On the chemical and spectro-photometric evolution of nearby galaxies
van den Hoek, L.B.

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'Leap before you look' ('begint eer ge bezint') was a favourite expression of prof.dr. Albert Bouwers (1893–1972; left photograph). Bouwers, born in Dalen, was a Dutch physicist and industrialist who became famous by numerous inventions in the fields of optics, x-ray science, and high-voltage generation. He studied mathematics and physics in Amsterdam and Utrecht and graduated in 1924 cum laude on his thesis 'Measuring the intensity of x-rays'.

Bouwers pioneering work on x-ray research (invention of the x-ray tube with rotating anode), on the generation of ultra-high voltages (of millions Volts) required for atomic nuclei studies, and on the construction of concentric mirror systems (which enabled unprecedented high light intensity combined with exceptional sharpness) has found numerous applications in many different scientific fields. From 1920 to 1941, Bouwers was director of the Philips x-ray and high-voltage Research Laboratory Eindhoven. In particular, his invention of intensified x-ray photography (image-amplifier) was of great importance for the population study on tuberculosis and fulfilled the medical need in the fifties to film active interior organs (e.g. heart, lung, intestines) without exposing patients to appreciable amounts of x-ray radiation.

From 1941 to 1968, Bouwers was President of the N.V. Optical Industry 'de Oude Delft'. Bouwers concentric mirror optical system (with concave spherical mirror) has been and still is applied in many scientific areas. It's ability to correct for spherical aberration in a simple and accurate manner (in contrast to the method of Schmidt 1931 applied before) is widely used, e.g. in telescopes, binocular field glasses, microscopes, and night cameras. This system enabled for the first time low-brightness photography and was part of the infrared camera on board the Gemini 7 to photograph the far side of the moon. Other remarkable inventions in optics by Bouwers include the 360° panorama camera and cameras for high-altitude photography.

From 1949 until 1954, Bouwers was extraordinary professor at the Department of physics and instrumentation at the University of Technology in Delft. He wrote and contributed to several books (e.g. 'Selected scientific papers' 1969) and over 130 scientific and technical articles. He granted more than 215 national and international patents on many of his inventions and received numerous scientific honours and prices.

Bouwers was a brilliant, gifted, modest, and creative physicist who dedicated his life to the development of new instruments and products which have found many applications in a wide range of research fields. Bouwers belief in a fortunate outcome of a new idea when the principles were basically correct never failed. If he went home with a problem, he came back the next morning, restless and full of energy, to apply the solution worked out during the night. His intuition, controlled by sound reasoning, rarely led him astray.

Bob van den Hoek (right photograph) is the grandson of Albert Bouwers. Ab, I hope you would have been proud of me if you would have been able to read this work.