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Problem technologicznego zapośredniczenia rozwoju nauki a powstanie bioinformatyki

ABSTRACT. The codependency of science and technology. The case of bioinformatics
The bioinformatics revolution is probably the third major revolution in the life sciences, the other two being the Darwinian revolution and the Mendelian revolution. However, contrary to these two early revolutions, the bioinformatics revolution was only possible due to the underlying technological breakthrough. Many philosophical papers ignore or at best diminish the significance of the mutual relations between the scientific revolutions and the technological development, which is often downgraded and regarded as the secondary to the conceptual changes. It can be roughly stated that the more science is dependent on the technology the more important became technical devices for the successful development of a scientific theory. Undoubtly, the bioinformatics is a scientific discipline, which has been strongly influenced by the technology, and, without any exaggeration, can be described as an example of science that would not be possible without the technological background. The presented paper argues against the position known as the technological parallelism, i.e. the belief that not only conceptual revolutions are the main causes of technological breakthroughs but also technological breakthroughs are, by themselves, unable to initiate a paradigm shift and a resulting scientific revolution. The history of science provides more support for the thesis that the early computers shaped the paradigm of computational biology and created the whole gamut of problems to be analyzed by the nascent field of bioinformatics.

KEY WORDS: bioinformatics, bioinformatics revolution, technological parallelism, the codependency of science and technology