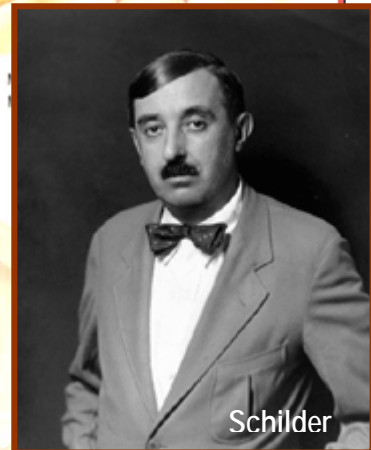
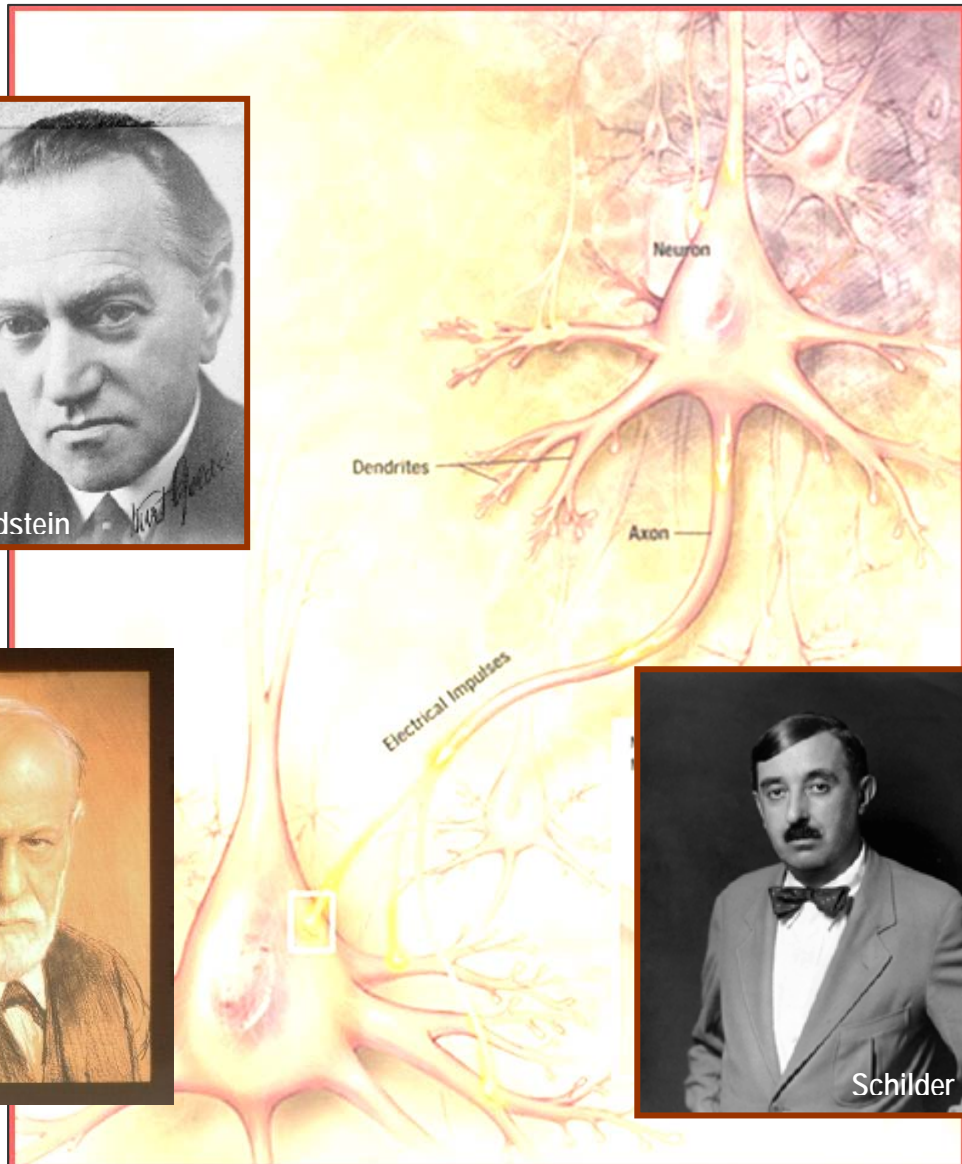
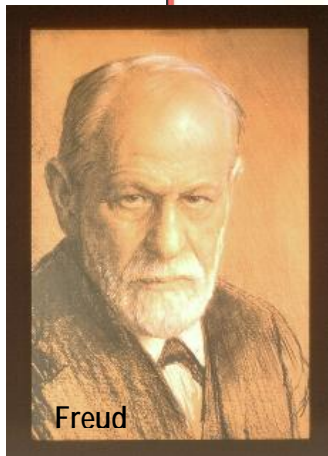
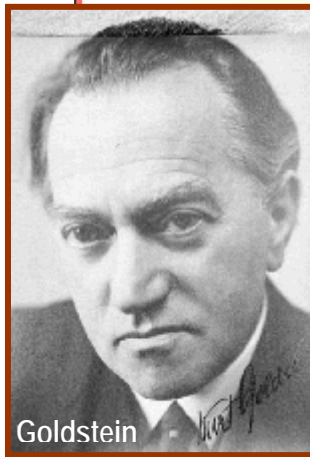


Neurological Models and Psychoanalysis¹

By Malcolm Pines

1998



¹ Pines, M. (1998). Neurological Models and Psychoanalysis. In G.Guttman & I. Scholz-Strasser (Ed.), *Freud and the neurosciences: from brain research to the unconscious* (47-55). Wien: Verlag der Österreichischen Akademie der Wissenschaft.



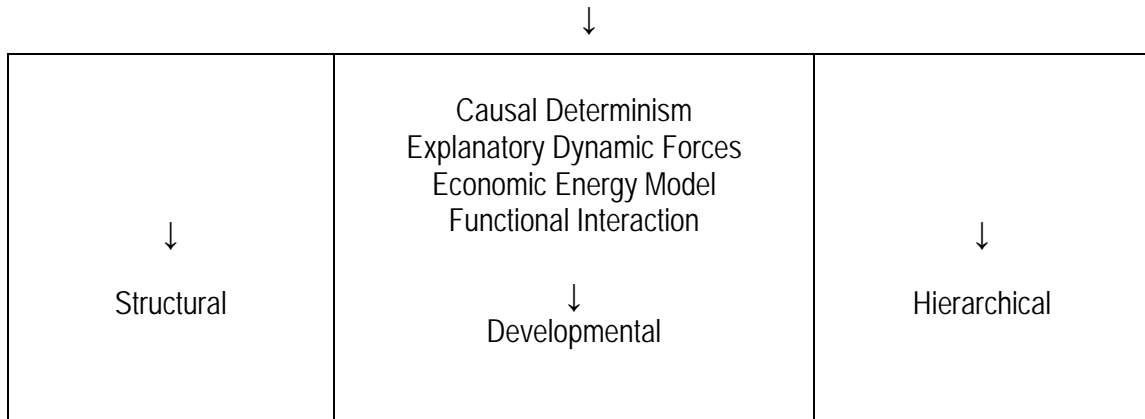
In this communication I shall draw out some of the underlying features of the neurological model used by Freud, notably in his *Project for a Scientific Psychology* (1895) with the very different neurological models used by and Paul Schilder. Goldstein was born in 1878 and graduated in medicine in 1903, Schilder, who was eight years his junior, graduated in medicine in 1909 and went on to take an additional doctorate in philosophy from the University of Vienna during World War One. Both Goldstein and Schilder had strong philosophical interests which they integrated with their models of the human being; both were influenced by Husserl in philosophy and by Wernicke in psychiatry. Goldstein and Schilder covered very wide areas in their clinical work and publications and it is through their advocacy of a holistic organismic approach that they should both be remembered and celebrated, though their example and influence is nowadays not widely recognised. Goldstein is best known through his studies of the brain-injured patient in which he showed how the basic deficit in brain damage is loss of the abstract attitude and its replacement by the concrete. Later he applied this work to schizophrenia. Schilder's work culminated in his *Image and Appearance of the Human Body* published in 1935.

After having sketched out the distinctions between the models of Freud, Goldstein and Schilder, I shall also briefly relate to developments in the understanding of language and communication which seem to follow the same developmental path: in particular I shall briefly refer to Saussure, Vigotsky and Bakhtin.

Freud's *Project* (1895), preceded by his monograph *On Aphasia* (1891), represented his most ambitious attempt to create a neurodynamic view of the psyche. He used a neuronal model, the fundamental unit of which is the reflex arc; the model is concerned with drive regulation. In a letter to Fliess he wrote, "*Everything fell into place, the cogs meshed, the thing really seemed to be a machine which in a moment would run of itself*". (*Origins of Psychoanalysis*, Letter 32, page 129). Freud's neurones were theoretical neurones, his neurological experience having preceded Cajal's discovery of the anatomical neurone — and he built them into a complex network. Freud's concern was with somatic energy with the structure that contained and discharged this energy. This mental apparatus developed in response to external stimulation, for the organism is inevitably dependent on the objective world for "the exigencies of life". The basic problem of the mental apparatus is to cope with bodily needs and to regulate drive energy. The capacity for distinguishing memory and perception, for delaying discharge, for developing the ego pathways is elaborated. Walter Stewart writes of "the beauty of this self-regulation, self-reporting control of energy flow in the neuronal system".

Roger Smith in his wide ranging study of the Concept of Inhibition in 19th century culture and science, writes of the "language of ordered relations that acquired authority in the 19th century" (page 222), and how, in Freud's work, we can see that the order that makes society possible becomes the order within the person through which power is distributed and differentiated. Freud's six assumptions were causal determinism, explanation by dynamic forces, an economic model of energy and a structural, developmental and hierarchical approach to functional interaction. This cluster of assumptions, Freud's frame of reference, concerned the dynamic interaction between different elements of nervous or psychic energy and the way in which their interaction was ordered "in spatial, developmental and evolutionary terms". Freud's metaphors related to a mental apparatus and the forces operating within it, these metaphors shifting from spatial to dynamic, but even so these economic and dynamic psychic metaphors related to 19th century economic concepts of limited resources, of inhibition resulting from the clash of forces, emphasising the values of order and control.

FREUD'S NEUROLOGIC-PSYCHOLOGIC ASSUMPTIONS



(Roger Smith, 1992)

What is it that so radically differentiates the later models used by Goldstein and Schilder from this 19th century model of Freud's? It is the organismic and holistic position in which organism and environment cannot be studied in isolation, for together they are the fundamental units for study. To quote Schilder, "A body without a world is just as unthinkable as a world without bodies". The knowledge of our corporality, the three-dimensional concept of our self which we carry in as must also be the knowledge of the outside world. Schilder's concept of the body image incorporated Freud's view of the ego as primary body ego, the postural model of the British neurologist Henry Head and Wernicke's somatopsyque. And society is incorporated in the body because the organism has to take its place in the world. There is no possibility of studying or understanding the body or the mind without taking into account circumstances and context.

Walter Riese, a distinguished neurologist who was also sympathetic to psychoanalysis, has completed Freud's psychoanalytic and neurological models as they appear in his early writings.

<p>NEUROLOGY</p> <ul style="list-style-type: none"> • Associationism • Aphasia as interrupted associations • "Central Apparatus of speech" 	<p>PSYCHOANALYSIS</p> <ul style="list-style-type: none"> • Topographic model • Structural model • Conversion hysteria • Part isolated not entering into association with ideas • making ego take wrong path • Subconscious affective associations • "Psychic Apparatus"
--	---

(Walter Riese, 1958)

Freud's model of aphasia was based on associationism, the then prevalent model in neurology and psychology. Thus the speech disorder derived from interrupted associations in the cortex. It is interesting to note that Freud wrote of the "central apparatus of speech" which, as Ervine Stengel put it, represented the elder brother of the "psychic apparatus". Walter Riese writes that Freud "failed to do justice to the new and creative factor implied in human language".

By this he means that there is a qualitative conceptual leap from this 19th century associationist anatomical-physiological model of speech to the concept of the “animal symbolicum”, to use the term of Ernst Cassirer (incidentally Kurt Goldstein’s cousin). Cassirer describes man as not living in a merely physical universe but in a symbolic one employing linguistic forms, artistic images, medical symbols or religious rites. Following this direction in 1926 the great British neurologist Sir Henry Head, defined aphasia as “disorders of symbolic thought and expression”. Kurt Goldstein is described by Walter Riese as “thoroughly humanistic though experimental at the same time, a shining example of the compatibility of both these perspectives”. Goldstein, clearly influenced by his cousin Cassirer, often refers to the great Wilhelm von Humboldt, who taught that language is the organ of thought and that intellect and speech are one and inseparable. Goldstein, Head and Schilder occupy the conceptual domain in which understanding language, its development and its disorders, is inseparable from studying the human being as a communicative animal. This social animal engages in meaningful communication with himself and with his fellows, because he is a listener to himself and thereby knows that the other will understand his utterance. The human being as an articulate communicator is inseparable from the formative cultural matrix of language and behaviour.

COMPARISON OF FREUD’S MODEL AND THE GOLDSTEIN-SCHILDER MODELS

	Freud	Goldstein — Schilder
<ul style="list-style-type: none"> • Field of Observation • Environment • Concepts 	<ul style="list-style-type: none"> • Individual CNS • Source of Stimuli • Tension Reduction • Biological Drives • Association Psychology 	<ul style="list-style-type: none"> • Organism • Intrinsic: Figure-ground • Active Adaptation • Communication • Gestalt Psychology • Neuronal Network
<ul style="list-style-type: none"> • Neurological Model 	<ul style="list-style-type: none"> • Evolutionary • Doctrine of Levels 	<ul style="list-style-type: none"> • Neuronal Network
<ul style="list-style-type: none"> • Clinical 	<ul style="list-style-type: none"> • Aphasia in Children 	<ul style="list-style-type: none"> • Brain Damaged Adults • Schizophrenia

Goldstein, a phenomenologist, differentiated himself from psychoanalysis but Schilder was invited by Freud to join the Vienna Psychoanalytic Society though he never underwent personal analysis. Both Goldstein and Schilder grew up in the new psychology of Gestalt and both were opposed to Freud in what they saw as the psychoanalytic project, which is to assemble the whole organism from a study of its parts, for example the structural model, whereas their starting point was the organism in its totality, however early or primitive in form it might seem to be.

As Walter Riese (The Reach of the Mind, essays in memory of Kurt Goldstein, edited by Marianne Simmel, Springer Publishing Company New York) has written, “Goldstein insisted on the total unitary function of all nervous events, of all organic events”. The Gestalt concept of figure and ground is always taken into account, a concept which as far as I know is absent in Freud. The driving forces of both normal and abnormal cerebral events are the actual situation in which the person finds himself, its demands, their relation to the possibilities remaining to the individual and his attempts to solve the problem set before him, even though they may overpower him and elicit catastrophic reactions. Goldstein rejected the reflex arc as a useful model of neuronal processes, for as a philosopher of biology he saw it as a product of the biological schema of the 19± century. His basic unit of study is the interdependence and reciprocity of parts.

Any disturbance to the central nervous system or to the organism itself produces changes in the functioning of the whole central nervous system and other physiological systems. Goldstein's study of language in Aphasia represents a conceptual leap forward from Freud's by his demonstration of the subtlety of disturbances of language that can only be elicited through the most careful attention to the way in which the sufferer approaches the task in hand. However, Goldstein shared Freud's opposition to doctrines of cerebral localisation as solely responsible for neurological symptoms and also shared Freud's acceptance of Hughlings Jackson's thesis of the hierarchy of levels in the central nervous system.

Amongst Goldstein's intellectual influences were the philosophers, Goldstein's cousin Ernst Cassirer, Edmund Husserl and Kant. My own analyst and teacher, S. H. Fuchs was greatly influenced by Goldstein, having worked as his personal assistant for two years after World War One, prior to his training as a psychoanalyst.

Fuchs was also a junior contemporary and pupil of Paul Schilder, and acknowledged his genius. Fuchs greatly admired Schilder's work on the Image and Appearance of the Human Body, which had led Schilder to become a pioneer of group psychotherapy when he moved to America. Schilder's basic assumption was that the human organism intends to grasp and to achieve reality in life's most obvious senses as well as on its richest and deepest levels. In his basic frame of reference were intentionality (Vigotsky) the synthetic function of the psyche (ego), the body image concept and the sociological situation of the human being. "The relation between outer world, body and self, is a fundamental human relation". He introduced the concept of the "sphere", influenced by Wernicke, this being the unformed background of experience from which object directed intentions emerge as reality-relevant thoughts and actions. He did not differentiate between conscious and unconscious in the way that psychoanalysis does; there is a continuum of consciousness within the sphere and Heinz Hartman acknowledged that Schilder's view of mental functioning anticipated concepts such as the autonomous functions of the ego.

Schilder insists that every sensation has a motor aspect, that perception involves activity and movement. The drives thrust outwards towards the world and other individuals have ab initio a full interest in the outside world and therefore in its preservation; we have pleasure in activity and both our activity and our aggression express our interest in external objects. These views of Schilder anticipate modern investigations of infant-caregiver relations which do not support the concept of the phase of primary narcissism or early autism, a position which Schilder himself always took, disclaiming primary narcissism. Contemporary studies show how the infant actively investigates the presence of others and seeks from them the completion of his early activities. From the start all the senses are evoked and evolved — touch, taste, smell, balance, hearing and vision. For Schilder "The secret of life seemed to be the seeking after but never quite achieving closure". (Ziferstein) According to Schilder the synthetic function is a general characteristic of psychic life: the psyche manifests itself as a unit which represents itself in different aspects and builds itself up again and again in response to varying situations.



PAUL SCHILDER'S BASIC CONCEPTS

Intentionalism. Drive towards objects Sphere.
Unformed background of experience (unconscious)
Synthetic psychic function
Body image concept

Schilder's and Goldstein's insistence on studying the nervous system as a whole and on the organism's active interest in achieving a satisfying response is supported by modern neurophysiological research. E Levin (*Mapping the Mind: the Intersection of Neuroscience and Mind*) describes the role of the general level of arousal of the brain. When the arousal level is below a certain threshold of excitement, the person's conical activity seems to be limited to only one cortical association area at a time but when the threshold of interest is exceeded, the brain becomes activated as a whole and the various associative cortical parts come into communication with each other, as if in an internal conversation or dialogue. It is then that learning about the world can take place. Similarly Daniel Stern has shown through his research on infants that their interest in and openness to the world is at its maximum after feeding, after consummatory activity, for it is then that the infant, content and relaxed, is curious about and engages in rich interchanges with the world, primarily with the caregivers and it is here that the basis for the capacity for intimacy is laid down.



SCHILDER: THE BODY IMAGE

The picture of our own body which we form in our own mind, the way our body appears to ourselves is based on three constituents:

- Physiological neurological
- Libidinous
- Sociological

Schilder's concept of the body image combines the physiological, the libidinal and the sociological. The physiological is investigated through disturbances in the body image, such as Gerstmann's syndrome, which he studied together with Gerstmann; the libidinous structure of the body image refers to developmental phases, the oral cannibalistic phase when the organism wishes to incorporate the world, the anal sadistic power struggle in relationship to the world which is turned into masochistic submission in an attempt to incorporate that external power as part of the self, and eventually the erogenic.

LIBIDO AND BOOY IMAGE

Narcissistic	
Oral cannibalistic	Bring body
Anal sadistic	close to
Genital	world
Grasping	Sucking
Groping (Return with brain injury)	

A major feature of the body image is its sociology. Libido and society are inseparable; all body images are interconnected and are concerned with affectivity and closeness. Body images cannot exist in isolation, we demand that our body images be unified and insist on the close link between our bodies and those of others. The most solitary or withdrawn activities such as masturbation are social; the secrecy, the blushing, the fear that evidence of masturbation may be seen on the face demonstrates its social aspects.. Changes in body image are always social and alter the body image of others and there is a constant exchange between these images. The total body image of others can be absorbed into our own and our own bodies can be projected as a

whole into those of others. Movement, clothing, social activities such as dancing, all evoke changes in the body image.

CHANGES IN BODY IMAGE

<u>Negative</u>	<u>Positive</u>
Organic	Clothing
Psychotic	Adornment
Neurotic	Activity
Depersonalisation	

The body image is in some ways the sum of the body images of the community and is constituted according to the various relationships the community makes available. Concepts such as closeness, the near and the far, are impregnated with social experiences, for there are continuous interchanges between parts of our body images and those of others, through projection and appersonisation. Similarly, the ego cannot be constituted without others, being created in continual interchanges.

SOCIOLOGY OF BODY IMAGE



Grows beyond physical body into social space
 Libido is social directed at other body images
 All images are interconnected affectively connected and continuously exchanged
 Constructed reconstructed dissolved
 Preservation of integrity of self and other —ethical imperative

This dance of the body images brings me to my last thesis, of the dialogue as the basic unit of human existence. We exist immersed in civil society, for which we require knowledge that is never completely in the head of any one of the individuals in its use. It is our culture that forms the invisible of our social activities — we are born into a world of sounds, languages, activities, from which we draw provisions and resources for forms of social behaviour, for becoming members of the community.

Dialogue is essentially taking part in joint action with others: We must respond by formulating appropriate utterances in reply to their utterances: we speak into a context that is not of our own making. And from this situation, that is speaking into a social context, moral knowledge emerges, for we depend on the judgements of others as to whether our expressions are ethically proper or not, a kind of knowledge we cannot have solely within ourselves. This is a form of knowledge, a knowing “from within” to contrast it with other kinds of knowledge such as knowing facts and “knowing how”. To illustrate this, recently the group was joined by a patient who quickly seized the space-time of the group to speak amusingly about himself. The responses that he evoked, the ones that he took away with him and thought about, were of having been told firstly that he was not taking good care of himself by responding so immediately to intimate questions from others, such as details about his sexuality and that he needed to be aware of this to safeguard his position both in the group and in society and secondly, that though he was the sort of person who would frequently be invited to parties because he was so enlivening this is not the sort of person

that people would want to offer employment to because they might have doubts of his reliability or capacity for work. He reflected on both these responses and felt that they had been indeed useful to him in enabling him to understand why despite all his activities he nevertheless remains friendless.

Here again infant caregiver research is beginning to show (Emde) that a morality of reciprocity and mutuality is encoded in early forms of behaviour, when sameness, difference, otherness, is experienced and is externalised and internalised in early forms of play. Through such experiences a sense of "we-ness", "us-ness" emerges, that Emde terms "the executive we". It is here that the powers of the world of caregivers are freely and lovingly given to the infant, an area defined by both Kohut and the Self Psychologists as the functioning of the Selfobject.

For Saussure the basic unit of speech is the sentence; for Bakhtin it is the "utterance". As units of language verbal sentences, utterances, belong to a responsive, interactive unit, anticipating response. The utterance marks the boundary between persons and must be directed into an already linguistically shaped context. Formulating our utterances we take account of the voices of others; we are engaged in two processes, controlling what we can say and anticipating how others may respond, over which we have no absolute control. We live in a way that is responsive both to our own position and to the position of those who are "other than" ourselves in a semiotically created "world" in which we are "placed", owning no internal sovereign territory. Our private lives are neither as private, as inner, as isolated and self-contained as we tend to assume. The "within" and the "between" are in many ways equivalents, negotiated in back and forth processes. The Russian Volosinov wrote, *"By its very existential nature, the subjective psyche is to be localised somewhere between the organism and the outside world, on the borderline separating these two spheres of reality."* Vigotsky states that whatever happens on the intrapsychic level has already happened on the inter-psychological, the social level, the sociogenesis of higher forms of behaviour. As John Shotter has written (Cultural Politics of Everyday Life, Open University Press, Buckingham 1993), every utterance has a subtext; it is an attempt to develop a sensed "thought-seed" into an utterance-flower. We are always engaged in inner speech and there are those with whom, about whom and to whom we speak in our inner speeches.

Thus my thesis is of the movement from one body to two and three-body psychology (Rickman), from Freud's neurological intrapsychic one body mental apparatus to the position of Bakhtin, who writes, "I am conscious of myself and become myself only by revealing myself to another through another and with the help of another."

Every internal experience ends up on the boundary. The very being of man (both internal and external) is a profound communication. To be means to communicate... To be means to be for the other; and through him for oneself. Man has no internal sovereign territory: he is all aid always on the boundary".

REFERENCES

- DAMASIO, A. R. (1995). *Descartes' Error. Emotion, Reason and the Human Brain*, London: Picador.
- FUCHS, S. H. (1936). "Zum Stand der heutigen Biologie". Dargestellt an Kurt Goldstein «Der Aufbau des Organismus» *Imago*. 22. 210.
- FREEMAN, W. J. (1995). *Societies of Brain. A study in the neuroscience of love and hate*, Hillsdale, NJ: Erlbaum.
- GOLDSTEIN, K (1995). *The Organism*, Foreword by Oliver Sacks, New York Zone Books.
- HOLQUIST, M. (1990). *Dialogism. Bakhtin and his World*, London: Routledge.
- MODELL, A. "Neural Darwinism and a conceptual crisis in psychoanalysis" in "Selectionism and the Brain," *International Review of Neurology*, vol. 37.
- MODELL, A. (1993). *The Private Self* Cambridge: Harvard University Press.
- RIESE, W. (1958). "Freudian Concepts of Brain Functions and Brain Disease," *Journal of Nervous Mental Diseases*, 287—307.
- SACKS, O. W. "A new vision of the mind," *International Review of Neurobiology*, vol. 37.
- SHASKAN, D. A. and ROTTER, W. L. (1985). *Paul Schilder, Mind Explorer*, New York: Human Sciences Press.
- SHOTTER, J. (1990). *Cultural Politics of Everyday Life*. Buckingham: Open University Press.
- SMITH, R. (1992). *Inhibition. History and Meaning in the Sciences of Mind and Brain*, London: Free Association Books.

Freud and the neurosciences: from brain research to the unconscious.

Giselher Guttmann; Inge Scholz-Strasser (ed.). With contributions by Oliver Sacks. Wien: Verl. Der Österr. Akad. Der Wiss., 1998. ISBN 3-7001-2740-5

Contents:

- GISELHER GUTTMANN, INGE SCHOLZ-STRASSER: Preface 7
- OLIVER W. SACKS: Sigmund Freud: The Other Road
- GISELHER GUTTMANN: From the Sum of Excitation to the Cortical
- DC POTENTIAL. Looking Back a Hundred Years
- HARALD LEOPOLD-LÖWENTHAL: Freud as a Neurologist
- MALCOLM PINES: Neurological Models and Psychoanalysis
- CORNELIUS BORCK: Visualizing Nerve Cells and Psychical Mechanisms.
- The Rhetoric of Freud's Illustrations
- MORRIS N. EAGLE: Freud's *Legacy. Defenses, somatic Symptoms and Neurophysiology*
- DETLEF B. LINKE: Discharge, Reflex, Free Energy and Encoding