

The term '*Biosemiotik*' in the 19th century

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Abstract. Tracing the emergence of biosemiotics, attention can be drawn to the very early usage of the term 'biosemiotics' (*Biosemiotik*) in the writings of Austrian chemist Vincenz Kletzinsky (1826–1882) that dates back to the 1850s. In the same decade, Kletzinsky also proved to be among the first to use the terms 'biochemistry' and 'biophysics'.

'Biosemiotics' in the 20th century

The term 'biosemiotics' as the name of a field of study emerged and was taken into use in the 1960s. Friedrich Rothschild (1962; 1963; 1968; 1969; 1970), followed by his colleagues in Israel,² both defined and employed the term; in addition, he formulated some "laws of biosemiotics" and described the aims of the field (see Kull 1999). However, the term 'biosemiotics' has been coined on several occasions that appear to be independent of one another.

Thus, at a linguistics meeting held in Georgetown University (Washington D.C., USA) in 1965, young linguist Ian Stuart, obviously independently of Rothschild, declared during a discussion: "in what I've always called biosemiotics, but which Dr. Sebeok calls zoosemiotics ..."³ (Stuart 1965: 133). Indeed, in 1963 when Thomas

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² See, e.g. the chapter "Biosemiotic interpretations of perceptual-motor processes and their involvement in higher cognitive functions" in Kohen-Raz 1977: 31–41.

³ The context in which the phrase appears is the following: "But I should like to say that, in line with the work I've been doing at the National Institutes of Health in what I've always called biosemiotics, but which Dr. Sebeok calls zoosemiotics, it seems very clear that human language seems to operate not so much in what we grandly call communication, but rather in orientation. The organism, as one individual in a behavioral population, seems to be necessarily oriented to a very complex environment. This orientation seems to be handled by the higher cortical functions and is especially available for observation in language. Language can thus be thought of, from one point of view, as a complex orientational mechanism for the higher functions" (Stuart 1965: 133–134). Interestingly, Emmeche and Hoffmeyer (1991) discussed

Sebeok introduced the term ‘zoosemiotics’ (Sebeok 1963), he did not speak about ‘biosemiotics’ yet and would not be using the term for several years to come.⁴

A more widespread use of ‘biosemiotics’ could be observed in the 1970s when Yuri Stepanov included a chapter titled “Biosemiotics” in his Russian-language book on semiotics (Stepanov 1971), and we used the term at the conference “Biology and Linguistics” in Tartu in 1978. When, in our first meeting with Sebeok that happened in 1992, I asked him about the origin of the term ‘biosemiotics’, he pointed to Stepanov’s 1971 book as the earliest printed source in which this word is mentioned. Later I asked about this from Stepanov, who wrote to me in a letter from February 2010: “As for the term biosemiotics, I did not hear it from anyone in 1971, but, more importantly, a small circle of like-minded people already used it in our oral discussions of new books and articles during meetings. The most active biologist in this regard was Thomas Sebeok, who has visited me in Moscow with his wife.”⁵

In the 1960s, the word ‘biosemiotics’ undoubtedly had been used but very rarely, yet, remarkably, the 1960s were not the decade of the first emergence of this term. The word ‘*Biosemiotik*’ had already been in use in the German language at least as early as in the 1850s.

The 19th century and ‘semiotics’ as a term

The term ‘*Semiotik*’ had been in common use in German-language medical literature in the late 18th and the 19th centuries,⁶ denoting the branch of medicine that dealt with pathological signs. In that period, at several European universities (including the University of Tartu, known at the time as *Kaiserliche Universität zu Dorpat*) courses on semiotics were read to medical students, and textbooks of the subject published, for example Christian Gruner’s *Physiologische und Pathologische Zeichenlehre* (Gruner 1801) and Kurt Sprengel’s *Handbuch der Semiotik* (Sprengel

some of Stuart’s later work – Stuart 1985a and 1985b (in which he did not use the term) – in one of their first articles on biosemiotics, which indicates that this was more than just a word.

⁴ Sebeok started to use the term ‘biosemiotics’ in the 1970s, in print at least since Sebeok 1976: 1439.

⁵ “Что касается термина биосемиотика, то в 1971 году я ни от кого его не слышал, но, что гораздо важнее, небольшой кружок единомышленников уже его использовал в своих устных обсуждениях новых книг и статей во время встреч. Самым деятельным биологом в этой связи был Томас Себеок, который с супругой был у меня в гостях в Москве.” (my translation from Russian, K. K.)

⁶ See reviews by Eich (1986) and Eckart (1998).

1801; 1815). Medical semiotics was also known in French universities (e.g. Landré-Beauvais 1818; Bouchut 1883). This followed a long tradition of medical semiotic thought that had been developed throughout the medieval period, and would to some extent include studies of animals and medicinal plants (see Broek 1985). The term 'sémiologie' was evidently known also to Ferdinand de Saussure already from medical semiotics.

While mainly known in the medical context, 'semiotics' was also used in a broader meaning, particularly closer to the end of the 19th century. For instance, in his review of sciences chemist George Field described semiotics and arbitrariness of signs under philology (Field 1839: 83–97, Ch. "Semiotics").

Vincenz Kletzinsky

In contrast to 'Semiotik', the term 'Biosemiotik' was not in use in 19th-century medical semiotics – with the exception of some very rare cases. In particular, it appears in some writings by the Austrian biochemist Vincenz Kletzinsky.

Vincenz Kletzinsky was born in 1826 in the family of a physician in Gutenbrunn, Austria. He graduated from *Gymnasium* in Vienna and thereafter studied medicine, working as an assistant in the laboratory of pathological chemistry in Vienna University and focusing on pathochemical diagnostics. In 1855 he became a professor of chemistry in a newly opened high school (*Wiedner Communal-Oberreal und Gewerbeschule*) in Vienna, where he worked until the end of his life in 1882. He was a popular writer and author of books on chemical and medical topics. He attached much importance to popularizing scientific knowledge, and his public lectures attracted many listeners. He followed the latest achievements in chemistry and was the first to inform the Viennese public about them (Haswell 1882).

Kletzinsky used the word 'Biosemiotik' in a couple of texts: in an article from the year 1855 (Kletzinsky 1855: 573) and in his textbook of biochemistry (Kletzinsky 1858). In these sources, Kletzinsky speaks about 'biosemiotics of manganese' ("*Biosemiotik des Mangans*" – Kletzinsky 1855: 573; 1858: 51), 'biosemiotics of gases SH and PH₃' ("*Vorkommen und Biosemiotik dieses Gases (SH)*", "*Biosemiotik von PH₃*" – Kletzinsky 1858: 39, 45), 'biosemiotics of table salt'⁷ (Kletzinsky 1858: 67).

⁷ "Das Kochsalz und Digestivsalz haben eine in Bezug auf ihre Basen abweichende Biosemiotik, deren Unterscheidungsmoment für sämtliche Alkalisalze gleich hier ein für allemale besprochen werden soll" (Kletzinsky 1858: 66–67).

By the biosemiotics of a chemical substance, Kletzinsky means relatedness of these compounds to pathological conditions in organisms – their role as signs of pathologies. He could have been writing about the *semiotics* of certain substances (as it was common at the time, see also Kletzinsky 1852), but he seems to use the term ‘*biosemiotics*’ when considering also animal and plant life: an expression such as ‘biosemiotics of a particular substance’ referred to the (mainly pathological) significance of that substance in animal or plant life. It is not clear how widespread the usage of the word ‘*Biosemiotik*’ was in the 19th century, but currently it seems that Kletzinsky’s writings seem to be exceptional in this regard.

Kletzinsky was among the very first to use the term ‘biochemistry’ (*Biochemie*) which became the title of his textbook (Kletzinsky 1858).⁸ At the time, a more common name for the subject dealing with chemistry of organisms was ‘physiological chemistry’, which was replaced by ‘biochemistry’ only around the turn of the 19th and the 20th centuries. Kletzinsky was also one of the earliest writers to use term ‘biophysics’. According to Kletzinsky, biology should consist of three main branches – biochemistry, biophysics, and biomorphology (Kletzinsky 1858: 1). The pattern of adding ‘bio-’ to the disciplines of chemistry, physics, and morphology matched his move of adding ‘bio-’ to semiotics.

It is interesting that most reviews on the history of biochemistry and biophysics provide much later dates for the first usage of the names of these fields, and the histories of biosemiotics have been doing the same until this current finding. The history of semiotics (as well as biosemiotics) of the 19th century would deserve a more detailed review, particularly as regards the aspect of how medical semiotics influenced the growth of general semiotics.

Scientific priority is not important and almost never correctly established, while an emergence of something can sometimes be rather significant. Moreover, emergence is quite often plural, particularly the emergence of scientific terms.

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⁸ Kletzinsky’s pioneering role in introducing the term ‘biochemistry’ is also confirmed in Büttner 2004: 56–57.

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⁹ Haswell and some other authors use the spelling 'Vinzenz', but Kletzinsky himself writes 'Vincenz'.

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