

COMMENTS ON VIRTUAL REALITY BY HOWARD RHEINGOLD

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Howard Rheingold's VIRTUAL REALITY is the recount by an excellent journalist of his exploration of the people, places, and things of VR. It describes the major centers of VR research worldwide and the pioneers of the technology. The book makes good reading, presenting a somewhat comprehensive overview, clear and essentially correct technical explanations, and an engaging style. The narrative focuses first on Mr. Rheingold's experiences, sounding rather like a personalized travelogue with an knowledgeable guide. It focuses second on the people who were active during the definitional stages of VR since Ivan Sutherland's SketchPad in the early sixties. Third, we are treated to a non-technical tour of VR research and development.

The expected US sites are well covered: UNC, NASA Ames, MIT, VPL, Autodesk. There are rich accounts of work in Japan and Europe. There is the expected background mention of Sutherland, Engelbart, Kay, Krueger, Furness. Mr. Rheingold describes each pioneer with immaculate fairness, avoiding the cross-currents of a rapidly expanding field, while enforcing the dictate of popular journalism to personalize rather than conceptualize. He brings back from his travels clear descriptions of the non-confidential aspects of VR projects.

A single book cannot and should not address all audiences. Mr. Rheingold is without doubt serving a mass audience. Here is what VIRTUAL REALITY is not.

This book is not a technical introduction to issues in VR. It is written by a visiting journalist, not by a contributor to the field. It is formed from interview, observation, and impression, not from technical experience. Consequently, VIRTUAL REALITY bears the limitations of mass journalism. Of the details in the book that I know personally, there are several minor errors. Readers should be aware that it is mythos, not fact, driving the anecdotes. In remaining fair, descriptive, and popular, Mr. Rheingold has written a relatively dry book, one lacking controversy, wit, philosophy, and challenge.

Mr. Rheingold makes no attempt to form a taxonomy of VR through the selection and arrangement of topics. Neither does he offer a definition of VR. He does suggest two foundations of VR technology: immersion and navigation. But he makes no attempt to discuss these concepts or to relate them to research activities. Navigation is too narrow to serve as a foundation, immersion is hotly debated as central to the field.

Most journalists, including Mr. Rheingold, focus excessively on the interface hardware of VR systems. This is equivalent to talking only about the knives and forks during a magnificent French dinner. Software is difficult to form stories around; how languages and programming define virtual worlds is simply less visible than that box of chips in the corner. In VIRTUAL REALITY, we find no discussion of the software roots of VR in CAD, visual programming, AI, simulation, artificial life, real-time operating systems, and cybernetic control. We find little discussion of the physiological or cognitive constraints on VR system design. I personally missed a treatment of the philosophical ramifications of concepts such as immersion. Mr. Rheingold does not provide us with a deep discussion of social, psychological, scientific, or ethical implications of VR.

The selection of content is somewhat skewed toward the Silicon Valley version of high technology innovation, toward the culture and the cliques that are familiar to the author. But VR comes from a broad cloth, its multidisciplinary nature makes legitimate roots obscure. For example, Mort Helig is the subject of an early chapter. Mr. Helig invented Sensorama, an arcade experience from the early sixties which presented multisensory stimulation to an observer of a film. Mr. Helig is a legitimate pioneer, but Sensorama is non-interactive, it is at best a partial root of VR. Were we to focus on interactivity, we would find different VR pioneers in the flight simulation community. The largest immersive simulation system to date, SIMNET, gets little attention in the book. Should we step slightly away from a visual emphasis toward text, the MUD and the hypermedia communities would provide pioneers. Aside from the low bandwidth of a text interface, the modeling and display software of the MUD community might serve well as a foundation for virtual world technology. The cover of VIRTUAL REALITY suggests it will tell us how VR "promises and threatens to transform business and society". Business activity at IBM, Digital, Boeing, etc., however, is simply not included.

In summary, VIRTUAL REALITY serves as an excellent first popular book about VR. It maps much of the domain, appeals to a non-technical audience, and remains easy to read.