

PART III

AN ATTEMPT AT AN ACCOUNT OF NORMAL Ψ-PROCESSES

5 Oct. 95.

[I]

It must be possible to give a mechanical explanation of what I have termed “secondary processes” based on the effects produced by a group of neurones with a *constant* cathexis (the ego) upon other neurones with *changing* cathexes. I shall begin by attempting to give a psychological description of these processes.

On the one hand we have the ego, and on the other hand W (perceptions)—that is, cathexes in Ψ arising from Φ (from the external world). We now have to find a mechanism which shall cause the ego to follow perceptions and influence them. This mechanism lies, I believe, in the fact that, according to my hypotheses, a perception invariably excites ω^1 , that is, passes on indications of quality.² To put it more accurately, it excites consciousness (consciousness of a quality) in W ; and the discharge of the perceptual excitation furnishes Ψ with a report which in fact constitutes the indication of quality. I therefore suggest that it is such indications of quality which *interest* Ψ in the perception. [Cf. p. 397.] Here we seem to have the mechanism of *psychical attention*.³ I find it hard to give any mechanical (automatic) explanation of its origin. I believe, therefore, that it is *biologically* determined: that is, that it has been left over in the course of psychical evolution because any other behaviour on the part of Ψ has been excluded owing to its generating unpleasure. The effect of psychical attention is to cathect the same neurones which are the bearers of the perceptual cathexis. This state of attention has a prototype in the “experience of satisfaction” [p. 380] (which is of such

¹ The system W .

² [So in the M.S. The 1950 German edition reads wrongly *Quantität*.]

³ The part played by attention in the following discussion explains how it is that it contains relatively few points of connection with Freud's later writings. He already insists in *The Interpretation of Dreams* (trans. 1953, p. 593), that “the most complicated achievements of thought are possible without the assistance of consciousness” and that “becoming conscious is connected with the application of a particular psychical function, that of attention”. See also p. 430 below.

importance for the whole course of development) and the repetitions of that experience—states of craving which developed into states of wishing and states of expecting. I have shown [Part I, Sections 16-18] that these states contain the biological justification of all thought. The psychical situation in these states is as follows. The craving involves a state of tension in the ego; and as a result of it the idea of the loved object (the “wishful idea”) is cathected. Biological experience has taught us that this idea must not be cathected so intensely that it might be confused with a perception, and that its discharge must be postponed till indications of quality arise from it which prove that it is real—that the cathexis is a perceptual one. If a perception arises which is identical with or similar to the wishful idea, the perception finds its neurones precathected by the wish—that is to say, some or all of them are cathected, according to the degree to which the idea and the perception tally. The difference between the idea and the perception then gives rise to the process of thought; and this reaches its conclusion when a path has been found by which the discordant perceptual cathexes can be merged into ideational cathexes. *Identity* is then attained.¹

Attention consists in the situation of expectation being established even in regard to perceptions that do not even *partly* coincide with wishful cathexes. For it has become important to send out a cathexis to meet *all* perceptions. Attention is biologically justified; the question is merely one of how to give the ego guidance as to *which* expectant cathexis it is to establish: and this purpose is served by the indications of quality.

The process of setting up a psychical *attitude* [of attention] can be followed with more exactitude. At the start, it seems, the ego is not forewarned. A perceptual cathexis arises, followed by its indication of quality. The close facilitation between these two reports intensifies the perceptual cathexis still more and a cathexis of attention now

¹ See in this connection a passage in *The Interpretation of Dreams* (trans. 1953, p. 566) in which, after discussing the relation between perception and wish-fulfilment, Freud goes on: “Thus the aim of this first psychical activity was to produce a ‘perceptual identity’—a repetition of the perception which was linked with the satisfaction of the need”. The “Project” enters into greater detail. Freud attempts here to trace back thinking and reality-testing to the tension to which a child is subjected while it is waiting for satisfaction. See also p. 389 ff.

becomes attached to the perceptual neurones. The next perception of the same object results (in accordance with the second law of association) in a fuller cathexis of the same perception and it is only this latter perception which will be available psychically.

(This piece of description already yields a highly important conclusion. The first time a perceptual cathexis occurs it is of little intensity and involves only a small quantity; the second time, when there is a Ψ -precathexis, the quantity is greater. Now attention involves no intrinsic change in the judgement made upon the quantitative attributes of the object. Consequently the external quantity (Q) of objects cannot be expressed in Ψ by psychical quantity ($Q\dot{\eta}$). [Cf. p. 429.] Psychical quantity ($Q\dot{\eta}$) signifies something quite different, which is not represented in reality; and external quantity (Q) is in fact expressed in Ψ by something different, namely, by complexity of cathexes. By this means external quantity (Q) is held back from Ψ [p. 376].)

Here is a still more satisfactory account [of the process described in the last paragraph but one]. As a result of biological experience Ψ -attention is constantly directed to indications of quality. These indications thus occur in neurones that are already precathected and they thus attain a quantity that is of adequate magnitude. Thus intensified, the indications of quality are able, by their facilitation, to intensify the perceptual cathexes. And the ego has learnt to arrange that its cathexes of attention shall follow the course of this associative movement as it passes from indications of quality to perception. It is in this way enabled to cathect precisely the right perceptions or their environment. Indeed, if we assume that it is the same quantity ($Q\dot{\eta}$), coming from the ego, which travels along the facilitation from the indication of quality to the perception, we shall actually have found a mechanical (automatic) explanation of the cathexis of attention. Thus attention leaves the indications of quality, and turns to the perceptual neurones, which are thereafter hypercathected.

Let us suppose that for some reason or other the mechanism of attention fails to operate. In that case there will be no Ψ -cathexis of the perceptual neurones, and the quantity (Q) which has reached them will be transmitted (purely associatively) along the best facilitations, so far as the relations between the resistances and the quantity

of the perceptual cathexis permit. This passage of quantity will probably finish soon; for the quantity (Q) will split up and in some neurone near-by will become too small to flow any further. The passage of the quantities attached to the perception (Wq) may subsequently, in certain circumstances, attract attention, or it may not. In the latter case it will end, unobserved, in the cathexis of some neighbouring neurones of whose later vicissitudes we know nothing. This is the course of a perception unaccompanied by attention, such as must occur countless times every day.¹ As an analysis of the process of attention will show, the current is not able to travel far, and we may infer from this the small magnitude of the quantities (Wq) attached to perception.

If, however, the system W has received a cathexis of attention, a number of things can happen; in particular, two situations may be noticed—the occurrence of *ordinary* thought and that of purely *observant* thought. The latter case would seem to be the simpler; it may be said to correspond to the state of an investigator who has had a perception and asks himself: "What does this mean? Where does this lead?" What happens is this—but for the sake of simplicity I shall now have to substitute a single neurone for the complex perceptual cathexis. The perceptual neurone is hypercatheted. The quantity that is compounded of external and psychical quantity (Q and $Q\dot{\eta}$) flows away along the best facilitations and will overcome a certain number of barriers, according to the resistance and quantity concerned. It will cathect some further, associated neurones; but it will fail to overcome other barriers, because the quotient which reaches them does not rise above their threshold.² It is certain that more numerous and more distant neurones will be catheted than in the case of a merely associative process occurring without attention. But finally the current will come to an end in this case too in one or more terminal cathexes. The outcome of attention will be that in place of the perception, one or more memory cathexes will appear, connected by association with the initial neurone.

¹ What follows is in contradiction to Freud's later view (already developed in *The Interpretation of Dreams*) of the importance of preconscious psychical processes. See, on the other hand, pp. 430-1.

² [Nine words in this sentence were accidentally omitted in the German edition of 1950.]

For the sake of simplicity let us suppose that it is a *single* memory-image. If this could once again be catheted (with attention) from Ψ , the game would be repeated, the quantity (Q) would once more begin to flow and would cathect (awaken) a fresh memory-image along the path of best facilitation. Now it is obviously the purpose of observant thought to get to know the paths leading from the system W to the furthest possible extent; and in this way an exhaustive knowledge of the perceptual object can be obtained. (It will be noticed that the method of thought here described leads to *cognition*.) For this reason a Ψ -cathexis is once again required for the memory-images which have been reached; but some mechanism is also required which shall direct that cathexis to the right places. How else are the Ψ -neurones in the ego to know where the cathexis is to be directed to? A mechanism of attention, such as the one described above [p. 419], once more presupposes, however, the presence of indications of quality. Do these appear during the course of association? Normally not, according to our presuppositions. They might, however, be obtained by means of a fresh contrivance of the following kind. Indications of quality normally arise only from perception. Thus it is a question of obtaining a perception from the passage of a quantity ($Q\dot{\eta}$). If, in addition to the mere passage, there were a *discharge* attached to the passage of the quantity ($Q\dot{\eta}$), that discharge, like any other movement, would give rise to a *report* of the movement. After all, indications of quality are themselves reports of discharges. (We may later consider what *kind* of discharge.) Now it may happen that during the passage of a quantity (Q) a *motor* neurone may be catheted, which will then discharge quantity ($Q\dot{\eta}$) and give rise to an indication of quality. But what we require is that *all* the cathexes shall give rise to such discharges. They are not all motor neurones, and for this purpose, therefore, they must be brought into a firm facilitation with motor neurones.

This purpose is served by *speech-associations*. These consist in the linking of Ψ -neurones with neurones which are employed by auditory images and are themselves intimately associated with motor speech-images. These speech-associations have the advantage over others of possessing two further characteristics: they are circumscribed (*i.e.*, are few in number) and exclusive. The excitation

proceeds from the auditory image to the verbal image, and thence to discharge. If, therefore, the memory-images are of such a kind that a branch stream can pass from them to the auditory images and motor verbal images, then the cathexis of the memory-images is accompanied by reports of a discharge, and these are indications of quality and at the same time indications of the memory being conscious. Now if the ego precathects these verbal images as it earlier precathected the images of the discharge of perceptions, it has created a mechanism for directing the Ψ -cathexis to the memories which emerge during the passage of the quantity ($Q\dot{\eta}$).¹ Here we have *conscious, observant thought*.

Besides making cognition possible, speech-associations effect something else of great importance. The facilitations between the Ψ -neurones are, as we know, the "memory"—the representation of all the influences from the external world which Ψ has experienced. But the ego, too, itself cathects the Ψ -neurones and sets currents in motion which must also certainly leave traces in the form of facilitations. Now Ψ has no means of distinguishing these (the results of thought-processes) from the results of perceptual processes. It may be possible to recognize and reproduce perceptual processes through their being associated with discharges of perception; but the facilitations produced by *thought* leave only their result behind them and not a *memory*. A thought-facilitation may have arisen equally well from a single intensive process or from ten less impressive ones. Now the indications of discharge by way of speech help to make good this lack. They put thought-processes on a level with perceptual processes; they lend them reality and *make it possible to remember them*. [See below p. 436 f.]

It is also worth considering the *biological* development of these highly important speech-associations. The innervation of speech is originally a discharge in the nature of a safety-valve for the benefit of Ψ , serving to regulate the oscillations of quantity ($Q\dot{\eta}$) in it—a

¹ In *The Interpretation of Dreams* (trans. 1953, p. 617) we find: "In order that thought-processes may acquire quality, they are associated in human beings with verbal memories." In his later writings Freud chose the following formulation: "A conscious idea comprises a concrete idea *plus* the verbal idea corresponding to it, whereas an unconscious idea is the concrete idea alone." ("The Unconscious", 1915 e, *Coll. Papers*, IV, p. 134.)

part of the path to *internal change*, which is the sole means of discharge until the "specific action" has been discovered [p. 379]. This path acquires a secondary function by attracting the attention of some helpful personage (who is usually the wished-for object itself) to the child's longing and distress, and thenceforward it serves the purpose of bringing about an understanding with other people and is thus absorbed into the specific action.

When (as we have already seen [pp. 390 and 393]) the function of judgement is beginning, perceptions arouse interest on account of their possible connection with the object wished-for, and their complexes are analysed into an unassimilable portion (the "thing") and a portion that is known to the ego from its own experience (the thing's "attributes" or activities). This process, which is known as "understanding", affords two points of contact with expression by means of speech. There are, in the first place, objects (perceptions) which make one scream because they cause pain; and it is an immensely significant fact that this association of a sound (which also gives rise to motor images of the subject's own movements) with a perception that is already a complex one emphasizes the *hostile* character of the object and serves to direct attention to the perception. Where otherwise, owing to the pain, one would have received no clear indications of quality from the object, the report of one's own scream serves to characterize the object. This association is thus a means of making conscious memories that cause unpleasure and of bringing attention to bear on them: the first class of *conscious memories* has been created.¹ It is a short step from here to the discovery of speech. There are objects of a second kind which are themselves constantly giving vent to certain noises—objects, that is, in whose perceptual complex a sound plays a part. In consequence of the impulse to *imitate* which emerges during the process of judging [p. 395], it is possible to find a report of a movement [of one's own] attaching to this sound-image. So that this class of memories too can now become conscious. It remains to associate *deliberately produced* sounds with perceptions.

¹ This may be expressed as follows in Freud's later terminology. Situations of frustration in earliest infancy make in general an important contribution to the development of the sense of reality; and in particular they provide a reason for recognizing and identifying the person who is in charge of the child and who is the source both of satisfaction and frustration.

When this is done, the memories that arise when one observes indications of discharges by way of sound become conscious like perceptions and can be cathected from Ψ' .

Thus we have found that the characteristic thing about the process of cognitive thought is that the attention is from the start directed to the indications of the discharge of thought—that is, to indications of speech. It is well known that what is known as “conscious” thought is accompanied by a slight motor expenditure.¹

The process of following the associative course of a quantity (Q) can be continued for an indefinite length of time—usually until terminal associative elements are reached which are “completely familiar”. The fixing of this path and of its terminal points constitutes the “cognition” of what was perhaps a new perception.

We should be glad now to have some *quantitative* information about this process of cognitive thought. The perception is in this case hypercathected in comparison with what happens in a simple associative process. The process itself consists in a displacement of quantities (Q) which is regulated by association with indications of quality. At each halting-point the Ψ' -cathexis is renewed, and discharge finally takes place from the motor neurones of the speech-path. We may now ask whether this process involves the ego in a considerable loss of quantity (Q), or whether the expenditure in the activity of thinking is relatively slight. The answer to this question is suggested by the fact that the current of speech-innervations while thought is proceeding is obviously very small. We do not *really* speak, any more than we *really* move when we picture a motor image. But the difference between imagining and moving is only a quantitative one, as we know from experiments in “thought-reading”. When we think intensely, we may even actually speak aloud. But how can such small discharges be effected, since, after all, small quantities (Q) cannot flow and large ones are levelled down *en masse* through the motor neurones?

It seems probable that the quantities involved in displacement

¹ Thought “is essentially an experimental kind of acting accompanied by displacement of smaller quantities of cathexis together with less expenditure (discharge) of them”. (“Formulations on the Two Principles of Mental Functioning”, 1911 b; *Coll. Papers*, IV, p. 16.)

during the process of thinking are also of no great magnitude. For, in the first place, the expenditure of large quantities (Q) means a loss for the ego which must be kept within the narrowest possible limits, since the quantity (Q) is in fact required for use in the exacting “specific action” [p. 357]. And in the second place, a large quantity (Q) would pass simultaneously along several paths of association, which would leave no time for the thought-cathexis and would cause a large expenditure. Accordingly, the quantities (Q) that flow during the process of thinking must no doubt be small. Nevertheless¹, according to our hypothesis, perception and memory during the process of thinking must be hypercathected [p. 419], and more intense than in simple perception. Moreover, there are various degrees of intensity of attention; and this can only be interpreted as various degrees of intensification of the cathecting quantities (Q). It would then follow that the greater the attention the greater would be the difficulty in the way of the process of following (that is, of observing). And this would be so inexpedient that we cannot suppose it true.

Thus we are faced by two apparently contradictory requirements: a strong cathexis and a weak displacement. If we are to bring these into harmony, we are led to the hypothesis of what may be described as a “bound”² condition in the neurones, which, though there is a high cathexis, permits only a small current to flow. This hypothesis may be made more plausible by the consideration that the current in a neurone is clearly affected by the cathexes surrounding it. Now the ego itself is a mass of neurones of this kind which hold fast to their cathexis (which, that is, are in a bound condition), and this can only occur, no doubt, as a result of their mutual influence. We can therefore imagine that a perceptual neurone which is cathected with attention may on that account be, as it were, temporarily absorbed into the ego, and may thereafter be subject to the same binding of its

¹ [“*Dennoch*” in the MS. Wrongly printed “*demmach*” (“accordingly”) in the German edition of 1950.]

² The distinction between “bound” or “quiescent” psychical energy on the one hand and “free” or “mobile” psychical energy on the other is one of Freud’s most fundamental concepts and occurs throughout his later writings. It appears, for instance, in Section E of Chap. VII of the *Interpretation of Dreams* (1900a) (*trans.* 1953, p. 601). Freud attributes the distinction to Breuer, who discussed it in the second section of his theoretical contribution to *Studies on Hysteria* (Breuer & Freud 1895) which had been published a few months before Freud wrote the present “Project”.]

quantity ($Q\dot{n}$) as all the other ego-neurones. If it is more strongly cathected, the quantity (Q) of its current may accordingly be *diminished*, and not necessarily increased. We may perhaps suppose that, as a consequence of this binding, the external quantity (Q) remains free to flow, while the cathexis of attention is bound—a state of things which need not, of course, be permanent.

Thus the process of thought would be characterized mechanically by this bound condition, which combines a high cathexis with a small flow of current. We can think of other processes in which the current would run *parallel* to the cathexis—processes with an uninhibited discharge.

I hope that the hypothesis of a bound condition of this kind will turn out to be tenable mechanically. I should like, however, to throw some light on the psychological implications of this hypothesis. It seems at first sight to labour under an internal contradiction. If the bound condition means that, when there is a cathexis of this sort, only small quantities (Q) are left over for displacement, how can it bring about the inclusion of fresh neurones—that is, cause large quantities (Q) to travel into fresh neurones? And, to push the same difficulty further back, how has it been in any way possible to evolve an ego put together in this same manner?

Thus we have unexpectedly arrived at the most obscure of problems—the origin of the “ego”, a complex of neurones which hold fast to their cathexis, and which thus constitute, for short periods of time, a complex with a constant level.¹ A genetic treatment of the question will be the most instructive. The ego consists originally of the nuclear neurones [p. 377], which receive endogenous quantity ($Q\dot{n}$) along paths of conduction [p. 377] and discharge it by the method of internal change [p. 379]. The “experience of satisfaction” [p. 380] brings this nucleus into association with a perception (the wishful image) and the report of a movement (the reflex portion of the specific action) [p. 380]. The education and development of this original ego take place in states in which there is a repetition of the craving, in states of *expectation*. The ego learns first that it must not cathect the motor images (with consequent discharge), until certain conditions have been fulfilled on the perceptual side. It learns further that it must not cathect the wishful idea beyond a certain degree, because,

¹ [For what follows cf. p. 384 ff.]

if it does, it will deceive itself in a hallucinatory manner. If, however, it respects these two restrictions and turns its attention to the new perceptions, it has a prospect of attaining the desired satisfaction. Clearly, therefore, the restrictions which prevent the ego from cathecting the wishful image and the motor image beyond a certain degree are the cause of an accumulation of quantity ($Q\dot{n}$) in the ego and oblige the ego, it seems, to transfer its quantity ($Q\dot{n}$) within certain limits to the neurones that are accessible to it.

The hypercathected nuclear neurones abut ultimately upon the paths of conduction from the interior of the body, which have become permeable owing to being continuously filled with quantity ($Q\dot{n}$) [p. 377]; and since the nuclear neurones are prolongations of these paths of conduction, they too must remain filled with quantity ($Q\dot{n}$). The quantity in them will flow away in proportion to the resistances met with in its course, until the next resistances are greater than the quotient of quantity ($Q\dot{n}$) available for the current. But at this point the whole cathectic mass is in a state of equilibrium, held back on one side by the two restrictions against motility and wish, on the other by the resistances offered by the furthest neurones attained and towards the interior by the constant pressure of the paths of conduction. In the inside of this structure which constitutes the ego, the cathexis will by no means be everywhere equal; it need only be *proportionally* equal—that is, in relation to the facilitations [cf. p. 399].

If the level of the cathexis in the nucleus of the ego rises, the ego will be able to extend its area; if it sinks, the ego will narrow concentrically. At a given level and a given extension of the ego, there will be no obstacle to displacement taking place within the region of its cathexis.

It only remains now to enquire into the origin of the two restrictions which guarantee the constant level of the ego, and in particular into the origin of the restriction upon motor images, which hinders discharge. Here we find ourselves at a decisive point in regard to our view of the whole organization. All we can say is that at a time when these restrictions were not yet operating and when motor discharge occurred simultaneously with the wish, the expected pleasure failed to make its appearance and the continuing release of endogenous stimuli eventually generated unpleasure. It is only this threat of

unpleasure, which became attached to premature discharge, that can correspond to the restrictions we are considering. In the course of subsequent development, facilitation took over a portion of the task [of carrying out the restrictions]. But it still remains an established fact that the quantity ($Q\dot{\eta}$) in the ego refrains from immediately cathecting the motor images because, if it did, a release of unpleasure would follow.

Everything that I describe as a "biological acquisition" of the neuron system is, I believe, represented by a *threat of unpleasure* of this kind, the effect of which is that neurones which lead to a release of unpleasure are not cathected. This constitutes *primary defence*, and is an intelligible consequence of the original trend of the neuron system [p. 356-7]. Unpleasure remains the sole means of education. The question of how we are to give a mechanical explanation of primary defence—of non-cathexis owing to the threat of unpleasure—is, I must confess, one to which I can offer no answer.

From this point onwards I shall venture to omit any mechanical representation of biological rules of this kind; and I shall be content if I can henceforward keep faithfully to a clearly demonstrable course of development.

There is no doubt a second biological rule, derived by abstraction from the process of expectation, to the effect that one must direct one's attention to indications of quality (because they belong to perceptions that may lead to satisfaction) and then allow oneself to be led from the indication of quality to the perception which has emerged. In short, the mechanism of attention must owe its origin to a biological rule of this kind, which will regulate the displacement of ego-cathexes.¹

Here it may be objected that a mechanism like this, operating by the help of indications of quality, is redundant. The ego, it will be said, might have learnt biologically to cathect the perceptual sphere in states of expectation on its own account, instead of only being led to this cathexis through the agency of indications of quality. There

¹ See the continuation of this line of thought in Freud (1911 b) where attention is assigned the task of "periodically searching the external world, in order that its data may be already familiar if an urgent internal need should arise". (*Coll. Papers*, IV, p. 15.)

are, however, two points to be made in justification of the mechanism of attention. (1) The sphere of the indications of discharge from the system W (ω) is clearly a smaller one, comprises fewer neurones, than the sphere of perception—that is, of the whole pallium of Ψ which is connected with the sense organs. Consequently the ego saves an extraordinarily large expenditure if it cathects the discharge instead of the perception. (2) The indications of discharge or the indications of quality are also primarily indications of *reality*, and are intended to serve the purpose of distinguishing the cathexes of real perceptions from the cathexes of wishes. Thus we see that we cannot do without the mechanism of attention. But it consists in every case of the ego cathecting those neurones in which a cathexis has already appeared.

The biological rule of attention, in so far as it concerns the ego, runs as follows: *If an indication of reality appears, the perceptual cathexis which is simultaneously present must be hypercathected.*

This is the second biological rule. The first one is that of primary defence.

[2]

From what has been said, we may gather a few hints of a general nature as well as for a mechanical representation—such, for instance, as the one already mentioned [p. 419] to the effect that external quantity cannot be represented by $Q\dot{\eta}$, psychical quantity. For it follows from the representation that has been given of the ego and its oscillations [p. 427] that the level [of cathexis], too, has no relation to the external world—that a general lowering or raising of it makes no difference normally to the picture of the external world. Since this picture is based upon facilitations, this means that general oscillations of level make no difference to the facilitations. A second principle, too, has been mentioned already [p. 427], namely, that small quantities can be displaced more easily when the level is high than when it is low. Here we have a few points which must be borne in mind when we set about describing the characteristics of neuron motion, which are still quite unknown to us.

Let us now return to our account of observant or cognitive processes of thought. Here, in contradistinction to what occurs in

expectant processes, perceptions do not light upon *wishful* cathexes. And here, accordingly, it is the first indications of reality that direct the ego's attention to the perceptual region which is to be cathected. The course of association taken by the quantity (Q) brought with them [by the perceptions] passes along neurones that are precathected; and the $Q \Phi$ (the quantity belonging to the Φ neurones) which is displaced [along these precathected neurones] is set free again at each stage. During this course of association the indications of quality (of speech) are generated, and, as a consequence, that course becomes conscious and capable of being reproduced.

Now here once again the usefulness of indications of quality might be questioned. All that they achieve, it might be argued, is to induce the ego to send out a cathexis to the point at which a cathexis emerges in the course of the associations. But they do not themselves provide these cathecting quantities ($Q\dot{\eta}$), or at most they only make a contribution to them. And, if so, the ego could cause its cathexis to travel along the course taken by the quantity (Q) without their assistance.

This is no doubt true; but nevertheless mindfulness of the indications of quality is *not* redundant. For it must be emphasized that the biological rule of attention stated above [p. 429] is an abstraction made from *perception* and in the first instance applies only to indications of *reality*. Indications of discharge by way of speech are also in a certain sense indications of reality—indications of *thought-reality* though not of *external reality*¹; but no biological rule of the kind in question has become established in the case of these indications of thought-reality, since no regular threat of unpleasure would be attached to a breach of it. The unpleasure arising from a neglect of cognition is not so striking as where the external world is ignored, though the two cases are at bottom the same. There is in fact, therefore, a kind of observant thought-process in which indications of quality are never, or only sporadically, aroused, and which is made possible by the ego following the course of association with its cathexes *automatically*. This kind of thought-process is indeed far the more frequent and by no means abnormal; it is our ordinary kind of

¹ [This distinction is often stressed in Freud's later writings: e.g., in the last pages of *The Interpretation of Dreams* (1900a).]

thinking, unconscious, but with occasional intrusions¹ into consciousness—what is described as conscious thinking with unconscious intermediate links, which can, however, be made conscious.²

Nevertheless, indications of quality are of indisputable value for thinking. In the first place, the arousing of indications of quality intensifies the cathexes in the course of association and assures the automatic attention which, we do not know how, is evidently attached to the emergence of cathexis. Moreover—and this seems more important—attention to the indications of quality ensures the impartiality of the course of association. For it is very difficult for the ego to put itself into the situation of pure “research”. The ego almost always has purposive or wishful cathexes, whose presence during an investigation has, as we shall see [p. 433 ff.], an influence on the course of association, and thus produces false knowledge about the perceptions. Now there is no better protection against this falsification of thought than by the ego directing a normally displaceable quantity ($Q\dot{\eta}$) to a region which cannot produce (that is, provoke) any such diversion of the course of association. There can be only one device of this kind, namely, the directing of attention to the indications of quality; for these are not purposive ideas, but, on the contrary, their cathexis places greater emphasis on the course of association by contributing to the cathecting quantity.

Thus, thought which is accompanied by the cathexis of indications of thought-reality or of indications of speech is the highest and most secure form of cognitive thought-process.

Since the arousing of indications of thought is of undoubted value, we may expect to find contrivances to guarantee their occurrence. For indications of thought, unlike indications of reality, do not arise spontaneously, without the participation of Ψ' . Now observation shows that such contrivances are not so effective in the case of all thought-processes as in investigatory ones. It is a *sine qua non* of the arousing of indications of thought that they shall receive a cathexis of attention; they arise when this is so by virtue of the law that where there are two neurones which are connected and simultaneously

¹ [The German word is “*Einfall*”—which is also the word commonly rendered in English by the highly ambiguous term “association”, especially in the phrase “free association”.]

² Freud's earliest description of preconscious processes of thought. Cf. p. 420.

cathected the conduction between them is improved [p. 480]. Nevertheless, the "enticement" offered by the precathexis of the indications of thought only has a certain degree of power to over-ride other influences. Thus, for instance, every other cathexis (such as purposive or affective cathexes) in the neighbourhood of the course of association will compete with it [the precathexis of attention] and tend to make the course of association unconscious. A similar effect, as experience confirms, is produced if the quantities involved in the course of association are considerable, for they will increase the current and consequently accelerate the whole course of association. The common assertion that something "happened in one so quickly that one didn't notice it" is no doubt completely correct; and it is also a familiar fact that affects can interfere with the arousing of indications of thought.

All this leads us to a new proposition in our mechanical representation of psychical processes: namely, that the course of association, which is not altered by the level [of cathexis], can be influenced by the magnitude of the quantity (Q) in passage itself. [Cf. p. 436.] *Generally speaking, a quantity (Q) of large magnitude takes a different path through the network of facilitations from that taken by a small one.* There is no great difficulty, I think, in illustrating this.

For every barrier there is a threshold of value below which no quantity (Q)—let alone a quotient of that quantity—can pass it. When a quantity (Q) is too small, it will distribute itself along two other paths, of whose facilitations it is large enough to avail itself. But if the quantity (Q) increases, the first path will now come into use and assist the passage of the quantity's quotients; moreover, cathexes lying beyond what has become a surmountable barrier will now be able to make themselves felt. Indeed, yet another factor may become significant. It may perhaps be assumed that the paths through a neurone are not all equally receptive to a quantity (Q), and we may describe this difference as "breadth of path". Breadth of path is in itself independent of resistance; for the latter can be altered by the quantity which is in passage (Abq)¹, whereas the breadth of path remains constant. Let us now suppose that, with the increase of quantity (Q), a path is opened which can make its breadth felt; we

¹ [German "Ablaufsmenge".]

can then see that it is possible for the course of the quantity (Q) to be fundamentally altered by an increase in the magnitude of the quantity (Q) in passage. Everyday experience seems to lend positive support to this conclusion.

Thus the arousing of indication of thought seems to be bound up with the passage of *small* quantities (Q). This is not to assert that passages of any other sort must remain unconscious—for the arousing of indications of thought is not the only way in which consciousness can be invoked.

How then can we give a clear picture of thinking that becomes *sporadically* conscious—with sudden intrusions into consciousness [p. 430]? Our ordinary purposeless thinking, although it is accompanied by precathexis and automatic attention, lays no stress upon indications of thought. Nor have we found biological grounds for regarding such indications as indispensable for the process. Nevertheless they usually emerge (1) when the whole smooth course of association has reached an end or has come up against an obstacle; and (2) when it has aroused an idea which, for other reasons, gives rise to indications of quality, *i.e.*, consciousness. But here I will break off the present discussion.

[3]

Obviously there are other kinds of thought-process which, instead of the unselfish aim of cognition, have some practical aim in view. The state of expectation, from which thinking in general has developed, is an example of this second kind of thought. In that state there is a wishful cathexis which is firmly retained, while a second cathexis, a perceptual one, emerges and is followed with attention. But the purpose of this is not to discover where it will lead *in general*, but to discover by what paths it will lead to the activation of the wishful cathexis which has meanwhile been retained. This kind of thought-process, biologically the earlier one, can easily be represented on our hypothesis. Let $+V$ be a wishful idea, which is kept specially cathected, and let W be the perception which is to be followed. Then the first result of the cathexis of W with attention will be that the $Q\Phi$ [see p. 430] will pass into the best facilitated neurone a . Thence it

would once more pass along the best path if it were not interfered with by the presence of lateral cathexes [p. 385]. If three paths lead from $a \dots$ in the order b, c and d , according to their degree of facilitation—and if d lies in the neighbourhood of the wishful cathexis $+ V$, the outcome may be that, in spite of the facilitations, the $Q \Phi$ may flow, not to c and b , but to d , and thence to $+ V$; so that the desired path will be revealed as $W \dots a \dots d \dots + V$. Here we see in operation the principle we have long been familiar with [cf. p. 380-1] that cathexis diverts facilitation and can thus work against it and that accordingly lateral cathexis can modify the course of quantity ($Q\dot{h}$). Since cathexes can be changed, it lies within the choice of the ego to modify the course taken from W in the direction of any purposive cathexis.

And by purposive cathexis is here to be understood not a uniform one, such as affects a whole region in the case of attention, but an emphatic one, standing out above the level of the ego. We must probably also assume that, in this kind of thinking with purposive cathexes, quantity ($Q\dot{h}$) also travels out from $+ V$ at the same time, so that the course of association from W may be influenced not only from $+ V$ itself but also from the further points reached by it. In this case, however, the path leading from $+ V \dots$ is known and fixed, whereas the path leading from $W \dots a \dots$ has still to be discovered. Since in reality our ego always entertains purposive cathexes—and often many at the same time—we can now understand both the difficulty of carrying on purely cognitive thinking, as well as the possibility that, in the case of practical thinking, the most various paths may be traversed at various times, in various circumstances, by various individuals.

We can also appreciate the difficulties in thinking in the case of practical thought, difficulties with which we are familiar from our own experience. Let us return to our earlier example in which the $Q \Phi$ current would naturally flow to b and c , while d is characterized by a close connection with the purposive cathexis or its derivative ideas. Then it may be that the influence of the facilitation from $b \dots c$ is so great that it far outweighs the attraction of $d \dots + V$. In order, in spite of this, for the course of association to be directed to $+ V$, it would be necessary for the cathexis of $+ V$ and its derivative ideas to be still more intensified; perhaps, too, it would be necessary for the

attention to W to be modified, in order that a larger or smaller degree of “binding” [p. 425] might be attained and a level of current which would be more favourable to the path to $d \dots + V$. The expenditure required in order to overcome better facilitations and to entice the quantity (Q) into paths that are poorly facilitated but that lie nearer to the purposive cathexis corresponds to the difficulty in thinking.

The part played by indications of quality in practical thinking differs little from that played by them in cognitive thinking. The indications of quality ensure and fix the course of association, but are not absolutely indispensable for it. If we replace the single neurones and the single ideas by complexes of neurones and complexes of ideas, we are brought up against a complication of practical thinking which it is no longer possible to picture, while we can well understand that in such cases rapid conclusions are desirable [cf. p. 440]. But here the indications of quality are as a rule not fully aroused, and indeed their generation serves to slow up and complicate the course of association. Where that course, from a particular perception to particular purposive cathexes, has already been repeatedly followed and has become stereotyped by means of mnemonic facilitations, there will usually be no occasion to arouse the indications of quality.

The aim of practical thinking is *identity*—the moment at which the displaced $Q \Phi$ cathexis finds its way into the wishful cathexis which has meanwhile been firmly retained. As a purely biological consequence, there then ceases to be any necessity for thinking, and, instead, a complete innervation of the motor images which have been touched on during the passage [of the quantity] becomes permissible—motor images which constitute what is in the circumstances a permissible accessory portion of the “specific action”. Since during the passage the cathexis of these motor images was only of a “bound” sort, and since the thought-process started from a perception (W) which was only followed as a memory-image, the whole thought-process is able to make itself independent both of the expectational process and of reality and can proceed to identity without any kind of modification. Thus it starts from what is merely an *idea*, and, after it is completed, does not lead to action; it has, however, produced a piece of *practical knowledge*, which can be used if there is a real occasion for it. For experience shows that it is expedient to have the

practical thought-process ready at hand to meet such an occasion and not to have to leave its construction till the very moment when the real need for its use arises.

The time has now come to qualify a statement that I previously made [p. 422] to the effect that the recollection of a thought-process is only made possible by indications of quality, because otherwise its traces could not be distinguished from the traces of a perceptual facilitation. It remains true that a real memory ought not to properly be modified by thinking over it. But on the other hand it is an undeniable fact that thinking over a topic leaves extremely important traces upon any subsequent thinking over the same topic;¹ and it is highly doubtful whether this result is produced only by thought that is accompanied by indications of quality and by consciousness. There must therefore be such things as thought-facilitations; and yet the original paths of association must not be obliterated. But since there can only be one kind of facilitation, it might be supposed that these two conclusions were incompatible. Nevertheless it must be possible to find a means of reconciling and explaining them in the fact that *thought*-facilitations all originated when there was a high level [of cathexis] and also probably make themselves felt once again when the level is high; whereas *associative* facilitations originated in complete or primary passages of quantity and reappear if the conditions characterizing an unbound passage² of quantity are re-established. Accordingly it is impossible to dispute the fact that thought-facilitations might have some possible effect upon associative facilitations.

We thus arrive at this further characteristic of the unknown neuron motion. Memory consists in the facilitations. Facilitations are not changed by a rise in the level [of cathexis], though there are facilitations which function only at a particular level. The direction taken by the passage of quantity is not altered in the first instance by an alteration of level, but it is no doubt altered by the quantity of the current [cf. p. 432 ff.] and by the lateral cathexes. When the level is high, smaller quantities (*Q*) are more easily displaced.

¹ [This subject was touched upon earlier, on p. 397 f.]

² [*Unggeb.* for *ungebunden* in M.S. Wrongly given in the 1950 German edition as *umgebenden* ("surrounding").]

Alongside of *cognitive* and of *practical* thought we must distinguish *reproductive or recollecting* thought, which is partly included in practical thought but does not cover it completely. This recollecting is a precondition of any testing carried out by critical thought. It follows a given thought-process in a reverse direction, as far back, it may be, as a perception; and it does so, once again, without an aim (as contrasted with practical thinking), and, in the process, makes use to a great extent of indications of quality. In pursuing this backward course, the process meets with intermediate links which have hitherto been unconscious, which have left no indications of quality behind them but whose indications of quality emerge *ex post facto*. It follows from this that the passage of thought in itself, without any indications of quality, has left traces behind it. In some cases, indeed, it appears as though we are only able to conjecture certain stretches of a train of thought because their starting-points and terminations are given by indications of quality.

In any case, the reproducibility of thought-processes extends far beyond their indications of quality; they can be made conscious subsequently, though perhaps the outcome of a train of thought leaves traces behind it more often than do its intermediate stages.

In the course of thinking—whether it is cognitive, critical or practical—events of all kinds may occur that deserve to be described. Thinking may lead to *unpleasure* or it may lead to *contradiction*.

Let us take the case in which practical thinking, accompanied by purposive cathexes, leads to a release of unpleasure. Everyday experience teaches us that such an event acts as an obstacle to the thought-process. How is it that it can come about at all? If a memory generates unpleasure when it is cathected, this is due, generally speaking, to the fact that the corresponding perception generated unpleasure when it occurred—that is, formed part of an experience of pain [p. 381]. Experience shows that perceptions of this kind attract a high degree of attention, but that they arouse fewer indications of quality belonging to the perceptions themselves than to the reaction which those perceptions generate: they are associated with their own manifestations of affect and defence. If we follow the vicissitudes of perceptions of this kind when they become memory-images, we shall find that their *first* repetitions still arouse affect as well as unpleasure,

but that in course of time they lose this capacity. And at the same time they undergo another change. To begin with they retain the characteristic of sensory qualities, but when they cease to be capable of producing affects they also lose these sensory qualities and come to resemble other memory-images. If a train of thought comes up against a memory-image of the still "untamed" sort, its indications of quality (often of a sensory kind) are generated, as well as unpleasurable feelings and an inclination to discharge, the combination of which characterizes some particular affect—and the train of thought is interrupted.

What is it that happens to memories capable of generating affect which leads to their becoming "tamed"? We cannot suppose that "time" weakens their capacity to repeat the generation of affect, since that factor normally contributes rather to *intensify* an association. No doubt something must happen during the "time" in which these repetitions occur which brings about the subjugation of the memories; and this can only be that some relation to the ego or to the ego cathexes obtains power over them. If this takes longer in such cases than it does normally, we can point to a special reason—namely, to the origin of memories that are thus capable of generating affect. Being traces of experiences of pain, they have been cathected (according to our hypothesis about pain [p. 368]) with excessive $Q \Phi$ and have acquired an excessively strong facilitation towards the release of unpleasure and affect. They must therefore receive especially large and repeated "binding" from the ego before this facilitation towards unpleasure can be counterbalanced.

The fact that memories continue for so long to be of a hallucinatory character also calls for an explanation—and this would have an important bearing on our view of hallucinations. It is plausible to suppose that, like the capacity of a memory to generate affects, its capacity to generate hallucinations is a sign that the ego cathexis has not yet acquired any influence over it, that primary methods of discharge and the complete or primary process [p. 388] predominate in it.

We must necessarily suppose that in states of hallucination the quantity (Q) flows back to Φ and at the same time to W (ω). Thus a bound neurone does not permit such a flow-back to occur. It must further be asked whether what makes a flow-back possible is the

excessive magnitude of the cathectic quantity of the memory. But here we must bear in mind that a quantity (Q) of this large magnitude is only present on the first occasion, when the actual experience of pain occurs. When it is repeated, we are dealing with a mnemic cathexis of no more than the usual magnitude, and yet it generates hallucination and unpleasure. We can only presume that it does so owing to an unusually powerful facilitation. It follows from this that an ordinary Φ -quantity suffices to bring about flow-back and to excite discharge; and the inhibiting affect of binding by the ego accordingly gains in importance.

It becomes possible in the long run to cathect the memory of the pain in such a way that it can no longer exhibit any flow-back and can only release minimal unpleasure. It has now been "tamed"—and by a thought-facilitation powerful enough to exercise a permanent effect and to operate as an inhibition whenever there is a subsequent repetition of the memory. The path leading to the release of unpleasure, owing to disuse, gradually increases its resistance—for facilitations are subject to gradual decay (that is, to forgetting). Only when this has occurred does the memory become a tamed memory like any other.

Nevertheless, it appears that this process of subjugating a memory leaves permanent traces behind it on the thought-process. Since previously the train of thought was interrupted each time the memory was activated and unpleasure aroused, so now too there is a tendency to inhibit the train of thought as soon as the tamed memory generates its trace of unpleasure. This tendency is very opportune for the purposes of practical thinking, since an intermediate element that leads to unpleasure cannot lie on the desired path to identity with the wishful cathexis. Thus a primary "thought-defence" comes into being, which, in practical thinking, takes the release of unpleasure as a signal that some particular path must be abandoned—that is, that the cathexis of attention must be directed elsewhere.¹ Here, once again, unpleasure directs the flow of quantity (Q), just as it

¹ Cf. *The Interpretation of Dreams*, (trans. 1953, p. 602): "It is easy to see, too, that the unpleasure principle, which in other respects supplies the thought-process with its most important signposts, puts difficulties in its path towards establishing 'thought-identity'. Accordingly, thinking must aim at freeing itself more and more from exclusive regulation by the unpleasure principle and at restricting the development of affect in thought-activity to the minimum required for acting as a signal".

does according to the first biological rule [p. 428]. It might be asked why this thought-defence is not directed against the memory while it is still capable of generating affect. Presumably, however, the *second* biological rule [p. 429] comes into operation at that point—the rule which calls for attention when there is an indication of reality—for the untamed memory is still in a position to enforce the production of real indications of quality. As we can see, both of the two rules serve a useful purpose and they are consistent with each other.

It is interesting to observe how *practical* thought lets itself be directed by the biological rule of defence. In *theoretical* (cognitive and critical) thought, the rule is no longer observed. This is intelligible; for in purposive thinking it is a question of finding *some* path and those paths to which unpleasure attaches can be excluded, whereas in theoretical thinking *every* path has to be investigated.

[4]

The further question arises of how *error* can occur during the passage of thought. What is error?

The process of thinking must be considered in still greater detail. Practical thought, in which it originated, remains the final goal of all thought-processes. Every other species branched off from it. It is an obvious advantage if the conduction of thought which takes place in practical thinking can take place in advance, and not be put off until the state of expectation arises. This is so for two reasons: (1) because it saves time in arriving at the specific action; and (2) because the state of expectation is far from being particularly favourable for a train of thought. The value of promptitude during the short interval between perception and action becomes clear when we consider that perceptions change rapidly. If the thought-process lasts too long, its outcome will have become valueless in the interval. For this reason we “think in advance”.

The beginning of the thought-processes that branched off from practical thinking lies in the process of making judgements. The ego arrived at this through a discovery made in its organization—through the fact (which has already been indicated [pp. 393 and 423]) that perceptual cathexes partly coincide with reports from the subject's

own body. In this way perceptual complexes are divided into a constant, uncomprehended portion—the “thing”—and a changing, comprehensible portion—the attributes or movements of the thing. Then, since the “thing-complex” keeps re-appearing in connection with a variety of “attribute-complexes”, and since conversely the latter keep re-appearing in connection with a variety of “thing-complexes”, it becomes possible to work out paths of thought that lead from these two kinds of complex to the desired state of the “thing” in a manner which is, as it were, valid *generally* and independently of the perception that happens to be real at the moment. Thus thinking with judgements instead of with single, orderless perceptual complexes is a great economy. We must leave on one side the question whether the psychological unity thus attained is represented by a corresponding neuronc unity in the train of thought (apart from the unity presented by the verbal image).

Error can already make its way in during the making of a judgement. For the thing-complexes (or movement-complexes) are never entirely identical, and there may be some among their divergent portions whose neglect will vitiate the outcome in reality. This defect has its origin in the tendency (which, indeed, we ourselves are imitating here) to substitute a single neurone for a complex—for this is necessitated by the immense complexity of the material. These are *mistaken judgements due to faulty premisses*.

Another source of error may lie in the fact that the real objects of perception were not completely perceived because they were outside the scope of the senses. These are *errors due to ignorance*, which no human being can avoid. But where this is not the case, there may have been defective psychical precathexis (owing to the ego being distracted from the perceptions) and inaccurate perceptions and incomplete trains of thought may result. These are *errors due to insufficient attention*.

If now we take as the material of thought-processes complexes that have been judged and reduced to order, instead of unsophisticated ones, an opportunity will then be found for shortening practical thought-processes themselves. For if it has happened that the path from perception to identity with the wishful cathexis has passed through a motor image *M*, it is biologically certain that after identity

has been achieved this *M* will be fully innervated. The simultaneity of the perception and *M* will produce an intense facilitation between them, and an immediately subsequent perception will arouse *M* without any further course of association. (This, of course, presupposes that it is possible at any time to set up a connection between two cathexes.) What was originally a laboriously established thought-connection becomes, as a result of simultaneous full cathexis, a powerful facilitation. The only question about this facilitation is whether it always follows the path that was originally discovered or whether it can form a more direct line of connection. The latter alternative seems both more likely and more expedient, since it avoids the necessity for fixing paths of thought which should remain free for other connections of the most various sorts. If the original path of thought is not followed again, we shall not expect to find it facilitated, and the outcome will be better fixed by a *direct* connection. It remains an open question, however, where the new path originated. The problem would be made easier if the two cathexes, *W* and *M*, had a common association with a third one.

The portion of the thought-process that passes from perception to identity through a motor image may also be brought into prominence and will lead to a similar result, if attention fixes the motor image and brings it into association with the perceptions—these having also been fixed once more. Here, too, the thought-facilitation will be set up again when there is a real occurrence.

In this kind of thought-activity the possibility of errors is not at first sight obvious. But no doubt an inexpedient path of thought may be taken or a wasteful movement may be emphasized, since, after all, in practical thinking the choice depends solely on reproducible experiences.

With an increasing number of memories, fresh paths of displacement are constantly coming into existence. For that reason it has been found advantageous to follow out all the different perceptions fully, so that the most favourable of all the paths may be discovered. This is the task of *cognitive* thought, which thus emerges as a preparation for practical thought, though in fact it only developed out of the latter at a late stage. Its findings are of value for more than one kind of wishful cathexis.

The errors that may occur in cognitive thinking are self-evident. They are due to partiality, which may arise unless purposive cathexes have been avoided, and to incompleteness, which may arise unless every path has been investigated. It is clearly an enormous advantage here if indications of quality have been aroused at the same time. When these thought-processes are picked out and introduced into the state of expectation, it becomes possible for the whole course of association from beginning to end to pass by way of the indications of quality instead of through the entire extent of thought; nor is it even necessary for the train of quality to correspond completely to the train of thought.

In theoretical thought no part is played by unpleasure, and for this reason it can be carried on even in connection with “tamed” recollections.

One more species of thought remains to be considered: critical or examining thought. The occasion for this is when, in spite of all the rules being obeyed, the state of expectation, followed by the specific action, has led not to satisfaction but to unpleasure. Critical thought, proceeding in a leisurely manner, without any practical aim, seeks, while calling up all the indications of quality, to repeat the whole passage of quantity ($Q\eta$)¹ in order to trace some intellectual error or some psychological defect. Critical thought is cognitive thought operating on a particular object, namely, on a train of thought. We have already formed an idea as to the nature of the latter [? psychological defects], but in what do *logical errors* consist?

Briefly, in disregarding the biological rules that govern trains of thought. These rules lay down where it is that the cathexis of attention is to be directed on each occasion, and when the thought-process is to come to a stop. They are protected by threats of unpleasure, they are arrived at from experience and can be directly transposed into the rules of logic. (This will have to be shown in detail.) Thus the intellectual unpleasure of a contradiction, which brings critical thought to a stop, is nothing other than the unpleasure stored up for the protection of the biological rules, which is stirred up by the incorrect thought-process.

¹ [So in the original MS. The 1950 German edition wrongly reads *Qualität*.]

*The existence of these biological rules can, in fact, be demonstrated from the feeling of unpleasure provoked by logical errors.*¹

Action, again, is to be understood as the full cathexis of the motor images brought into prominence during the thought-process, and also, perhaps, of the motor images which form part of the intentional portion of the specific action (if we are dealing with a state of expectation). Here the "bound" state is abandoned and the cathexes of attention are withdrawn. As regards the former [the abandonment of the "bound" state], what happens is, no doubt, that at the first passage of quantity from the motor neurones the level in the ego falls irresistably. It is not to be expected, of course, that the ego will be *completely* discharged as a result of single actions; this will only occur in the case of actions involving satisfaction of the most abundant kind. It is instructive to observe that action does not take place by reversing the path travelled by the motor images, but along special motor paths. For this reason, too, the affect attaching to the movement is not *ipso facto* the one that is desired, which would necessarily be the case if there were merely a reversal of the original path. A fresh comparison has therefore to be made during the action between the motor reports coming in and the movements which are pre-catheted, and there must be an excitation of corrective innervations until identity has been attained. Here we have the same situation as we found in the case of perceptions, only that here there is less multiplicity, greater speed and an invariably *complete* discharge not found with perceptions. The analogy between practical thought and efficient action deserves notice, however. It shows us that the motor images are *sensory*. But the peculiarity that in the case of action new paths are traversed instead of the far simpler reversal of the original ones seems to show that the line of conduction of the neuronic elements is one that is firmly fixed; so that it is possible that the

¹ An approximation, though admittedly not a very far-reaching one, to this idea is to be found in Freud's published writings in his hypothesis of a synthetic function of the ego, which includes a need for getting rid of contradictions. Freud only touched incidentally on this problem in *The Interpretation of Dreams* (trans. 1953, p. 499): "Our waking (preconscious) thinking behaves towards any perceptual material with which it meets in just the same way in which the function we are considering behaves towards the content of dreams. It is the nature of our waking thought to establish order in material of that kind, to set up relations in it and to make it conform to our expectations of an intelligible whole".

neuronic motion in the two cases may have different characteristics.

Motor images are perceptions and as such, of course, they possess quality and arouse consciousness. Nor can it be disputed that they sometimes attract great attention to themselves. But their qualities are not very striking and are probably not so various as those of the external world; and they are not associated with verbal images, but on the contrary are themselves in part employed by such associations. It must be remembered, however, that they do not arise from highly organized sense organs, and that no doubt their quality is monotonous. [Cf. p. 371-2].