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Zen and the Brain

The Construction and Dissolution of the Self

JAMES H. AUSTIN

Introduction

FOR CENTURIES, Zen training has been transforming the maladaptive self. Some changes occur in rare dramatic moments. Others, equally impressive, evolve slowly, incrementally. But what causes a growing brain to develop a dysfunctional self in the first place? And by what means could it later become constructively transformed? In the following sections, we ask: Which words stand in the way of our understanding? How does one go about constructing a self? What are its unfruitful aspects? Finally we consider ways that the meditative dynamic may fruitfully restructure the self.

Part I. The Semantics of Self

The central problem of understanding states of consciousness is understanding who or what experiences the state. Our theories evolve with the center missing; mainly the 'I,' the Witnesser.

Arthur Deikman¹

It is so obvious. A 'self' must exist. What else could make us consciously aware of events arising within us, or of external objects, facts or events? Indeed, when we look up the word, consciousness, in the dictionary we find it is defined with reference to that core of *self* back in the center. The definitions make no provision for the extraordinary, alternate states of consciousness, the ones which retain no subjective I inside them yet are still witnessed by an 'experiant' of some kind. Dictionaries, not surprisingly, have no such word as experiant. Here, let it serve merely to convey whatever experiences, in the absence of self.

Yet, the very notion of an 'experiant' invites disbelief. How could the brain so remarkably modify its awareness yet leave no subjective I inside to do the attending? We struggle to comprehend. Common sense tells us that just as someone who aspires is an aspirant, then some kind of ego-centric-I must still be in there having an experience, attending to it and being responsible for it.

Stuck in this conventional premise, we in the West have come to share Jung's interpretation: "If there is no ego, there is nobody to be conscious of anything. The ego is therefore indispensable to the conscious process . . . I cannot imagine a conscious mental state that does not relate to a subject, that is, to an ego."² Many familiar words like ego and id have now become a part of our doctrinaire Western psychological interpretations of self. This situation leaves us unprepared semantically to understand the dynamics both of ordinary everyday states and of various extraordinary kinds of Zen experience. Let us examine seven of these words, starting with ego and *id*.

Freud's notion of the ego served a useful purpose. Lending further support to it were the two other abstract domains he built nearby. They formed the interlocking, complementary triad: super-ego, id and ego. They are now so interdependent that it would be perilous to try to extract or modify any of them. To Freud, the three were not mere conceptual abstractions; they were personality constructs based on the anatomy of the brain.³ The *super ego*, for example, was a "genuine structural entity." Functioning as an overall observer, the super-ego acted as the keeper of the conscience, as the upholder of societal ideals. It seemed the least ambiguous of the three, because it took on the familiar, straightforward roles of our parental authorities.

Borrowing the word, *id*, from Nietzsche, Freud regarded it as the repository of the instincts. Therefore, to Freud, the id held to no laws of logic, lived with sharp contradictions, had no concept of time, and did not deal in negations. "Naturally, the id knows no values, no good and evil, no morality. . . Instinctual cathexes seeking discharge—that, in our view, is all that the id contains."

Finally then, to Freud, the ego was that part of the id which had been modified by the practical realities of the external world. "In popular language, we may say that the ego stands for reason and circumspection, while the id stands for the untamed passions."⁴ The ego was the pragmatic executor. It organized our behavior along rationally effective lines. It drew on hard-won lessons of personal experience, constantly reminding the id: the real world has consequences. Freud viewed the ego, in a sense, as a rider who guided a horse, not yet tamed, toward a destination.

But later the term ego entered common parlance. Then it was diluted to imply only the *selfish* pejorative self. When someone we didn't like was also selfish, we said they had an inflated ego and were egocentric. Unfortunately, the word ego came to have two quite different meanings. This causes problems, because Zen strengthens the first, weakens the second.

When used in a positive Zen context, ego holds to its original meaning. It still refers to our capacity to deal confidently with life in a mature, realistic, matter-of-fact way.⁵ The I which Zen diminishes is not the pragmatic ego. If Zen were to remove such an ego, it would leave its adherents in a helpless "identity crisis."⁵ Rather, Zen training aims to strengthen the ego in its original Freudian sense.

This means that Zen is targeted at the other, negative, distorted self: the selfish I. Note that this selfish self was not something found within the ego portion of Freud's original triad. Instead, it would have been derived from and driven by the ignorant, passionate instinctual desires and aversions of the id-ridden self. It is this selfish self which Zen trainees first need to define, identify, and then diminish in ways that simultaneously encourage the flow of their basic ethical, compassionate impulses.

Long before Freud put forth his theories about the id, Taoists and early Buddhists had developed a perspective which may now begin to sound vaguely familiar. All around and interpenetrating us, said their teachings, was a natural open domain. Surprisingly, it unfolded into full view only when the self awakened. It, too, was governed by no laws of logic except its own. It, too, encompassed every possible sharp contradiction. Indeed, it knew neither good nor evil, and was even outside time. It had no function. It existed in its suchness or thusness. It was. It was so universal that it went far beyond the ken of earthlings who could only guess about it within the limitations set by their newlyacquired system of human values. Moreover, even when one 'awakened' to the presence of this Ultimate Reality, it was not a very special event. It meant merely that one had reestablished one's connectedness with what had always been present anyway.

No, said Freud. This was not reality. It was unreality. Still, he acknowledged that mysticism anticipated some of his own formulations. He admitted that "certain practices of mystics" could enable the "perceptual system . . . to grasp relations in the deeper layers in the ego and in the id which would otherwise be inaccessible to it." But, no person could grasp these deep relationships, he stated, unless their mystical practices (which he downgraded) had first upset "the normal relations between the different regions of the mind." Freud doubted that such abnormal procedures could ever put that person "in possession of ultimate truths, from which all good will flow." Yet, he continued, "All the same, we must admit that the therapeutic efforts of psychoanalysis have chosen much the same method of approach. For their object is to strengthen the ego, to make it more independent of the super-ego, to widen its field of vision, and so to extend its organization that it can take over new portions of the id. Where id was, there shall ego be. It is like reclamation work, like the draining of the Zuider Zee."3

Freud's psychoanalytical goals, if not his methods, came closer to Zen than is sometimes appreciated. Indeed, long before Freud, Zen training methods also encouraged the practical self to mature, to shed its excess psychic baggage and widen its field of vision. The training also helped to reclaim the passions from inappropriate conditioning, and so prepared the way to rechannel their energies along other lines. To understand how such complex processes might unfold, we need to find a fresh conceptual framework. If it is to be a useful model, it should begin by returning us to our simpler origins, to the way our infant brains first built up our notion of self.

Are we ready, today, to discuss religious matters in a neurological context? William James thought so. Nine decades ago, he had joined these two topics under the title, "Religion and Neurology" in the first of his twenty lectures.⁶ And, noting how knowledge had exploded in the Neurosciences, even the United States Congress, in a prescient moment, voted to call these concluding years of the 1990's *The Decade of the Brain*.

ZEN AND THE BRAIN

Part II. Constructing our Self

The person is a conglomerate of independently functioning mental systems that in the main reflect non-verbal processing systems in the brain.

Michael Gazzaniga⁷

On the playground, children are overheard arguing. One boy says; "Oh yeah? Who says so?" The second, jaw thrust forward, asserts: "Me, Myself, and I!" His language hints at the way each of us built our 'self' as a mental construct. Back then, our words may have first appeared in a different sequence, but these are close enough.

We erected our self using nerve cells and circuits as building blocks. It took years to assemble all these 'Tinker Toy' configurations. First they were linked at various deeper subcortical levels, then at superficial cortical levels. Each self now resides inside immense nerve networks. They code for a sensate physical body, feel visceral imperatives, and act in this world as though they would endure for decades. Early on, when our outer brain layer, the cortex, finally begins to convolute, it declares its strong bias toward vision. In the uterus, the fetus first wrinkles the visual cortex in the back of the brain. Thereafter, it favors those visual pathways which lead up to it. A three-month-old infant will cover these bare nerve fibers first with white layers of fatty insulation.

Only at eight months does the infant white matter mature farther forward, in the central part of the brain between the parietal and frontal lobes. Not until one year of age does the white matter of the temporal lobes become mature.⁸ These are rather long delays between milestones on one's road to full maturation. The delays help explain why, even when we have grown up to be a 'big' one-year old, our young brain can express little more than the bare framework of our final personal identity. Nor can it yet possess things personally. The reason is that it still lacks the personal.

But wait until around eighteen months! Now the long subcortical association pathways finally link all our lobes together. Now we make the elementary distinctions between *Me* and *you*, between Self and other. At this point we firmly stake our claim: "*Mine*!" Its vigor is unmistakable. Around this time our mental sets also develop other hard

edges. We resist violently if asked suddenly to change our routine. It is as though we had been asked to climb up, or jump from, a sheer precipice. Parents know this as 'negativism,' but it seems to have more the flavor of self-preservation rather than of aggression.' Somewhere between fifteen and twenty-four months of age we act self-consciously in front of a mirror.¹⁰ Then, the viewing child recognizes that a dab of rouge on the nose is an imperfection. It is quickly rubbed off as though it mars the image. The child's behavior suggests that some kind of a 'Me' is there to be looked at, and that an 'I' recognizes some 'bad' spot on 'My' nose.

Comparable pronouns then find their way into the behavior we call language. They enter in a group around the start of the 'terrible two's.' The order in which they appear is instructive. First comes 'mine,' 'me,' 'you.' Then 'I.'⁹ Also around age two we start projecting our mental states outward, imputing them to others. At two, we reach out to console mother with budding empathy when she pretends to be distressed.¹⁰ But we still don't establish a firm sense of our own continuing identity until somewhere between six and nine years.¹¹ By the end of the first decade, the brain has finally insulated over its wiring to a highly effective degree. Now, messages speed at the adult peak of physiological efficiency, leaping across the corpus callosum to link the verbal and nonverbal capacities of our two hemispheres.¹²

As children, we became aware that some kind of an insistent self lived deep inside us. To William James, this self began with a physical nucleus. It arose from sensations referred from our head and throat. These were surrounded by another vague layer of the thoughts that originated in, and were referable back to, our central person. Superimposed next were "self-feelings." These ranged from the heights of self-esteem to the most personal despair. Linked with such emotions were our instinctive behaviors: self-seeking and self-preservation.¹³

Our skin surface seemed the obvious outer boundary for such an 'inside' physical and mental self. Thus, 'other' began outside our skin. Other included everything outside us. Even now as adults, when you look at me and I look at you and we see the other person as 'other', it is because we each perpetuate that ancient boundary on the surface of our own skin.¹⁴ Meanwhile, a third person on the scene sees us both as 'other'. Clearly then, this distinction between self and other is a relative one. It is an artificial, self-imposed mental construct. Suppose some fourth human observer arrives, graced with rare total, enlightened, universal awareness. This observer, while still seeing different creatures, goes beyond our fictional distinctions to view all four of us as One. No skin barriers. After perspectives change, can experience itself change? Can a different mental set change experience?

You can demonstrate this to yourself at a far simpler level. Gently close your eyes and use one index finger to explore the skin of its counterpart. Start by moving the right finger, while letting the padded surface of the opposite index finger remain stationary. A sensation of shape arises. It is always referred to your *left* finger, the object. Your brain even projects this 'fingerish' shape out to a nearby location in space. Meanwhile, the skin of your right index finger becomes less sensitive when cast in its role of being the active, explorer. It develops merely the vague feeling of the formless rubbing process itself.¹⁵

Reverse, now, only the *role* of each finger. Let the skin areas rubbed together remain the same. This time, the left finger pad explores. Now, only the right finger takes shape. The whole perceptual experience "topples over" in the opposite direction. These two experiences can't coexist. Perception switches from set to set as an either/or phenomenon. Whichever stationary finger the brain decides is an *object*, it attends to as an object, and perceives it as such. Note that it even invested the 'object' with some spatial coordinates and depersonalized it, although it was your very own, attached finger.

As children, we reach out still farther into this world beyond our skin. We extend our conceptual and affective selves into it. As we construct these various selves, they *incorporate* many of the resulting interactions. Quite literally then, our experiences enter into links with this active conceptual extension of our corpus, our body. We incorporate people, objects and opinions, and tie them to ourselves with emotional bonds.

An example close to home may help appreciate this fact. Suppose you and one other teenager are now standing out on the sidewalk facing the same house. Imagine that, in your case, you have just returned after a gap of five years. You are now looking at *your* home—at the very home where you grew up. Stand there for several minutes, and intimate reminiscences of your home start to fill your thoughts. Imagine, next, that the second teenager had never lived in the house nor seen it before. Having no subjective ties to it, this other teenager sees it un-

sentimentally, objectively. Just another house.

No child who grows up in a home can do so. We can't be impersonal about *our* home. It grows on us, permeates us, as we grow in it. Its sentimental elements become near and dear. It is an interactive physiological process, one in which we extend our personal self—building on countless memories and associations—not only into the rooms and people in our house, but out into the yard and the neighborhood where we played with the other kids. All these become the stuff of our incorporating, possessive, reminiscencing selves. They become 'my house, my neighborhood'! William James noted that we extend this possessing 'self' to include not only family and friends, but clothes, bank accounts, and other possessions.¹³

Before considering other aspects of the self, let us first take stock of what now constitutes the core and layers of the Jamesian self. Having done so, we may then appreciate how much must drop out before they vanish. The center contains: 1) Self-preservation behaviors; 2) Sensations from the body, especially those from the head and throat; 3) Thoughts and other possessions or recognitions; 4) Self-feelings; 5) Instinctual self-seeking behaviors. Even this short a list defines a major psychophysiological agenda. If the flash of *kenshō* is to dissolve all such ties, it must extensively revise the way impulses usually flow in many circuits in the brain. Where do these circuits lie? All over.

Begin with a creature's first instinct, to preserve itself. Our basic survival imperatives come from circuits hard-wired into the stalk at the base of the brain, called the brain stem, and the hypothalamus. They prompt instinctual drives and cravings as powerful as the need for oxygen. Submerged in the dim depths, running out of oxygen, an irresistible urge thrusts us up toward the light at the surface to gasp for a lungful.

One major premise underlies defensive behavior: a vulnerable creature exists who must be protected. No moat, battlements or castle keep would be necessary unless someone inside might be harmed or possessions might be stolen. Primates mobilize their defensive behaviors along an irregular perimeter. It includes the central gray matter in the midbrain, the hypothalamus, and the amygdala over in the temporal lobe nearby. These sites are like fortified strongholds disposed along some archaic Maginot line. No primal fears subside until their deep bunkers are neutralized or bypassed. Being self-centered is nothing to feel ashamed of. It is everyone's lot, built in at many sentient levels which feed into this visceral core. Some of it began with that early bias toward the experience of seeing. When we turned around as a child, the world did move. We were then the axis of a turning world. We are still. Whenever our head and eyes move, our brain's 'accessory optic system' registers and adjusts for the way the visual image of the outside world slips over each retina.¹⁶ We can't ignore the truth implicit in these messages from our automatic visual mechanisms. They keep reinforcing our belief: we are definitely a physical self because we have an axis around which our head and body move. This visual system complements our vestibular apparatus. It sends us messages from the inner ear, telling us both about our selfmotion and about the way gravity pulls on us. Normally, automatically, the above cues do more than stabilize the position of our head and eyes in space. They prove to us that we exist.

Much of this early unconscious self-centering, then, is first built up within our brain stem. The accessory optic system feeds into its highest level, the midbrain. The vestibular system informs the pons next below, while proprioceptive impulses from the head and neck muscles enter the brain stem at multiple levels. Thereafter, these hidden, axial elements of our sensate physical self begin to filter into consciousness as our midbrain first integrates their impulses¹⁷ and then projects them up to the thalamus and cortex. At such higher levels, many networks synthesizing our notions of self finally become linked into an "omniconnected anatomical structure." Now, one facet of self information is not only distributed widely, but each part influences the others. The resulting distributed network integrates both our bodily and psychic selves.¹⁸

As children, we soon took all this for granted. We had a sensate self, which felt the thorn prick, a motoric self which jerked our arm away, plus another self which vocalized the "ouch" and witnessed these acts. Later, we sensed ever higher orders of self-awareness lying beyond these simpler 'selves.' Some of them quickly interpreted our present pain in the context of other previous unpleasant experiences. Harsh thoughts about 'bad' thorns came quickly. Still other images seemed to tap into a more positive, 'good', memory system. This remembering self might link sequences of pleasant autobiographical associations: the smell of roses or other memorable Proustian images, snapshots leaping

out of the album of our growing personal history.¹⁹

What the front part of our brain does is bring a special executive focus into all such vague self-oriented constructs.²⁰ There, in both formal and informal ways our frontal lobes help plan, project or restrain many of our body movements within space and time. The temporal lobes are different. Evolution shaped them into a unique meeting ground, one where the old 'smell brain' would come together both with the larger limbic system and with the neocortex. Nowhere else does the brain yield such a rich associative interplay. The temporal lobes convey instant recognition and deeper resonances of meaning. In doing so, each draws on circuits which link its amygdala, hippocampus and cortex into affective and memory-linked responses.

Within the temporal lobes we match the tempo and pitch of primitive, internal bodily feelings against those other sensations and events referable to the outside world. Here, we ask: do the events correspond, or are they mismatched and out of phase? To answer these, and many other questions, the temporal lobes must play various *interpretative* roles. Hence, as Williams observes, they are especially suitable candidates for representing that inner/outer interface where self meets other.²¹ Yet they do more than help to set up a self/other interface. They also contribute to the sharp distinctions between such additional pairs of opposites as now/then, good/bad.

Other novel functions emerge within the many connections which link the temporal lobes with the rest of the brain. These start pointing toward the larger "consciousness that 'I am,' not simply as an isolated human organism but as a part of the whole population of surrounding events which are taking place at the time, and which have occurred in the past." This "I am," this subjective consciousness, is but one of many facets of our self-awareness. As for the others, no Rosetta stone helps us translate from brain anatomy to those ever higher levels of cognition, the ones reflecting even farther down the long hall of mirrors that allow us to believe: "I am because I know."

This brief overview suggests that each young brain constructs a many-sided self only by tapping into many different functional levels. How, then, could this vast edifice disappear? For this remains the ultimate challenge: to explain how some parts of it fade in deep absorptions and the rest drop out in *kenshō*. Whatever explanations neuroscientists might venture in this decade are likely to be too complicated, and for two major reasons. The first is that the brain is itself too complex. Now, even tentative explanations require a comprehensive approach, on a scale to be continued elsewhere.²² The second reason stems from the fact that our descriptive words are inadequate. Misleading psychological and other jargon still stands in our way. It is time to return to simpler, basic words.

Part III. Some ABCs of the I-Me-Mine

To study the way of the Buddha is to study your own self. To study your own self is to forget yourself. To forget yourself is to have the objective world prevail in you.

Dögen²¹

We have met the enemy, and it is us.

Pogo²⁴

Long before Pogo, Buddhism was also very specific: we were our own worst enemy. Our major problems and discontents arise from within. At first, this notion is both hard to understand and hard to accept. Note how people shift instantly to the defensive whenever it is even suggested that their cherished personal self caused some difficulty.

Our goal in this section is to develop a descriptive system for some subtler aspects of this implicit self. The topic is not new. For millennia the question 'Who am I?' has been the central issue in Zen. To probe this topic is not to ignore the obvious fact that we each have an explicit (but transient) physical self or to pretend that it doesn't exist. It is rather to separate the sensitive implicit self into three different operational components. The three components themselves are not new. They are at least as old as we are, and we have just been re-introduced to them. All we have to do is listen to the children who have vocalized them since the start of their 'terrible twos.' Their operative words are: "I, Me, and Mine." In these three simple words lie our clues to how we constructed our invisible self. From here on, they are italicized to reflect the fact that they are so emphatically present and have such a telling effect. It serves our present purposes first to expand upon their unfruitful aspects, and only later will we cite a few of their many positive, constructive functions.²⁵

1. The *I*. The *I* is, and acts. No one of us can appreciate how big our own *I* is. Other persons know. Instantly, they recognize our sovereign *I* when it leans forward aggressively or remains so proudly vertical that it never bows.

2. The Me. The Me reacts. Things happen only to a me. It is that part of the self which, like any other sentient object, is acted upon, and possibly harmed.

3. The Mine. The Mine possesses. Everything I possess is mine. It is the grasping self which clutches outward at material possessions or at other persons. The Mine also has an inner turf. Its treasured intangibles include cherished opinions and fixed habit patterns.

The three components interlock in a tight complex, each complementing the other. For simplicity in discussion, we may call this descriptive psychological construct the *I-Me-Mine*. No neuroanatomy or physiology textbook will localize the nerve cells of this widelydistributed complex. Still, anyone who introspects soon identifies both its premises and its negative and positive features in their everyday life experiences.

Premises within the I-Me-Mine

| Ι | Ме | Mine |
|--|---|---|
| Exist physically. Feel. Am aware. Act. Know. Think. Personify roles. | Things happen to me, physically and mental- ly. | These thoughts and opinions, these body parts, are mine. These possessions are mine. Mine is the sole axis around which the rest of the world revolves. |

Let us begin with the I to amplify each feature of the complex. Usually, I is a noun. Then it stands for the person who at that moment imagines that s/he is a 'self.' (Sometimes I is a pronoun, as when it refers back to that one, named, person who happens to be reading these lines). Any dictionary contains so many negative attributes of the I that examples leap out when we start to leaf randomly through the A's alone. There we find the pejorative I described by words such as: adamant, arbitrary, argumentative, arrogant, and autocratic.

This almighty I is virtually perfect. It is also vain. It monograms and polishes its self-image. Can it ever, even rarely, fall into error? No. It makes excuses and shifts the blame. The fault must lie in unfortunate external circumstances, not its own imperfections. It also gets indignant, which means that it is already so self-righteous that it can wax indignant.

Our *I* is not simple. It carries many masks, *persona*, in its repertoire. Each rigid mask took many decades to construct or to conceal. The roles our persona assume stemmed not only from parents, siblings, friends and teachers but increasingly from media personalities. Collectively, they now form the mosaic of our personal identity, our self image. We shift from one role model to another depending on the circumstances.

We also adopted the attitudes of each persona. These shape how each 'role model I' should behave. Each now editorializes, insinuating pernicious attitudes which mold the conclusions we draw from the outside world. Labels such as 'liberal' or 'conservative' serve to remind us that people, given the same fact, come at it from different directions. Each of us has an agenda of highly personal biases which distort what we perceive and shape what we then think is true. The 'good' role models in the I are forever contending with their opposites, the 'bad' persona, the shadow traits.¹⁴ Therefore, implicit in every I are sharp contradictions, internal conflicts and anxieties.

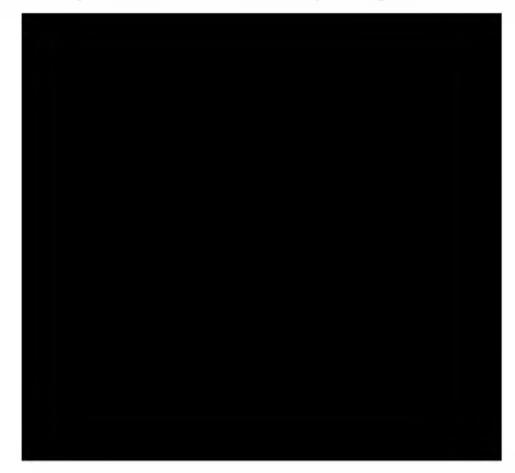
The pronoun, Me, stands for our self as an object. Included among the things that can happen to the Me are words in the B's such as: battered, besieged, blamed, and blushing. The Me is bothered by all the 'bad' events that seem to lurk in the outside world, things that go 'bump' in the night. They threaten to harm, expose or embarrass the Me. Mark Twain aptly exposed the Me's tender underbelly when he observed: "Man is the only animal that blushes, or needs to." Moreover, the Me is also on the receiving end of every self-inflicted, psychic wound generated by the inappropriate activities of its two other partners, the I and the Mine. Hence, the more we hypertrophy our I and Mine, the more their chameleon selves blend into things that the vulnerable Me can be embarrassed about or otherwise threatened by. Still, the Me likes to be praised, because flattery feels comforting and 'good.'

Finally, the adjective, Mine, stands for our grasping, greedy,

possessive self. Exemplified throughout every letter in the alphabet, even the C's serve to illustrate its major negative attributes: the *Mine clutches* out and *clings*. It ends up its own *captive*. It is self-indentured, because whatever is possessed, possesses. The more it gets, the less satisfied it is, and the more it *covets*. But the more it possesses, the more it stands to lose. It *cherishes* its outer physical image both in the mirror and in the flesh. Inwardly, it *clasps* tightly to its pleasurable sensations, thoughts and emotions. The *Mine* also overvalues its insights, however rarely they occur.

Our Mine starts out in deceptively simple fashion. It proceeds from the basic premise of the self/other split in perception. But this then implies that anything around the core of Mine, including my thoughts and opinions, must be defended. Easily threatened, fearing loss, it shifts the psychic load back and forth among its partners, leaving apprehension in its wake.

Next the Mine proceeds to enormously complicate its boundaries. It



A visual model for the way we construct the illusion of a self/other world. Our *I-Me-Mine* is a tightly-knit triad. It includes a sovereign *I*, a vulnerable *Me*, and a possessive *Mine*. Note that the arrows of the *Mine* not only thrust out toward what we possess in the outer world but curve back to attach themselves to our several inner notions of selfhood. extends its invisible tentacles of self out through and beyond our porous envelope of skin. There, they fasten onto other desirable elements in the outer world. The arrows in the figure below illustrate, schematically, that it thrusts in two directions. (FIGURE).

We remain ignorant about the *Mine*. We never actually see its long insinuating arms. But they have suction cups like those of an octopus, and the strength of their hold is beyond belief. Not until late in *kenshö* does one realize how pervasive was this insidious, intrusive, grasping process. Then, astonished, the experiant discovers the extent of the *Mine*. All its cut layers seem to lie exposed on either side by that deep stroke of insight-wisdom.

Training in Zen means learning to identify one's *I-Me-Mine* complex. It involves reaching down through one's own efforts to pull out its prolific roots. It means abdicating the sovereign *I*, abandoning the ramparts defending the *Me*, and abolishing the enslavement to the *Mine*. One *kenshō* doesn't accomplish this. The whole complex got off to a long 'headstart' when we were children. It is a triad expert at sabotage, camouflage and denial. We underestimate both the vast circuitries dedicated to support it and the widespread problems they cause. As the *Hsin hsin ming* wryly understates it: "The Great Way is not difficult; just avoid picking and choosing." Not difficult? Just try to change one long-established habit! Try to surrender one firmly fortified opinion!

Innocent beginners come to Zen unaware of all their invisible *I-Me-Mine* fantasy world. For decades, their *I-Me-Mine* had carefully personalized everything to fit neatly into its own subjective frame of reference. The result is a plausible edifice as fictitious as was the old Ptolemaic view of the universe. Back in those early centuries, it seemed obvious that only Earth could occupy the very center of the world. Such an erroneous view demoted every other planet, Moon and Sun to the lesser status of orbiting around it.

Awakening in Zen comes after very long probing into the depths of space. Inner space. There, finally, when the abrupt shift occurs, it opens up into a whole new, Copernican paradigm. Not until Copernicus (1473-1543) did we appreciate the true way our solar system exists. Finally, its Sun, Earth, Moon and planets fell into their correct relationships, re-arranged as they really were and had been all along. The Copernican shift was the foundation of modern astronomy. It

enabled earthlings finally to get away from themselves and gain a valid universal perspective. No longer could one believe the deluded dogma of those who insisted they, personally, must be at its center.

Before proceeding, we need to address some other misunderstandings and fears that arise about Zen practice. They center around the five other terms remaining after ego and id. The words are: face, narcissism, depensonalization, derealization and zero.

Do only those in the Orient place value on 'saving face'? It is a Western delusion to think so. In fact, everyone feels vulnerable, uneasy at the prospect of being embarrassed. People in every culture construct a 'face' which must be saved, then attempt strenuously to save its image. In contrast, during *kenshö*, the experiant enters a face*less*, selfless state. This state affords the sharpest possible contrast with every psychological edifice that had been constructed before. No wonder it seems 'otherworldly' when looked back on afterwards. Yet it is simply the state inferred in the perennial koan dating from the sixth patriarch, Hui-neng: "Without thinking of right or wrong . . . what was your original face before your parents were born?" What does this mean?

Much of Zen may be thought of as the celebration in practice of those rare, brief moments when we return to our 'Original Face.' The phrase itself is but a pale metaphor. The metaphor refers to the fresh, unbiased viewpoints we assume each infant brain once had when it first related, with direct perceptions, to the outside world. Then, our awareness would have emerged from the basic ground of these immediate perceptions. Our unsophisticated brain, such as it then was, had not yet been conditioned. It had no hidden agenda, no library of experiences to be self-conscious about. Hence, we assume it would have registered solely the elemental perfection of some metaphoric Eden, as Eden originally was, before someone decreed that humankind must either have 'sinned,' 'fallen' or 'needed' to be saved.

So 'face' in the term, original face, is deceptive. It doesn't mean a literal face. It refers back to our 'true nature.' It is our elemental self, before we encumbered it with all the socially-imposed attitudes and behaviors which might try to judge our original self, or to cause it to be embarrassed. Of course, no traces remain of any such residues of the *I*-Me-Mine when the experiant encounters this 'original face' during kenshō. It is a state liberated from roles, embarrassment and possessions. Kenshō has no acquired face to save. It has only its original 'face.'

84

Where would a super ego acquire its pros and cons, its dutiful 'shoulds,' and weighty 'should nots?' In its 'thou shalts' and 'thou shalt nots' we recognize the familiar voices of our parents and of other figures in society. Could anyone else deliver such admonitions before these role models were born? No. Neither shoulds nor should nots could occur in any timeless era before any authorities had been born.

The beginner who first looks in from the outside at the surface of such a koan, and who uses only the intellect, sees only opaque nonsense. Opened up by insight, its riddle hints instead at that earliest wisdom of our original nature, at that inner state of absolute grace which simply sees things as *they* really are.

Greek mythology gave us Narcissus. We still pay homage to him with every sidelong glance at our face in the mirror. And it was another reflected face, also within our Western traditions, which gave rise to the rhetorical question: "Mirror, mirror on the wall, who is the fairest one of all?" The question seems to be the essence of *narcissism*, that value-laden word which suggests that the viewer is both neurotically absorbed in self and turned away from society. Some would say that when a mediator retreats into the posture of zazen it implies a similar inward turning, a mere preoccupation with what lies below one's own navel. Accordingly, they ask: don't meditative disciplines simply foster that other form of self-worship already well-known as narcissism?

People who seem self-absorbed don't necessarily have a narcissistic personality disorder. A decisive question is: how do they see other persons? Healthy people see others existing as separate persons. In contrast, narcissistic people view others as only grandiose or devalued extensions of themselves.²⁶ By such criteria, narcissism represents one more example of that old inturned, Ptolemaic way our *I-Me-Mine* learned routinely to distort other persons. True, Zen meditation does require enough self-discipline to renounce distractions and to make time for sitting. Yet the process aims not to magnify or adore the self, but to dissolve its fictions.

So, any notion that Zen might be narcissistic arises out of a profound misreading both of Zen and of narcissism.²⁷ Zen meditative practice leads the person out of narcissism, not into it. For whatever reasons students begin Zen, their path thereafter is progressively humbling. Stunned by the way kenshō's swift stroke has cut off all selfreferences, the residual diminutive i is doubly awestruck: a) by the enormity of what was lost, b) by how much soon returns. Thereafter, the meditative path leads increasingly outward, in the direction of selfless, compassionate service to others.

Another term, *depersonalization*, sounds more ominous. It describes what drops out on the near side of the self/other boundary. In depersonalization, experience loses its usual, highly subjective, private affective content. In samadhi and *kenshō* the experiant also loses personal self-identity. If Zen sponsors such depersonalizations, doesn't this imply that both Zen and depersonalizations are pathological?

Depersonalization experiences occur spontaneously in many well-integrated normal persons and last only a few seconds or minutes. Thirty-nine percent to forty-six percent of college students reported having them in studies published during the 1960's. The same figure of 46% was also found in a study of exceptional high school students.²⁸ Depersonalization episodes also occur non-specifically in association with neuroses and psychoses, and with or without exposure to drugs or to loss of sleep.^{29,30} Not unless they last longer, or are ongoing, are they classified as a 'disorder' which falls among the dissociative disorders according to the latest *Manual of Mental Disorders*.

In contrast, during *derealization* change takes place on the outside of the self/other boundary. Now the environment is perceived as unreal, estranged. Again, normal persons sometimes experience such brief feelings. Only when 'everything' continues to feel like an ongoing 'dream' is there cause for concern. Derealizations also lack specificity, and may even coincide with depersonalizations.

People react differently when their self/other perceptions change in these two ways. Most normals who still preserve their insight can adjust to the fact that their inner or outer reality set has been modified. However, depressed patients feel that a profoundly unpleasant subjective gap has opened up when they lose their personal, warm subjectivity. In their lack of feeling they perceive a worrisome distancing from other persons and things, a major loss.

Fortunately, the kinds of boundary changes that emerge from the meditative context are beneficially alloyed. Although one's implicit physical self does drop out in absolute, internal samadhi, the experiant is then absorbed into the highly positive connotations of a vast, silent space suffused with bliss. Kenshō's impersonal detachment plunges

even further, cuts off every last subjective root and branch. The Buddhist technical term for this is *anatta*, the state of non-*I*. It is perceived as being totally emancipated from every previous bond implicit in the *I-Me-Mine*. Moreover, *kenshō*'s insight places the experiant in what appears to be direct convincing contact with eternal Reality itself. The sense is of being impacted by immanent perfection, of finding Realization, not of losing it. *re*-Realization.

These other positive attributes bring to samadhi and kenshō a sense of awe and grace. They convey no uncomfortable sense of personal loss, no troubling sense of unreality. The other two old psychological terms don't fit. Perhaps impersonalization and neo-realization might be closer to the mark. They are certainly not 'disorders' in any psychiatric sense. No experiant finds these are unpleasant, either at the moment or in retrospect.

To its critics, Zen is but another obscure mystic way which leads into a series of fanciful delusions. If so, then Zen clearly cuts off other, major selfish illusions and delusions. They have sabotaged our better selves, the salutary attributes of our *I-Me-Mine* complex. Critics also claim Zen is radical nonsense, an attack on our hard-earned citadel of rationality. True, its assault is uncompromising. But its targets are again the arrogant-vulnerable-indentured aspects of the *I-Me-Mine* complex. There, Zen infiltrates ignorance and unreason, not rationality per se. Moreover, its assault is not a frontal one, nor is it one ushered in with fanfare. Rather is its usual approach the stealthy, silent one of attrition.

Indeed, as we consider next, it is usually only very slowly that meditation and daily life practice envelop and disarticulate the *I-Me-Mine*. In so doing, Zen training seems to whittle away at every nerve network which had been binding us up into our usual, fantasy world. First, it encourages a 'letting up,' which dampens the brain's previous overactivities. Then, by slow erosive action, in brief quickenings, and in rare larger events, the training becomes a process of 'giving-up,' of 'letting go,' of 'opening up.' In such ways does the training translate finally into processes that are receptive, insightful, and transformative. They enable adult brains to keep 'growing up,' and continuing to mature through stages now called 'passages.' Some of these are no less impressive than the earlier phases we went through as children.

It does not suffice to prune only a few outwardly visible branches of

the *I-Me-Mine* complex. They quickly regrow. What needs pulling out are the deeper invisible side roots of longing and loathing. They mediate our strongest desires and aversions. Their long meddlesome extensions penetrate personal depths that we are totally unaware of. What is curious is how remarkably selective and well-balanced the long-range Zen training methods turn out to be. What gets cut off are precisely those imaginings and emotionalties whose tones and overtones are maladaptive. Therefore, it is no calamity to surrender the counterproductive aspects of the *I-Me-Mine*. The result is someone not less human, but more humane.

Part IV. The Meditative Approach to the Dissolution of the Self

The Buddhist Way, the training in Buddhism consists mainly of breaking up I into its component parts and reassembling them in a manner that comes closer to what is truly human.

Irmgard Schloeg^[31]

I sat there and forgot and forgot, until what remained was the river that went by and I who watched. . . Eventually, the watcher joined the river and then there was only one of us. I believe it was the river.

Norman Maclean³²

Like pages piled into a thick hospital chart, our daily newspapers document society's major ills. Headlines vie with advertisements. Each races to see which will dominate: angst or a status-conscious consumerism. "I'm looking out for Number One" seems the prevailing slogan. Successive "Me" generations are swept up in the cult of never growing old. Greed is the creed, as each person grasps for "Mine." We have grown up in this contagion, and 'caught' our share of its insidious attitudes and life-styles. We are culturally imprinted, conditioned to respond in set ways toward life's daily issues.

All this poorly used circuitry wastes much energy. Its dysfunctional parts need to be redirected, neutralized or bypassed. Rarely does the flashing grace of *kenshō* help to get rid of them. Meanwhile, the dysfunctions yield, but only slowly, to three approaches: to daily life practice, shugyo; to renunciation, sila; and to meditation, zazen.

Wise teachers like Schloegl get right to the point: the old I must be transformed. The process is endless. Zen uses various approaches to reshape the input, de-fuse, and re-deploy the output of the *I-Me-Mine*. Here, we specify nine methods. The first three are more obvious; the remaining six are subtler and tend not to be put into words that stray into print. Others could be added. One encounters their origins in commonplace observations. Sometimes, while totally relaxing by a river, the self just vanishes. . .

1. The beginner to zazen soon discovers what ordinary thinking is: an agitated, Brownian motion of proliferating abstractions and associations. This incessant chatter of thoughts swirls around the axis of self/other concerns. It leaves little spare time for completely clear, calm reasoning. In contrast, meditation dispenses with discursive thoughts. It finally develops an awareness so clear that it goes not only beyond reasoning, but beyond unreasoning fears and other concerns. When Descartes observed himself think, he took Western rationality to what may be paraphrased as its logical conclusion: 'to think is to be.' Zen meditation drops this emphasis on thinking. It substitutes *being* in its place. It turns the statement around into: 'Not to think is to be.' Its *no-thinking* awareness will point ultimately toward the state of no-*I*, the major step in dissolving the *I-Me-Mine* complex.

2. Meditation teaches both brain and body its personal nuances, ways to help their mutual processes of relaxation flow back 'there' again spontaneously. One of zazen's functions is to ease the meditator so many times into the states approaching pure awareness that moving back and forth through this interface then becomes the natural, habitual, neurophysiological response. So natural, in fact, that the meditator no longer struggles to maintain a toehold back in that old subjective maelstrom, the one we call ordinary consciousness.

But the aspirant's great dilemma keeps returning: how do I still attend to what is going on without willfully engaging my *I-Me-Mine* in the act of paying attention? The river bank attitude helps. It is a 'letting go' of oneself, of letting things happen, of *not* striving. This means not trying either to do, or not to do, something. Finally, a state beyond trying arrives. Then, awareness just *is*, a simple matterof-fact awareness of awareness. But, before the usual turbulent stream of thought finally settles down into this deep calm mill pond, zazen will have exposed the meditator's every mental ripple, eddy and crosscurrent. They come . . . and go . . .

Meditation's third obvious role is to reduce sensory input and 3. feedback. Normally, these enter both from the special senses which confer vision, hearing, and balance, and from various proprioceptive systems. Proprioception means appreciating where one's own head, arms, legs and trunk are positioned in space. Proprioceptive impulses code for our physical self. They depend on sensate messages which enter the central nervous system through nerve endings out in muscles, joints, and tendons. All this sensory traffic quiets down when movements stop. Learning to relax, to sit quietly without wobbling or fidgeting, contributes to the general sensory deprivation. But meditation is more. It is a process of sensory-motor deprivation. Prolonged sitting also dampens the notion that one must always be a 'doer,' an acting-out, motoric self. Whenever all the impulses fade so far away that you don't feel where you are, it's another major step toward forgetting that you are, and that you must keep doing something.

Ordinarily, we constantly reinforce the sense that we exist, in space and in time. We answer the ever-ringing telephone, hear ourselves speak, see how other people react to us socially, keep looking at the clock. Meditative retreats shut down these avenues of sensory distraction. Retreats enable meditators to forget about the time, to remain silent, to keep interpersonal contacts to a minimum, even to avoid observing their reflections in the mirror.

In what follows next, we try to put into words six slower, subtle processes which also serve to erode the dysfunctional self. Less often enunciated, meditators know these as facts of experience especially during sesshin.

4. Formerly, each like and dislike generated a sticky web of thoughts. As renunciation and zazen cut back on these desires and aversions, the meditator is less often entrapped in their net. Zazen now becomes less distracted, plumbing deeper levels of no-thought, remaining there longer and more effectively.

5. Previously, it was difficult to engage in direct, unconditioned experiences. What stood in the way of genuine relationships with oneself, with other persons and with material possessions? That old backlog of ignorance, passionate longings and loathings. When these distortions recede, the mental landscape seems to expand. Within its expansion, a more mature introspective self keeps asking questions: 'how did I get this way? How do I stop?' Now introspection has both more time and space to penetrate the camouflage set up by the *I-Me-Mine*. Its self-scrutiny operates silently. Previously, it yielded only a few brief, almost subliminal insights. Now they dart in and stay longer, exposing the litany of one's defects with clinically unsparing objectivity.

Washburn draws a useful analogy to this process. It is in the way we behave after we return to our own country, having just lived in a foreign land long enough to have learned to appreciate its culture.³³ Once out of our original cultural mold, we then see our own country from a fresh perspective when we return to it. Now we go beyond merely 'looking at it,' and really start to see into it objectively, for the first time.

6. Meditators start getting much more critical about themselves. Off come the halos. They discover how strongly they resist not only zazen, but push against outside structure and self-discipline in general. Illuminating disclosures come from observing these struggles. They learn to diagnose their willful selves, their restless, finger-tapping selves, to 'see themselves as others see them.' They catch themselves flushing deeply when they are embarrassed. They discover that anger is the other side of fear—fear that the *Me* will be injured, fear that the *Mine* will be robbed of its precious possessions. They realize what it means to scold oneself after having done something foolish. From such clues they learn how hypertrophied their *I-Me-Mine* complex has become, and how much extraneous authoritarian input it has incorporated.

They also identify more readily their own pernicious "spiritual materialism," that impure "spiritual self-seeking" which William James cautioned against.¹³ The remedy comes from encountering a hard-nosed Zen which permits no indulgences. It allows no trainee the misplaced luxury of being proud of—and thus becoming attached to—any major experience which dissolves the *I-Me-Mine*. Instead, Zen sees each surrender of self as but one fleeting milestone on an endless pilgrimage.

7. Given the luxury of bare attention, and of quiet time in which to reflect, trainees at more advanced levels of meditation learn to take the long view. Experientially, the meaning of "This, too, shall pass away" becomes clear. Things are seen to be impermanent in practice,

not merely in theory. Major events fade. They come, and go. What is, is. What will be, will be. Finally comes the realization that to try to acquire, force or otherwise 'gain enlightenment' is the antithesis of the Zen approach.

8. Other realizations encourage the meditator: it is a relief first to distance, then to lose the self. *It feels good to do so*. The first of these surprising facts of experience comes when the beginner finds that thoughts actually do drop off in zazen, the bodily self fades, yet clear awareness persists. Other episodes later, during samadhi and *kenshō*, convincingly dissolve the self. Having safely lost the self in different ways, having lived through the realities of being 'there,' and of coming back, the aspirant no longer fears the outcome. In fact, there enters a mild amusement at the old sophistry which had once contended, within all ordinary logic: you can't have an 'experience' unless an 'I' is there to have it.

9. At first, sitting is something to "do." When clarity finally arrives later during sesshin, the meditator realizes what sustained attentiveness is. Still later comes the fresh perspective: zazen is not doing but being—being in a way that extends beyond the context of the mat to enter into the composition and appreciation of the miracle of daily life. Finally, the meditator comes to appreciate that just sitting, quietly, is in itself the receptivity that is enlightenment. It is a natural way to celebrate that simple awareness of the now, the one which Dögen long emphasized.

Along the way, becoming aware does more than help to cultivate insights. It makes it easier to hold on to them longer and to actualize them. Within such held moments of deepened introspection, during and after zazen, reside opportunities to sort things out, observe which options work better, figure out constructive solutions. As one's grasping self-interest shrinks, fewer situations then arise to conflict with one's basic ethical values. Observation then confirms the foregoing points. Daily life does flow more harmoniously whenever the meditator lowers the flapping flag of the sovereign *I*, shortens the defensive perimeter, and lets go of the clutching tentacles of personalized attachments.

Last on our list of deceptive words is zero. Arab scholars discovered the concept of zero only after they explored past the number, one. Mathematics then took a quantum leap. So too, is it a leap of equal significance in terms of personal growth when the Zen meditator finally discovers ground zero in the full open awareness of *kenshō*. Zero entered anonymously revivifies the world. Before, there were only the sheer precipices of self. Old attitudes and opinions had inviolable, hard-edged boundaries. Now, with vision renewed, vast new possibilities open up for restructuring the self.

We may briefly take the number analogy a step further. It is the frontal lobes which usually play major roles in the way we 'look out for Number One.' After all, theirs is a balancing act so difficult it must keep most frontal networks fully preoccupied. Their task is to anticipate the future. This means projecting our self-centered plans into it, while still socializing our aggressive and defensive instincts.

The trainee increasingly moves past this old selfish Number One, keeps going back through a neutral equanimity and finally on towards zero. Other latent generic behavioral options then open up. Energies formerly tied up in all the above circuitries are reclaimed, to be rechanneled in outward directions. Now the range of options expands. It encompasses more fruitful relationships with the rest of the biosphere, is more considerate of the *you*, the *we* and the *ours*. The big picture is seen into, its scope comprehended. Item: inhabiting our planet are 5.2 billion other people and countless other sentient creatures! If one fades away, the rest close ranks and move on.

But now we can almost hear our own protests welling up: "Give up myself? Give up my frontal lobes to a mindless oblivion? Become a zero? No way!" Reasonable objections. In theory, someone who just 'lets go' might fall into a careless, unfeeling, 'zombie-like' state, become an aimless drop-out drifting with the prevailing winds and currents. But no one engaged in authentic Buddhist training relinquishes either moral compass, anchor or rudder. Early Indian Buddhists already had in place their own right-minded ethical code, the eight-fold path. In China, Ch'an was further grounded both in the strong, family-based social ethic of Confucianism and in the deep Taoist respect for the natural order of things. Another foundation for meditative training is the sangha. It exemplifies hard work, and its fellowship of lay students and monks provides a cohesive support group.

Moreover, whenever we have spoken of 'zero' it has been as a very temporary and imperfect metaphor. In the Zen context, it always stands for losing only the unfruitful part of the self, not for a totally

vacuous personality. Zen training does not create a 'nobody' by wiping out all personality structure. It leaves undiminished the pragmatic ego in Freud's original sense—all those functions which help us manage situations in real life. Indeed, this maturing ego grows increasingly flexible and practical as it finds new ways to navigate both life's vicissitudes and the rigors of the Zen training process. Who, then, are the optimal candidates for meditative training? Not zeros, but persons already tough-minded to begin with, reasonably well-integrated, mature, differentiated and autonomous. As Engler aptly notes: "You have to be somebody before you can be nobody."³⁴

Zen training is an agency of personal change. It contributes a distinctive, fourfold ongoing spiritual encounter to the process of change. What it provides, first, is a setting so rigorous that it increasingly exposes how the person has been distorted by the *I-Me-Mine* complex; second, so open and free of distractions that the trainee's own insights then disclose how insubstantial and lacking in continuity these distortions are; third, so interactive that it provides ways to work off these dysfunctions in daily life practice; and finally, so intrinsically appealing that the aspirant tends to stay the course no matter what happens.

In such dynamic ways do persistent practice and rare insights help shrink the once almightly *I*, the vulnerable *Me*, and the intrusive *Mine*. Not gone entirely. Just reduced to manageable proportions. Just i-memine. This diminutive i-me-mine carries a very low profile. Smaller and streamlined, it no longer sticks up high to trip the positive functions of the mature ego. Neither is it windblown by every shifting, hot or cold breeze from the old instinctual self. Nor will it be overloaded by distortions imposed by other's guilt-ridden conscience.

In fact, some of its 'shrinking' is only apparent. Look beneath the ime-mine. There, at its base, we find that its many positive attributes have substantially expanded.³⁵ Especially does its living taproot, always spared, now probe deeper, grounded in ways that perceive life's deeper rhythms. Now, its lower case letter stand for the abc's of someone revitalized, more actualized, buoyant, and compassionate. Where did the hitherto partisan self of the 'Me' generation go? Into a simpler generic member of the 'We' generation, one for whom it will seem only natural to celebrate Earth Day every day. Delusional? It hardly feels that way. It seems like a return toward one's original state in the eternal scheme of things.

94

ZEN AND THE BRAIN

Still, progress is uneven at best. Backsliding occurs. Let strong passions arise, and the old italics and capital letters rear back up. With every such sobering reencounter, aspirants re-learn why so few have ever become perfectly evolved, self-less beings. Yet, endured year by patient year, the unfruitful parts of the complex grow smaller, their passions subside sooner. Each kenshō deepens, leaves less protruding.

From these perspectives, the Zen approach is a glacial, erosive process of *unlearning* and personal restructuring. It operates on what seems almost a geological time scale with only a few earthquakes thrown in. Any novice expecting a permanent 'quick fix' is soon disappointed. The aspirant, it turns out, was first learning simply how to unlearn. Then, the receptive process of relearning opens up. As it unfolds on its own, it seems to re-connect the person, with what are now new and vital relationships. Yet they are the ones which have always been there: life's ageless immanent, everyday miracles.

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²³ Hashida (No initial) (1972): Shobogenzo shakui. Chap. I. In: *The Buddhist Tradi*tion in India, China and Japan. (Ed: de Bary, W.) Vintage, New York, 371.

[№] W. Kelly: Saying attributed to his character, Pogo, in the King Features comic strip.

²⁸ The author is indebted to Irmgard Schloegl for her original stimulus in emphasizing the central importance of the 'I'. The present construct of an italicized *I-Me-Mine* evolved in response to the need to separately identify its major elements in operational terms.

²⁶ R. Satow (1979): Pop Narcissism. Psychology Today 13 (Oct), 14-17.

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