

A black and white photograph of an empty movie theater. The rows of seats are visible, leading to a central aisle that recedes into the distance. The lighting is dramatic, with the seats in the foreground being more illuminated than the background.

Film

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Persistence of Vision

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While films are called motion pictures, in reality they are simply a series of pictures. When projected in sequence these pictures give the illusion of motion. The sense of motion is possible because of a characteristic of the human eye known as persistence of vision.

According to the theory of persistence of vision, the perceptual processes of the brain or the retina of the human eye retains an image for a brief moment. Persistence of vision is said to account for the illusion of motion which results when a series of film images are displayed in quick succession, rather than the perception of the individual frames in the series.

In the early days of film, it was determined that a frame rate of less than sixteen frames per second caused the mind to see flashing images. Film of the silent era were shot at eighteen frames per second to stop the sense of flickering. When the sound era arrived, the films were shot and projected at 24 frames per second in order to synchronize the sound with the picture properly. This further ameliorated the sense of flicker.