

Chapter 22

The Unity of Consciousness

Consciousness is still the instrument of action; but it is even more true to say that action is the instrument of consciousness.

Bergson

§ 1. The Principle of Unity of Consciousness

We have seen that the term Object denotes both the representation and the object represented as a unity. The Critical Philosophy begins with the Copernican hypothesis: objects conform to our knowledge rather than the other way around. What the Copernican hypothesis states is an epistemological principle: What we know and believe to be true of the world can only be known to us in a particular fashion, namely in the manner by which the data of the senses is processed and shaped by the peculiar functions that characterize the phenomenon of mind. There is no copy of reality mechanism, no *tabula rasa* upon which a *noumenal* ‘reality’ stamps its impress. What each of us knows of the world is the representation we make of it, and this is called Nature. When one tries to divorce a thing-in-the-world from the Organized Being who knows of this thing, that divorced entity is the thing-regarded-as-it-is-in-itself or *Ding an sich selbst*.

This *Ding an sich selbst* is a transcendent *noumenon* and whatever might be beyond the reach of our sensuous capacities for experience must remain forever dark to us¹; we cannot know the nature of what cannot be phenomenon. One might adopt an extreme attitude toward *noumena* of Nature, such as the solipsist position or the ‘mind of God’ positions of a Berkeley or a Spinoza, except for one case. For each of us, the *noumenal I* of transcendental apperception is the one *noumenon* the reality of which as a thing no one doubts (as the substratum of one’s own Self). The transcendental *I* is known only as *Dasein* without known pre-determined *Existenz*. The determination of the latter in my representations is my Self as phenomenon, i.e. the appearances I represent of ‘me’ to ‘me’ concerning my own *Existenz*. Some call the transcendental *I* ‘soul’ and speculate of its separateness from the corporeal reality of the body. To some, like Descartes, it is *res cogitans*, thinking substance for which the body is a vessel. Some hold that there is no ‘I’

¹ Scientific instruments can extend the reach of our senses but always merely to a new horizon.

distinct from the corporeal body, a materialist position in good keeping with the biblical pronouncement, “you are dust, and to dust you shall return” [*Genesis* 3:19].

But all such speculations are merely empty attempts to come to a rational idea of the *noumenal I*. They are transcendent (not transcendental) speculations of the *I* as *Ding an sich selbst*, and it is not within human grasp to come to sure and certain knowledge of the objective truth of such pronouncements. Empirical psychology has shown us how we come, step by step, from the radical egocentrism of the infant to the representing of a real division of our knowledge of Nature in terms of Self and not-Self (‘me’ and ‘not me’). Under Critical epistemology the *I* of transcendental apperception is the ultimate Subject which each of us, in making predications of representation, places as *I* think *x*, *I* feel *y*, *I* do *z*. All one’s judgments are made in relationship to and grounded in the *Dasein* of the *I* of transcendental apperception.

Kant called this acroam of transcendental apperception “the principle of unity of consciousness.” This principle is the first acroam of Critical epistemology following upon the Copernican hypothesis. All the Critical principles of Kant’s epistemology from the theoretical Standpoint ultimately rely upon this first acroam and draw their real objective validity from it. Therefore this acroam grounds the rest of the Critical theory. Now, in this treatise we have raised from time to time some empirical findings that upon first examination cast doubt upon the correctness of the principle of unity of consciousness. In particular, we have made mention of the idea of the so-called ‘split mind’ and the phenomenon of ‘secondary personalities’ in hysterical neurosis. We cannot end this treatise without examining these phenomena in regard to the acroam of transcendental apperception.

§ 2. The Idea of the “Split Mind”

We begin by returning to something brought up in Chapter 19 (§2.2), namely the relatively recent idea becoming popular in psychology and neuroscience of the “split mind.” Because the principle of unity of consciousness is central to the metaphysics of the Critical Philosophy, and because the “split mind” idea seems to strike against the core of that principle, we must deal with this. It might seem to some readers that this is something we should have addressed much earlier, perhaps as far back in Chapter 5. However, this would not have been possible. For, as we shall see, understanding the phenomena observed in “split brain” patients, as well as the phenomena once known to psychology as hysterical neuroses, means understanding the meaning of “unity of consciousness” from the practical Standpoint of *nous*. This we have not been ready to appreciate until now, when we have the Critical model of the Organized Being laid out before us.

The split-mind idea originates from studies of split-brain patients. These are people who have undergone surgery aimed at providing relief from severe epilepsy, and to appreciate the split-mind idea, we must first appreciate what is meant by ‘split brain.’

§ 2.1 Brain Organization, the Commissures and Commissurotomy

In anatomy it is conventional to describe the brain in terms of six defined major anatomical regions. These are called: 1) the medulla oblongata (‘medulla’ for short); 2) the pons; 3) the cerebellum; 4) the midbrain; 5) the diencephalon; and 6) the cerebral hemispheres. The medulla, pons, and midbrain collectively are called the brain stem. This is because the medulla lies directly above the spinal cord and is in some sense a continuation of the spinal cord. However, it has functions not associated with the spinal cord and is *ipso facto* regarded as properly belonging to the brain. The pons lies above the medulla and is in the same sense a kind of continuation of it. The midbrain is rostral (‘toward the nose’) to the pons, although for the non-anatomist this term is a bit misleading; if you are not a neuroscientist you would say the midbrain ‘sits on top of the pons.’ The cerebellum (‘little brain’) lies behind the pons. The diencephalon (‘between-brain’) is made up of the thalamus and hypothalamus, and it lies between the midbrain and the cerebral hemispheres. Wrapped around it, the midbrain, and the pons are the cerebral hemispheres. Figure 22.2.1 illustrates this anatomy in a midsagittal cross-section view. (‘Midsagittal’ means dividing the brain right down the middle along a plane that cleaves the head right between the eyes).

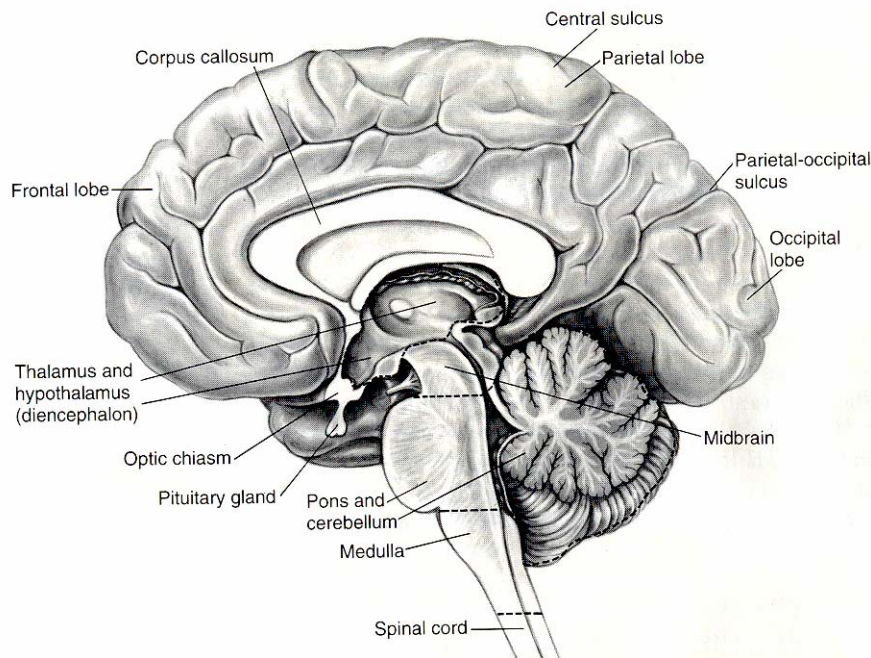


Figure 22.2.1: Midsagittal cross section view of the human brain.

The cerebral hemispheres are made up of the cerebral cortex (the ‘gray matter’ of the brain) on the outside, the underlying ‘white matter’ (which includes the corpus callosum), and three innermost deep nuclei (the basal ganglia, the hippocampal formation, and the amygdala). One side of the cerebral cortex and a cross-section of the corpus callosum can be easily seen in figure 22.2.1. The cerebral cortex is thin, averaging about 3 millimeters in thickness, but is structured in a highly convoluted pattern of grooves (such a groove is called a ‘sulcus’). The surface of the cortex on either side of a sulcus is called a ‘gyrus.’ The two sides of the cerebrum are ‘divided’ by a deep fissure, called the ‘interhemispheric fissure’ as shown in Figure 22.2.2.

Figure 22.2.2 is a horizontal section, dividing the brain along a plane that runs more or less along the same line as the top of your shoulders. The cerebral cortex appears to carry out most or perhaps nearly all of the so-called ‘higher’ cognitive functions of the brain, including processing sensory information and motor executive control. (The details of learned motor skills are handled in part by the cerebellum). The two ‘sides’ of the cerebral cortex are extensively interconnected by the underlying white matter (especially by the corpus callosum), which consists of myelinated axons (neural ‘wires’) running from cortical neural networks on one side to cortical neural networks on the other. In a commissurotomy the corpus callosum is cut down the middle in a plane defined by the interhemispheric fissure in figure 22.2.2.

Not easily seen in these figures (because of the way these sections ‘chop the brain in two’) are the deep-lying nuclei. Some of these structures, namely the hippocampal formation, parahippocampal gyrus, and various parts of the basal ganglia, can be seen in figure 22.2.2. Figure 22.2.3 illustrates the deepest of these structures, namely the hippocampus proper, amygdala, and

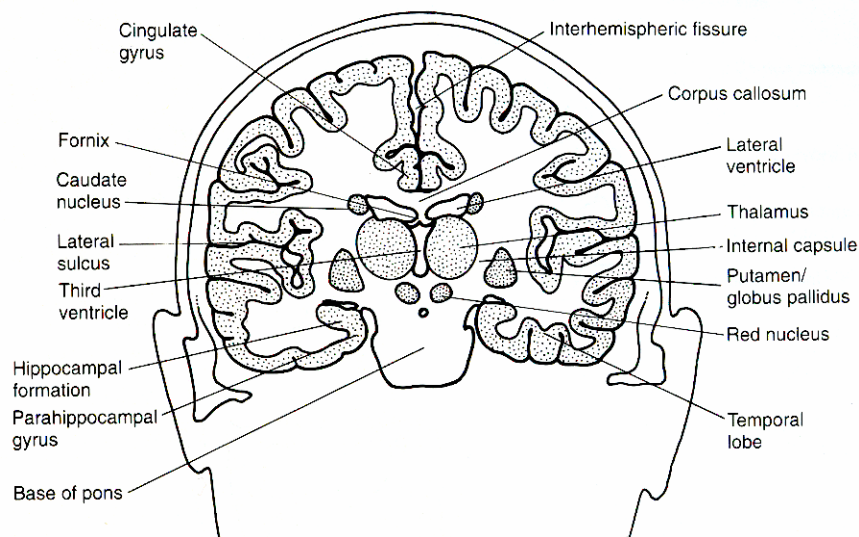


Figure 22.2.2: Horizontal section view of the human brain.

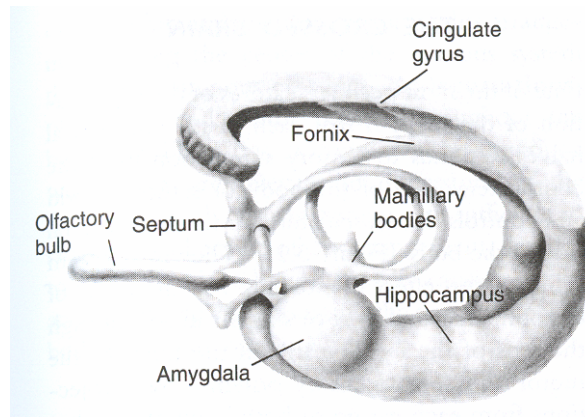


Figure 22.2.3: Structure of the limbic system. This subcortical structure forms two C-shaped structures that encircle the thalamus. The hippocampus lies deeper than the corpus callosum, while the cingulate gyrus (see figure 22.2.2) lies above the corpus callosum. The limbic system is heavily implicated in learning and in ‘emotions.’

fornix (as well as some other deep structures). Except for the cingulate gyrus these structures lie deeper down than the white matter of the corpus callosum (see figure 22.2.2). The structures shown in figure 22.2.3 are called the ‘limbic system’ and they are implicated in emotional responses (amygdala) and with memory (hippocampus). They form two C-shaped structures that wrap around the thalamus, something like the way a pitcher’s fingers wrap around a baseball. Like the other structures in the cerebral hemispheres, they come in pairs, one wrapping around the left side, the other around the right side, of the thalamus. (This is why they don’t show up well in the first two figures).

The two sides of the cerebral cortex, as well as the parahippocampal gyrus and the cingulate gyrus, are thought to interconnect with each other exclusively or nearly exclusively by means of the white matter. The corpus callosum is the major ‘network of telephone lines’ but there are other important pathways as well, including the anterior and hippocampal commissures and a structure called the massa intermedia. Precisely what information is transferred by which pathways and between which regions of the brain is not entirely certain.

The anterior commissure has long been presumed to play a minor role in interhemispheric communication. This view, however, is undergoing a radical revision in light of our recent studies² of interhemispheric transfer in patients with complete callosal sections but intact anterior commissures. This prominent interhemispheric pathway connects various regions of the limbic cortex by way of the phylogenetically ancient anterior limb, which is found in all vertebrates, and also connects major portions of the neocortical temporal lobes by way of the posterior limb, which seems to be found only in primates . . .

Behavioral studies in nonhuman primates have clearly shown the anterior commissure to be capable of sustaining high level interhemispheric visual communication. In man, however, the situation is less clear-cut. While the anterior commissure clearly transfers visual information in

² In this quote ‘recent’ meant 1977.

some clinical cases, it clearly does not in others. We have recently observed five split-brain patients . . . who sustained complete sections of the corpus callosum with the anterior commissure left intact . . . In four of these patients . . . the anterior commissure was found to be capable of transferring words, pictures of objects, and line drawings of nonsense figures. In the fifth, however, no transfer was seen.

The absence of transfer in P.S. is most readily accounted for by the fact that this patient suffered a unilateral temporal lesion at a very early age. This lesion may have disrupted or prevented the establishment of normal functional interhemispheric connections between the visual areas of the temporal lobes . . .

Clearly the anterior commissure has yet to reveal all of its secrets to us, particularly concerning the variability observed. Anatomically, it contains auditory and olfactory components, in addition to its visual fibers . . . As more patients with the anterior commissure intact become available, and as other clinical groups, such as alexics, are evaluated in light of these new observations, the story will undoubtedly unfold [GAZZ1: 20-23].

Gazzaniga and LeDoux, the authors of this quote, are among the world's leading experts on split-brain studies (and among the leading figures favoring the 'split-mind' hypothesis). How has the story unfolded in the quarter of a century since these words were written? As it happens, the story is unfolding less rapidly than one might have thought.

Split-brain surgery is a treatment for certain types of intractable epilepsy. Seizures in epilepsy are caused by an abnormal electrical discharge that leads to a reverberating or rhythmic discharge. In some individuals, the rhythmic discharge recruits tissues in both hemispheres. The split surgery involves severing all or parts of the corpus callosum, the major fiber tract connecting the two cerebral hemispheres, and on occasion other forebrain commissures as well. The corpus callosum is the largest fiber tract in the brain. The human corpus callosum contains about 200 million axons . . . Split-brain surgery was never performed at a high rate and was considered a treatment of last resort. The procedure is less common today, with the availability of newer and better pharmacological treatments coupled with advances in neurolocation and more focused neurosurgery. Further, a higher percentage of recent split-brain operations have involved only a portion of the corpus callosum . . . In practice, only a relatively small number of these patients are appropriate for behavioral studies. All the patients have had a long history of severe epileptic seizures, and many suffer from other cognitive deficits.³

The small number of clinical cases, coupled with the variability that the patients' diseases brings into the studies, makes it very difficult to advance scientific findings beyond the hypothesis stage, and even more difficult to obtain the experimental evidence that could command wide-ranging conviction among the community of neuroscientists. Data is obtainable through animal studies, but here there are two important facts pertaining to 'split-mind' hypotheses:

Even within mammals, interspecies variability in the visual transfer mechanism abounds . . . To the extent that different cortical laminae are associated with different neural functions, inter-hemispheric communication may have unique adaptive significance in various creatures, above and beyond the basic transfer function.

Striking differences can also be found in the topographic organization of the visual commissures.

³ G. Wolford, M.B. Miller, and M.S. Gazzaniga, "Split decisions," in [GAZZ2: 1189-1199].

In primates, the visual areas of the occipital and temporal lobes send their interhemispheric fibers through the splenium of the corpus callosum and the anterior commissure. This arrangement accounts for the observation that visual transfer can be mediated by either of these pathways in primates . . . In the cat, since the anterior commissure does not interconnect cortical visual areas, it is not surprising that efforts to show visual transfer via that pathway have been unsuccessful. What is surprising, however, is the observation that the splenium of the cat is only partially if at all involved in visual transfer . . .

While these huge differences in the visual transfer mechanism certainly do not negate the comparative approach, they nevertheless warn against wholesale interspecies generalizations. The same or similar function is accomplished by quite diverse mechanisms in different animals. Man is indeed not a fish or a cat [GAZZ1: 25-27].

Studies of split-brain human patients (and, of course, split-brain animal studies) have raised some of the most fascinating questions in all of cognitive neuroscience. However, given the situation just described, it is easy to see why, after more than five decades of scientific experience with split-brain situations, the cautionary note against over-enthusiasm raised by Kolb and Whishaw in Chapter 19 (§2.2) is well-taken. The brain is the most complex system man has ever undertaken to study.

§ 2.2 The Lateralized Brain Paradigm

I think it is fair to say that the ‘split-mind’ hypothesis gets its start from a cognitive model of the brain that we will here call the ‘lateralized brain paradigm.’ What is this paradigm? What were the implications raised by it in split-brain studies? And how ‘solid’ is this model? These are the principal questions we will explore next.

The foremost pioneer in split-brain research, until his death in 1994, was Nobel laureate Roger W. Sperry. Dr. Sperry wrote,

To start by looking back a little, recall that even a small brain lesion, if critically located in the left or language hemisphere, may selectively destroy a person’s ability to read, while at the same time sparing speech and the ability to converse. The printed page continues to be seen, but the words have lost their meaning. This condition typically follows from focal damage to the angular gyrus in the left hemisphere. It also results from lesions interrupting the neural input to this left angular gyrus from the visual or calcarine cortical areas. It is natural to conclude in such cases that the left hemisphere is responsible for reading while the undamaged right hemisphere, in contrast, must be ‘wordblind’ or incapable of seeing meaning in the printed word.

The same applies with respect to the capacity to comprehend spoken words. Focal lesions within Wernicke’s area near the base of the left temporal lobe or, again, lesions that disconnect this area from its input arriving from the auditory receiving centers of the cortex have been shown to regularly abolish the capacity to understand spoken language. Speech continues to be heard but the meaning is lost. Again, such cases seem to tell us that word comprehension is confined to the left hemisphere and that the spared right hemisphere must be word-deaf as well as word-blind.

The accumulation of many such observations of this kind where left, but not right, focal damage destroys the comprehension, as well as the expression, of language helped to give rise over the years to the so-called classic view in neurology of a dominant or major, left, language hemisphere and a subordinate, or minor, nonlanguage hemisphere. The minor hemisphere in addition to being unable to talk, and unable to write, and word-deaf and word-blind, was inferred by extrapolation to be typically lacking also in the higher cognitive faculties associated with language and symbolic

processing.

This classic view of cerebral dominance was further reinforced by parallel findings on apraxia . . . The left hemisphere accordingly came to be regarded as being also the leading motor executive for the direction and control of higher volitional movements and the major repository for the cerebral engrams of motor learning. Evidence for left dominance extended further to calculation and arithmetic reasoning. Thus, with few exceptions, the bulk of the collected lesion evidence up through the 1950s into the early 1960s converged to support the picture of a leading, more highly evolved and intellectual left hemisphere and a relatively retarded right hemisphere that by contrast, in the typical righthander brain, is not only mute and agraphic but also dyslexic, word-deaf and apraxic, and lacking generally in higher cognitive function.

It thus came as a considerable surprise in the early 1960s when tests on commissurotomy or ‘split-brain’ patients seemed to indicate the presence in the right, so-called ‘minor’ hemisphere of a considerable capacity for cognitive understanding and the comprehension of language, both written and spoken.⁴

“Considerable surprise” is probably putting it gently. This was not the first time, and it has not been the last time, that what seemed to be a well-founded model of brain function – what appeared to most neuroscientists in the 1950s and well into the 1960s as a “safe bet” – has been overturned by experimental research. Although Dr. Sperry did not say so, at least so far as I know, I suspect the motivation behind the original research on split-brain effects was not to test the cerebral dominance model but, rather, to assay what sort of side effects were going to attend the treatment of severe epilepsy through commissurotomies. Science does not get into trouble through what it does not know; it gets into trouble, as Will Rogers put it, by “what it knows that isn’t so.” What Sperry and his colleagues (including Dr. Gazzaniga) found flatly contradicted the prevailing doctrine held by essentially the entire scientific community at the time.

Our early studies with Michael Gazzaniga on these patients seemed to show from the start that the disconnected right hemisphere was by no means word-deaf as anticipated, nor either word-blind. Lateralized testing for linguistic abilities showed the right hemisphere to be largely mute and agraphic, but nevertheless able to comprehend, at a moderately high level, words spoken aloud by the examiner. This disconnected right hemisphere also was able to read printed words flashed to the left visual field⁵ – as demonstrated manually in each case by selective retrieval or by pointing to corresponding objects or pictures – and to go correctly from spoken to printed words and vice versa. Correct tactual retrieval by the right hemisphere was achieved for objects not directly named but only described with complex spoken phrases like “a measuring instrument”, “container for liquids”, etc. With the disconnected right hemisphere, these patients could also spell three and four letter words with cutout letters and could read such words presented tactually. These semantic capabilities of the right hemisphere have more recently been affirmed and extended in a comprehensive series of experiments by Zaidel . . . So strong was contemporary neurological doctrine to the contrary in the early sixties that Dr. Bogen felt obliged in good conscience to withdraw his name from our initial papers on language.⁶

Dr. Sperry elsewhere describes the way in which such tests are conducted so as to assure that information does not accidentally get presented to the left hemisphere in commissurotomy

⁴ Roger W. Sperry, “Some effects of disconnecting the cerebral hemispheres,” Nobel Lecture, 8 Dec. 1981.

⁵ Signals from the left visual field of the eyes are routed to the right hemisphere of the cerebral cortex.

⁶ *ibid.*

patients.⁷ Additional details are described in [GAZZ1]. By directly testing the left hemisphere, Dr. Sperry and his colleagues determined that the left hemisphere was cognitively ‘in the dark’, as it were, as to ‘what the right hemisphere knew.’ He summarized these results in the following way:

Each disconnected hemisphere behaved as if it were not conscious of cognitive events in the partner hemisphere . . . Each brain half, in other words, appeared to have its own, largely separate, cognitive domain with its own private perceptual, learning and memory experiences, all of which were seemingly oblivious of corresponding events in the other hemisphere.⁸

Now here is a first-class scientific mystery. Patients, e.g. stroke victims, suffering only small lesions in precise areas of the brain are rendered utterly incapable of abilities such as described above. But patients who had undergone the radical and extensive surgical ‘damage’ of a full commissurotomy – the complete severing of the corpus callosum and, in some cases, additional commissure tracts – are able to demonstrate in the so-called ‘retarded’ right hemisphere surprisingly high level cognitive abilities. True, these abilities appear to be much less developed than in the left hemisphere. But the point is that, according to the prevailing doctrine of the time, these abilities should not have been there at all.

The unexpected language capacities found in the right hemisphere after commissurotomy posed some controversial issues, the answers to which are still not entirely resolved. Very simply, the problem raised is the following: Why is it that the right hemisphere is able to do things following commissurotomy, such as reading, that it fails to do in the presence of focal damage in the left hemisphere? It has been suggested in answer that the commissurotomy evidence may be misleading because of an atypical bilateral spread of language into the right hemisphere correlated with the long-term epilepsy and associated pathology. A further criticism has invoked individual variation in view of the small patient group involved.

We have favored another interpretation which suggests conversely that it is the unilateral lesion evidence that has been misleading. The reasoning here says that left lesions in the presence of commissures act to prevent the expression of latent function, actually present but suppressed, within the undamaged right hemisphere. This interpretation assumes that the two halves of the brain, when connected, work closely together as a functional unit with the leading control being in one or the other. When this unitary function is rendered defective by a one-sided lesion, the resultant impaired function prevails with respect to both hemispheres. That is, the two continue to operate as an integral, though defective, functional unit. Only after the intact right hemisphere is released from its integration with the disruptive and suppressive influence of the damaged hemisphere, as effected by commissurotomy, can its own residual function become effective.⁹

While Sperry’s hypothesis remains just that, an hypothesis, such a fuller-partner role for the right hemisphere vs. the left would appear to be more consistent with a greater variety of facts than the opposing viewpoint – namely that of a ‘retarded’ automaton-like hemisphere merely, in a

⁷ see R.W. Sperry, “Mental unity following surgical disconnection of the cerebral hemispheres,” *Harvey Lecture*, vol. 62, pp. 293-323, 1968.

⁸ R.W. Sperry, *op cit.*, Nobel Lecture.

⁹ *ibid.*

manner of speaking, ‘along for the ride’ with who-knows-what function. Adding flavor to the mix is an additional interesting fact. Although most left-handed people have the neural structures most closely associated with language in the left hemisphere, it is estimated that approximately 25% of left-handed people have right-hemisphere speech.¹⁰ Why this is so – as opposed, for instance, to 100% of left-handers having left-hemisphere speech or 100% of left-handers having right-hemisphere speech – remains unexplained.

The two cerebral hemispheres are in many regards ‘asymmetrical’ – that is, they appear to carry out different information-processing functions. However, as Kolb and Whishaw pointed out (Chapter 19), brain function may be more a matter of ‘site’ than of ‘hemisphere.’ For example, the primary sensory and motor cortices appear to be identical on the two sides of the brain, and ‘lateralization’ of their function may be simply a matter of what inputs they receive from elsewhere in the body and where they project their outputs. For other functions there appears to be a definite asymmetry of function. As examples: 1) the visual system of the left hemisphere appears to ‘specialize’ in letters and words, while the right hemisphere appears to process complex geometric patterns (e.g. faces); 2) the auditory system of the left hemisphere appears to specialize in language-related sounds, while the right appears to deal with non-language environmental sounds and music; 3) the left hemisphere appears to specialize in verbal memory, while the right appears to specialize in non-verbal memory [KOLB: 205]. Once we have rid ourselves of the failed logical-positivist speculation that reasoning and thinking are based on language, the hypothesis that the hemispheres are dance partners rather than car (right hemisphere) and driver (left hemisphere) seems much more plausible.

This paradigm – that the hemispheres are both equally vital in contributing to ‘cognitive function’ but have specialized roles in a number of functions, especially language-related functions – is what we here call the ‘lateralized brain paradigm.’ It is a short step from here to speculating that two ‘well-developed and knowledgeable’ cerebral hemispheres implies the possibility also that each hemisphere has ‘a mind of its own.’ This, of course, is the split-mind hypothesis, which we are about to get to. However, before doing so there is one more factor we should take into account: How complete is the ‘split’ in split-brain patients?

Unlike other aspects of cognitive function, emotions have never been readily confinable to one hemisphere. Though generated by lateralized input, the emotional effects tend to spread rapidly to involve both hemispheres, apparently through crossed fiber systems in the undivided brain stem. In the above tests for self consciousness and social awareness it was found that even subtle shades of emotion or semantic connotations generated in the right hemisphere could be quite helpful to the left

¹⁰ C.B. Saper, S. Iversen, and R. Frackowiak, “Integration of sensory and motor function: The association areas of the cerebral cortex and the cognitive capabilities of the brain,” in [KANDa: 349-380].

hemisphere in its efforts to guess the nature of the stimulus known only to the right hemisphere. The results suggested that this affective, connotational or semantic component could play an extremely important role in cognitive processing generally.

The more structured and specific informational components of cognitive processing were shown to be separable from the emotional and connotational components. The former remained confined within the hemisphere in which it was generated, whereas the emotional overtones leaked across to influence neural processing in the other hemisphere. The evidence of this separability is in itself significant in regard to questions of the organization of the neural mechanisms of cognition. Also, since the affective component appears to be an eminently conscious property, the fact that it crosses at lower brainstem levels is of interest in reference to the structural basis of consciousness.¹¹

At this point in this treatise, this last remark should come as no surprise to us. It is also appropriate to point out that the lateralized brain paradigm and the extent and degree to which brain function is ‘localized’ and ‘specialized’ are far from being well-delimited facts. These hypotheses are models and, at present, appear to be rather simplified models compared to the sum of all the perplexing facts brain studies regularly bring to light. A now somewhat dated but nonetheless important summary of the issues involved has been given by Churchland [CHUR: 171-235]. She presents a far broader coverage of the relevant issues than we have space for in this treatise, and I highly recommend her book to the reader who wishes to understand these issues in greater detail. It is a well-written, hard-hitting, and important work.

§ 2.3 The Split-Mind Hypothesis

In the world of neuroscience the cerebral cortex is often accorded the status of a rock star. Phylogenetically, it is the ‘youngest’ structure in the brain. It is undoubtedly the most visible aspect of brain anatomy separating humankind from all other living beings. When one considers how ill-defined the idea of ‘mind’ is in psychology and neuroscience, and how historically the ‘cognitive functions’ have always received much more attention than the ‘merely affective’ functions, it is not hard to understand how the idea of ‘mind’ tends to get primarily associated with the cerebral hemispheres by many scientists and lay persons, and how ‘consciousness’ and ‘cognition’ likewise tend to be poorly differentiated by many people.

To begin our examination of the split-mind hypothesis, we start with one fact that stands above all others insofar as the idea of ‘split mind’ is concerned. It is this: The epilepsy patients who have undergone split-brain surgery come out of it as ‘one person.’ Wolford, Miller, and Gazzaniga tell us,

Split-brain patients offer a unique perspective on some aspects of conscious experience, and perhaps on the nature of consciousness itself. Roger Sperry once referred to the brain as “two separate realms of conscious awareness; two sensing, perceiving, thinking and remembering systems.” There were early fears that severing the corpus callosum was a bad idea and would lead to

¹¹ R.W. Sperry, *op cit.*, Nobel Lecture.

dire consequences. The operation might create a person with the ultimate split personality, just like having two persons inside the same body. One of the big early surprises was the seemingly complete absence of any splitness in the consciousness or personality of these patients. Most of the patients seemed blithely unaware that anything had changed in their mental processes, with the pleasant exception that their seizures had lessened or even stopped. Why don't split-brain patients experience dual consciousness? [GAZZ2: 1189]

This question contains the key first fact concerning split-brain patients. So far as the patient is concerned, he or she remains 'one person' and does not 'experience dual consciousness.' Of course, this statement presupposes that we know what the word 'consciousness' means – a topic we have discussed in detail in Chapter 5. Wolford et al. go on to list some guesses as to the explanation.

Possibly consciousness is housed in neural tissue that is completely lateralized to one hemisphere or the other. Perhaps consciousness is completely tied to language, and since language is generally lateralized, consciousness is as well. Perhaps the two hemispheres have worked out a division of labor such that consciousness follows the task or materials and that different hemispheres are consciously aware at different times [GAZZ2: 1189].

Or perhaps it is none of these. The idea of 'lateralized consciousness' is the hypothesis that split-brain studies appear to me to decisively *refute*. As for consciousness-completely-tied-to-language, we have already dealt with and dismissed that positivist presupposition. It did not take split-brain studies to rule this hypothesis out; by any of the accepted norms for declaring that 'consciousness is present,' the infant in the early sensorimotor stages of development – before the development of language – is 'conscious' when he or she is not asleep. As for 'consciousness following the task,' this seems to me to conjure up an image not far removed from the ghost in the machine. What, indeed, does "follow-the-task" even mean?¹² However, it is this third interpretation that underlies the split-mind hypothesis, as we are about to see. Reber's *Dictionary* defines the adjective 'conscious' and the noun 'consciousness' as follows:

conscious 1. *adj.* In its most general sense the term is used to characterize the mental state of an individual who is capable of (a) having sensations and perceptions, (b) reacting to stimuli, (c) having feelings and emotions, (d) having thoughts, ideas, plans and images and (e) being aware of (a) through (d). Note that when the term is applied to nonhuman organisms, the processes under (d) are generally not included, although all those that fall under (c) will be for all but the most primitive species.

consciousness 1. Generally, a state of awareness; a state of being conscious. This is the most general usage of the term and is that intended in phrases like 'he lost consciousness.' 2. A domain of mind that contains the sensations, perceptions and memories of which one is momentarily aware; that is, those aspects of mental life that one is attending to (see attention). 3. The component of mind available for introspection. This meaning is found in the older writings of the structuralists and other introspectionists. 4. In psychoanalysis, the conscious (the aspect of mind that encompasses all that one is momentarily aware of).

¹² Referring back to Chapter 5, the faculty of pure consciousness is not some 'localizable thing in the head.'

It is definition 2 that Sperry, Gazzaniga, and other proponents of the split-mind hypothesis appear to be using when they refer to ‘consciousness.’ This is an ontology-is-given-priority type of metaphysic inasmuch as it makes ‘mind’ a ‘vessel’ of some sort. In 1968 Sperry wrote,

With the application of more specific tests for right-left cross integration . . . it has been possible over the past ten years . . . to demonstrate a large variety of functional deficits.¹³ To forecast a little here, the results indicate very generally that the two disconnected hemispheres tend to function independently to a large degree in most of the higher so-called gnostic or mental activities. In other words, each hemisphere seems to have its own sensations, its own perceptions, its own memories, and its own cognitive, volitional, and learning and related experiences. After the surgery, these higher mental activities within each hemisphere seem to be out of contact with and cut off from the corresponding mental experiences of the other hemisphere.

In short, the split-brain animal (or person, as we shall see later) behaves in many ways as if it had two separate brains – each with a mind of its own. It should be noted in this connection that when one divides a brain in half anatomically one does not divide in half its functional properties in quite the same way. In a sense many of the brain’s functions are doubled more than they are halved because of the extensive bilateral redundancy in brain function wherein the majority of functions get double representation and are fully organized on both right and left sides. Released from its reciprocal cross controls each hemisphere is then free to carry out its respective functions. A number of experimental advantages found in this split brain, twin mind, one body condition has given a new lift to our brain lesion methods for the unraveling of cerebral organization.¹⁴

This is not to say that the split-brain patient is ‘smarter’ than he was before the surgery. Nor does it mean, as already noted above, that there are now ‘two persons’ where before there was only one. Indeed, the evidence appears to show that the split-brain patient behaviorally compensates for the loss of cross-section between the cerebral hemispheres and ‘re-integrates’ by other means what was ‘lost’ as a consequence of the surgery. Very stringent precautions have to be taken during split-brain studies to ‘isolate what is going on’ in the two hemispheres.

Note in passing that nearly all the cross-integrational deficits detected with the above procedures are easily hidden or compensated under conditions of ordinary behavior. The visual material has to be flashed in a fraction of a second to one half field to prevent compensation by eye movements. Defects in stereognosis are not apparent unless vision is excluded and associated auditory cues are controlled. The right hand must be kept away from the left and the test objects must be prevented from touching the face or head area. During testing the major hemisphere must be prevented from talking to the minor hemisphere and giving away the answers through auditory channels, and the minor hemisphere must be prevented so far as possible from giving nonverbal signals of various sorts to the major hemisphere. There are a great variety of response signals implicit as well as overt by which an informed hemisphere can cue in the uninformed hemisphere. Normal behavior under ordinary conditions is favored also by many other unifying factors. Some of these are very obvious, like the fact that these two separate mental spheres have only one body and therefore they always get dragged to the same places, meet the same people, see and do the same things all the time and hence are bound to have a great overlap of common, almost identical experience. Just the unity of the eyeball and its optics and . . . the conjugate movements of the eyes, means that both hemispheres automatically center on, focus on, and hence probably attend to, the same items in the visual field all

¹³ It appears that by ‘functional deficits’ Sperry is referring to what we can describe as “things one hemisphere ‘knows’ that the other does not” in a split-brain patient.

¹⁴ R.W. Sperry, *op cit.*, Harvey Lecture.

the time.¹⁵

Should a patient really be said to have a ‘cross-integrational deficit’ if such steps must be taken to ‘demonstrate’ a ‘split mind’? If someone tapes bandages over my eyes am I then ‘blind’? Is it to be said this demonstrates I have a “sight-mind” and a “mind for everything else”?

Gazzaniga and LeDoux describe in detail a number of experimental setups and precautions required in order to extract data on ‘what one hemisphere knows that the other does not’ [GAZZ1]. Their book is very interesting, and I recommend it to you. To save ourselves some time here, let us cut to the bottom line. These studies appear to establish, as much as anything is ever established in empirical science, that the split-brain person has objective perceptions that are correlated to their counterparts in representation in *soma* such that it appears that one hemisphere has objective representations that are lacking in the other. In the very, very limited sense of definition 2 given above for ‘consciousness,’ we can say there is a right-hemisphere ‘domain of mind’ that is distinguishable from that of the left hemisphere. The so-called ‘minor’ hemisphere is in fact not a lump of ‘mindless’ biomass that the Organized Being totes around like a backpack. Sperry’s pioneering studies led the way to proving this, and he well deserved the Nobel Prize for this work. Similarly, Gazzaniga, LeDoux and others have made important contributions in the quest for understanding ‘what is going on’ in the two cerebral hemispheres.

But does this establish *with objective validity* the idea of a ‘split mind’? Here the very care and rigor with which split-brain studies must be conducted argues *against* such a conclusion. The patient, if he is not suitably constrained by the test environment, spontaneously ‘re-integrates’ by other compensations what putatively has been ‘lost’ as a result of the surgery. What does this tell us? Are we to assume that each hemisphere is cognizant that the other appears to be ‘missing’? Metaphorically, does the left hemisphere ‘say’ to ‘itself’, “Now where did my partner go?” This is nonsense.

In addition to not losing sight of the fact that the patient spontaneously ‘re-integrates’ him or her Self, we should also bear in mind that commissurotomy does not ‘split’ the entire brain. The brainstem and cerebellum, for example, are left intact after the surgery. Indeed, it is known that splitting the cerebellum produces very debilitating effects (this is established by animal studies; no one has ever attempted to treat epilepsy by sectioning the cerebellum). Splitting the brainstem is fatal. Split-brain surgery does not in fact produce two brains in one body; it produces one brain in which commissures that connect the two cerebral hemispheres are cut.

It is an unfounded presupposition that ‘consciousness’ is a phenomenon that must be tied to

¹⁵ *ibid.*

the cerebral hemispheres alone. Dr. Damasio has proposed a wholly different, and much more detailed, model of the phenomenon of ‘consciousness’ [DAMA1]. In Damasio’s theory the phenomenon of consciousness can be broken down into contributing brain activities that involve not only the cerebral hemispheres but the brainstem and other structures as well. Damasio’s model distinguishes three facets that I tend to think of as the ‘functional features of empirical consciousness.’ These are: 1) the proto-self, which we briefly discussed in Chapter 19; 2) a ‘core consciousness’ which is described in terms of what he calls the ‘core self’; and 3) an ‘extended consciousness’ described in terms of ‘the autobiographical self.’ Damasio describes these ideas in detail in [DAMA1], and we will not try to reproduce Damasio’s book in this section. Suffice it to say that these factors in the overall phenomenon of empirical consciousness are ‘whole-brain’ factors in which the cerebral hemispheres play a part, but not the exclusive role nor even the most fundamental role. Damasio, in effect, uses the *practical* definition 1 above for ‘consciousness.’

The idea of ‘mind’ takes its objective validity as one of two merely logical divisions of appearances of the Self (the other division being ‘body’). When we go further to break down and describe these two logical divisions, we obtain *nous* (the idea of the *Kantian* substance of mind), *soma* (the idea of the *Kantian* substance of body) and *psyche* (the idea of the complete reciprocity in coexistence of *nous* and *soma*, which we regard in terms of animating principles). Mind-body reciprocity is a phenomenon in the appearances of the Organized (human) Being, and this idea under the objectively valid statement of the principle of emergent properties falls under the notion of community in our understanding. ‘Mind’ and ‘body’ are *coordinate*, not *subordinate*, ideas.

The very *fact* that the split-brain patient spontaneously ‘re-integrates himself’ is the fact that invalidates the split-mind hypothesis. For what does such ‘reintegration’ serve to accomplish if it is not the best *empirical* unity of consciousness that the patient can achieve in the presence of the new somatic organization he is left with as a consequence of the surgery? Because of the principle of emergent properties – which holds that for every representation in *nous* there is a corresponding representation of *soma*, and vice versa, in thorough-going community with each other – we must hold that alteration of the *soma* as a consequence of surgery (or disease) also means there must be some corresponding alteration in the representations of *nous*. But the idea of the faculty of *pure* consciousness has for its objectively valid representation (Chapter 5)

In Quantity: assimilation, accommodation, and equilibration;
 In Quality: receptivity, spontaneity, and feelings of *Lust* and *Unlust*;
 In Relation: determining judgment, reflective judgment, and practical judgment;
 In Modality: potential for perception, actualizing of perception, and power of pure Reason.

The *totality* in appearances of the split-brain patient shows us nothing less than that these powers

and processes of pure consciousness are intact, albeit altered in capability in ways that careful experimentation can uncover. But to *localize* these appearances of experiment and then to declare that this is the appearance of separate and independent ‘minds’ is not only contrary to the totality of appearances of the patient, but it is also, if I may be permitted a bit of a harsh simile, like saying the fact that I cannot read Arabic implies I am illiterate. It is an over-generalization of the facts. Here we call attention to the fact that what Dr. Sperry and others say is that it is “in many ways,” not “in all ways,” that the split-brain patient behaves “as if he had two separate brains.” Definition 2 of ‘consciousness’ is not a definition of ‘consciousness in general.’ The split-mind hypothesis lacks objective validity, both theoretically and practically.

§ 3. The Phenomena of Hysterical Neurosis

Now we must deal with those psychological phenomena, especially those in which the patient appears to exhibit so-called ‘secondary personages,’ that once were labeled under the name ‘hysterical neurosis.’ We brought this up in Chapter 5, where we argued that the phenomenon does not prove an actual ‘splitting’ of pure consciousness. We also recall that these phenomena are neuroses without an accompanying biological pathology that can be pinpointed as the ‘cause.’ What we must do here is provide the direction for a *positive* explanation.

§ 3.1 Conversion Hysteria

Conversion hysteria is the loss of particular sensory or motor function in the absence of any accompanying organic pathology. However, as we saw in Chapter 5 (§3.1), under hypnosis it is possible to demonstrate that the loss of sensibility or of sensorimotor function is, at least to the psychiatrist-observer, illusory. We have two facets of this phenomenon that must be addressed. The first is the possibility for the patient to ‘lose’ these functions in the first place. The second is the possibility of the patient ‘regaining’ these functions but apparently only by means of a ‘secondary personage’ of whom the ‘primary personage’ appears to be unaware. It is obviously this second phenomenon of appearance that speaks to the issue of unity of consciousness.

The ground for the first possibility is, I think, quickly describable. All adaptation aims at establishing an equilibrium between assimilation and accommodation. But the term ‘equilibrium’ refers to the establishment of a stable sensorimotor cycle in which the degree of *Lust per se* is negated. We discussed this in Chapter 15 (§7.5) under the title of the *Lust* principle of the adaptive *psyche*. Such a negation is a real opposition, in the *Widerstreit* sense, in the balance of *Lust* and *Unlust*. By way of further review, an object of *Lust* is a representation for which the

actual *Existenz* of the object is judged a necessary aim of the appetitive power of practical Reason. An object of *Unlust*, to the contrary, is a representation for which the actual *Existenz*, even in representation, is deemed necessarily contrary to the aims of practical Reason and, in terms of actions, the representation is ground for type- α compensation behavior. Real opposition to an affective perception involving the feeling of *Unlust* is, consequently, expedient for the categorical imperative of practical Reason.

Now, such a presentation of *Unlust* in reflective judgment is countered by motivation, which is the accommodation of perception. We do not say that the feeling of *Unlust* is an ‘emotion’; that is a term denoting an empirical phenomenon for which we have as yet no adequate *Realerklärung* (similarly, the feeling of *Lust* is not an ‘emotion’). What we can say is that in the overall manifold of Desires a presentation of *Unlust* is a presentation denoting an *Existenz* that appetitive power must oppose. In the case of conversion hysteria, it is the consciousness of a representation that has, somehow or other depending on the source of the original feeling of *Unlust*, been judged by *practical judgment* as contradictory to equilibrium. The expedient act when such a conscious presentation is made is to oppose its presentation *in sensibility*. The act, consequently, is an act of ratio-expression. This spontaneity in motivation is, of course, an action that fits well with what Freud described as the ‘censorship function’ of ‘repression.’

We may well ask, “What in the world could there be in some facet of experience that could have such characteristics in perception that its real opposition could take the form of a symptom of conversion hysteria?” How, for example, could a soldier’s terror of facing combat end up being exhibited in the form of hysterical blindness? It is beyond the scope of this treatise to try to give detailed explanations for every individual case that has been recorded. However, it is within our scope to explain the *practical ground* of such possibilities. First, we recognize that, whatever the particular case may be, in conscious representation it presents an experiential situation for which the Organized Being fails to find an equilibrium in adaptation by any other means than to drive the representation out of consciousness. Put another way, *taking the cycle to rupture* and establishing in its place a different cycle is the only way the Organized Being is able to find to negate the *Unlust* subsisting in the perception. In making this consideration it is helpful to bear in mind that neither practical Reason nor reflective judgment have any immediate interest in objective perception, whatever the appearance may be, and practical Reason has no immediate interest in affective perception either. Equilibrium, *however achieved*, is all that matters.

In the extreme case of conversion hysteria, what we must conclude is: through whatever was the series in motivation in attempted equilibration, the representation corresponding to the symptom has been judged, in the manifold of practical rules, as assertorically contradictory to

equilibrium. Practical judgment, in a manner of speaking, has made this perception ‘against the law’ of practical Reason; consequently, acts of real opposition to the perception become practically necessitated maxims of Reason.

However, any experiential circumstance under which it becomes possible for that perception to be presented *and equilibrated* sets up a different form of practical judgment in the manifold of rules. In plain terms, *the perception will be ‘legal’ if any way whatsoever can be found to include it in an equilibrium cycle*. To develop the symptom of conversion hysteria in the first place implies that the Organized Being was unable to find any such way. This is why, for example, the aid of a clinical psychiatrist can be required: to help the patient find a way to bring the perception into assimilation in some form. Freud and others pioneered finding methods – sometimes successful, other times not – of helping the patient ‘grope’ toward the accidental discovery of representational occurrences wherein an equilibration succeeded. Hypnosis was one tool Freud explored in the early stages of his work; another was mere suggestion (e.g. pressing his hand on the patient’s forehead and telling her that this would make her able to remember things that would otherwise be ‘too painful to remember’).

But what explains this strange phenomenon of the ‘secondary personage’? There are two factors here. The first has already been identified: finding some scheme – any scheme at all – in which the perception can be assimilated into a cycle of equilibrium. What this scheme might be matters not one bit to practical Reason. The second factor is *the multidimensional character of subjective time*.

We saw in Chapter 21 that the multidimensional order structure of the form of subjective time is necessary for the possibility of the *modus* of persistence in time. We also saw that between a branch-point moment in time and a join-point moment in time the empirical intuitions between distinct time-chains are not comparable. Such intuitions cannot be brought together in a representation of a single appearance because there is no corresponding *modus* in the form of time, neither reflexive (persistence), transitive (coexistence), nor antisymmetric (succession). But it is nonetheless possible for disjunctive time-chains to have established individually their own ‘private’ cycles of equilibrium. Under non-neurotic conditions it is unlikely that such ‘parallel’ chains of intuitions in time will be maintained for long (as seen by the psychiatrist-observer) because the regulative principles of the cosmological Idea regulate for absolute completion in the series of conditions while those of the theological Idea regulate for absolute unity of the condition of all objects of thinking in general. Bringing two chains together at a join serves logical perfection under these regulations. But logical perfection in concepts first serves practical perfection under universal law, and in the case of conversion hysteria it has been made a law that

the ‘repressed’ perception cannot be joined with other schemes at the disposal of the Organized Being. What the therapist has done is help the patient find a scheme in which equilibrium can be achieved, but this by itself does not mean that this scheme can yet be reciprocally assimilated with others. To use Piaget’s language, the scheme is not yet made ‘mobile.’

To the psychiatrist-observer, observing the appearance of the patient over a great many moments in the psychiatrist’s own subjective time, these disjunctive chains in sensibility are going to look precisely as if the patient is attending to two (or more) series of objective perceptions without being able to integrate them. What would be more natural than to describe such an appearance as ‘two selves’? We recall here that the ‘subordinate selves’ were described by James as “stable, monotonous and stupid” [JAME2: 137]. This description does not seem contrary to what we ought to expect from appearances of a disjunctive time-chain unable to be assimilated at a join in time with other time-chains.

And yet all of this is not symptomatic of disunity in *pure* consciousness. Under the explanation presented here, we would have to say that the Organized Being, in terms of *practical* Reason, is ‘very conscious’ of both time-chains (since motivation through ratio-expression is ‘seeing to it’ that these time-chains do not merge). That this consciousness is affective and autistic (in Piaget’s sense of that word) does not alter this. Indeed, when not taken to the severity of a neurosis, it may well be that the ability to maintain disjunctive time-chains is in some ways beneficial to the Organized Being’s overall state of happiness-in-general. A ‘normal’ person can walk, chew gum, and talk to another person all at the same time, giving his ‘attention’ to the conversation but maintaining the walking-scheme and the chewing-scheme ‘in the background’ (as the saying goes). When your author was a student in college, I had for a time an ‘absent-minded’ habit of tossing a pencil in the air and catching it while studying. (I was pretty good at it, too; I never once dropped the pencil). In point of fact, I was not ‘cognizant’ that I did this until one evening I happened to look up and notice both my roommates tossing and catching their pencils in mockery of me. I even asked them what they were doing, while ‘absent-mindedly’ continuing to do it myself. It took about a second or so for the embarrassing, “Oh, I see,” to ‘set in.’ Apparently they had found my habit too distracting and had set out to ‘cure’ me of it. The difference between ‘normal’ and ‘neurotic’ is that the ‘normal’ person has no problem joining the chains, while the ‘neurotic’ faces a situation where this joining is being spontaneously opposed.

§ 3.2 Dissociated States

Cases of conversion hysteria present in appearance the effect of a relatively simple disjunctive time-chain. Dissociated states – commonly described as ‘disowning’ some part of one’s identity –

present a more complex situation. Amnesia and multiple personality disorder (in the absence of brain pathology) are the two most widely known forms of appearance classified as this condition.

While the appearance is much more complex than in the case of conversion hysteria, the root of the condition is no different insofar as unity of consciousness is concerned. Let us recall that the term Self refers to that part of the Organized Being's manifold of concepts structured as a real division distinguishing his own *Existenz* from the rest of Nature (which is conceptualized as not-Self). Now, the concept of Self is not innate. Infants require a long mental development to come to the point where they place themselves as objects among objects. But this development could never take place if such a structuring of concepts did not somehow serve equilibration and the categorical imperative. Furthermore, for all its endurance one's concept of Self is not a stable and unchanging conception of appearances. A wisdom tooth, when it is in my mouth, is part of 'me'; but after the dentist pulls it, it's just a bad tooth and is 'mine' rather than 'part of me.'

The Organized Being makes the conceptual division between Self and not-Self because it serves formal expedience to do so. But there is nothing but this same principle of expedience standing in the way of continuing this division process. If, due to some traumatic event in one's experience, equilibration requires a logical disjunction be made under the general concept of Self, and if some concepts contained under the members of the disjunction cannot be joined as coexistent in time (transitive temporal order structure), the representation of Self-*Existenz* can be divided. This is, again, a rare event because, absent the *practical* judgment in the manifold of rules under which uniting the disjunctive concepts is made 'not legal,' the dynamical transcendental Ideas regulate for a more comprehensive unity of concepts than the multiple-personality case produces.

What we have in this situation might well be described as 'over-motivation.' Motivation is the accommodation of perception, and accommodation is always a differentiating act. Acts of judgmentation by which concepts are subsumed under more general concepts are acts of assimilation, which are always inherently acts of identification. But *equilibration* is always a balancing act between assimilation and accommodation and preserves the *totality of the structure* in the manifold of concepts. It is not a disunity in pure consciousness that dissociated state symptoms implicate; it is a disjunction in representation of *Existenz* under the general Object of the Self. Again, pure practical Reason has no immediate interest in concepts or the form of the manifold of concepts. In the logical function of disjunction in the manifold of concepts, the presentation of concepts under one member of a disjunction co-determines the non-presentation of concepts contained in the spheres of the other divided members of the disjunction. If the Organized Being can find no scheme of equilibration that can reciprocally assimilate different

submanifolds within the sphere of the concept of the Object of the Self, then these submanifolds must be made disjoint because the fundamental law of equilibration (the categorical imperative) will *make necessary whatever* is required to attain equilibrium.

§ 3.3 Closing Remarks

The brevity of this Chapter is due to the limited scope of its topic, namely the transcendental principle of unity of consciousness. The phenomena we have discussed here are those which in appearances stand as possible examples for refuting the principle. However, the principle of unity of consciousness is an *acroam* for understanding the Nature of the faculty of pure consciousness, not an axiom for the appearance of the phenomenon we call empirical consciousness. The key to understanding *empirical* consciousness is the nature of motivation (accommodation of perceptions) and the *acroam* of reflective judgment – i.e. the principle of formal expedience in Nature. Motivation in judgmentation serves equilibration through the synthesis of appetition in practical Reason. Equilibrium is achieved by negation (*Widerstreit*) of the intensive magnitude of *Lust per se* through conformity to practical rules *and through the construction of the practical rule structure*.

Rather than being seen as the disruption of unity of consciousness, the phenomena we have been discussing are to be seen as *maxims that preserve this unity from the practical Standpoint*. The state of equilibrium is understood as *Existenz* in a stable cycle in which innovations are not presented. Unity in consciousness as a principle means no more and no less than the capacity for the *momenta* of the faculty of pure consciousness (tabulated above) to produce conditions of equilibrium in the presentations of perception because this and this alone is the master criterion of the causality of freedom. Seen merely from the theoretical Standpoint, consciousness is only ‘the representation that a representation is in me.’ In this idea we find no concept of an absolute unity of consciousness, merely the matter of the meaning of perception. Consciousness regarded ontologically in objective terms can never be otherwise than a practical Object which, insofar as our Critical metaphysics proper is concerned, is an Ideal of Rational Physics according to:

Quantity – The extensive magnitude in an intuition is the aggregation of effects in sense of those practical acts of appetitive expression that are validated under the manifold of rules;

Quality – The degree of perception is a consequence of the regulation of sensibility through validation of acts of reflective judgment;

Relation – The rule of determination of relationships in perception is the enforcement of continuity in *Self-Existenz* by acts of validation in practical Reason;

Modality – That whose context with the actual is determined in accordance with general conditions of valuation is made necessary (necessitated).

Kant put his explanation of “what objective unity of self-consciousness is” as follows:

The *transcendental unity* of apperception is that through which all the manifold given in an intuition is united in a concept of the Object. It is for this reason called *objective*, and must be distinguished from the *subjective unity* of consciousness, which is a *determination of inner sense*, through which that manifold of intuition is empirically given for such a combination. Whether I can become *empirically* conjointly or successively conscious of the manifold depends on the circumstances or empirical conditions; hence the empirical unity of consciousness, through association of representations, itself concerns an appearance, and is entirely contingent. The pure form of intuition in time, on the contrary, merely as intuition in general which contains a given manifold, stands under the original unity of consciousness solely by means of the necessary reference of the manifold of intuition to the one *I think*, thus through the pure synthesis of understanding, which grounds *a priori* the empirical [synthesis]. That unity alone is objectively valid; the empirical unity of apperception, which we are not assessing here, and which is also derived only from the former under given conditions *in concreto*, has merely subjective validity [KANT1a: 250-251 (B: 139-140)].

When we speak of the principle of unity of consciousness (that is, the transcendental unity of apperception), we are speaking of what is *necessary for the possibility* of merely empirical consciousness. But this what-is-necessary, viewed ontologically, is the Object of the Ideal of practical regulation of judgmentation under the transcendental principles listed above. *This* is the unity served by all acts of judgmentation and synthesis in *nous*, and not the mere contingent perceptions of appearances.

It would be a triumph indeed for this treatise if we could go on to explain in great detail the Nature of the psychological phenomena discussed above. However, that explanation is a task for empirical science; only the ground of their possibility, and not their actuality *in concreto*, can be known *a priori* through Critical epistemology. Their empirical Nature must be probed by empirical science, and for that to be done with objective validity in accordance with Critical metaphysics proper we need something that does not yet exist: an applied metaphysic of mental physics.