without fail, require the level of inner freedom of thought, action and cognizing which only he who has mastered thinking in concepts can achieve. So it is not without reason that imagination and creativity disappear when this function is affected.

## II

We have quite deliberately prefaced our examination of fantasy and creativity in adolescence with this short psychopathological excursion. At the same time, right from the start, we have been guided by the wish to underline precisely and clearly that this problem requires a completely new formulation in the light of our basic understanding of adolescent psychology, which is opposite to that which can be regarded as the traditional and generally accepted one in the field of adolescent psychology.

The traditional point of view regards this function as being the central and vital function of the entire psychological development of the adolescent. It places imagination in the foreground of the adolescent's entire intellectual life. Using it as a starting point, it attempts to subordinate all the remaining aspects of adolescent behaviour to this basic function, which it regards as the primary and independent

manifestation of all the fundamental and dominant factors of all aspects of psychology during the age of puberty. What happens during this period, is not just that the adolescent experiences a severe distortion of the relative proportion of things, and that the structures of the intellectual functions are transmitted in an inaccurate form, but that the very process of imagination and creativity acquires a wrong interpretation.

This false interpretation of fantasy is due to it being viewed one-sidedly, as a function which is linked to emotional life, the life of inclinations and sentiments; but its other side, which is linked to intellectual life, remains obscure. But, as Pushkin has aptly remarked, 'imagination is as necessary in geometry as it is in poetry'.<sup>5</sup> Everything that necessitates artistic transformation of reality, everything that leads to inventiveness and the creation of anything new, requires the indispensable participation of fantasy. In this sense some writers quite rightly contrapose fantasy as creative imagination to memory as reproductive imagery.

Besides, everything which is essentially new in the development of fantasy in adolescence, consists of the fact that the adolescent's imagination forms a close link with thinking in concepts; it, as it were, becomes intellectualized, is then included into the system of intellectual activity and begins to perform a completely new function in a new structure of the personality. In his study, Ribot drew a curve of the development of imagination in adolescents and pointed out that the age of puberty is characterized by the fact that the curve of development of the imagination, which hitherto had followed a separate course from the curve of intellectual development, begins to approach the latter and follows a parallel route.<sup>6</sup>

If we have managed to define the development of adolescent thinking satisfactorily as a transition from rational to intellectual thinking, and if we have also detailed correctly the intellectualization of these functions as memory, concentration, visual perception and wilful action, then, following the same logical consistency, we ought to be able to draw the same conclusion as regards fantasy. That is that fantasy is not really a primary, independent and leading function in the development of adolescent psychology, and its development is a consequence of the function of concept formation, an end result which completes and implements all the complicated processes of change which the adolescent's whole intellectual life has to overcome.

Up till now, the question of the nature of imagination in adolescence still remains a controversial subject among psychologists belonging to different schools of thought. Many writers, such as Ch. Bühler, point to the fact that, along with the transition to abstract thinking, as if at the opposite pole, a reservoir of all the elements of his concrete thinking begins to take shape within the adolescent's fantasy.<sup>7</sup> In this instance, fantasy is not only regarded as a function which is independent of thinking in concepts, but even as a quite opposite function. Whilst thinking in concepts is characterized by its existence in the realm of the abstract and general, imagination exists in the concrete sphere. And fantasy in adolescence, whilst being inferior in the sphere of productivity as compared with the mature fantasy of an adult, nevertheless is superior to the latter in its intensity and originality; we feel we have the right to

ask whether this writer considers fantasy to be a function which is diametrically opposed to intellect.

In this respect the fate of the so-called eidetic images, recently investigated by Jaensch and his school,<sup>8</sup> are of great interest. Generally, the name of eidetic images is given to those visual representations which the child is able to create with hallucinatory clarity after perceiving some visual situation or picture.

In the same way as when an adult, after fixing his gaze for several seconds upon a red square, sees its after-image in its complementary colour on a grey or white background, the child when looking at a picture for a short time, continues to see the same picture on an empty screen after the picture has been removed. This amounts to a kind of prolonged inertia of a visual stimulus which continues to function after the source of the impulse has disappeared. In the same way as a loud sound appears to continue in our ears for some time after we have actually ceased to perceive it, the child's eye, as it were, retains the trace and continuing echo of a vivid visual stimulus for some time afterwards.

At this stage we are not so much concerned with the problem of discussing the details of eidetic imagery or with all the facts discovered by experimental research. For our purposes suffice it to say that, according to Jaensch's findings, these imagistic visual perceptions can be considered as a kind of transitional stage between perceptions and conceptions. These tend to disappear at the end of childhood, while they are still in the process of development, but they do not disappear completely and are transformed into a visual base for our conceptions on the one hand, and on the other, become constituent parts of our perceptions. According to some writers, these eidetic images occur most frequently during adolescence.

As these phenomena provide evidence about the visual, concrete and sensory character of memory and thinking, and as they are the basic ingredients of a representational perception of the world and representational thinking about reality, immediately doubts come to mind whether they could really be regarded as distinguishing characteristic features of the adolescent age. Recently, this question has been reassessed by several researchers, who have been able to confirm that, indeed, eidetic visual images are typical in childhood and, in particular, that we are justified in thinking that they are most characteristic of very early childhood. A very young child can be described as an eidetic, in the sense that his memories, imagination and thinking can still directly reproduce real perceptions in the fullness of the original experience, the full richness of their tangible details and with the vividness of a hallucination.

Eidetic images tend to disappear during the transition to thinking in concepts, and we had to assume, *a priori*, that they will have disappeared by the time of puberty, as this period marks the transition from the visual, concrete mode of thinking to an abstract thinking in concepts.

Jaensch has established that eidetic images dominated the primitive stages of human culture not only in the ontogenetic, but also in the phylogenetic development of memory. However, together with the cultural development of our thinking, these

phenomena gradually disappeared, their place taken by abstract thinking, and they have survived in the primitive forms of thinking only in children. 'In the course of further development . . .' says Jaensch,

the meanings of words became more general and abstract. It appears that the eidetic tendency receded to the background in step with the interest in concrete images, and the change in the character of language resulted in the eidetic inclinations being driven back still further. In the case of civilized mankind, the driving back of this tendency may have been the result of civilized language which brought with it general word meanings which, in contrast to the individual word meanings in primitive languages, rather limit than facilitate the attention paid to sensory given facts.<sup>9</sup>

In the same way as in the genetic plan, the development of language and the transition to thinking in concepts, in their time, resulted in the atrophy of eidetic features; similarly, in the adolescent's development, the period of puberty is characterized by two internally linked moments, i.e. the intensification of abstract thinking and the disappearance of eidetic visual images.

Until now, the question of when eidetic images reach their peak has produced wide disagreement among various writers. Whilst some say that its culmination is reached in early childhood, others place the peak of the curve in adolescence, whilst a third group think that it occurs somewhere between the two, around early school age. Recently, however, it has finally become firmly established that what is observed in adolescence is not a steep rise, but rather a sharp fall in the growth of development of visual images. The change which occurs in the adolescent's intellectual activity is very closely linked with the change in the life of his conceptions. It cannot be emphasized strongly enough that subjective visual images are not symptomatic of the period of sexual maturation, but are essential attributes of childhood, as has been confirmed by Kroh, the eminent researcher in the field of eidetic imagery.<sup>10</sup>

This is a cardinal statement, as attempts to turn these eidetic images into symptoms of the age of puberty are being renewed over and over again. To counter this, it must be pointed out that even the earliest experiments of this author have uncovered a strong decline in the development curve of these images at the time of puberty. Other experiments have shown that the maximum frequency of eidetic phenomena decreases somewhere between 11 and 12 years of age, and it falls further with the advent of puberty.

'This is why', says Kroh, 'we must decisively reject any attempt to regard visual images as being symptomatic of the age of puberty or as resulting directly from the psychological lability of that age.' At the same time, it must be kept in mind that these visual images do not disappear immediately, but survive, as a rule, for quite a long time into the age of puberty. But the realm where these images arise becomes more and more circumscribed and specialized, and can basically be explained in relationship to the prevailing interests.

In the previous chapter we have already discussed the fundamental changes which occur in the memory during adolescence; we tried to show that memory progresses

from eidetic images to a form of logical memory and that internal mnemotechnics become the principal and basic form of memory in adolescents. Therefore, what is characteristic of eidetic images, is that they do not disappear from the sphere of the adolescent's intellectual activity entirely, but shift to another sector of the same sphere, as it were. After ceasing to be the basic form of the memory process, they begin to serve imagination and fantasy and, in this way, they change the nature of their basic psychological function.

Quite rightly, Kroh points out that during adolescence so-called daydreams and fancies, which take up the middle ground between a real dream and abstract thought, begin to make their appearance. In these daydreams, the adolescent usually weaves a long epic poem, where the separate parts are connected with one another, which remains more or less consistent over long periods of time and which contains separate peripeteias, situations and episodes. It amounts to a creative dream vision, which is conceived by the adolescent's imagination and which he experiences when awake. So the adolescent's daydreams, this type of dream visionary thinking, often becomes involved with visual eidetic images, which are evoked spontaneously.

'It is for this reason', says Kroh, 'that, during the early stages of puberty, the spontaneous visual images often appear even when the arbitrarily evoked images have completely ceased to happen.' And when asked what he considers to be the main reason for the disappearance of the eidetic images from the memory sphere, and their displacement to the realm of imagination, which is the fundamental factor responsible for the changes in the psychological function which occur in these spheres, Kroh replies, in complete accord with Jaensch's views, that both in the spheres of ontogeny and phylogeny, it is language which, in the process of becoming the means for the formation of concepts, the autonomization of speech and thinking in concepts, constitutes the main reason.

Both essential and inessential elements, in a disunited form, mixed up with eidetic images, can be found in the concepts of an adolescent. Therefore Kroh's general conclusion, which is that subjective visual images begin to disappear at about 15 to 16 years of age, fully corresponds to his own theory that, at the same time, concepts begin to replace the former images.

So we seem to have reached a conclusion which appears to confirm the traditional point of view which establishes the concrete character of the imagination in adolescence. We should also remember that, when the eidetic images in children were investigated, the presence of elements linking these images with fantasy was already confirmed. The eidetic image does not always appear as the precise and accurate effect of the percept which has elicited it. Very frequently this percept undergoes a change and is reworked in the process of its eidetic reconstruction. The underlying cause of the eidetic tendency is not just the visual stimulation, but we also find in eidetic images the complicated function of revision of the visual conception, the selection of interesting material and even a distinctive process of generalization.

One of Jaensch's important contributions is the discovery of visual concepts, i.e. of such generalizing visual eidetic images which, as it were, are analogous to our

concepts in the sphere of concrete thinking. The enormous significance of this concrete thinking process cannot be exaggerated, and Jaensch is perfectly correct when he says that the intellectualism which used to dominate education, tended to develop the child in only one direction, and its approach was one-sided, because it regarded him primarily as a logician and logicized the entire system of his psychological operations.

There is no doubt that, to a great extent, adolescent thinking still remains in the domain of concrete thinking, and this concrete thinking also survives at higher levels of development, even in adulthood. Many writers identify this process of concrete thinking with imagination, but in actual fact it seems that what we are observing here is a visual reworking of concrete sensory images, and, after all, this has always been considered the basic characteristic feature of imagination.

### III

The traditional view of fantasy regards it as an integral and distinctive feature, the visual part of the images which it contains. Researchers usually point out that, as applied to adolescence, all those elements of concrete, imagistic, visual conceptions of reality, which are being progressively banished from the sphere of the adolescent's abstract thinking, tend to congregate within the realm of fantasy. We have already seen that, strictly speaking, such a statement is not completely true, even though it appears to have been confirmed by a number of facts which speak in its favour.

It would not be quite correct to regard the function of fantasy as an exclusively visual, imagistic and concrete activity. Quite rightly, it has been pointed out that the same sort of visual quality is also characteristic of the imagery of memory. On the other hand, activity of a schematic or barely visual type is also present in fantasy. 'If we limit fantasy exclusively to the realm of visual conceptions', says Lindworsky, 'and remove any aspects of thinking from it, then it would not be possible to describe a poetic creation as a product of the activity of fantasy'.<sup>11</sup> In exactly the same way, Meumann disagrees with Lau's point of view, who saw the difference between fantasy and thinking in the fact that the former operates in visual images and does not contain any elements of abstract thinking.

'Elements of abstract thinking', says Meumann, '*are never absent* from our images and perceptions'.<sup>12</sup> And there is no way in which they could not be there, because in an adult the entire conceptual material exists in a form which has been reworked by abstract thinking. Wundt has also expressed the same idea when he objected to fantasy being regarded as simply the work of visual conceptions.

Indeed, as we shall see later on, one of the essential changes which fantasy undergoes in adolescence is its liberation from purely concrete, imagistic features and, at the same time, its infiltration by elements of abstract thinking.

We have already said that one essential characteristic of adolescence is the rapprochement between fantasy and thinking, and the imagination beginning to rely on concepts. But this rapprochement does not signify complete absorption of fantasy by thinking. Both functions approach each other, but they do not merge, Müller-Freienfels' formulation that productive fantasy and thinking are one and the same thing,<sup>13</sup> has not been verified by the actual situation. As we shall see later, there are many features which characterize fantasy and corresponding experiences which differentiate fantasy from thinking.

So our problem remains to discover the peculiar relationships between the abstract and the concrete aspects which are characteristic of imagination in adolescence. From a certain viewpoint, what we have in the adolescent's imagination is, indeed, as it were, a collection of all the elements of concrete visual thinking which recede to the background in his thinking. In order to understand the meaning of the concrete aspect of adolescent fantasy correctly, we must take into consideration the connections which exist between adolescent imagination and childhood play.

From the genetic point of view, imagination in adolescence is the successor to child play. According to one psychologist's apt statement,<sup>14</sup>

A child, despite all his enthusiasm, is perfectly able to keep apart in his mind the world he invents during his play from the real one, and naturally he looks for support for the imagined objects and relationships in the palpable real objects of real life. It is precisely this support he seeks which differentiates the child's play from fantasizing. As the child grows up it gives up play. He replaces play with imagination. When a child who is growing up gives up playing, what he is doing, strictly speaking, is giving up nothing more than the search for this support in real objects. In place of play, he now gives himself over to fantasy. He builds castles in the air and creates what is called daydreams.

Clearly, fantasy, as the successor to childish play, has only recently broken away from the support which it was able to find in tangible and concrete objects in real life. It is for this reason that it is eager to find support in concrete conceptions which stand for these real objects. Images, eidetic pictures and visual conceptions begin to play the same role in the imagination as a doll representing a child, or a chair representing a steam engine, in childish play. This is the source of the striving of the adolescent's fantasy to have the backing of concrete sensory material and of the tendency towards figurativeness and use of visual images. But it is equally noteworthy that this use of visual images and this figurativeness have changed their function completely. They have ceased to be a support for memory and thinking, and have passed on to the sphere of fantasy.

A striking example of such a tendency towards concretization can be found in Wassermann's novel *The Maurizius Case*.<sup>15</sup> One of the novel's heroes, a 16-year-old boy, reflects on the unjust sentence given to Maurizius, who has been locked up in prison for 18 years due to a legal error. The thought of this unjustly sentenced man

takes over the adolescent's mind and here, in a state of agitation, whilst thinking about the fate of this man, the boy's inflamed brain draws pictures, whilst at the same time Etzel desires nothing more than it should function in a logical way.

He is thinking. His inflamed brain draws pictures, but at the same time Etzel demands nothing more than it should think in a logical way. But it is not always possible to make the thinking apparatus fulfil its basic function. He calculates that eighteen years and five months equals two hundred and twenty one months or approximately six thousand six hundred and thirty days and six thousand six hundred and thirty nights. It is very important to differentiate between them: days are one thing and a nights, quite another. But at this instant he stops imagining things and all that remains is an incomprehensible number; it is as if he is standing in front of an ant hill and is attempting to count the crawling insects. He makes an effort to make sense of all this, and he wants to fill this number with meaning – with six thousand six hundred and thirty steps – but this proves too difficult; a match box with six thousand six hundred and thirty matches – hopeless; a purse with six thousand six hundred and thirty pfennigs – he cannot do it; a train with six thousand six hundred and thirty carriages – unnatural; a stack of six thousand six hundred and thirty sheets (note: sheets and not pages, as two pages of each sheet correspond to a day and a night).

And here, at last, he will achieve a visual conception; he takes down a pile of books from the shelf; the first book has one hundred and fifty sheets, the second one – one hundred and twenty five, the third – two hundred and ten; not a single one of them has more than two hundred and sixty; he has misjudged the resources; having piled up twenty three volumes, he has managed to obtain only four thousand two hundred and twenty sheets. Dumbfounded, he abandons this activity. Just to think that every single day lived has to be added on. His own life hardly comprises five thousand nine hundred days and how long it seems to him, how slowly it has been progressing; another week seemed to him like a forced march along country roads, another day seemed to stick to his body like tar, which could not be pulled off.

And at the same time, while he slept, read, went to school, played, talked with people and made plans, winter came and went, spring came, the sun shone, it rained, evening came, morning followed, and all this time he was there; time came, time went, and all the time he was there, always there, always there. Etzel had not even been born yet (infinite, mysterious word, and suddenly he was born), the first, the second, the five hundredth, the two thousand two hundred and thirty seventh day, even that one was over, but all the time he remained there.<sup>16</sup>

Using this example, it can clearly be seen how tightly adolescent fantasy is still bound up with the concrete support which it finds in sensory conceptions. In this sense the genetic fate of visual or concrete thinking is of great interest. Visual thinking does not completely disappear from the intellectual life of the adolescent along with the appearance of abstract thinking. It only moves to another place, goes off into the fantasy sphere, partly undergoes a change under the influence of abstract thinking and then, like any other function, rises to a higher level.

Special investigations of the relationship which exists between visual thinking carried out with eidetic pictures and intellect, have at first produced contradictory

results. The researchers found that a predominance of visual thinking and ideational tendencies was characteristic of mentally retarded and primitive children. On the other hand, other researchers found these phenomena present in mentally gifted subjects. However, Schmitz's<sup>17</sup> last investigation has shown that no simple relationship between the intellect and eidetic tendencies can be ascertained. A strongly expressed eidetic tendency can co-exist with any level of intellectual development. However, another, more detailed investigation has shown that a timely development of concrete thinking is an indispensable condition for the raising of the thinking process to a higher level.

This writer quite rightly refers to Ziehen's<sup>18</sup> research which has established that it is precisely gifted children who remain for longer on the level of concrete conceptions than non-gifted ones; it seems as if the intellect had to start developing by first becoming satiated with visual contemplation and thus building a concrete foundation for the further development of abstract thinking.

#### IV

In this respect, research carried out in the field of the so-called visual concepts is of particular interest. Recently, special investigations of the formation of concepts in visual thinking were carried out in Jaensch's school. What these researchers understand by the formation of concepts in visual thinking is the peculiar fusion, combination and cohesion of images into new formations which are analogous to our concepts. These investigations were carried out using information about eidetic images, which are considered to be eminently suitable subjects for such research.

To reiterate, an eidetic image is a visual conception which, as it were, is seen by the eye on a blank screen placed in front of the subject, in a similar way to when we see a green square after fixating on a red square with our eyes. The subject is then shown several similar pictures or representations, which have some similar features but also some different ones. Next, whatever the subject sees when the eidetic image appears under the influence of not just one, but several, similar representations is examined. The results have revealed that, during this procedure, the eidetic image is never built up mechanically like Galton's photographic plate, which selects similar features and obliterates the dissimilar ones. The eidetic image never selects similar and regularly repeated features whilst the different ones are concealed. The experiments show that the eidetic image creates a new whole, a new combination and a new image from several concrete impressions. The researchers have described two basic types of such visual concepts.

The first type is based on the so-called fluxion, where the eidetic image represents a dynamic combination of a number of separate concrete impressions. The eidetic sees one of a number of objects presented to him on a screen. The object then begins to change its contours and turns into a different but similar object. An image changes into another, then into a third, and sometimes during this process a whole cycle is

completed, where all the objects join in a dynamic change of the image which represents each of the separate objects in turn.

As an example, the subject is presented with some red carnations and a rose which are all the same size. At first the subject sees the last flower exhibited. Then its contours and shape become obliterated and they blend into an indistinct coloured spot which appears like something half way between two presented colours. When the subject is shown two other flowers, at first what he sees is an image of the rose which then proceeds to change into a red spot. Gradually, it acquires a yellow tinge. In this way one object changes into another. The investigators quite rightly point out that the intermediate image which appears at that time is still, to a certain extent, close to the picture which traditional logic perceives as the underlying structure of a concept, because, in reality, the spot-like images described above contain some features common to both individual objects.

In this respect it would prove extremely revealing to turn one's attention to the question of what this conceptual formation would actually come to, were it to follow the schemes set up for it by formal logic. Some sort of vague, shapeless spot, devoid of any individuality or similarity with the real object, is what the visual image generated by two similar flowers turns into. A concept of formal logic represents precisely such a spot, which 'sees the function of a concept as a loss of a number of characteristics and ascribes its formation to the auspicious gift of oblivion'.

In contrast to this barren picture, an integration of images of the fluxion type conveys the full richness of reality and whilst, in actual fact, this coloured spot does nothing more than reveal a loss of attributes as compared with reality, fluxions do, indeed, produce new formations and new shapes, whose essence lies in the fact that the features of individual objects combine in a new synthesis which had not been revealed in advance. An image of a leaf which is evoked following the presentation of several similar leaves may serve as an example of fluxion. This image keeps moving and keeps shifting constantly backwards and forwards whilst it changes its form.

Another process of combining images in visual thinking is composition. This combination consists of the subject forming a new, sensible whole which is constructed according to a known usable attribute selected from various features of concrete objects. Thus, for example, the subject is shown a representation of a dachshund and another of a donkey. What the subject sees on the screen is a gundog. Composition can be differentiated from fluxion in that, here, the combination of images is given not in a moving, oscillating form, but in a form which is restrained and steady. For example, if the subject is shown representations of three different houses, he ends up seeing one house with the different features of all the three images presented to him.

These investigations carried out by Jaensch and Schweicher graphically demonstrate the extent to which the idea that concepts originate simply as a result of simple addition or combination of images is without foundation. Jaensch's visual concept is a combination of images. But a concept in the real sense of the word is not a combination of images, but a combination of assessments, a certain system composed

of them. The most important difference between the two is that in the former what we have is a first hand and in the latter a mediated knowledge and assessment of the object.

Using Hegel's famous distinction, one could say that in the sphere of visual thinking we are concerned with a product of sense, whilst in the realm of abstract thinking we are concerned with a product of intellect. A child's thinking is governed by sense. An adolescent's thinking is intellectual thinking. One of the most difficult problems encountered by experimental psychology, the problem of non-visual thinking, can be solved when the concept is understood in this definitive way. A concept is, as it were, a condensation of assessments, a key to a whole complex consisting of them, their infrastructure. This makes it quite clear that concepts have a non-visual character and that they come into being by a different path than simply by way of various combinations of conceptions.

The research we have just discussed has finally done away with the possibility of the presence of anything resembling real concepts in the process of visual thinking. The highest point which a combination of conceptions can reach is fluxion and composition. At the same time, we have to agree entirely with the writers who maintain that we ought to regard visual thinking as a peculiar form of thinking which is very important in the development of the intellect. Our observations have convinced us that visual thinking, whose development breaks off when concepts begin to form, continues to function in the realm of fantasy, where it begins to play a significant role. But even here, as we shall see later, it does not continue to exist in its former cast, exclusively as visual thinking. It undergoes a vigorous transformation under the influence of concepts, which cannot be excluded from the activity of imagination. Once again the statement we have discussed above, which claims that for human beings to think without words is to have to rely on words after all, has been proved correct.

## V

What then does this essential difference between adolescent fantasy and the fantasy of a child amount to, and what new features can be observed at this time?

When we pointed out that a child's play turns into adolescent fantasy, we had already described the most essential part of it. So, despite the concrete and real elements which are still found in it, the adolescent's imagination is nevertheless different from child's play, in that it breaks its links with real objects. Its foundations remain concrete, but are of a less visual character than those of a child. However, we feel that attention should be drawn to the progressively abstract character of the adolescent's fantasy.

There is a widely held view which maintains that a child does possess a well developed fantasy and that early childhood is the time of the flowering of fantasy. Despite its extreme prevalence, this opinion turns out to be incorrect. As Wundt

quite rightly points out, children's fantasy turns out not to be as extensive as it has been thought to be. On the contrary, it does not take very much to satisfy it. Days on end can be filled with thoughts about a horse drawing a cart. And, at the same time, the imagined scenes hardly differ at all from reality.

A similar activity in an adult would signify a complete absence of fantasy. A child's vivid fantasy is conditioned not so much by the richness of his ideas, but by the fact that it is accompanied by a greater intensity and is more likely to arouse his emotions. Wundt tends to interpret this aspect in an extreme way and maintains that one can say that a child totally lacks synthesizing fantasy. One can dispute this last statement, however the truth of the basic thesis, that children's fantasy is considerably more impoverished than the fantasy of adolescents, and that it is only because of its greater susceptibility to emotional arousal, the intensity of experience and the absence of critical judgement, that it occupies a more prominent place in the child's behaviour, can be ascertained; this is also the reason why it appears to us richer and more developed than it really is. For the same reason we can observe that by becoming more abstract, rather than poorer, the adolescent's fantasy is enriched compared with that of a child.

Wundt is right when he points out the extreme poverty of the creative aspects of children's fantasy. From this point of view adolescent fantasy becomes more creative than children's. It is perfectly true that, according to Bühler,<sup>19</sup> the adolescent's fantasy is not productive in the same sense as the word is used in relation to adults. The very fact of the late appearance of artistic creativity testifies to this. According to these researchers, among all the artistic creations in adolescence, the only one which can be considered as a creation which he is able to invent for himself is an ideal love. But, at the same time, the writers note the extreme prevalence of creativity which involves the keeping of diaries and poetry writing. 'It is startling', she says, 'how people without any talent for poetry begin to write poetry in adolescence.' It is obvious that this phenomenon is not accidental and that the inner drive for creative expression and the inner tendency for productivity is a distinguishing feature of the adolescent age.

By the way, we do not detect any contradiction in the two statements we have just discussed. Adolescent fantasy appears creative when it is compared with children's fantasy, but by no means can it be considered productive in comparison with adult fantasy. This is because the creative character does not become an inherent part of it until adolescence. This explains why it has a rudimentary character and does not yet represent full-scale creativity. Bühler is quite right when she points out that this adolescent fantasy is tightly bound up with the new needs which make their appearance in adolescence and as a result of which the image takes on specific characteristic features and an emotional tone. This is how adolescent fantasy creates.

Later, we will have another chance to discuss in more detail the question of the link which fantasy maintains with needs and emotions. But now we are interested in another problem, namely, the relationship between adolescent fantasy and intellect. Bühler maintains that experience would make one suppose that in adolescence

abstract thinking and visual thinking stand apart from one another. They do not yet co-operate in any sort of creative activity. Internal images, coloured by emotion and intensely experienced, follow one upon another, but without in any way being influenced by creative thinking in the form of selection or association. For thinking creates in an abstract fashion, without any visual component whatsoever.

So, if one is to take this statement in the context of its genetic plan and to adjust it by taking development into account, it will not be seen to contradict the theory stated above, which says that it is precisely the rapprochement of intellect and imagination which distinguishes the adolescent age. As Ribot has shown, the two lines of development, which had hitherto run separately, now meet at one point at this age and after that they continue tightly bound together. But precisely because this meeting, this rapprochement, only happened in adolescence for the very first time, they do not lead immediately to a complete fusion or a full co-operation between the two functions, and an alienation of the thinking process and imagination, which Bühler has described, is the result.

In the meantime, we have seen that many writers attempt, not so much to establish this division between thinking and imagination in adolescence, as to find characteristics which separate thinking from imagination. Meumann ascribes this difference to the fact that the activity of imagination focuses our attention primarily on the content of the conceptions and thoughts, whilst in thinking it is focused on the logical relationships which result from it. 'The activity of fantasy', he says, 'consists of the fact that we actually take an interest in the content of an image or thought *as such* . . . and break up existing connections between images and thoughts to create new combinations.'<sup>20</sup>

After all, the goal of our thinking activity is the establishment of logical relationships amidst the contents of our thoughts. From our point of view, such a definition does not differentiate clearly enough between imagination and thinking. And what is more, we do not think it possible to draw such a precise demarcation line. This is conditioned by the very situation which consists of the fact that, as it happens, the essential change which the adolescent's imagination undergoes, is the external rapprochement with thinking in concepts. Just like all the other functions which we discussed in the previous chapter, the adolescent imagination experiences basic changes and it becomes transformed with the aid of a new infrastructure under the influence of thinking in concepts.

It is possible to illustrate the internal dependence of the imagination on thinking in concepts using the examples from the behaviour of aphasic patients which we cited at the beginning of this chapter. Along with loss of speech, as a means for the formation of concepts, imagination also disappears. The following is another extremely curious feature, namely that in aphasics we very often observe an inability to use or comprehend metaphors and any words used in a figurative sense. We have already seen that it is only during adolescence that thinking aided by metaphors becomes accessible. The schoolboy still finds it very difficult to associate a proverb with an ordinary sentence with the same meaning.

It is very significant that a similar disruption also occurs in aphasia. One of our experimental subjects who suffered from aphasia was totally incapable of understanding any symbolical expressions. When he was asked what was meant when a person was described as having golden hands, he would reply: 'This means that he knows how to melt down gold'. He would usually reduce any figurative expression to an absurdity. To be able to understand a metaphor was beyond him. He also found it impossible to associate a proverb or any allegorical expression with a sentence which expressed the same idea in a direct form.

Here we are able to see a full analogy with the example cited at the beginning of this chapter, which, as we have already said, testifies that, together with the disappearance of thinking in concepts, imagination also tends to vanish completely. This is quite understandable. We have seen that this zero point of imagination, this absolute absence of fantasy, can be observed because the person is unable to divert his attention from the concrete situation, to transform it creatively, to re-group the attributes and to free himself from the influence of the actual situation.

In exactly the same way, we can see how in the present example the aphasic cannot free himself from the concrete literal meaning of the word, and how he is not able to combine the different concrete situations into a new image in any creative way. In order to be able to do this, a certain detachment from the actual situation is required and this detachment, as we have seen above, can only be provided by thinking in concepts. Thus, it is conceptual thinking which is the main factor which conditions the prospect of creative fantasy in adolescence.

It would, however, be a mistake to suppose that, because of this, fantasy blends completely with abstract thinking and that it loses its visual character. But it is exactly this peculiar relationship between abstract and concrete aspects that we consider to be the main characteristic feature of fantasy in adolescence. This can be explained further by saying that purely concrete thinking which is devoid of any concepts, also lacks completely any trace of fantasy. For the first time the formation of concepts brings with it a release from the concrete situation and a likelihood of a creative reworking and transformation of its elements.

## VI

But one of the characteristic features of imagination is that it does not stop developing at this stage and that, from its standpoint, abstraction is only a transitory link in the chain, a stage along the road of development, or simply a leap forward in the process of its movement towards the concrete. From our point of view, imagination is a creative transforming activity which moves from one form of concreteness to another. But the mere movement from a given concrete form to a newly created form of it and the very feasibility of a creative construction, is only possible with the help of abstraction. So abstraction is incorporated into the process of imagination as an

indispensable constituent part, but it does not form its centre. The movement from the concrete through the abstract to the construction of a new form of a concrete image, is the path which describes imagination in the adolescent age.

In connection with this, Lindworsky<sup>21</sup> points to a number of features which differentiate fantasy from thinking. According to him, what distinguishes fantasy from the point of view of its characteristic attributes, is the relative novelty of the created results. However, we think that it is not the novelty for its own sake which differentiates this process, but the novelty of the concrete image arising as a result of the activity of fantasy, and the novelty of the idea embodied in it. In this sense we think that Erdmann's<sup>22</sup> definition, when he says that fantasy creates images of unperceived objects, is nearer the truth.

It is the creative character of concrete expression and the construction of a new image which exemplify fantasy. Its culminating point is the achievement of a concrete form, but this form can only be attained with the help of abstraction. An adolescent's fantasy moves from the concrete visual image through a concept to an imaginary image. In this respect we do not agree with Lindworsky, who attributes the characteristic difference between fantasy and thinking to the absence of a defined problem. He does, however, make a reservation that the absence of a defined problem should not be confused with the involuntariness of fantasy.

He shows that, within the process of fantasy, free will does influence the development of conceptions to a significant degree. We think that what is especially typical in adolescence is the transition from a passive and imitative type of childish fantasy, mentioned by Meumann and others, to an active and creative fantasy characteristic of the adolescent age.

But we think the most essential feature of fantasy during adolescence is its bifurcation into a subjective and an objective imagination. Strictly speaking, fantasy only begins to take shape during adolescence. In this respect we agree with Wundt's assertion that children completely lack the combining type of fantasy. This is true in the sense that, for the first time, the adolescent begins to select and visualize this form as a special function. A strictly select function related to imagination does not yet exist in childhood. But an adolescent is aware that his subjective fantasy is subjective, and he also recognizes the actual boundaries of his objective fantasy, which is working in rapport with his thinking.

As we have already said above, the separation of subjective and objective features and the creation of opposite poles within the personality and world view, are characteristic of the adolescent age. And the same sort of dissociation of subjective and objective features is also typical of adolescent fantasy.

It is as if fantasy branches out into two separate channels. On the one hand, it begins to serve the goal of bringing satisfaction to the emotional side of life, all the needs, moods and feelings which fill the adolescent's being. It turns into a subjective activity which gives personal satisfaction and is reminiscent of child's play. As a previously cited psychologist so aptly remarks: 'It is, by no means, a happy person

who indulges in fantasies, but rather an unsatisfied one'.<sup>23</sup> An unsatisfied desire acts as a stimulus for fantasy. Our fantasy represents the realization of desire, a correction of unsatisfying reality.

This is the reason why almost all writers agree in pointing out the one characteristic of adolescent fantasy, namely that, for the first time, it turns its attention to the intimate realm of his experience, normally hidden from other people, and thus becomes an exclusively subjective form of thinking, thinking exclusively for oneself. A child makes no attempt to hide his play, but an adolescent conceals his fantasies and safeguards them from other people's eyes. Our author is right in saying that he conceals them like his most precious secret and is more likely to admit to any wrongdoings than to reveal his fantasies. It is just this reticent aspect of fantasy which points to the fact that it is tightly bound up with inner desires, incentives, attractions and emotions within the adolescent's personality, and that it is beginning to serve this whole side of his life. In this respect, the association of fantasy with emotion is extremely significant.

We know that different emotions always activate in us a certain definite flow of ideas. Our feeling strives to cast itself into the mould of certain images where it finds an expression and release. Therefore it is to be expected that the different images may prove to be powerful means for calling forth, exciting and relieving different feelings. This is the essence of the close bond which exists between lyric poetry and the feelings of the person reading it. And the subjective value of fantasy also consists of this. It is a long time now since our attention has been called to the fact that, as Goethe expressed it, feelings do not deceive, it is judgements which deceive. When, with the help of fantasy, we construct some sorts of unreal images, the latter are not real, but the feeling which they evoke is experienced as being real. When the poet says: 'I will dissolve in tears over this fiction',<sup>24</sup> he realizes that this figment is something unreal, but his tears belong to the realm of reality. In this way an adolescent finds a means of expressing his rich inner emotional life and his impulses in fantasy.

But it is also in fantasy that he is able to discover an effective means of finding a direction for this emotional life and for taking charge of it. Similar to the way in which an adult overcomes his feelings during the reading of a literary work, say of a lyric poem, the adolescent clarifies, reveals to himself and incorporates his emotions and his longings in creative images. The unexpressed part of his life finds its expression in creative images.

We therefore feel justified in saying that the creative images which the adolescent fantasy engenders, fulfil the same function for him as a work of literature does for an adult. This kind of creative work is strictly for oneself. But also for oneself are the poems and novels, the dramatic performances and tragedies, and the elegies and sonnets composed and created in the mind. In this respect Spranger quite correctly contrasts adolescent fantasy with childish fantasy. He says that even though the adolescent can still be considered to be still half way a child, his fantasy is of a completely different sort than that of a child. It gradually comes closer to the conscious illusion of adults. Spranger illustrates this difference between childish

fantasy and adolescent imagination in the following way: 'Childish fantasy', he says, 'is a dialogue with things, whereas adolescent fantasy is a monologue with things.' An adolescent is aware that his fantasy is a subjective activity. A child is still not able to differentiate his fantasy from the things with which he is playing.<sup>25</sup>

Alongside this channel which fantasy follows, primarily serving the adolescent's emotional sphere, the adolescent fantasy also develops along another channel of purely objective creativity. We have already said that, where creation of some sort of new concrete structure, a new picture of reality, of a creative embodiment of some sort of idea, becomes indispensable for the process of understanding or the process of practical activity, there we find fantasy coming to the fore as a basic function. It is with the help of fantasy that not just literary works, but all the scientific inventions and technical achievements are created. Fantasy is one of the manifestations of creative activity of man, and this is especially true in adolescence, when the rapprochement with thinking in concepts occurs, and it undergoes significant development in this objective aspect.

It would not be right to suppose that these two channels which the development of fantasy in adolescence follows actually diverge. On the contrary, both the concrete and abstract aspects, as well as the subjective and objective ones, are frequently found in a state of complex interlacement with each other. Objective expression may be coloured by vivid emotional tones, but subjective fantasies are also often observed within the sphere of objective creativity. To illustrate the rapprochement of both of these channels in the development of the imagination, we should like to point out that it is, precisely, within the realm of his fantasy that, for the first time, the adolescent has a chance to discover the course his life is to take. His strivings and obscure drives are cast in the mould of specific images. In his fantasy, he anticipates his future and consequently also comes closer to its creative construction and realization.

## VII

With this, we feel we can conclude the cycle of our discussion of adolescent psychology. We started by examining the most crucial change which occurs in adolescence. We have established that a whole new and complicated world of new longings, strivings, motives and interests is created following puberty, that new moving forces drive the adolescent's thinking process forward and that new problems open up before us.

Later we saw how these new problems lead to the development of the central and leading function of the entire psychological development, i.e. to the formation of concepts, and how a great number of entirely new psychological functions come into being as a result of the formation of concepts, how the adolescent's perception, memory, concentration and practical activity are transformed as a result of the new reigning principles, and, most important of all, how they become part of a new

structure and how gradually new bases for higher syntheses of personality and world view become established. And now, whilst subjecting imagination to an analysis, we are, once again, able to see how these new forms of behaviour, which have their origins during the time of puberty and the yearnings which are bound up with it, begin to serve the adolescent's emotional strivings, how the adolescent's emotional and intellectual aspects of behaviour achieve their synthesis in his creative imagination, and how longings and thinking become combined in a complicated new way, in the activity connected with the creative imagination.

### Test problems for lessons 9–12

Answer the following questions in writing, giving reasons for your answers:

- 1 What are the basic stages of adolescence and the interests which characterize each stage?
- 2 What are the basic stages in the development of the formation of concepts and what basic changes in the content and form of thinking occur in connection with the formation of concepts during adolescence?
- 3 What are the most important changes in the functions of perception, memory, concentration and practical intellect which occur during adolescence; what does the link between these changes and the function of formation of concepts consist of and how can this connection be explained in the light of our knowledge about hysteria, aphasia and schizophrenia?

### Notes

This text was chapter 12 of Vygotsky, L. S. 1931: *Pedologija podrostka* [*Paedology of the Adolescent*]. Moscow-Leningrad: Uchebno-Pedagogicheskoe Izdatel'stvo. Parts of it (from part 2) have been translated into English on the basis of the Russian edition of Vygotsky's Collected Works (Vol. 4, Moscow, 1984). See Vygotsky, L. S. 1991: Imagination and creativity in the adolescent. *Soviet Psychology*, 29, 1, 73–88. It is crucial to consider that the inclusion of *Pedologija podrostka* in the 1984 edition was itself abridged and its (abridged) translation into English was based on that version. The translation included here is made from the first Russian original published in 1931.

- 1 Here Vygotsky gives examples taken directly from pp. 295–6 of Cassirer, E. 1929: *Philosophie der symbolischen Formen Vol. 3: Phänomenologie der Erkenntnis*. Berlin: Bruno Cassirer Verlag [or in English: from p. 254 of *The Philosophy of Symbolic Forms Vol. 3: The phenomenology of knowledge*. New Haven, Ct: Yale University Press]. The Frankfurt Neurological Institute was the location of much of the neuropsychological work of Kurt Goldstein and Adhemar Gelb.
- 2 We have been unable to trace the reference to Lewin.

- 3 This reference to Henry Head's patient is made via Cassirer (1929, footnote 64 on p. 245 of English version). Cassirer quotes the words of Head's patient No. 10: 'When you asked me to do this first . . . I couldn't do it. I couldn't get the starting point. I knew where all the things were in the room, but I had difficulty in getting a starting point when it came to setting them down on a plan. You made me point out on the plan, and it was quite easy because you had done it.'
- 4 We have been unable to find Gelb's text.
- 5 'Vooobrazenie stol' zhe potrebno v geometrii kak i v poezii.' The citation is not exact. It should be 'Vdokhnovenie nuzhno v poezii, kak i v geometrii' ['Inspiration is as necessary in poetry as it is in geometry']. See p. 491 of Pushkin, A. S. 1825/1984: O stat'jakh Kjukhel'bekera v al'manake 'Mnemozina'. In S. A. Pushkin, *Sobranie Sochinenji v Odnom Tome*. Moscow: Khudozhestvennaja Literatura.
- 6 The curve is on p. 140 of Ribot, Th. 1926: *Essai sur l'imagination créatrice*. Paris: Felix Alcan. Ribot claimed that imagination develops when the child is around three years old and develops a considerable time before the intellect. The first period in childhood is, consequently, one of non-rational imagination. As soon as reason has reached the same level as imagination the latter gets rationalized. This can happen in either of two ways. The first, most frequent, case is that of a gradual decline of imagination. Life becomes more prosaic, as Ribot says, and only in rare cases imagination is still used. The second, and more happy, case we find when imagination becomes transformed by reason and turns into intellectual imagination. This is the case of creative scientists, poets, etc. Ribot believed that a similar development could be found in human history.
- 7 See pp. 128–9 of Bühler, Ch. 1929: *Das Seelenleben des Jugendlichen* (5th improved edn). Jena: Gustav Fischer.
- 8 Refers to the work of E. R. Jaensch, W. Jaensch, H. Freiling, F. Reich and others. See Jaensch, E. R. 1923: *Über den Aufbau der Wahrnehmungswelt und ihre Struktur im Jugendalter*. Leipzig: Barth; Jaensch, E. R. 1933: *Die Eidetik und die typologische Forschungsmethode* (3d edn). Leipzig: Quelle and Meyer. In English see Jaensch, E. R. 1930: *Eidetic Imagery and Typological Methods of Investigation*. New York: Harcourt, Brace and Co.
- 9 See p. 238 of Jaensch, E. R. (1923).
- 10 Oswald Kroh was a leading German child psychologist who belonged to Jaensch's school. In Vygotsky's *Collected Works* (in Russian) we find references to five different works by Kroh (one in Russian, four in German) all of which are rather difficult to locate. The most likely source for this and the following citations is Kroh, O. 1922: *Subjektive Anschauungsbilder bei Jugendlichen*. Göttingen: Van den hoek & Ruprecht.
- 11 This is probably quoted from Lindworsky, J. 1925: *Methoden der Phantasieforschung*. In E. Abderhalden (ed.) *Handbuch der biologischen Arbeitsmethoden*, vol. 6. Vienna: Fischer.
- 12 Refers to pp. 239–40 of Meumann, E. 1907: *Vorlesungen zur Einführung in die experimentelle Pädagogik und ihre psychologischen Grundlagen, Bd. 1*. Leipzig: Verlag von Wilhelm Engelmann.
- 13 See Müller-Freienfels, R. 1925: *Grundzüge einer Lebenspsychologie. Vol. 2: Das Denken und die Phantasie* (2nd edn). Leipzig: Barth.
- 14 We have been unable to establish the identity of this author.
- 15 The original German novel by Jakob Wassermann – *Der Fall Maurizius* – was published in Berlin in 1928 (S. Fischer Verlag).
- 16 The present translation was made from the Russian edition published in Leningrad, 1929.
- 17 We have not been able to trace this publication.

- 18 See Ziehen, Th. 1898: *Die Ideenassoziation des Kindes*. Berlin: Reuther & Reichard.
- 19 This and the next two paragraphs paraphrase pp. 135–8 of Bühler, Ch. (1929). The quotation is taken from p. 138. In the Russian original Vygotsky mixes up Charlotte Bühler with her husband Karl Bühler by writing 'Bühler is quite right when *he* says' etc.
- 20 See p. 239 of Meumann (1907).
- 21 Cf. pp. 240–5 of Lindworsky, J. 1931: *Experimentelle Psychologie* (5th improved edn). Munich: Kösel & Pustet.
- 22 This is possibly a reference to Erdmann, K. O. 1925: *Die Bedeutung des Wortes*. Leipzig: Haessel.
- 23 See note 14.
- 24 'Nad vymyslom slezami obol'jus'. Line from Pushkin's poem 'Elegija' (1830). See p. 100 of Pushkin, A. S. 1984: *Sobranie Sochinenij v Odnom Tome*. Moscow: Khudozhestvennaja Literatura.
- 25 The quotation and explanation are taken from pp. 53–4 of Spranger, E. 1925: *Psychologie des Jugendalters*. Leipzig: Quelle & Meyer.