

Are Mental Illnesses Diseases of the Brain?

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This chapter offers a systemic and ecological account as an opposing view to the naturalist idea that mental illnesses can be reduced to dysfunctions of the brain. Mental illness is regarded, on the one hand, as inseparable from the living organism and on the other, as inseparable from the patient's lifeworld or social environment. In order to grasp mental disorders in their context, the notion of monolinear causation has to be replaced by the notion of *circular causality*. In this view mental illnesses are marked by a disruption of *vertical circular causality*, that is, the interplay between lower-level processes and higher faculties of the organism. This primarily affects a mentally ill person's relation to themselves which continually co-determines the course of the illness. On the other hand, mental illnesses are characterized by a disruption of *horizontal circular causality*, in other words of social relationships and the ability to respond adequately to the demands and expectations of others. This leads to negative feedback loops in socio-functional cycles that influence the course of the illness from the very beginning. Both kinds of circular causal processes are tied to mediation by the brain, but cannot exclusively be located within it. For this reason reduction of mental illnesses to diseases of the brain is in principle not possible.

The basic research program of the neurosciences consists in naturalizing consciousness, subjectivity, and also intersubjectivity—in other words explaining them in neurobiological terms. Even though this program is far from being realized, the impression is created that subjective experience can be imaged in the brain and in this way, as it were, materialized. This has far reaching effects on our image of the human being in general. The use of “brain language” is increasingly permeating our self-conception. In the wake of a popularized neurobiology, we are beginning to regard ourselves not as persons having wishes, motives, or reasons, but as agents of our genes, hormones, and neurones. Consequently, our problems and sufferings are often no longer considered existential tasks that we must face, but results of malfunctioning neuronal circuits and hormonal metabolism.

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Biological psychiatry for its part aims to find the cause of mental illness in deviant functioning of the brain, according to the dictum commonly ascribed to Griesinger: "Mental illnesses are diseases of the brain."¹ The—as yet—poor attempts towards the end of the nineteenth century by Theodor Meynert (1884), for instance, to subsume mental illnesses under the "diseases of the forebrain" were derided by Jaspers (1913/1973, p. 16) at the time as "brain mythologies." Today, however, it seems only a matter of time until specific genetic and neurophysiological correlates of all mental illnesses are found and allow us to causally trace them back to neuronal substrates. If anxiety disorders, depression, and schizophrenia are actually brain disorders, psychiatry finally becomes a branch of neurology and the psychiatrist a brain specialist.² Against such a background, there is a risk that therapeutic interventions in psychiatric practice will increasingly be oriented towards brain-centered procedures—pharmacological or directly stimulating modes of influencing brain functions—at the loss of psychotherapeutic or systemic approaches that consider the patients in their biographical and environmental context.

In what follows, I want to provide an opposing systemic-ecological view of mental illnesses. It is based on the assumption that, from birth on, the brain is embedded in interrelations between the person and the environment and is best seen as an organ of mediation and transformation for biological, mental, and social processes that are bound up in circular interplay. In this interplay, subjectivity—a person's experience and their relation to themselves—plays a central role, no less than the person's social interactions with others. For this reason, I claim that mental illnesses are not just brain diseases in the sense in which, for instance, we can trace back an angina pectoris to a coronary heart disease. The patient's altered subjective experience and disturbed relation to others are not mere epiphenomena of an effective organic process; much rather, they are essential elements of the illness itself. However, in order to grasp mental disorders in their subjective and intersubjective context, we first need to consider the notion of *causality* in living systems. Only by challenging the one-way causation that leads from the brain to the mind will we advance an ecological view of mental disorders and, through this, a person-oriented psychiatry.

Circular Causality of Living Systems

In order to embed the brain in the relations of organism and environment, I want to introduce, in what follows, the notion of *circular causality* as a property of living systems (Fuchs, 2009; Haken, 1993). It characterizes the systemic processes of interplay and feedback that were also foundational for Jakob von Uexküll's model of the *functional cycle* (1920/1973) and Viktor von Weizsäcker's theory of the *Gestalt cycle* (1940/1986; see also Fuchs, 2008, p. 121 et seq.). Both concepts refer to the

¹ Note that Griesinger himself in no way held a purely biological view. He was concerned with opposing a contemporary view according to which mental illnesses could not only be located in the brain, but in the entire body (see Schott and Tölle, 2006).

² See Insel & Quirion (2005): "The recognition that mental disorders are brain disorders suggests that psychiatrists of the future will need to be educated as brain scientists."

inseparable interconnection of perception and movement: what an organism senses is a function of how it moves, and how it moves is a function of what it senses. Thus, the touching hand anticipates and selects what it feels by its movements, whereas the shape of the object reciprocally guides the hand's touch. Through this, organism and environment co-constitute each other. Similar concepts have been developed more recently in enactivist theories of perception and cognition, as put forward by Varela, Thompson, and Rosch (1991), O'Regan and Noë (2001), Thompson (2007), and others. The feedback cycles between an organism and its biological as well as social environment may be termed *horizontal circular causality*. Examples are the aforementioned cycles of perception and action, but also the interactive processes in social systems, as they are, for instance, analyzed in family systems therapy (see also Fuchs & De Jaegher, 2009).

But there are also circular relations *within* the organism, namely between the whole and its parts, or between lower and higher systemic levels. I characterize them as *vertical circular causality*. Thus, a living being may be regarded as a system that continuously reproduces the components of which it consists (organs, cells), while these components reciprocally sustain and regenerate the system as a whole.³ The whole is the condition of its parts, but is in turn realized by them. Such a structure, for instance, characterizes the relations between genes and the organism: the genetic structure of an individual cell nucleus controls the necessary production of specialized cellular organs and functions ("upward" causality). Conversely, the configurations and functions of the entire organism determine which genes are even given relevance for the development and regulation of a certain individual cell ("downward" causality).

This type of causality is often regarded as problematic or obscure, for two main reasons. First, since the whole consists of the parts itself, cause and effect cannot be assigned here to separate agents acting externally on each other. Second, the causal effect of higher systemic levels seems to presuppose unknown physical forces, thus either contradicting the laws of physics or falling prey to Occam's razor (see Craver & Bechtel, 2007 for a criticism). However, there is no need to restrict the notion of causality to *efficient* causality, according to the paradigm of billiard balls acting on each other. Macro-structures can well have *formative* causal influences on the micro-elements by which they are structurally realized. This formative causality does not imply the emergence of novel natural forces that are at odds with the laws of physics. Rather, macro-structures, by their particular form and configuration, are able to "select" certain properties of their components, and "block" others (Campbell, 1974; Moreno & Umerez, 2000). Moreover, the components may also acquire new, emergent properties. For example, iron molecules integrated into haemoglobin become able to reversibly bind oxygen, which is an extremely improbable state in anorganic nature. No physical "miracle" is required to accomplish this, but only a higher order structure (in this case haemoglobin) which "enslaves" its own constitutive elements (Haken, 1993) and involves them in specific patterns of behavior.

³ Accordingly, Varela has defined an autopoietic system, or the minimal living organization, as "one that continuously produces the components that specify it, while at the same time realising it (the system) as a concrete unity in space and time, which makes the network of production of components possible" (Varela, 1997, p. 75).