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The Science of Optics; The History of Art

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Recently, renowned artist David Hockney observed that certain drawings and paintings from as early as the Renaissance seemed almost "photographic" in detail. Following an extensive visual investigation of western art of the past 1000 years, he made the revolutionary claim that artists even of the prominence of van Eyck and Bellini must have used optical aids. However, many art historians insisted there was no supporting evidence for such a remarkable assertion. In this talk I will show a wealth of optical evidence for his claim that Hockney and I subsequently discovered during an unusual, and remarkably productive, collaboration between an artist and a scientist. I also discuss the imaging properties of the concave mirror and some of the implications this work has for the history of science as well as the history of art (and the modern fields of machine vision and computerized image analysis). These discoveries convincingly demonstrate optical instruments were in use – by artists, not scientists – nearly 200 years earlier than commonly thought possible, and account for the remarkable transformation in the reality of portraits that occurred early in the 15th century. Acknowledgment: This work was done in collaboration with David Hockney.