von Neumann, John

★The computer and the brain.
Silliman Memorial Lectures, Vol. 36

Although unrevised and partly incomplete because of the author’s untimely death, these Silliman Lectures are an outstanding example of J. von Neumann’s insight, brilliance and clarity. In a language that any intelligent layman can understand, he speaks in the first part, concisely and precisely, of analog and digital computers; in the second, of neuro-anatomical and physiological data concerning nervous systems. Similarities and dissimilarities are brought forth vividly on the basis of quantitative estimates of speed, complexity and energy consumption in both; particularly stimulating is the analysis of the different logical and arithmetical depth of operations in the machine and in the brain, as related to their different structures. The book ends with a remark which, in this reviewer’s opinion, will become the more significant as years will pass: that the very language and body of concepts of extant logics and mathematics are not absolute necessities, but as accidental and history-bound as Greek or Sanskrit; thus, we have to look for the logics of the brain itself, which is determined by its anatomy and physiology.

E. R. Caianiello

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