HIERARCHIES, BOUNDARIES AND REPRESENTATION IN A FREUDIAN MODEL OF MENTAL ORGANIZATION. by William I. Grossman, M.D.¹
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ABSTRACT: Freud used a spatial model of mental organization, derived from his explanation of aphasia, as an organizing framework for psychoanalytic theory. He introduced the ideas of representation and overdetermination to describe relationships of the contents of systems that were joined to form, first, a hierarchical nervous system, then, mental systems. Freud used his basic model to organize aspects of mental function and phenomena, of interpersonal and social phenomena and some kinds of biological phenomena. His accounts of “metapsychology” and clinical psychoanalysis are similar to his description of the basic aphasia/nervous system model. Across the boundaries of mental systems, translation of the contents of one system led to their being represented in another. Subsequent editing and translation account for many properties of the systems. Repeating these operations and combining relatively simple relationships led to mental complexity. Freud described a mind that was a hierarchical structure of agencies, functions and fantasy organizations. This model unifies the more abstract aspects of the theory and its clinical applications. The mind pictured by Freud’s psychoanalysis is the self-reflecting mind and the mental activity of an analyst and of a patient in analysis.

"We know two kinds of things about what we call our psyche (or mental life): firstly, its bodily organ and scene of action, the brain (or nervous system) and, on the other hand, our acts of consciousness, which are immediate data and cannot be further explained by any sort of description. Everything that lies between is unknown to us, and the data do not include any direct relation between these two terminal points of our knowledge." Freud, S. (1940a [1938], p. 144).

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"There is a straight ladder from the atom to the grain of sand, and the only real mystery in physics is the missing rung. Below it, particle physics; above it, classical physics; but in between, metaphysics. All the mystery in life turns out to be this same mystery, the join between things which are distinct and yet continuous, body and mind, free will and fate, living cells and life itself; the moment before the foetus." Stoppard, T. (1989, p. 37).

It is well-known that Freud's topographical theory in the Interpretation of Dreams (Freud, 1900) shows the influence of his neurological background. Less familiar until recently is the fact that many of his later clinical formulations retain both the structure and, at times, the language of his early work, On Aphasia (Freud, 1891). (See also, Edelheit, 1969, 1978; Stengel, 1954.) In that monograph, Freud discussed the way the periphery of the body is represented in the brain. He then elaborated and extended this idea to give a complex picture of the formation of words, objects and their associations. In this way, he created a model derived from the spatial or topographical arrangements of the nervous system which he used as one of the organizing frameworks of psychoanalytic theory. The schematic spatial arrangements of the nervous system were the source of Freud's spatial images of the mental apparatus, occasional diagrams and his diagrammable descriptions of mental relationships.

Although Freud used other models and organizing concepts (see Grossman, 1986), and although there are aspects of psychoanalytic theory that do not fit neatly into this model, it seems to me to be a particularly important one. This model provides a thread of recurrently recognizable organization leading through a labyrinth of diverse conceptualizations. The fact that a basic model, with some variations, can be used to organize at least some aspects of mental function and phenomena, some aspects of interpersonal and social phenomena and some kinds of biological phenomena gives the theory cohesion and flexibility over a wide and complex range.

In the discussion to follow, I shall try to show how the organization of mental function called "metapsychology" is derived from the basic aphasia/nervous system model. In Freud's On Aphasia, the model served to explain how sensory information is organized in the brain and then in mental functions. This framework provided the template for a later picture of mental organization that could be used eventually to fit the clinical theories about the minds of analyst and patient in the analytic situation.

Freud's use of a single model was reflected in the use of the same term to refer to a series of related phenomena. This is one reason that Freud's terminology is imprecise, as critics have observed. Terms such as identification,
narcissism, masochism, repression require the specifications of primary and secondary in an effort to deal with the ambiguities. The point is that the use of the same imprecise term for related, though different, concepts is one key to the system Freud was constructing. It indicates that essential properties were present in a number of different contexts. The meaning of general or ambiguous terms became more specific in each context. The use of a single term, like the use of metaphors and analogies, shows the inner relationship between different meanings in a domain of related phenomena.

The term "transference" (Übertragung), for example, is used in a number of different senses, first in On Aphasia, then in the Interpretation of Dreams, and still later for different clinical phenomena. In all these cases, Freud's usage of a "transference" concept retained the idea of the substitution of one object for another (though not always in the psychoanalytic sense of object), the creation of a representative or representation, and a displacement of meaning and value.

Substitutions of objects and displacements of meaning and value are, of course, necessarily related. Freud emphasized one or another of these elements when describing the relationship between conscious and unconscious fantasies and the way the mental apparatus develops. Although we naturally attempt to restrict our clinical concept of transference to distinguish it from other related processes, Freud used the same (German) term for many different processes involving the substitution of representations and shifts of meaning and value. In this way, he created a picture of the mind as a hierarchical structure of agencies, functions and fantasy organizations in which complexity resulted from the combination of relatively simple relationships and operations.

This essay considers some aspects of Freud's theoretical accounts of metapsychology and clinical theory from the point of view of the core model first used in On Aphasia. The purpose of examining Freud's way of developing his imaginative description of the mind, based on this model, is to discover some essential features of the structure of mind in the picture he presented. Even though there have been obvious changes in psychoanalytic theory over time, his picture of the mind and ours are still closely related to a significant extent because of this underlying model.

Exploring the way Freud constructs his account of mind leads readily to considering the relation between the structure of mind that Freud discloses and the structure of his way of explaining it. In many respects, the two structures are the same, so that, in effect, he both describes and demonstrates mind as he sees it. Other authors have shown that various formal properties of Freud's texts, as well as metaphors and rhetoric, are important vehicles for conveying his
image of the mind (e.g., Derrida, 1978; Mahony, 1986, 1987). My purpose is to show that Freud presented a model by the use of rhetoric, analogies, metaphors, imprecise terminology and his reflections on theory-formation. Moreover, this model unifies the more abstract aspects of the theory and its clinical applications more than is generally appreciated. However, I do not intend to examine or argue the question of whether it is a good, adequate or desirable model. The aim is, first, to show convincingly that there is a latent model and, second, that when this model is recognized in Freud's work, the theory and the various stages of its development show a greater coherence. At the least, awareness of this basic model helps us in reading Freud and may, therefore, add clarity to discussions of Freud's ideas.

This line of thought implies, too, that Freud's theory about mental life was also a description of the way he thought as a scientist, his creative process. For this reason, Freud's ideas about theory-formation are also of interest, since theory-formation is a model of thinking about experience as analysts and patients do it. Therefore, it is at least plausible to think of Freud's version of psychoanalytic theory as a picture or an account of a person observing his own mental processes and arriving at a picture of his mind and his world. That is, the mind described by Freud's psychoanalysis is the self-reflecting mind and the mental activity of an analyst and a patient in analysis. One of the goals of psychoanalytic theory is to explain how one person's mind can be used to understand another person's.

For the purposes of this discussion, it is useful to think of Freud as trying to understand the workings of human irrationality and its relationship to reason in the context of ideas about adaptation and epigenesis. To this end, he was concerned with the way a person understands experiences as meaningful, how and in what form a person remembers and re-experiences what is meaningful, and how and in what form a person conveys this to another person, as in analysis. All of this may be conscious or unconscious. I am suggesting that this concern of Freud's and our thinking unifies the various aspects of psychoanalytic theory. This way of thinking about Freud's work is intended as a version of, not an alternative to, motivational and drive theories, structural theory and the role of adaptation and biology in Freud's thought.

Taking the idea of this organizing concern further, for the purposes of this discussion, conveying and understanding the meanings from "person" to "person" could include from unconscious to conscious, from patient to analyst and from oneself as a child to oneself as an adult, that is, as a genetic process.
In this way, the central issue is found in the different contexts explored by the theory.

**ON APHASIA: THE LANGUAGE OF NEUROLOGY AND THE NEUROLOGY OF LANGUAGE**

When Freud addressed the problems of aphasia (Freud, 1891), he was interested in the way speech is learned, the way sounds and associations make up words in the brain, and the way object-images and their associations are recorded and associated with words. Freud placed these problems in a chain that begins with the surface of the body and ends with the organization of mental functions and their expressions. The result was a hierarchical series of systems within which are clusters of elements. The systems are separated by boundaries. The contents of one system are transferred, translated, transformed as they are represented in another system. Neither the contents of the systems nor the hierarchy itself are linear in their organization. Altogether, we have systems of hierarchies, boundaries and representations that derive from processes of transference, translation and transformation.

At the beginning of his monograph, Freud attributed to Meynert the view that the periphery of the body is "projected" point for point onto the cerebral cortex, and then he argued against it. He suggested that:

"If the way in which the periphery is reflected in the spinal cord is called a 'projection', its counterpart in the cerebral cortex might suitably be called a 'representation', which implies that the periphery of the body is contained in the cerebral cortex not point by point, but through selected fibres ..." (p. 51)

He added that the nerve fibers did not remain unchanged from the periphery to the cortex. They did not pass through the gray matter, as Meynert had said. Freud thought that the fiber going into the gray matter terminates in a ganglion and other fibers exit after making associative connections with other sources of stimuli. Consequently, each time a fiber emerged from a nucleus, it had changed it's "functional significance" (pp.52-3).

He concluded that:

"... the fibre tracts, which reach the cerebral cortex after their passage through other grey masses no longer reflect a topographically exact image of it [the periphery]. They contain the body periphery in the same way as - to borrow an example from the subject with which we are concerned here - a poem contains the alphabet, i.e., in a completely different arrangement serving other purposes in manifold associations of the individual elements, whereby some may be represented several times, others not at all" (p. 53).
Freud also contrasted the idea of a topographical projection of the periphery onto the cortex with the functional organization in which the periphery was "contained", that is, "represented", in the cortex. Consistent with this idea, there could be two types of representation in the brain. Freud (1893) called the organic paralyses of cerebral origin "representation paralyses", and remarked: "... hysterical paralysis is also a representational paralysis, but with a special kind of representation whose characteristics remain to be discovered." (p. 163)

The relationship between the periphery and the cortex to which Freud gave the name "representation" in the aphasia monograph is a static, spatial preliminary version of "overdetermination" -- a term used in his monograph. More generally, overdetermination provides a picture of two organizations in which a second system revises the organization of the first according to some other functional schema. Aspects of each system may be multiply represented in the other, or not represented at all.

Now one of the interesting things about Freud's carefully argued presentation is that, even in this treatise on neuropathology, it is a preliminary to a refutation of the idea of a one-to-one correlation (analogous to a projection) between mental and physiological processes in the brain. Freud insisted that even the "simple sensory impression" or "simple idea" was simple only from the psychological point of view, but not from the standpoint of physiology. He asserted that terms like "association" and "perception" were psychological abstractions that had no simple, differentiated anatomical or physiological counterparts. He then reminded his readers not to confuse the physical with the psychic:

"But shall we not be making the same mistake in principle, whether what we are trying to localize is a complicated concept, a whole mental activity, or a

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2 For a modern echo of Freud (1891 [1953], pp. 53-56) see Kosslyn, S.M. (1988): "Perhaps the most fundamental insight of contemporary cognitive science is the discovery that mental faculties can be decomposed into multicomponent information-processing systems. Although mental faculties such as "memory," "thinking," "imagery," and so on intuitively may seem to be single abilities, they are not. ... visual mental imagery is being analysed into distinct processing components and ... these functionally characterized components are coming to be identified with brain structures ..." p. 1621.

The point being made here is not that Freud was right, since his comments certainly do not do justice to the problem. However, they support the principle that carefully describing a functional organization is a prerequisite to correlation.
psychical element? Is it justifiable to take a nerve fibre, which for the whole length of its course has been a purely physiological structure and has been subject to purely physiological modifications, and to plunge its end into the sphere of the mind and to fit this end out with a presentation or a mnemonic image?" (1891, Strachey translation, S.E. 14: 206; also, 1953, p. 55).³

He added that:

"The physiological events do not cease as soon as the psychological ones begin; on the contrary, the physiological chain continues. What happens is simply that, after a certain point of time, each (or some) of its links has a psychical phenomenon corresponding to it. Accordingly, the psychical is a process parallel to the physiological -- `a dependent concomitant'." (1891, Strachey translation, in Freud, 1915e, p. 207; also, 1953, p. 55).⁴

Freud had now described first the relation between the periphery and the brain, and then the relation between the brain and psychic processes. Using almost the same language in both cases, he had described each level as consisting of two systems whose contents are not correlated one-to-one but rather related by inexact parallelism. These are two levels of organization of sensory input on its way to becoming the idea of a word. ⁵

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³ Compare this with a quote from H. Lotze (1856), a philosopher admired and quoted by Meynert: "However far we pursue the course of the sense-excitation through the nerve, in however many ways we suppose its form changed and converted into ever finer and more delicate movements, we can never prove that it is in the nature of any movement so produced to cease as movement of its own accord, and to reappear as a bright color, a tone, as a sweet taste. The chasm is never bridged over between the last state of the material elements within our reach and the first rise of the sensation ... " (Quoted in: Ladd, G.T. [1895]).

⁴ This description of the relationship between the physiological and the psychical is repeated in similar language for unconscious and conscious in Freud (1940), pp. 196-7.

⁵ Cf. Freud, 1915e (p. 174-5), where the systems Ucs. and Cs. can be seen to belong to the series of systems just mentioned. On those pages, Freud considers the question of whether the transposition of an idea from the Ucs. to the Cs. involves a second registration. He returns to the question of the relationship between the mental apparatus and anatomy, stating that such relations exist. However, he adds that the different parts of the brain have unequal importance in relation to different parts of the body and to different mental activities so that the localization of ideas, mental processes, excitations, and consciousness is not possible. His discussion is a slightly altered echo of his words in Aphasia. He adds that "Our psychical topography ... has reference not to anatomical localities, but to regions in the mental apparatus ..." (p.175). Moreover, "... our hypotheses set out to be no more than graphic illustrations."(p. 175). His final
With this model, Freud avoided a point for point reduction of psychology to physiology. In fact, the real problem was to find the physiology to fit what was understood of the psychology of language and association (Marx, 1967). Freud noted that those who speak of localizing presentations in cells "... can say a great deal more about presentations than about the modifications [in nerve cells], of which no physiological characterization whatever has yet been reached ..." (Strachey translation, in Freud, 1915e, p. 207). The relationship between simultaneous events described psychologically and physiologically -- in H. Jackson's words, `dependent concomitance' -- could be explored in terms of representation and translation instead of anatomical or physiological localization. In this way, Freud argued for, and tried to give, a careful psychological description before attempting reduction to physiology or anatomy.

Freud's critique of the neurology of speech included his own ideas on analyzing language and its development. He was looking for a new way to picture brain organization combined with a different way of thinking about the speech/language functions. In Freud's conception of speech development, words are learned by being heard and spoken in multiple contexts. Freud insisted that there is no separation of the word from its associations since the sensory material of the word and its contextual associations together create the presentation of the word in the brain. When each of the auditory and visual sensory contributions reaches the cortex, it sends out radiating fibers that form a variety of nodes with the fibers of other sensory inputs. In this way, interconnected chains of associations are created. We shall see later that Freud pictured the organization of memory in hysteria in precisely the same way.

Thus far, we can discern some elements of the model to be traced in Freud's later work. First, there are the two topographies of the body surface and the cerebral cortex, joined by branching fibers with nodal interconnections.

conclusion on the double registration problem is important for my later discussion: the relationship between the Ucs. and the Cs. involves the introduction of words to the idea of the object in the second system (p.201).

The historian of science, Robert M. Young (1970), says, speaking of Herbert Spencer's influence: "His theory of psychophysical parallelism, through Jackson's `Law of Concomitance', provided the form of Freud's psychoanalytic theory and provided the position which Freud held on the mind-body problem from his first work (On Aphasia, 1891) to his last (Outline of Psychoanalysis, 1940). This aspect of relations among Spencer, Jackson, and Freud should be pursued as part of a more general study of the central role psychophysical parallelism has played in the history of neurology, psychiatry, and psychoanalysis." (p. 196.)
Second, the system formed by the periphery, the pathways and the cortex, is one part of another system whose second member is the system of psychic phenomena. We now have: periphery, pathways, cortex, psyche. The psychic system, or speech apparatus, has in turn its own organization, based on Freud's version of association psychology and the contemporary theories of language. The elements of this psychic system are various kinds of sensory impressions, motor images and their interconnections that go to make up the word presentations. Their connections can be represented diagrammatically, but they have no known material basis. That is, as Freud often said in later works, the newly constructed mental topography of images and presentations could not be reduced to an anatomical topography.

Following Hughlings Jackson, Freud called the relationship between the two main organizations, brain and mind, `dependent concomitance'. The processes of the brain have only some counterparts, or we might say, representations, in mental phenomena, just as the points on the periphery have only some representation in the cortex. If we now imagine a diagram of the systems, we can see that it is hierarchical and that each half of the brain-mind system is made up of components connected by pathways. In the cortex, these are nerve pathways, in the psyche, association pathways.

The speech apparatus contains various speech and language functions having their own nodes and pathways. The system of word presentations is then placed in a relationship with another system, the system of object presentations. Each of these systems, too, has its own organization.

An essential feature of the description I have just given is a hierarchy of systems separated by boundaries. Any two separate organizations are often related to one another as representations. Within each of the systems, a similar structure of chains of elements is repeated.

A model of this kind in which a number of systems having similar structure are combined to form a larger system having the same structure as the smaller systems is called a recursive model. A set of identical Russian dolls nested one

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7 Many of the writers on aphasia at that time used spatial diagrams resembling flow charts to describe the interruption of postulated brain pathways. Freud used similar diagrams to illustrate the idea of mental topography and to picture mental functions, both concurrent (synchronic) and temporally ordered (diachronic), as having the same overall organization, despite changing conditions and content, symbolic or concrete. This mode of conceptualization allowed for the pictorial representation of mental function along the lines of the hierarchical organization proposed by Jackson for the nervous system and by Spencer for all biological systems.
inside the other gives a rough idea of what this model looks like. Recursive models often involve feed-back, as does Freud's.

THE BOUNDARIES AND TRANSFORMATIONS OF THE ANATOMICAL MODEL

Until recently, On Aphasia and, in particular, Freud's "Project" (Freud, 1895) were considered to be primarily neurophysiological treatises. Now, it is widely accepted that these works employed the vocabulary of neurophysiology to clothe Freud's ideas on psychology, philology and philosophy, and his experiences with hysterical patients (see Forrester, 1980; Kanzer, 1973; Levin, 1978; Mancia, 1983; Marshall, 1974; Marx, 1967; Rizzuto, 1989, 1990; Solms and Saling, 1986). According to this current viewpoint, Freud cannot really be said to have abandoned physiological for psychological explanation since his theories of language and consciousness were not primarily neurophysiological in the first place. Because of this fact, Freud could change his terminology, apply his model to description of psychological issues and bequeath to the future the task of correlating or reducing psychological organizations to brain physiology.8

8 Freud's occasional statements regarding the relationship of his spatial model of the mental apparatus and physiological space show instructive uses of representation as a replacement for mechanism.

Freud, (1905c) says that "cathexis of psychical paths" with displacement of energy and persistence of traces of psychic processes is not the same thing as cells and neurons but would have to be represented in them. This important statement suggests that at least one relationship of the organization of the mind to the organization of the brain is representation. It is evident that "what is represented in what" is a question of point of view. In this case, reduction and representation coincide. pp. 147-8.

Freud (1915e): "Our psychical topography has for the present nothing to do with anatomy, it has reference not to anatomical localities, but to regions in the mental apparatus, wherever they may be situated in the body." p.175.

Freud (1939): "... the psychicial topography that I have developed here has nothing to do with the anatomy of the brain, and actually only touches it at one point. ... Of the phenomenon of consciousness we can at least say that it was originally attached to perception." p.97. The remainder of this paragraph and the next shows Freud working out his outline of the hierarchy beginning with sensation, adding the sensory contents of seen and spoken words to unconscious processes to arrive at preconscious and conscious thought, proceeding to speculation on the "translations" between systems occurring with very early trauma, conditions in animals, and finally the way innate factors -- "elements with a phylogenetic origin" -- operate.
In Freud's occasional discussions of the relationship between the mental apparatus and the brain, he noted the problems of reduction. His alternative was to describe the spatial character of his model and outline the hierarchy of systems he constructed in the context of his later theories.

One of Freud's earliest and most elaborate uses of the spatial model turned from the organizations of word and object associations in the brain to the organization of associations in the clinical study of hysteria. In his psychotherapy chapter of Studies on Hysteria (Breuer and Freud, 1895), he hoped to contribute to the understanding of the dynamics of ideation. The complex organization of clinical phenomena required spatial similes and was difficult to translate into verbal description. The problem of giving a verbal description of the non-verbal spatial model in presenting the theory was, therefore, similar to the problem of the psychotherapy of hysteria. In the case of psychotherapy, the task was to translate the symptomatic images and perceptions into verbal interpretations.

Here is a brief paraphrase of his account: In every case of hysteria there are collections of memories, or themes, as Freud called them. Each theme is arranged linearly and is also stratified concentrically around a pathogenic nucleus. This nucleus consists of "memories of events or trains of thought in which the traumatic factor has culminated or the pathogenic idea has found its purest manifestation." A third arrangement according to thought-content is dynamic. This is, Freud tells us, the linkage made by a logical thread or chain following a roundabout path "from the periphery to the central nucleus." It is a ramifying and converging system of lines. "It contains nodal points at which two or more threads meet and thereafter proceed as one ... several threads which run independently, or which are connected at various points by side-paths, debouch into [einmünden] the nucleus. To put this in other words, ... a symptom ... is `overdetermined'" (pp. 288-290).

Thus elaborated, the anatomical model of the periphery and the cortex has become multidimensional, made up of concentrically organized, stratified units of

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Freud (1940), continuing the remarks that open this paper, added: “... the data do not include any direct relation between these two terminal points of our knowledge. If it existed, it would at the most afford an exact localization of the processes of consciousness and would give no help towards understanding them. ... We assume that the mental life is the function of an apparatus to which we ascribe the characteristics of being extended in space and of being made up of several portions ...” pp. 144-5.
associated memories.9 Utilized to describe memory and association, this hierarchical, recursive model became a central organizing structure for psychoanalytic theory -- at least as Freud wrote it. The spatial diagram of chains of associations was taken as a picture of mental organization and is taken for granted by analysts today.

In a later letter to Fliess, Freud (1887-1904 [1896]) discussed the developmental significance of his account of memory. He wrote:

"... our psychic mechanism has come into being by a process of stratification: the material present in the form of memory traces being subjected from time to time to a rearrangement ... -- to a retranscription. ... memory is present not once but several times over, ... (I postulated a similar kind of rearrangement some time ago (Aphasia) for the paths leading from the periphery ... )" (p. 207).

Further on, he added that "... the successive registrations represent the psychic achievement of successive epochs of life. At the boundary between two such epochs a translation of the psychic material [takes] place. I explain the peculiarities of the psychoneuroses by supposing that this translation has not taken place in the case of some of the material ... " (p. 208)

He went on to conclude that repression is a failure of translation. This way of looking at the process provides a rationale for the idea that clinical interpretation is a type of translation leading to reorganization or "rearrangement" and "retranscription" in a manner similar to the developmental reorganization of successive epochs.

Freud's letter anticipated many later conceptualizations. The idea of a stratification, based on the relationship to consciousness and characterized by translation, gives the form of the topographical model of the mind. Freud's use of the model in a description of development expanded the picture of successive reorganizations, translations and transcriptions.

The idea of boundaries between levels in a hierarchy is an important concept in this letter and throughout Freud's work. Here we see that translation is

9 A similar, though less elaborate, account of memory and association can be found in "The Aetiology of Hysteria" (pp. 198-9, 1896). The memories in cross-linked chains of associations with their convergence and divergence through nodal points were compared to a genealogical tree with the inclusion of intermarriages. He offers in addition an elaborate archeological analogy to which he returned on other occasions (Freud, 1901, 1930).

Freud's description on the pages cited in the text above resembles Hofstadter's (1979, p. 131ff.) description of 'recursive transition networks'.
one of the relationships defining the boundary. That is, the boundary is a conceptual boundary characterized by the different organizations of the systems so that one must be translated into the other. (See Kaplan, 1988, 1990, for illuminating discussions of boundary issues in psychoanalysis, in general, and in applied analysis, in particular.)

Although the spatial model is obviously suitable for static translation and representation relationships, it was, as noted earlier, both clinically and developmentally applicable. The dynamic factors animating the spatial model are supplied by concepts like maturation, development and the force of wishes. Developmentally and clinically, the effort to replace lost or abandoned infantile objects via transference, that is, to satisfy infantile wishes with symbolic substitutes, can be conceptualized in terms of translation, representation and dynamic factors. The task, as we all know, is endless. The reason is that no new person provides an identity of the infantile perception or an exact translation of the infantile satisfaction (Freud, 1910h, 1912d). 10

When Freud (1900) turned to the theory of dream formation, he described the overdetermination in the various relationships of dream-content and dream-thoughts in a way that recalls the earlier models of aphasia and hysteria. That is, there is a close resemblance between the language describing the multiple and incomplete representations arising from condensation and displacement in the dream-work, and the formulations describing the relations between brain and periphery, and between the elements of memory content.11 These applications

10 "... as a result of the diphasic onset of object-choice, and the interposition of the barrier against incest, the final object of the sexual instinct is never any longer the original object but only a surrogate for it. Psychoanalysis has shown that when the original object of a wishful impulse has been lost as a result of repression, it is frequently represented (vertreten) by an endless series of substitutive objects (Ersatzobjekten) none of which, however, brings full satisfaction." (1912d, p. 189; cf. 1910h, pp. 168, 169-70. Freud [1920] p. 42 adds a quantitative dimension.)

11 The following passages from Freud, 1900 are close to the language of their source: Freud, 1891. They display the transformation appropriate to the "new transcription" of a "new epoch" of theory-formation:

"...each of the elements of the dream's content turns out to have been `overdetermined' - to have been represented in the dream-thoughts many times over." (1900, p. 283).

"Not only are the elements of a dream determined by the dream-thoughts many times over, but the individual dream-thoughts are represented in the dream by several elements. Associative
of the model provide a dramatic picture of the way the idea of "dependent concomitance" conveys the extent and limitation of expression of one system in the content of the other.

The translation aspect of the model is seen still more clearly in Freud's accounts of dream-interpretation. During dreaming, thoughts are translated into images. In telling the dream, images are translated into verbal thoughts. In effect, the dreamer's narrative is an interpretation of the recalled image. The analyst then interprets the dream narrative. Freud treated dream analysis as a new translation that reverses the process of dream-formation. Reconstruction can be conceptualized in the same way.

The clinical process of association and interpretation is thus treated as the same process that is going on in the mind -- with the addition of another person or one's own conscious mind as interpreter. We have just seen this construction of mind on the basis of the clinical activity in Freud's equation of association chains with memory chains in hysteria. Now we can see that the picture of the self-interpreting mind is similar to the picture of the clinical dialogue. Only the participants are different.

Like the theories of memory and dreams, the theory of instinctual drives also involves the ideas of "dependent concomitance," parallelism and boundaries associated with representation.12 In a well-known passage in "Instincts and their paths lead from one element of the dream to several dream thoughts, and from one dream thought to several elements of the dream." (1900, p. 284).

"...the elements which stand out as the principal components of the manifest content of the dream are far from playing the same part in the dream thoughts. And...what is clearly the essence of the dream thoughts need not be represented in the dream at all." (1900, p. 305).

Here and elsewhere in the same work, we can hear the echo of his earlier words:

"... the periphery of the body is contained in the cerebral cortex not point by point, but through selected fibres ..." (1891, p. 51).

"They contain the body periphery ... in a completely different arrangement ... in manifold associations of the individual elements, whereby some may be represented several times, others not at all." (1891, p. 53).

12 A complete account of Freud's continuing use of his model would have to include a review of his papers on anxiety neurosis. Those papers discussed the relationship between the somatic and the mental libido in ways that retained a number of features of the earlier body-brain-mind model. These precursors of the later formulations of drive theory already involved the mental control of bodily functions. Mental activity had the function of "working over" the excitation generated somatically.
vicissitudes," Freud (1915c) described the relationship between mental functions and peripheral body-functions -- sexual zones and chemistry -- as follows:

"... considering mental life from a biological point of view, an `instinct' appears to us as a concept on the frontier between the mental and the somatic, as the psychical representative of the stimuli originating from within the organism and reaching the mind, as a measure of the demand made upon the mind for work in consequence of its connection with the body." (Freud, 1915c, pp. 121-2).\(^\text{13}\)

Freud is saying that the influence of peripheral sexual functions on the mind can be expressed by a boundary concept. In this statement, the idea that the instinct is a "concept on the frontier" or boundary refers to the idea that there is an intimate functional connection between peripheral soma and mind. This connection is analogous to the function of the nerve fibers in connecting the body surface with the brain. These formulations make explicit both the representation of the body in the mental life, in some form, and the role of the body in stimulating mental activity.

The concept of instinctual drives is often taken to be an "ultimate" biological explanation of motives, as though the forces driving motives rendered the content and occasions of motives insignificant. Although loose formulations of explanations in terms of drives (including Freud's) may often be read in this way, I believe that the drive concept in Freud's work is the expression of a need for correlations and connections (Freud, 1920). Drives are, therefore, concepts defining a boundary: the content of the concept is to be found either in the derivatives that are their psychological content or in the biological events, for example, of sex hormones, central nervous system organization, neurotransmitters, and so on. Thus, the instinctual drive represents two different kinds of events and two different kinds of research interests with their appropriate

Even Freud's formulation of the dual instinctual drive theory (Freud, 1920) can be shown to be conceptualized according to the same ideas. The concept of the repetition compulsion addresses the biological aspect of the impulsion of the drives and their attachment to objects and their representations. Later, in summarizing the dual drive theory, Freud (1940) added to the hierarchy: "The analogy of our two basic instincts extends from the sphere of living things to the pair of opposing forces - attraction and repulsion - which rule in the inorganic world." (p. 149). The hierarchy now extends from the atom to the instinctual drives.

\(^{13}\) In other places, Freud spoke of the instinct as a "psychical representative of organic forces" and as "the psychical representative of an endosomatic, continuously flowing source of stimulation". (See editor's note to Freud, 1915c, p. 112).
methods of study. As Freud (1913j) said, "We cannot help regarding the term ‘instinct' as a concept on the frontier between the spheres of psychology and biology" (p. 182). The ideas of the driving force of wishes and the range of sexual and aggressive interests characterize the mental side of the boundary.

The concept of drives provides, in this definition, something dynamic to account for mental activity and the representation of bodily urges and needs. The somatic factor introduced in this way into the analysis of mental activities has long been a focus of controversy. It suggests that Freud believed that a system of interpretation alone could not account for change and development. Nor was he content to leave the problem entirely out of consideration. For this reason, the specification of the boundary and some statement about the boundary conditions noted, was important.

At times, Freud acknowledged the problem by reflecting on theory construction. He provided a justification for the introduction of concepts from other fields and demonstrated his method of taking multiple viewpoints toward his material to delineate the specifically psychoanalytic issues.

DYNAMIC ASPECTS OF THE MODEL: FREUD ON THEORY-CONSTRUCTION

The function of the model as the organizer of many different levels of mental and interpersonal function has been emphasized so far. Understanding that the relationships among systems and levels can be treated as representation and translation is the basis for interpretation. The problem is now to see how the processes of change from level to level were formulated, that is, how translation occurs. Freud dealt with the problem by looking elsewhere for concepts and analogues that would help to conceptualize development and change in mental life. The result was that he gave a picture of the development of mental life, of analysis and of scientific thinking as processes of adaptation to reality. Our consideration of the problem leads to discussion of the relations (conflict) among preconception (disposition), reality-testing (trial action) and creative or constructive mental activity (compromise formation). For Freud, reality testing -- in common sense and in science -- is an important boundary process that animates the hierarchical organizations whose parts are related by translation.

Apparently, Freud thought he needed to explain why he borrowed ideas from other fields like biology. At various times throughout his work, he reflected on his own difficulties of description, his own way of working and his theory-construction. These self-descriptions were an aspect of his self-analysing, part of his effort to achieve objectivity, and often a dramatization or enactment of the processes he was trying to describe. Clearly, he knew that restatements of his model and demonstrations of his thinking and results were not equivalent to a
systematic proof of his ideas. Yet he also wanted to show that psychoanalysis was a science. To do this, he dismissed the idealized and overly rational accounts of scientific method. Instead, like a growing number of scientific philosophers and psychologists, he described the way scientists think, the way ideas develop in science. When he did this, for example, in his paper on drives (discussed earlier), Freud (1915c) described theory construction in terms that are equally appropriate for finding an interpretation for clinical material. Here, we see Freud the clinician examining science while Freud the scientist examines psychoanalysis.

According to this approach, the development of scientific ideas was not an impersonal and logically unfolding march of progress. Science was, like clinical psychoanalytic exploration, the creative mental process of someone searching for understanding of "reality," a matter of interpretation. This means that a person interpreting engages in the same mental processes, whatever the data. The issue is the activity of the thinker -- the scientist, the analyst, the patient -- and how the thinker goes about formulating ideas about what he observes, his experience. The principles by which the data can be organized, that is the model to be used, have to be invented, discovered or borrowed, as in the case of the drives.

Both scientific method and psychoanalysis were described as adaptive processes of approaching an understanding of reality through the overcoming of infantile fantasies and prejudice. This brought psychology into play in the modern consideration of scientific method that includes the thinking of scientists and the role of society in the development of knowledge.

Was this a question of Freud having shifted his level of consideration because the description alone doesn't fit a systematic format of proof? The only thing he could do, in considering science as the activity of thinkers, was to use a psychoanalytic approach and to consider scientific thinking in terms of his model. Since analysis is distinguished by its interpretive stance, Freud as the analyst examining science could only interpret.

Freud had taken a new viewpoint from which he could compare the way analysts deal with data and concepts with the way other scientists do this. His position was that of a "metascientist", looking at both the study of the mind and the study of the world, in an effort to compare them neutrally or objectively. When he did this, he used the same model. He placed scientific thinking and science into the model of thought constructed of hierarchies and boundaries alongside psychoanalysis.
In this way, Freud used his model of mind for the analysis of how science, in general, and his science of mind, in particular, work. The process is thus reflexive. First, he used available theory to observe and understand how the mind works. Then, he gave an analysis of how the mind uses theory to understand itself and the external world. This method describes the process of self-analysis in a formal sense. Although unconscious motives are not included, it would be possible to include them. This approach also had the effect of treating the growth of scientific knowledge as a growth process like the development of an individual's knowledge. In effect, the result is an expansion of the levels of his model. Scientific investigation of the world is a higher level in the hierarchy, a further development of commonsense, "a refinement of everyday thinking" (Einstein, 1936).

Freud focussed on the way psychoanalytic process, psychoanalytic theory and science in general overcome the intrusions of irrationality -- infantile thinking -- in the construction of reality. What Freud says about theory construction was for this reason an application of his psychoanalytic theory of mental activity to the kinds of theory construction and testing we do as analysts. The self-analysis of countertransference is the clinical counterpart of the scientist's overcoming of irrationality and prejudice.

These processes are seen still more clearly in a late work, the Outline of Psychoanalysis, (Freud, 1940a[1938], pp. 196-7), which addressed these issues directly. Freud's argument goes something like this: Since both inner reality and external reality are "foreign territory" to the ego (Freud, 1933), the mind exploring inner reality is like the mind exploring external reality. Both the mind and the external world must be constructed in the language of perception. We infer the unconscious processes and fantasies from our observations of clinical data. We "translate" material of observation into the language of conscious fantasies. As he had said long before (Freud, 1917c), we do not really know the Unconscious. Freud (1925) had also said that the Unconscious "had to be inferred like some fact in the external world" and added: "this was only treating one's own mental life as one had always treated other people's" (p. 32) since it is only an inference that other people have mental processes like our own. The essentially unknowable unconscious processes are placed in the picture of the spatial mental apparatus by the translation into the language of experience. We can discuss this map of the unconscious mind in perceptual terms as we do the invisible entities inferred by physics. In analysis, the picture of the mental
apparatus is a map of mental functions, of "external reality" and of object relations.\textsuperscript{14}

The idea of the dual topographies of the inner and outer worlds in the model allowed Freud, the theoretician, to look in either direction at both worlds. In his comments on inferring the Unconscious, Freud, the clinician placed himself on the boundary between two minds, his own and another person's. System Conscious has two faces and the ego has, as well. The theoretician, the clinician, the ego and the Cs. are all translators and "boundary creatures [Grenzwesen]." As a boundary science, "psychoanalysis acts as an intermediary between biology and psychology." (Freud, 1913j, p.182; see Kaplan, 1988, 1990)\textsuperscript{15}

Notice that with the spatial model, Freud was constructing an analogue. He once wrote in his notes, perhaps mischievously: "Space may be the projection of the extension of the psychical apparatus ..." rather than the reverse (Freud, 1941 [1938]). In other words, he was saying that the idea of physical space is like animism and like the development of the object world in that it is a mental construction, an interpretation, based on projection. The distortions introduced by this constructive projection have to be progressively corrected by

\textsuperscript{14} An important issue which cannot be discussed here is that the idea of translation of things experienced into the language of perception has a parallel in development and experience as conceptualized by the theory. According to the theory, the translation of preverbal and unconscious experience into language introduces the structures of linguistics into thinking and dialogue.

\textsuperscript{15} These quotations give the hierarchy and boundary relationships: body-id-symptoms-ego-external world -- ie external to the person.

"Psychoanalysis acts as an intermediary between biology and psychology." (1913, p. 182).

"As a frontier creature [Grenzwesen], the ego tries to mediate between the world and the id ... In point of fact it behaves like the physician during an analytic treatment ..." (1923, p. 56).

"We picture it [the id] as being open at its end to somatic influences, and as there taking up into itself instinctual needs which find their psychical expression in it ... " (1933 [1932], p. 73).

"The transference thus creates an intermediate region between illness and real life through which the transition from one to the other is made." (1914g, p. 154).

"Symptoms are derived from the repressed, they are, as it were, its representatives (Vertreter) before the ego; but the repressed is foreign territory to the ego -- internal foreign territory -- just as reality (if you will forgive the expression) is external foreign territory." (1933 [1932], p. 57).
psychoanalysts in their work and by scientists in theirs (Freud, 1940a) and, of course, by the developing child.

In brief, this view says that both the internal and external worlds are known only as mental creations, that is, as interpretations, translations and constructions. To arrive at our constructions, Freud says, we need provisional ideas that come from outside the field of observation and the experiences to be organized (Freud, 1915c). The organization and meaning of the data are not self-evident. The provisional ideas must be chosen, discovered or "invented" and may be conscious or unconscious. (cf. Einstein, 1914.)

Freud's (1915c) prelude to the discussion of the instinctual drives provides one statement of this point of view:

"The true beginning of scientific activity consists ... in describing phenomena and then in proceeding to group, classify and correlate them. Even at the stage of description it is not possible to avoid applying certain abstract ideas to the material in hand, ideas derived from somewhere or other but certainly not from the new observations alone. ... we come to an understanding about their meaning by making repeated references to the material of observation ... upon which, in fact, they have been imposed. Thus, strictly speaking, they are in the nature of conventions -- although everything depends on their not being arbitrarily chosen but determined by their having significant relations to the empirical material, relations that we seem to sense before we can clearly recognize and demonstrate them." (p. 117, italics added. See Freud, 1900, p. 536 for a similar account of models and provisional ideas in theory-construction).16

16 A similar statement is found in Freud (1925), An Autobiographical Study, S.E. 20, pp. 57-8: “Clear basic concepts and sharply drawn definitions are only possible in the mental sciences in so far as the latter seek to fit a region of facts into the frame of a logical system. In the natural sciences, of which psychology is one, such clear-cut general concepts are superfluous and indeed impossible. Zoology and Botany did not start from correct and adequate definitions of an animal and a plant; to this very day biology has been unable to give any certain meaning to the concept of life. Physics itself, indeed, would never have made any advance if it had had to wait until its concepts of matter, force, gravitation, and so on, had reached the desirable degree of clarity and precision. The basic ideas or most general concepts in any of the disciplines of science are always left indeterminate at first and are only explained to begin with by reference to the realm of phenomena from which they were derived; it is only by means of a progressive analysis of the material of observation that they can be made clear and can find a significant and consistent meaning.”
It is significant that other thinkers of that time had begun to think about scientific theory-construction in a similar way. For example, Einstein (1914), presents his views on theory-construction in terms remarkably like Freud’s, despite some important differences. Both men emphasized the need for introducing concepts to organize observations. Whereas Einstein discussed the use of a mathematical model, Freud indicated that the ideas that are chosen at the beginning may be indefinite. Freud's remarks could be used to describe the psychoanalytic situation, as well. In the clinical situation, the theory provides provisional concepts for use in formulating interpretations from the beginning. In the case of theory building, a concept like "instincts" is chosen as a biological model and acquires its meaning through repeated clarification of its use with observations. As such concepts take on more specific meaning through their application to the data, they fit into the conceptual structure of the developing theory.

Freud's and Einstein's accounts of their creative processes can be extended so that the organizing principles themselves, at any particular step, can be seen to have been derived from the interplay of "free inventions of the human intellect" (Einstein, 1934) and experience -- a version of the model of adaptation. (For a critique of Einstein's views on creativity in science, see Feyerabend, 1987.)

The idea that organizing concepts must be imposed on, or projected onto, the data is one step in the development of a dynamic viewpoint that equates theory-construction with the growing child's construction of a picture of reality. At the same time, formulations provided by theory are the provisional ideas that the analyst brings to clinical data to organize his theory about a particular patient.

One of the advantages of the recursive representational model, is that the chains and layers of systems can be of different kinds while the overall schema of organization remains the same. Although the functions and relations may differ in many respects from system to system, those aspects that can be conceptualized in terms of representation, communication and interaction can be organized on this model. It is this unity of conceptual organization that makes the model useful in applying theoretical concepts in clinical thinking. For instance, Freud (1924) tells us that the relationship between the moral masochist and his father is repeated in the relationship of his ego and superego. In this concrete example, the formation of the superego splits the ego into two systems that together make a new system. This intrapsychic pair -- the child’s ego and superego -- constitutes one mind of the interpersonal pair -- father and child. Likewise, when the self-analysing analyst is interpreting the productions of the
patient in conflict, both subjects are at least double systems whose relationships are a function of representation and translation. In this way, impersonally or organismically conceived mental agencies can be thought to be in interaction or dialogue (Freud 1910a, 1916-17). [ADDED 1DEC 91] IN BOTH REFERENCES, FREUD USES THE ANALOGY OF A PERSON AT A DOOR LETTING ONLY SOME PEOPLE IN AS A MODEL OF REPRESSION, RESISTANCE AND CENSORSHIP. LATTER REF IS ON PP. 295-6 AND IS FOLLOWED BY SOME COMMENTS ON THE USE OF ANALOGIES.]

As I have tried to demonstrate thus far, the spatial model from On Aphasia is itself a provisional idea with considerable organizing power. It allowed Freud, for better or worse, to think of organism, mind, person, and society as having some fundamental organization in common. This facilitated a notion of development in which early modes of experience could be retained in later organizations but shaped to later content.

For Freud, theory-construction in both physical science and psychoanalysis, on one side, and the activities of the clinician, on the other, all involve the forming and testing of hypotheses about reality. He, therefore, wrote about them all in the same language. His comments about the way we arrive at clinical interpretations resembled his descriptions of the way we arrive at psychoanalytic theoretical formulations. In effect, he used the same approach in constructing the theory that he did when applying it to particular clinical problems.

The method I refer to as the "multiple viewpoint method" is well-known to clinicians in the form of free-association. I noted earlier that Freud's picture of memory organization was a spatial representation of free-association. They were both conceptualized along the lines of the recursive spatial model. The principle underlying the "multiple viewpoint method" follows from the nodes and interconnections of that model. The method is simply to start from any one of the nodes and follow the thread for a while, then start over from another point. In free-association, the patient picks the starting point or else the analyst's question or interpretation is a starting-point. In theory-building, the organizing ideas the theorist brings to the data may be the starting point.

The analysis of a dream serves here as a clinical example of the application of the method of beginning with individual elements and arriving at their multiple meanings by association. Accordingly, Freud (1911) tells us the interpretation of a dream is "... the same as with the elucidation of a single symptom ... one must endeavor to lay hold first of this, then of that, fragment of the symptom's meaning, ... until they can all be pieced together" (p.93).
In parallel fashion, Freud presented his method of theory construction as a similar process of starting from different points of view and developing a picture of mental contents and functions from each point of view. I mentioned earlier, discussing drive theory, that the starting points or provisional ideas may be taken from other fields and other points of view. The resulting picture of the mind is constructed from these sub-organizations centered on individual points of view. In a similar way, the mind constructed by each dream interpretation is similar in organization to the mind constructed by that analysis as a whole from many interpretations. The mind constructed by this particular analysis is in turn similar to the generalized mind constructed piecemeal by the analyses collected by many analysts.

The same idea is repeated when Freud (1915e) writes that psychic processes must be described according to the points of view of metapsychology. The points of view of metapsychology are separate loci for organizing observations, ideas etc. [ADDED 1DEC91: In his “Autobiographical Study” (1925), he wrote: “Later on I made an attempt to produce a ‘Metapsychology’. By this I meant a method of approach according to which every mental process is considered in relation to three co-ordinates, which I described as dynamic, topographical, and economical respectively ...” (pp. 58-9)] Once again, in describing the way we arrive at understanding of phenomena, Freud (1915d) says we have to start from many different points of view and follow each for a while, deferring a final synthesis17 -- a description that sounds like free association.

The same multiple viewpoint method was applied in the same way to only a part of the theory. Discussing object relations, Freud (1915c) discussed three polarities that he said govern the mental life: ego - external world, pleasure - unpleasure, and active - passive. The relations among the three polarities are complex since the polarities do not coincide. They are, in fact, organizers along three dimensions that come into prominence successively in development. Freud names them the real, the economic and the biological. In this way, the description of development also follows the multiple viewpoint method. In this

17 "The extraordinary intricacy of all the factors to be taken into consideration leaves only one way of presenting them open to us. We must select first one and then another point of view, and follow it up through the material as long as the application of it seems to yield results. Each separate treatment of the subject will be incomplete in itself, and there cannot fail to be obscurities where it touches upon material that has not yet been treated; but we may hope that a final synthesis will lead to a proper understanding" (1915d, pp. 157-8).
case, the provisional ideas that are the starting points of view come from the popular image of mind since it is evident that people do commonly classify their experiences along the lines of the polarities. This is an indication that Freud's model includes in its picture of the mind some significant organizations that are pictured in everyday conceptions of mind by introspection.

Thus we can see that Freud's method of theory construction is similar to the application of the theory to any particular problem of interpretation. It is this approach to interpretation that permits the elaboration of meanings and differentiation within the levels of the hierarchy. The theory itself is a generalized map or model of the relationship among the elements of mental activity of whatever complexity. Of course, it may be that theories of mind don't have to be of this kind, but Freud's is.

METAPHOR AND ANALOGY IN MENTAL ACTIVITY AND IN THEORY

The model that has been explored here has been inferred from Freud's rhetorical devices, analogies, metaphors, imprecise terminology and so on, and the ideas about theory-formation throughout his work, including some of his explicit descriptions. It is possible to do this because, as already mentioned, Freud's accounts of the theory demonstrate the processes he described. This means that in some respects the narratives follow a path of the same form that he described. Insofar as the narrative itself takes the form of the picture of the mind that it is describing, we might think of it as a rhetorical model with spatial properties (like a calligram). Many writers have discussed related ideas in a somewhat different way. The phenomenon is also familiar in clinical situations where a patient describing a situation may enact what is being described or tell it in a form that carries some of the features of the events described. This is an impressive aspect of the redundancy of modalities and representations in communication.

A calligram is a poem written in a form that gives a picture of its subject. Foucault (1982) writes: "... the calligram has a triple role: to augment the alphabet, to repeat something without the aid of rhetoric, to trap things in a double cipher. ... It lodges statements in the space of a shape, and makes the text say what the drawing represents. On the one hand, it alphabetizes the ideogram, populates it with discontinuous letters, and thus interrogates the silence of uninterrupted lines." pp. 20-21. It seems that some aspects of the form of Freud's propositions about the mental apparatus provide a map of the organization within which the words describing it are contained, like a description of the alphabet would contain the alphabet.

While words contribute access to a linear logical scrutiny of ideas, the use of organization and word usage for representational purposes, that is, as icons, reintroduces the perceptual elements into the formulation, enriching its meaning. We can extract from the mixture a picture
Freud's rich narratives of psychoanalytic theory and the theory of the development of theory are consistent with Schafer's (1980) view that theories have the properties of narratives. Freud sometimes added diagrams to supplement the narrative accounts of mental relations as spatial relations, for instance, the forgetting of the name Signorelli (1898), transformations of instincts (1917) and "complementary series" (1916-17).

We can use the text itself as an example of thought processes, a kind of specimen of mental constructions in both narrative and visual forms. A number of authors have used the text in this way for various purposes. Mahony (1986, 1987), in particular, has closely examined the structure of Freud's texts and his various rhetorical devices including his use of figurative language. He points to the importance of rhetoric in the development of Freud's concepts, and considers its role in theory building. My purpose, though closely related, is somewhat different. The point here is to show how the texts, taken together, are an illustration of some features of the model. In fact, it is by means of the consistent use of a set of metaphors that Freud assembles a recognizable model. Examples of Freud's use of analogy and metaphor, and his allusive use of repetitive words and formulations cannot be given here, but are readily found throughout his work.

In the recent past, the risks of using metaphors in science were frequently noted. Although metaphors might have some potential value in the first steps of theorizing, the ease with which they could provide a comforting illusion of knowledge required constant vigilance. Exploring this problem, a number of authors such as Canning, (1966), Schafer (1968, 1976) and Holt (1964, 1972) among others, discussed observations similar to those I shall mention. Their objective was to show some of the problems created by the use of reified metaphors in psychoanalysis. Grossman and Simon (1969) examined Freud's use of anthropomorphic metaphors with somewhat greater acceptance, questioning the value and success of efforts to replace them (e.g., by Hartmann, Kris and Loewenstein, 1946).

Recently, however, there is a growing appreciation of the importance of analogies and metaphors in science and everyday thinking. Metaphors are currently explored as the bearers of encoded relationships that are transferred to different kinds or levels of mental organization from biological organizations of

of the organization of mind that the words themselves can only awkwardly express, since in the end their purpose is to represent something which is more easily expressed in a spatial form. (cf. Foucault, 1970)
the brain, to linguistic organizations, to systems of imagery and so on. This appreciation comes from a variety of sources such as linguistics (Eco, 1986; Jakobson and Pomorska, 1983; Kittay, 1987); philosophy (Boyd, 1979; Davidson, 1978; Johnson, 1981; Miller, 1979; Ortony, 1979); psychoanalysis (Arlow, 1979; Rubinstein, 1972; Kaplan, 1988; Wurmser, 1977); cognitive psychology (Erdelyi, 1985), and others in these fields.

Analogy and metaphor are not only essential steps in the elaboration of thought but in the elaboration of theory. They are certainly not the desired end stage of scientific thought -- because there is no end stage -- but their presence does not disqualify thought as scientific. Analogies and metaphors are tools in the processes elaborating thoughts. (See also Schafer, 1977.)

The role of metaphor and analogy is essential in the elaboration of thought because the way some relationships are learned is first in the modalities that are not verbal. They must then be re-edited, in Freud's terms, or undergo accommodation, in Piaget's. They must be translated to verbal schemata. Metaphor and analogy thus play a role developmentally. They play a similar role in the adult when there is a question of shifting from the non-verbal to the verbal modes of expression and the reverse.

Spatial metaphors are useful in constructing a model or picture of mind as it is experienced because spatial representations are a fundamental form of mental activity on which more refined abstractions are constructed. Metaphors, too, are a type of abstraction. It may be that one does not need the spatial model and metaphors to represent mind, but if one is to have a model of mental activity at all, it will have to be derived from some manifest or covert metaphor (Freud, 1920, p. 60).

Metaphor and analogies construct new ideas, rather than being methods of reduction. Creating a metaphor or an analogy is one way to shift one's point of view. Metaphors are, in a sense, an example of the multiple viewpoint method insofar as they actually abstract properties from one context and discover them in another. The abstract language of psychoanalytic theory, as I've tried to show, has concrete referents in the organization of clinical concepts. Multiplicity of metaphors means multiplicity of viewpoints. The common properties alluded to by different metaphors and analogies point to an underlying model, a kind of "deep structure" of implied theory.

Freud was explicit in his repeated use of the spatial model, and, in addition, used spatial imagery at other times. The repeated use of the same imagery, metaphors, and analogies in different contexts points to connections between various aspects of mental function as described by the model. By repeating
particular words, phrases, and even forms of argument and exposition, spatial imagery and metaphors, Freud constructed a model and evokes it in the mind of the reader. Perhaps, at the present time, an unrecognized danger in the use of metaphor is that our recognition of Freud's evocative use of rhetoric may obscure the model it creates.

When Freud described "verbal bridges" (1900) and "switch words" (1905e) in dreams and neurosis, he was referring to something similar to his own repetition of certain key words, phrases and so on in different kinds of theoretical formulations. That is, the repeated elements are similar to the nodal points in the model of memory organization and free-association. Used in theory construction, these verbal devices impart to Freud's narrative the observed similarity to the organization of mind that they describe. Where propositions of differing content are given similar form, and identical words are used in different descriptions, the elements of language may function as "thing representations" in addition to conveying their ordinary meanings (cf. Jakobson and Pomorska, 1983). The words themselves -- apart from their meaning -- and the form --apart from its content -- thus become concrete representatives of one formulation in another.20 In this way, two descriptions or explanations become analogues created on the same fundamental model and connected by their similar principles of organization. The two narratives are joined and anchored, like the links in a chain of associations of the model itself.

An essential aspect of the point of view presented here is that the function of Freud's model is to transcend the limitations of conventional distinctions -- including mind and body. Utilizing the concept of boundaries, the model unites the multiple modalities of perception and modes of expression, verbal and non-verbal, within a single framework, not limited to the requirements of any particular mode. Speaking metaphorically, it creates its own conceptual space within which the relationships between disparate modes can be explored. Formal similarities in action and thought, such as the similarities between compulsive acts and obsessional thoughts can be considered to be related by translation [cf.

20 A deliberate literary use of the same method is found in James Joyce's Ulysses. In the section often referred to as "the Sirens," Joyce presents a series of sub-episodes within the main narrative. In each sub-episode, phrases appear which belong to other episodes, not to the main on-going narrative. These jarring inappropriate phrases belong to the action of the other episodes and thus indicate the simultaneity of two events. The whole section is in fact preceded by a presentation of these phrases, the whole list serving as an overture to the section in deliberate analogy to a piece of music.
Mahony's (1986, pp. 206-208) discussion of a passage from the Rat Man case, Freud (1909)].

Freud's use of metaphors and analogies has long been disparaged as a rhetorical device masquerading as theory. I have emphasized instead the role of these rhetorical devices in constructing a model dealing with thought, behavior and self-reflection.

SUMMARY AND CONCLUSIONS:

In this paper, I have tried to show that Freud constructed a hierarchical recursive model of the mind as it is explored in psychoanalysis by a self-analysing analyst and a freely-associating patient. Within this model, both the metapsychology, that is, the general formulations of mind, and some aspects of clinical interaction and of development are organized by the same model. I have not discussed the further possibilities of psychoanalytic theory beyond this model nor other parts of the theory that do and do not fit within this model. Other advantages and limitations imposed by using this model, either alone or simultaneously with other models, remain to be explored.

Freud attempted to present a theory of mind that was supported by observation. He wanted it to be a special theory of mind that could make a contribution to other fields and take its place alongside other sciences. In doing this, Freud had a great deal to say about other fields of inquiry as he tried to articulate them with psychoanalytic observation. In addition, he needed a theory that would account for the findings of the psychoanalytic method for studying inner experience. However, in view of the vulnerability of the psychoanalytic method to the intrusion of the analyst's subjectivity, his theory had to account for the way this subjective factor could at least be modified by analysis and self-analysis.

Thus, although Freud and analysts since Freud have included many kinds of issues and interests in psychoanalytic psychology, we might speak of psychoanalytic method and theory as addressing a core issue. This issue is the effort to describe the analyst's use of his self-observation as a tool in the study of his patients and their self-observations. Clinical interpretation tests the picture of the mind that is created. Psychoanalysis, in this sense, is about the way people try to understand one another in ordinary interaction as distinguished from laboratory experiments.

Freud's development of a method that systematically treated one's own mental life as one treated that of others was unique as a way of arriving at a picture of the mind. I emphasize "systematically" because according to Freud's theory, this process goes on unconsciously as the usual way that ideas of one's
own and others' mental life develop. Therefore, there is also something unique in
the way we as analysts learn about this picture of mind and go about modifying it,
so long as we use the same method. This method and the picture of mental
organization that it presents (our theory) find their special relevance in relation to
the processes involved in self-exploration through analytic dialogue, whatever
other value they may have.

Freud's writings describe his mind creating psychoanalytic theory. We
might think of the metapsychology of "chapter 7" (Freud, 1900) as a
representation of the process of Freud's self-analysis, a complement to the way
the contents of the Interpretation of Dreams (Freud, 1900) present the contents
of his self-analysis.

Freud's extensive use of the model described here, the issues of its
integration with other models and its close connection with self-reflection in the
foundations of psychoanalytic theory may contribute to some problems within
and at the boundaries of psychoanalysis. These factors may account for some of
the difficulty of formulating hypotheses for testing outside analysis, and for the
special ways analysts use data from outside their field.

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in human inheritance (with some thoughts about the Lamarckianism of


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FOOTNOTES (TO BE INSERTED)
1. Earlier versions of this paper were presented to The Michigan Psychoanalytic Society, 12 March 1988; to the Columbia Psychoanalytic Clinic for Training and Research and the Association for Psychoanalytic Medicine as the Sandor Rado Lecture, 7 June 1988; to The Psychoanalytic Institute at New York University as the Maurice R. Friend Lecture, 12 October 1989. The author wishes to express his gratitude to the many thoughtful colleagues who have given discussions, criticisms and suggestions on earlier versions of this paper. I am especially grateful to Drs. Gerald I. Fogel, Donald M. Kaplan and Roy Schafer for their patient, challenging and detailed responses to various drafts. In addition to his comments on the paper, Dr. Otto Kernberg helped to clarify the German texts.
2. For a modern echo of Freud (1891 [1953], pp. 53-56) see Kosslyn, S.M. (1988): "Perhaps the most fundamental insight of contemporary cognitive science is the discovery that mental faculties can be decomposed into multicomponent information-processing systems. Although mental faculties such as "memory," "thinking," "imagery," and so on intuitively may seem to be single abilities, they are not. ... visual mental imagery is being analysed into distinct processing components and ... these functionally characterized components are coming to be identified with brain structures ..." p. 1621.

The point being made here is not that Freud was right, since his comments certainly do not do justice to the problem. However, they support the principle that carefully describing a functional organization is a prerequisite to correlation.

3. Compare this with a quote from H. Lotze (1856), a philosopher admired and quoted by Meynert: "However far we pursue the course of the sense-excitation through the nerve, in however many ways we suppose its form changed and converted into ever finer and more delicate movements, we can never prove that it is in the nature of any movement so produced to cease as movement of its own accord, and to reappear as a bright color, a tone, as a sweet taste. The chasm is never bridged over between the last state of the material elements within our reach and the first rise of the sensation ... " (Quoted in: Ladd, G.T. [1895]).

4. This description of the relationship between the physiological and the psychical is repeated in similar language for unconscious and conscious in Freud (1940), pp. 196-7.
5. Cf. Freud, 1915e (p. 174-5), where the systems Ucs. and Cs. can be seen to belong to the series of systems just mentioned. On those pages, Freud considers the question of whether the transposition of an idea from the Ucs. to the Cs.
involves a second registration. He returns to the question of the relationship between the mental apparatus and anatomy, stating that such relations exist. However, he adds that the different parts of the brain have unequal importance in relation to different parts of the body and to different mental activities so that the localization of ideas, mental processes, excitations, and consciousness is not possible. His discussion is a slightly altered echo of his words in Aphasia. He adds that "Our psychical topography ... has reference not to anatomical localities, but to regions in the mental apparatus ..." (p.175). Moreover, "... our hypotheses set out to be no more than graphic illustrations." His final conclusion on the double registration problem is important for my later discussion: the relationship between the Ucs. and the Cs. involves the introduction of words to the idea of the object in the second system (p.201).

6. The historian of science, Robert M. Young (1970), says, speaking of Herbert Spencer's influence: "His theory of psychophysical parallelism, through Jackson's 'Law of Concomitance', provided the form of Freud's psychoanalytic theory and provided the position which Freud held on the mind-body problem from his first work (On Aphasia, 1891) to his last (Outline of Psychoanalysis, 1940). This aspect of relations among Spencer, Jackson, and Freud should be pursued as part of a more general study of the central role psychophysical parallelism has played in the history of neurology, psychiatry, and psychoanalysis." (p. 196.)

7. Many of the writers on aphasia at that time used spatial diagrams resembling flow charts to describe the interruption of postulated brain pathways. Freud used similar diagrams to illustrate the idea of mental topography and to picture mental functions, both concurrent (synchronic) and temporally ordered (diachronic), as having the same overall organization, despite changing conditions and content, symbolic or concrete. This mode of conceptualization allowed for the pictorial representation of mental function along the lines of the hierarchical organization proposed by Jackson for the nervous system and by Spencer for all biological systems.

8. Freud's occasional statements regarding the relationship of his spatial model of the mental apparatus and physiological space show instructive uses of representation as a replacement for mechanism.

Freud, (1905c) says that "cathexis of psychical paths" with displacement of energy and persistence of traces of psychic processes is not the same thing as cells and neurons but would have to be represented in them. This important statement suggests that at least one relationship of the organization of the mind to the organization of the brain is representation. It is evident that "what is
represented in what" is a question of point of view. In this case, reduction and representation coincide. pp. 147-8.

Freud (1915e): "Our psychical topography has for the present nothing to do with anatomy, it has reference not to anatomical localities, but to regions in the mental apparatus, wherever they may be situated in the body." p.175.

Freud (1939): "... the psychical topography that I have developed here has nothing to do with the anatomy of the brain, and actually only touches it at one point. ... Of the phenomenon of consciousness we can at least say that it was originally attached to perception." p.97. The remainder of this paragraph and the next shows Freud working out his outline of the hierarchy beginning with sensation, adding the sensory contents of seen and spoken words to unconscious processes to arrive at preconscious and conscious thought, proceeding to speculation on the "translations" between systems occurring with very early trauma, conditions in animals, and finally the way innate factors -- "elements with a phylogenetic origin" -- operate.

9. A similar, though less elaborate, account of memory and association can be found in "The Aetiology of Hysteria" (pp. 198-9, 1896). The memories in cross-linked chains of associations with their convergence and divergence through nodal points were compared to a genealogical tree with the inclusion of intermarriages. He offers in addition an elaborate archeological analogy to which he returned on other occasions (Freud, 1901, 1930).

Freud's description on the pages cited in the text above resembles Hofstadter's (1979, p. 131ff.) description of `recursive transition networks'.

10. "... as a result of the diphasic onset of object-choice, and the interposition of the barrier against incest, the final object of the sexual instinct is never any longer the original object but only a surrogate for it. Psychoanalysis has shown that when the original object of a wishful impulse has been lost as a result of repression, it is frequently represented (vertreten) by an endless series of substitutive objects (Ersatzobjekten) none of which, however, brings full satisfaction." (1912d, p. 189; cf. 1910h, pp. 168, 169-70. Freud [1920] p. 42 adds a quantitative dimension.)

11. The following passages from Freud, 1900 are close to the language of their source: Freud, 1891. They display the transformation appropriate to the "new transcription" of a "new epoch" of theory-formation:

"...each of the elements of the dream's content turns out to have been `overdetermined' - to have been represented in the dream-thoughts many times over." (1900, p. 283).
"Not only are the elements of a dream determined by the dream-thoughts many times over, but the individual dream-thoughts are represented in the dream by several elements. Associative paths lead from one element of the dream to several dream thoughts, and from one dream thought to several elements of the dream." (1900, p. 284).

"...the elements which stand out as the principal components of the manifest content of the dream are far from playing the same part in the dream thoughts. And...what is clearly the essence of the dream thoughts need not be represented in the dream at all." (1900, p. 305).

Here and elsewhere in the same work, we can hear the echo of his earlier words:

"... the periphery of the body is contained in the cerebral cortex not point by point, but through selected fibres ..." (1891, p. 51).

"They contain the body periphery ... in a completely different arrangement ... in manifold associations of the individual elements, whereby some may be represented several times, others not at all." (1891, p. 53).

12. A complete account of Freud's continuing use of his model would have to include a review of his papers on anxiety neurosis. Those papers discussed the relationship between the somatic and the mental libido in ways that retained a number of features of the earlier body-brain-mind model. These precursors of the later formulations of drive theory already involved the mental control of bodily functions. Mental activity had the function of "working over" the excitation generated somatically.

Even Freud's formulation of the dual instinctual drive theory (Freud, 1920) can be shown to be conceptualized according to the same ideas.

13. In other places, Freud spoke of the instinct as a "psychical representative of organic forces" and as "the psychical representative of an endosomatic, continuously flowing source of stimulation". (See editor's note to Freud, 1915c, p. 112).

14. An important issue which cannot be discussed here is that the idea of translation of things experienced into the language of perception has a parallel in development and experience as conceptualized by the theory. According to the theory, the translation of preverbal and unconscious experience into language introduces the structures of linguistics into thinking and dialogue.

15. These quotations give the hierarchy and boundary relationships: body-id-symptoms-ego-external world -- ie external to the person.

"Psychoanalysis acts as an intermediary between biology and psychology." (1913, p. 182).
"As a frontier creature [Grenzwesen], the ego tries to mediate between the world and the id ... In point of fact it behaves like the physician during an analytic treatment ..." (1923, p. 56).

"We picture it [the id] as being open at its end to somatic influences, and as there taking up into itself instinctual needs which find their psychical expression in it ... " (1933 [1932], p. 73).

"The transference thus creates an intermediate region between illness and real life through which the transition from one to the other is made." (1914g, p. 154).

"Symptoms are derived from the repressed, they are, as it were, its representatives (Vertreter) before the ego; but the repressed is foreign territory to the ego -- internal foreign territory -- just as reality (if you will forgive the expression) is external foreign territory." (1933 [1932], p. 57).

16. "The extraordinary intricacy of all the factors to be taken into consideration leaves only one way of presenting them open to us. We must select first one and then another point of view, and follow it up through the material as long as the application of it seems to yield results. Each separate treatment of the subject will be incomplete in itself, and there cannot fail to be obscurities where it touches upon material that has not yet been treated; but we may hope that a final synthesis will lead to a proper understanding" (1915d, pp. 157-8).

17. Many writers have discussed related ideas in a somewhat different way. The phenomenon is also familiar in clinical situations where a patient describing a situation may enact what is being described or tell it in a form that carries some of the features of the events described. This is an impressive aspect of the redundancy of modalities and representations in communication.

18. A calligram is a poem written in a form that gives a picture of its subject. Foucault (1982) writes: "... the calligram has a triple role: to augment the alphabet, to repeat something without the aid of rhetoric, to trap things in a double cipher. ... It lodges statements in the space of a shape, and makes the text say what the drawing represents. On the one hand, it alphabetizes the ideogram, populates it with discontinuous letters, and thus interrogates the silence of uninterrupted lines." pp. 20-21. It seems that some aspects of the form of Freud's propositions about the mental apparatus provide a map of the organization within which the words describing it are contained, like a description of the alphabet would contain the alphabet.

While words contribute access to a linear logical scrutiny of ideas, the use of organization and word usage for representational purposes, that is, as icons, reintroduces the perceptual elements into the formulation, enriching its meaning.
We can extract from the mixture a picture of the organization of mind that the words themselves can only awkwardly express, since in the end their purpose is to represent something which is more easily expressed in a spatial form. (cf. Foucault, 1970)

19. A deliberate literary use of the same method is found in James Joyce's *Ulysses*. In the section often referred to as "the Sirens," Joyce presents a series of sub-episodes within the main narrative. In each sub-episode, phrases appear which belong to other episodes, not to the main on-going narrative. These jarring inappropriate phrases belong to the action of the other episodes and thus indicate the simultaneity of two events. The whole section is in fact preceded by a presentation of these phrases, the whole list serving as an overture to the section in deliberate analogy to a piece of music.