

THE
COMPASSIONATE
BRAIN

—
HOW EMPATHY
CREATES
INTELLIGENCE
—

Gerald Hüther

Translated by Michael H. Kohn



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MAINTENANCE AND SERVICING

If you had the brain of a mole, throughout your lifetime you could only use it as the neuronal circuits installed in it allow it to be used: for the life of a mole. And just by living the life of a mole, you would already be doing everything necessary for the maintenance and servicing of that brain.

But your brain is not hard wired the way a mole's brain is. You can apply it to a great number of highly varied tasks. If you want to, through years of practice under the tutelage of a Persian Sufi master, you can get your brain to the point where you can unflinchingly walk over hot coals or let arrows be stuck through your most sensitive body parts. With an Indian yogi, you can train your brain in such a way that by your conscious intention you can influence your respiration, your heartbeat, and a series of other bodily functions that are normally controlled autonomously by centers deep in the

brain. You can bring these functions so completely under your will that if you show these abilities to your doctor, he will begin to doubt everything he has read in his Western textbooks about the autonomous regulation of bodily functions. With the Inuit, you could learn how to differentiate numerous different kinds of snow; and with the native peoples of the Amazon, you could learn to recognize and name over a hundred shades of the color green. If you wanted to, you could also become a juggler and get the movement-coordination abilities of your brain to the point where with two hands you can keep seven balls in the air at once. And if you cannot think of anything else, you also have the possibility of keeping your brain very fully occupied watching colorful images on television, solving crossword puzzles, playing computer games, or learning the phone book by heart. These occupations also use and stabilize particular neuronal connections.

Thus a human being, in contrast to a mole, is not only able to decide freely what he is going to use his brain for, but also what he wants to make out of it. When he makes a particular decision and resolutely sets about implementing it, he no longer really needs to concern himself with the maintenance and servicing of his brain. He just has to refrain from letting himself be diverted from the path he has chosen. Just by being used from that time on only for the purpose he has decided upon, the inner organization of his brain will become better and better adjusted to the performance now required of it. Where there's a will, there's a way, and if the will is strong enough and the same way continues to be traveled, it gradually turns into a major road and maybe even into a freeway—this happens in the brain too. And because later on it becomes increas-

ingly difficult to get off of these well-established highways, the decision a person makes concerning how and for what purposes he uses his brain is one that he should only make with a great deal of circumspection and care.

For example, it would not be very clever to make such a decision based on temporary possibilities and demands, because it has to be sustainable over the long term and take into account at least all the future developments that are foreseeable. Such a decision should still remain appropriate when a person has grown older and his needs have begun to be different. And it should not be something that hinders him later on when his feeling, thinking, and behavior have to adapt to the new demands of a world that will inevitably change.

It would also be shortsighted for a person to decide how and for what purposes he is going to use his brain purely on the basis of the conditions, possibilities, and needs that are current where he is living, that is, in a particular family, in a particular small-town or city community, in any particular cultural setting in any particular time. No one can rule out the possibility that later on he might have to move away or that times will change and with them the circumstances that he finds in a particular place. If that occurs, the same thing is quite liable to happen to him as would happen to a mole if for some reason it found itself among the sweet-smelling flowers on a sunny meadow; or as happened to Konrad Lorenz's goose, who because it grew up with him, thought for the rest of its life that the old man's world was the only proper goose world, and that anyone who looked like Lorenz was a goose like itself.

Neither geese nor moles will greatly envy us our freedom of

choice. They can usually rely quite well on what has been programmed into their brains. We humans, on the other hand, have a brain that to a certain extent programs itself on the basis of the way it is used. So we have to decide how and for what purposes we are going to use it. Now if a person comes to the conclusion that he is not going to make any such decision at all, then the final state of neuronal connectivity in his brain will automatically be determined by his genetic predispositions and by the conditions in which he grows up and lives. Thus he will remain a prisoner of his passively adopted, built-in tendencies and of the circumstances he happens to encounter. On the other hand, if a person decides to use his brain in a very particular way to attain a particular end, then he runs the risk that the inner organization of his brain will keep adapting itself better and better to this kind of one-sided use. In that way, he will increasingly become a prisoner of his own decision.

The point is, we can only remain free by deciding as early on as possible and as prudently as possible how and for what purposes we are going to use our brains. But for a number of reasons that is more complicated and much more demanding than we think.

To take an example, no person can freely decide how and for what purposes he is going to use his brain if he is suffering from hunger, cold, or some other physical hardship or if he is subject to psychological torment of some kind. The same is also true for people who are continually in a state of fear over whether what they possess—their wealth, their power, and their influence—is going to be taken away from them by people who do not have these things. Moreover, people whose thinking and behavior are ruled purely by their feelings are no more capable of making a free decision about

how to use their brains than people who let themselves be driven entirely by their intellect and continually suppress their feelings. And finally, nobody can make a free decision about how and for what purposes he is going to use his brain if he does not have the faintest idea what is going on his brain and what the different ways are in which it could be structured and used. This goes for people who up to now have not had the chance to acquire this knowledge, as well as for people who have been flooded with such a surplus of information for such a long period of time that at some point they have not only completely lost any overview they might have had but also the ability to distinguish what is important from what is not important and what is false from what is true.

Thus a prudent and careful choice about the use of the brain, one that takes into account everything important that has already happened and everything important that might still happen in the future, cannot be made either just from the gut or just from the head, and definitely cannot be made as long as either one of those two is either too full or too empty.

Not only every individual human being but also all human beings from a particular cultural milieu pass in the course of their development through an initial phase in which the feeling in their gut is stronger than intellect in their head. In the long term a human brain can only come up with one solution for satisfying those strong demands coming from the gut and that is to use and develop the intellect more. When people begin to use their heads more to satisfy their gut-level demands, sooner or later they come to the realization that they can do this better collectively than they can alone. But then, all the people involved have to be in agreement about

which feelings are the top-priority ones they have to deal with and about what strategies for satisfying these feelings they see as the most promising and likely to succeed. The more complete their agreement is, the greater their joint efforts will be, and then it is only a matter of time before the envisaged goal will in fact be attained. At that point, those who wanted enough to eat will be satisfied. Those who felt threatened by others either will have built protective walls around themselves or subdued whatever they had seen as threatening. And those who wanted to live a comfortable life will be sitting around in their cushy living rooms. The belly will be full, but the common goal that guided these people for such a long time in using their brains will be gone. Their common quest for shared solutions will have reached an end. From this point on, each of them will once again begin pursuing his own individual path.

Much of what was built up in the previous stage now begins to fall apart and be forgotten. Important experiences that were accumulated over generations by these people on their way to the attainment of their common goal, experiences that forcefully made their mark on the brains of earlier generations and then on those of their offspring, are now no longer available and begin to lose all the importance and standing they once had. There is a general loss of orientation, a sense of groundlessness. Since the old thinking no longer has much application in the new circumstances, sooner or later a feeling of discontent appears. If the deterioration of society reaches the point where once again the most basic needs are no longer being met, where people are once again being threatened by enemies, or where the basic comforts of life have ceased to be there, then the whole game starts over again from square one. A

feeling shared by all determines a common goal, and when it has been achieved, everything falls apart again.

But not quite entirely. For each time, something is left over from this apparently senseless cycle. There is a little more knowledge, a few special skills, and a few new experiences. Perhaps some of these skills and some of this knowledge came from formerly alien cultures with which the people in question came in contact in the course of their earlier common quest. And if all this knowledge and the skills arising from it and all these experiences and the realizations deriving from them are not destroyed or rendered useless in the course of subsequent spells of groundlessness and disorientation, then the treasure hoards of experience accumulated over many generations by a great many different cultures can begin to expand and blend together. This process occurs in stages. There are progressive levels of perception, of knowledge, and of consciousness. At each one of these stages, new possibilities for a more comprehensive and more complex use of the brain open up. Progressively better conditions are created for the fulfillment of the potential that exists for developing a really human brain.

Under particularly favorable circumstances, the people of a particular culture might manage to make an especially big move upward on this ladder. But these great moments in history do not go unbalanced. Conditions also continually appear that lead people to fall from complex but unstable levels of brain use they have attained in the past back to simpler but more stable ones. Even in the case of highly favorable circumstances, it is always initially only a few pioneers who achieve the leap up to more complex levels, which they then make workable for the many who follow. And even in the

case of highly unfavorable circumstances, there are always a few individuals who are not willing to follow the others in the step down to a simpler level of perception, knowledge, and consciousness.

What makes these farsighted, sensible, and courageous people stand out from the rest is not their appearance, their power, or their influence, but the way in which they use their brains—in the most total and comprehensive way possible. For what they are seeking is not something specific and definite but simply the most that is possible. And since this goal can never be reached, they create a path, a way, to this unreachable goal.

5.1 *On the Ladder of Perception*

Our textbooks tell us that human beings have six senses. They can use them to see, smell, taste, touch, hear, and to tell when they have lost their balance. On the basis of these perceptions, we are able to deal with the external world and develop a mental representation of how it is constituted, how it can be changed, and whether or not danger is threatening us from out there. This representation is stored in the brain in the form of specific neuronal connective patterns. The representation that is composed of all these sense impressions is not, of course, a true picture of the actual nature of the external world; it is merely the picture that we, with all our limitations, are capable of making of this world. We can only see light of certain wavelengths, hear sounds of certain frequencies, and we cannot smell, taste, and touch everything that is out there. We can only register those things that have turned out to be impor-

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tant for the survival and reproduction of our species over the course of evolution. In spite of these limitations, what we are able to learn of the world outside through our senses is usually enough to survive in that world and even occasionally take pleasure in it.

We seldom become conscious of the fact that we perceive a whole additional range of signals from our inner world that we use to regulate our inner order. Changes in blood sugar levels; in concentrations of oxygen and carbon dioxide; in body temperature; muscle tone; circulation; in the activity of our inner organs and the signal substances, hormones, and mediators they produce—without our noticing it, our brain also perceives all this and a lot more of what goes on in our body. In this way it continually puts together a picture of what is going on in us. And whenever something in this picture of our inner world starts going awry and threatens to go completely off the charts, the brain instigates a counterreaction to try to restore our inner order to its original state.

This also we usually do not notice. Only sometimes, when the disturbance to the inner order gets particularly serious, does the counterreaction set in motion by our brain become somewhat stronger and more conspicuous. Then we have the feeling that something is the matter. We gasp for air (because oxygen is lacking); we have gas (because we have eaten something indigestible); we are hungry and feel queasy or even dizzy (because our blood sugar level has sunk too low); we get gooseflesh and the shivers, or we start to sweat and turn down the heat (because our body temperature has gone either down or up); we get thirsty (because the salt concentration in our blood is no longer right); we get in bed (because we are exhausted); we feel the need for sex (because

our testosterone level has gone up); or we lose this inclination (because we are afraid and stress hormones are being secreted that drive our testosterone level down); or we feel an irresistible appetite for sweets or fried food (because the metabolic activity resulting from eating them triggers changes in our brain that have a calming effect).

So our brain is capable of perceiving not only what is going on in the external world that might be threatening, but also what is going on inside us that might threaten our normal inner-world order. And when this inner world falls into disarray, the brain instigates responses and reactions to quell the disturbances that have arisen. All this is nothing special. All brains do it, including the brains of animals. Here we are talking about the lowest, most primitive level of our perceptual capacity.

What animals are not nearly so good at as we are is the art of evaluating perceptions, of ascribing greater or lesser significance to them. We are able to view specific changes in our outer—but also our inner—worlds as noteworthy. Since we frequently and intensively activate the neuronal circuits that participate in registering, processing, and storing these kinds of changes, these circuits are especially well worked out and are easier to activate than others. As a result we can perceive and relate to certain specific phenomena better and faster than others. We are more or less sensitized to certain perceptions. We have our senses sharpened in a very specific way.

But we are also masters when it comes to dumbing down our senses. At first consciously—and later unconsciously when the neuronal connections necessary for this have become sufficiently

well burned in—we suppress certain perceptions. Sooner or later this usually leads to drastic consequences. Our ability to pay a high level of attention to some things and not others has been the source of many a great discovery in the course of human history, but also of many a false alarm. Certain individuals developed this knack to the point where they could see things that all other people were blind to, and they could feel and sense changes coming of which the rest of the people had not the faintest inkling. And along with these perception specialists and prophets, there have also always been people who can supposedly "hear the grass growing," and try to predict the future from the positions of the stars and from the burnt bones of goats.

What distinguishes the real prophets and seers from the phony ones is the fact that in the course of their development they were able to sharpen all their senses simultaneously, not only those used to perceive changes in the external world, but also those used to perceive what was going on inside them. They developed the ability to use all these senses at the same time and in balance with each other. In so doing, they attained the highest level of perception of which the human brain is capable. The only people who can reach this supreme level are those who during their lives continually find a balance between emotion and intellect, dependence and autonomy, and openness and self-differentiation. To sharpen his senses in this manner, a person has to learn both how to grasp and how to let go. He must develop the ability to devote himself thoroughly and fully to a particular perception, to take it in completely, and to sense what it causes to take place within him. And he must let the inner image that arises as this happens fuse with all the other

images that are already there inside him, so that they make one whole integrated picture, which is then really more like a feeling. When this happens, he must not allow himself to become so aroused by this feeling that he becomes identified with it and loses himself in it; rather he must be able to detach himself from it yet nevertheless preserve it within him from then on. Only if he relates to it in this way, will he subsequently be able to take in further new perceptions, both from his outer and inner worlds via other senses with the same intensity; feel what happens inside him as he does so; and then fit these new "feeling images" together with all the other previously stored ones into an ever more comprehensive picture of his outer and inner reality.

All of us were able to do this, at least on a rudimentary level, when we were children. Many of us, however, have lost the ability. Those who have lost it only rarely feel anything when they perceive a change in their outer or inner world, and when they do, it involves only a few, faint images that certain feelings still arouse in them. However, it is possible to restore this ability that has been lost but nevertheless remains characteristic of a human brain. Instead of continuing just to scan the world perfunctorily or to look at it through a very narrow optic, it is possible to couple particular images, smells, or sounds with feelings, to really allow what is happening out there to enter us, and to actively connect these new impressions with all the other images that are in us from the past. It is possible to retrain oneself in this. It can be practiced. But for this, leisure time is required as well as stable inner balance, an undisturbed environment, and a resolute will. Whoever lacks the last of these and cannot find the first will inevitably continue to



have his perceptual capacity determined by those circumstances that always compel him to use particular senses in a very particular way. In that case his perceptual capacity will adjust without any conscious participation of his own, automatically, so to speak, to this habitual manner of using his senses. Such a step down on the ladder of perception happens all by itself. You can only go up if you want to. And to want to take such a step up, you need a reason.

5.2 *On the Ladder of Feelings*

When the brain perceives a change in the external world or in the world of our body that leads to an upset in the balance of the hitherto harmonious flow of information processing taking place in the brain, a feeling arises. This feeling tells us that something out there in the world around us or something within us is not right. Most often we experience a feeling of this sort when we perceive something that does not fit in with what we were expecting, when demands are made on us that we cannot fulfill, or when someone hurts, deceives, or cheats us. We have lots of names for this feeling: insecurity, despair, impotence, helplessness. But whether we like it or not, whatever we call it, it remains what it is: fear.

And then, when somehow or other we have succeeded in restoring the inner order in our brain, and thus at the same time in our body, we also perceive that as a feeling that we give different names to: hope, satisfaction, confidence, sometimes even pleasure. But again here, these are only different names for that other basic feeling,

the one that always makes its appearance when we have managed to conquer our fear: joy.

And there is a **third basic feeling**, which makes its appearance at moments when we cannot assess precisely whether what we have perceived should be seen as a threat to our inner order or as an opportunity to recover and stabilize our inner order: **surprise.**

There is no reason for us to think that other kinds of beings who possess a brain do not know and feel these three feelings. Just as we can, all other animals living in social groups can communicate these feelings to their fellows, perhaps by producing and emanating a particular odor, by carrying out particular bodily movements or adopting certain postures, by producing certain sounds, by calling out or screaming at times of danger, or by grunting, blabbering, or purring with contentment. The ones that have faces that can convey expressions have the additional ability to express their feelings through a characteristic facial gesture.

This language of feelings is generally understood by all other members of a given species and especially well by members of the same family or clan. It is the most important instrument of intraspecies communication, and therefore it is especially highly developed in those species whose survival is most particularly dependent on skills like recognizing threats very quickly so they can be warded off through group action or making known newly discovered shareable resources so they can be secured through group action. This language of feelings also became highly developed among species with a critical need to strengthen and stabilize the emotional bonds between members of families, clans, and other groupings.

● The ability to communicate feelings, not so much through odors

but mainly through gestures, mimes, and uttered sounds, must have played a key role during the phase of transition to the human level. The gift of being able to express certain feelings is thus still laid by us in the cradle at the time of birth in the form of certain genetically programmed neuronal circuits in our brains. In addition the ability to recognize particularly important feelings in other people, such as fear, joy (pleasure), disgust, sadness, and pain, is also genetically configured in our brains.

These gifts are not equally well developed in all newborns. And what becomes of them—whether they are further developed and elaborated or are suppressed and deteriorate—depends on the conditions a child grows up in. Children can be brought to perceive their feelings in a more or less subtle fashion, and to express them more or less forcefully. Children who are trapped in situations of insecure bonding learn with astonishing speed not to show their feelings, to hide them, or even to express feelings that in reality they do not feel at all, but that they know are expected from them in certain situations. Many people develop in this way into masters at the game of playing with their own feelings and those of others. They are often quite cunning at this and observe other people very keenly. But they lack the ability to put themselves in the place of other people and empathize with their feelings. They are perfect masters at the keyboard of displaying simple basic feelings, but they are incapable of developing them into more refined and subtle feelings.

Such people are pretty well stuck on the lowest rungs of the ladder of human feeling capacity. Their feeling, and thus their thinking and behavior as well, is primarily determined by self-centered considerations. Consequently they themselves are the

ones who reduce and narrow their ability to feel. In order to break beyond these limits, people of this type must be given the opportunity to enter into close emotional relationships with other people again. This is the only way they can gain the experience that these kinds of relationships can provide security and that within that realm of security it is possible to let one's own world of feeling merge with another person's. They have to learn again that not only is it not dangerous but also it is enriching to put oneself in another person's place and be able to feel what is going on in that person.

Empathy requires a tremendously refined level of perceiving and processing other people's nonverbally expressed feelings. The capacity for empathy can only be developed by people who are willing, and possess the necessary sensitivity, to place themselves within another person's world of feelings. It is this capacity that sets the human brain apart from all other nervous systems. The more thoroughly this capacity is developed and the more intensively it is used to enter through one's own feelings into the inner world of not only one other person but many others (and even into the inner worlds of other kinds of creatures), the higher a person can climb on the ladder of human feeling.

5.3 *On the Ladder of Knowledge*

Basically speaking, a nervous system has no other job to do besides defending against, or compensating for, changes in the outer world that might lead to disturbances of the inner order of an organism. Progressive optimization of the structure and function of the ner-

vous system so it can manage this job more and more efficiently has inevitably led, over inconceivably long periods of time, to the formation of brains that allow their possessors to perceive threats to their inner order very early on, to evaluate the effects on themselves of changes in the outer world increasingly well, and to react with increasing specificity to these threats.

Thus from what began as strictly genetically programmed structures arose structures that were programmable through the individual experiences of the possessor of the nervous system in the early stages of life, and then later on, to structures that were programmable through the experiences of the possessor of the nervous system throughout his or her life. In the course of this development, the level of complexity and the extent of networking of the neuronal connections in the brain have continued to increase, but the basic way the brain functions has changed very little. Just as an individual nerve cell conducts an impulse only when it is strongly enough stimulated by impulses coming to it from other nerve cells, the brain also only instigates a compensative regulatory response when a perceived change in the outer or inner world is major enough to stimulate neuronal networks lying deep within the brain. This activation of limbic centers is something we experience as a disturbance to our emotional balance. What we pay particular attention to, what particularly excites us, how we evaluate a perceived change, and how we finally react to it, all depend on the experiences we have had in our life so far with disturbances of this sort. Many of these experiences are so general in nature that in the course of human phylogenetic history they have already, through selection, taken the form of genetic programs that produce very

specific patterns of neuronal connectivity in our brains. Other experiences become anchored in our brains only through our having them in our own lives. Most of our own formative experiences—and usually the most important of them—occur in our early childhood, without our ever thinking about them or even being able to grasp them in words. For this reason, they are unconscious and often remain so throughout our lives.

Brains that are capable of initial learning or even lifelong learning are advantageous (and therefore came into existence at some point), because with such a brain an individual can take in experiences—initially or even throughout life—that are crucial for survival and reproduction. The ability to use such a brain to know consciously what is happening in and around its possessor was a relatively late development. Up to the present time, this capacity for conscious knowledge has arisen only to a rudimentary degree in a few of our nearest animal relatives, and in ourselves has reached only a certain level.

This special capability makes it possible for many apes and most humans to derive a general "if-then" kind of knowledge from all the unconscious experiences they have accumulated. This represents the lowest and most primitive level of knowledge. The basic recognition that certain effects are traceable to certain causes is something every child is capable of. Once it has experienced such a recognition, it continues to seek out new causal relationships in its perceived world. Where in its world it finds such relationships depends to a great extent on the people who help the child in its exploration. These people determine how far it can go in its climb up the ladder of knowledge. Many primary caregivers succumb to the temptation

to direct the child's attention particularly, or even exclusively, toward causal connections in the external world: "If you flip this switch, then the light will go on." "If the fuse is out or the power company isn't producing current or the circuit has been broken, then it doesn't go on." And finally, "Electrical current is produced when. . . ." In this way, nowadays, every child learns to trace certain observable phenomena in the external world back to specific causes. We owe all our knowledge of the cause-effect relationships in the world around us to the ability developed in this way.

Success makes us blind, and excessive canalization of our thinking into cause-and-effect relationships has its price. People who stay stuck on this level of cognition sooner or later come to regard the whole world as knowable, and also everything that they have come to know as a simple cause-effect relationship as doable. This holds for violent criminals as well as for unscrupulous businessmen, politicians, and scientists.

At some point, however, most people discover that the majority of the phenomena of the external world come about through a number of causes working together. And so normally every person arrives some time or other at the (often painful) knowledge that a certain cause that he or she has set in motion in order to achieve a particular effect has set off a whole chain reaction that produced effects that he or she did not foresee.

Then from this knowledge arises the further knowledge that the perceived phenomena of the outer world are the result of interactions that are complex, hard to comprehend, and often unpredictable. On this level, the recognition of complex, mutually conditioning relationships appears. Every person who has reached

this stage inevitably comes to see himself as limited in the freedom of action he previously thought he enjoyed. From then on, in order to get better at assessing the unintentional consequences of his actions, such a person must work with ever greater care and circumspection. There are people who consider themselves "big shots," who will not tolerate such limitations on their freedom of action and who therefore choose to remain standing on the first rung of the ladder of knowledge. It is not unusual for such people to cause considerable harm through their one-sided, goal-oriented actions.

All others, once they have noted the unintended consequences of actions of theirs, have to ask themselves if they want to continue behaving as they have. Such people are now on the third and highest rung of the ladder of knowledge, the rung of self-knowledge.

including in oneself!

This rung is most easily reached by those who have had occasion early on in their lives to take notice of the effects of their outward-oriented actions on themselves, on their bodies, and on their brains. Most of these people understand fairly soon that everything one does leaves a trace—including in oneself. This is both a painful and a wholesome cognition, one that only a human brain is capable of.

5.4 *On the Ladder of Consciousness*

In recent years scientists in the field of brain research have been providing more and more compelling evidence that all our behavior, our highest rational functions as well as our emotional reactions, are based on certain neuronal processing activities that go on in

our brains. Highly complex activities such as perception, memory, planning, decision making, and even intuitive feeling and evaluation depend on an equally complex foundation that is at once tremendously intricately networked, yet material. This holds true also for the all-important attainment that is generally held to distinguish human beings from animals: consciousness.

By consciousness we mean the ability to be aware of our own feelings and perceptions, our "being-in-the-world." Here the primary processing activities on which the brain's functions depend themselves become the object of cognitive processes, and the results of this meta-analysis are represented once again on a higher level. In order to develop consciousness, the brain must be able, so to speak, to observe itself. By building up meta-levels on which internal processes are reflected and analyzed, a brain can arrive at the point of being conscious of its own perceptions and intentions. It can grasp the state of what it has become and its role and place in the world. This ability has been developed to different degrees by different people. What level of consciousness a particular person can reach is inextricably bound up with how high he has been able to climb in the course of his life on the ladders of perception, feeling, and knowledge.

Typically, both on the level of human history as a whole and on the level of the personal history of any individual, the ladder of consciousness begins with the appearance, out of a dreamlike state of concrete identity with the life of the body, of a small kernel of inner experience that grows and becomes progressively clearer and more autonomous. With the emergence of this experience the primal stage of mythical consciousness is left behind. Through a proc-

ess of step-by-step detachment from an original close bond with nature (the natural environment, early caregivers) arises both the possibility and the necessity of thinking about oneself. The emergence of this individual consciousness is at the same time an awakening out of a paradisiacal feeling of unity with the world. At this stage, a person begins to see himself as an autonomous, free, independently deciding and evaluating ego.

This process of transition is a difficult one that has yet to reach its end point in many cultures even today. There are always certain individuals who are the first to make the leap from the primal collective mythical stage of consciousness to the level of ego-related (self-) consciousness. Cultural and intellectual-historical evidence tells us that this transformation of consciousness began in the so-called Western cultural world about six thousand years ago. The first clear expression of it comes in the Gilgamesh epic, the tale of the heroic deeds and the personal life of the king of Uruk, written more than three thousand years ago. It took until the beginning of the Enlightenment for enough people to reach this stage of consciousness of their own egos so that this could become the basis of the prevailing (average) consciousness in the cultural world of the West.

As this ego-oriented (self-) consciousness became more and more widespread among the population, the period of time during which children could remain on the level of mythical consciousness decreased. For many of today's children, a slow and gradual onset of the process of becoming conscious of their own ego and their role and place in the world is a thing of the past. A growing number of children now quickly develop a kind of pseudoautonomous self-

*His observation
& interpretation*

centeredness that, in its many and varied manifestations, has come to represent a serious threat to the stability of Western society.

This errant development makes it clear how important it is for a person for a consciousness of his own to grow and mature gradually in and from himself. When a person has a certain view of himself and his place in the world forced or imposed on him by the circumstances in which he grows up, various attitudes and convictions arise, but no real consciousness of his own develops. It is true that with these attitudes and convictions he can live and deal with the world, but he will be unable to take full advantage of the potential of his human brain, that is, to become conscious of himself, of the state of what he has become, and of his "being-in-the-world."

Worse still, a person who passes through the phase of mythical consciousness in only a very abbreviated and one-dimensional manner will subsequently barely be able to develop from within himself an autonomous, self-reflecting ego consciousness at all. Without such a consciousness of his own, he will remain pretty much imprisoned by (and dependent upon) ideas that he has taken over from other people in an unconscious and unreflective manner. In relation to our metaphor of the ladder of consciousness, he will more or less fall off all the rungs. He will be programmed by others and thus will be subject to their manipulation.

It will be much the same for people who grow up in a cultural and psychological environment that prevents them from discovering their own ego. In many languages—Chinese, for example—there is no word at all for what we, entirely as a matter of course, call "I." In such cases, the individual can only describe and understand himself by representing his relationship to others. What can all too

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easily come about in such circumstances is an unreflective, collective consciousness that hinders the individual as well as his ego-consciousness from developing their potential.

Despite the strong forces at work to canalize the thinking of members of a community in one direction or another, a certain number of individuals have always succeeded in freeing themselves from the concrete circumstantial pressure of prevailing opinions and attitudes and managed to develop a general, all-encompassing conception of humanity and its place in the world. This is what is called transcendence, and the level of consciousness attained by it is transcendent (or transpersonal, or cosmic) consciousness. At the present time it is hard to imagine that at some point all human beings will reach this highest level of consciousness. But the fact that it has been attained again and again by individuals already makes it clear in principle that a human brain—and only a human brain—is capable of it.

5.5 *Practical Advice*

Having established the only direction a human brain can really take on the ladders of perception, feeling, knowledge, and consciousness, two practical questions remain open.

The first is: Why should a person take the trouble to embark on this difficult path? Why should he sharpen his senses and try to perceive changes in his outer and inner worlds as sensitively and precisely as possible? Why should he develop the capacity to put himself in the place of other people and to empathize with their

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feelings? Why should he try to know himself and ultimately even to become conscious of what is taking place in himself, conscious of who he is and how he has become what he is?

The answer to this first question is simple. If you take a difficult path, you begin to use your brain in a significantly more complex, multifaceted, and intensive fashion than somebody who complacently remains until his last gasp where he has either ended up accidentally or been dumped by the push and pull of circumstances. The type and intensity of brain use determines how many connections are built up among the billions of nerve cells in it, what patterns of neuronal connectivity become stabilized there, and in how complex a fashion these neuronal connective patterns interconnect with each other. Thus in making a decision about how and for what purposes you are going to use your brain, you are also making a decision about what kind of brain you are going to end up with. This may be an unpleasant and uncomfortable realization, but that is simply the way the brain works. We didn't come to have brains capable of lifelong learning just so that we could set ourselves up comfortably in life. We possess them rather, so that with their help, we can take steps on the path of development, not only at the beginning of our lives, but throughout them. Of course we are always free to choose to stay where we are at any given point, and from that point on to use only the neuronal circuits that have already been established in our brain. But the more frequently we use these circuits in the same old way, the better and more efficiently set up and worn in they become, and so that the choice to just stay as we are could very well end up being the last free decision we ever make in our lives. Once we have gone ahead and

spring will tend, even more than their parents did, to push away, not to perceive, or to suppress anything they take to be useless or cumbersome in achieving this goal as quickly and directly as possible.

Whatever the goal might be—assertion of personal interests; attainment of power and influence, of fame and recognition; the dominance of one's own tribe, people, or nation; the spread of a particular faith; the achievement of a political ideal; or the realization of a crazy idea—the results of these efforts is always the same, the path just varies in length. The more thoughtlessly a particular goal is pursued, the sooner one gets caught up in the tangle of problems that result from one's own shortsightedness and inattention. And if these consequences do not catch up with the fathers, they will catch up with their sons or grandsons. Sooner or later people will have to face the mess and ask themselves what has been the matter with the way they have been using their brains. In any case, they have become richer by one more experience. And through this, whether they wanted to or not, they have come one step closer to the second path, which begins where the first, the initially seemingly easy and comfortable one, so painfully ended—with the ability to call oneself and the way one has been using one's brain into question once more.

No one sets out on the other, more demanding path voluntarily. A person must feel compelled. And this path can only be entered upon if a person continually retests his behavioral patterns and attitudes toward himself and everything around him. The best approach is for the person to ask if what he considers truly important really is so important.

But this happens also when one is thoughtful. The thoughtfulness allows one to be open & w/o fear when one encounters the tangle.

Once behavioral patterns and attitudes have taken us over, we are no more conscious of them than we are of the power they exercise over us in forcing us to use our brains in a particular way. Inattention, for example, is a behavioral pattern that does not require much in the way of "brains." If a person manages to be more attentive and careful, then, she will automatically put more "brains" into whatever she perceives, into whatever she associates with her perceptions (what she activates in the brain in connection with them), and into whatever she includes in her decision-making process than somebody who just keeps relating with himself and the things around him in a superficial and heedless manner. Thus attention—care—is a highly essential factor in the service and maintenance of a human brain.

What attention and care can achieve in terms of the fundamental expansion of brain use on the level of perception and psychological processing can be achieved on the level of the neuronal connections that are responsible for our decisions and behavior through an attitude that we call gentleness. Through a lack of gentleness, that is to say, thoughtlessness and inattention, a given goal can be achieved in a hurry. However, complex neuronal circuits are not needed for this approach. Such an approach neither uses nor firmly establishes any.

If one begins to think what basic attitudes one must adopt in order to use one's brain in a more comprehensive, more complex, and more highly networked fashion, a whole series of concepts come to mind, many of which have almost begun to disappear from our current vocabulary: sensibleness, uprightness, humility, prudence, truthfulness, reliability, courtesy. All these are basic attitudes

successfully programmed our brains for a very specific kind of use, then as long as nothing else intervenes, the rest runs by itself, to the very end. By then, the chance to put in place program-opening structures, the chance for the comprehensive use and complex configuration proper to a human brain, has passed us by.

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If you do not want to stay stuck in your well-worn ruts of perception, feeling, and knowledge and thus lose your freedom, you have to choose the hard path and try—rung by rung on the ladders of perception, feeling, knowledge, and consciousness—to come closer to that which distinguishes a human brain from all others: the ability to keep calling itself into question, again and again.

This brings us to the second practical question. How does one achieve this ability and how does one hold onto it? Certainly not, as has been suggested in the media lately in such glowing terms (claiming to represent the latest findings of brain research), by occasionally going down the stairs with your eyes closed, smelling a flower, or surprising your colleagues with a new behavior pattern or a novel hairstyle. Just deciding from time to time to do something you ordinarily do not do does not bring about changes in the neuronal circuits in your brain. To really change the circuits, we must create conditions that will not only make it possible but actually urgently necessary to perceive more of what is going on around us, to feel these perceptions more thoroughly and deeply, to evaluate them in a more complex fashion, and above all, to think about them more carefully before we decide to do one thing and drop something else.

There are only two routes we can take to bring about these kinds of conditions, one comfortable and one uncomfortable. The comfort-

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urgently
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able route is the one we are already familiar with, the one regarding which we have already had the opportunity to accumulate a rich store of experience in the course of our development thus far. This is the path on which we simply just try to keep going, with all our mistakes and limitations. Unfortunately, as time goes along this path gets more and more tiresome, until we finally get completely hung up in the tangle of all the problems our limited approach creates. Only when it becomes impossible to keep going along on this path just as we have been doing, do we finally reach the insight that the way we have been using our brain has failed us. To call ourselves into question in this way is not only quite painful but also quite dangerous, especially if we have taken other people along with us on this path, and on top of that, if it has seemed to us for a long time that we were making really good progress on it. Success makes us blind, and communal success all too easily also blinds the people who are really the most open and see the best. Those people are the children who grow up in the community. With the help of their enormously flexible and learning-capable brains, they are in an excellent position to take over all the capabilities and skills, ideas and convictions of the people they grow up among. Of course, they most readily adopt whatever of all this seems the most critical to them for dealing with their lives. The more successfully the parental generation has progressed along a particular path by using a particular strategy, the more likely it is that their children will not only follow them on this path, but that later as adults they will lay out this path more efficiently and tread it with even greater resolve.

And since the more exclusively you concentrate on a specific goal, the better progress you make toward achieving it, these off-

collective consciousness is
connected consciousness

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that were regarded as worth aspiring to in times when brain researchers did not yet exist—to say nothing of complicated picture-producing technologies like computer-aided positron emission tomography, with whose help nowadays we can compare the brains of an attentive and an inattentive person and demonstrate the differences that result from the different ways they have been used).

A person can no more develop these attitudes all by herself than she can learn to speak a particular language or to read or write a book all alone. For these things, she needs other people who can read and write who can demonstrate these skills. And what is still more important, she has to have a close emotional relationship with these people. They have to be important to her—just as they are, with everything they can do and know and also everything they cannot do and do not know. She has to like them not because they are especially good-looking or rich people, but because they are as they are. Children can be open to other people in this way and love them without reserve, just for themselves. For this reason children most easily take on the attitudes and speech of the people they love. And sometimes adults too can relate to each other just as unreservedly and selflessly as children do. Love creates a feeling of connectedness and solidarity that transcends the person loved. It is a feeling that keeps spreading outward until in the end it includes everything that brought us—and all the people we love—into the world and holds us here. A person who loves in this expansive way, without reserve, feels connected with all things, and everything that is around him is important to him. He loves life and takes pleasure in the multiplicity and colorfulness of this world. He enjoys the

beauty of a meadow glistening with morning dew as well as a poem that describes it or a song that sings it. He feels a deep awe before everything that lives and that life brings forth, and he is sorely moved when any part of this is destroyed. He is curious about what there is to discover in this world, but it would never occur to him to take it apart out of pure greed for knowledge. He is grateful for what nature has given him. He can accept it, but he does not wish to possess it. All he needs are other people with whom he can share his perceptions, his feelings, his experiences, and his knowledge. A person who wishes to use his brain in the most comprehensive manner must learn to love.