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# Reconceptualizing viruses against the shifting sands of opposing thought styles in cancer etiology and bacteriology

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## Abstract

Session: Reconceptions: Life at the frontiers of health and disease (Neeraja Sankaran, Pierre-Olivier Methot, Bartomiej Swiatczak). The discovery that certain types of cancers might be caused by viruses occurred in the early twentieth century, a time when the very concept of viruses as we understand it today, was in a considerable state of flux. For a long time, in fact, viruses were defined rather by what they were not and what they could not do, rather than any known properties that set them apart from other microbes. Consequently when Peyton Rous suggested in 1912 that the causative agent of a transmissible sarcoma of chickens was a virus, the medical research community was reluctant to accept his assessment on the grounds that cancer was not infectious and was caused rather by a physiological change within the cells. This difference in the bacteriological and physiological styles of thinking appears to have been prevalent in the medical research community at large as evidenced by the fact that when Felix d'Herelle in 1917 suggested that the causative agent of a transmissible lysis in bacteria, was caused by a virus, his ideas too, met with a similar reaction, with opponents arguing against a exogenous infective explanation for causation in favor of a physiological explanation involving some factor intrinsic to the host bacteria. This paper examines the ways in which the concept of virus needed to be rethought and stabilized and the exogenous and endogenous explanations for cancer etiology and bacteriophage reconceived in common terms, before consensus was achieved and these phenomena understood properly.

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