**Three dimensional films**

A. In the theatre of the Ambassador Hotel in Los Angeles, on the evening of 27 September 1922, a new form of film-making made its commercial debut: 3-D (\*1). The film, The Power of Love, was then shown in New York City to exhibitors and press, but was subsequently not picked up for distribution and is now believed to be lost. The following three decades were a period of quiet experimentation for 3-D pioneers, as they adapted to new technologies and steadily improved the viewing experience. In 1952 the 'golden era' of 3-D is considered to have begun with the release of Bwana Devil, and over the next several years audiences met with a string of films that used the technology. Over the following decades it waxed and waned within film-making circles, peaking in the 1970s and again in the 1990s when IMAX gained traction, but it is only in the last few years that 3-D appears to have firmly entered mainstream production.

B. Released worldwide in December 2009, the fantasy film Avatar quickly became the highest-grossing film ever made, knocking Titanic from the top slot. Avatar, set in 2154 on a planet in a distant solar system, went on to become the only film to have earned US$2 billion world-wide, and is now approaching the $3 billion mark. The main reason for its runaway popularity appears to be its visual splendour; though most critics praised the film, it was mostly on account of its ground-breaking special effects. Kenneth Turan of the Los Angeles Times praised Avatar's 'powerful' visual accomplishments, but suggested the dialogue was 'flat' and the characterisations 'obvious'. A film analyst at Exhibitor Relations has agreed, noting that Avatar has cemented the use of 3-D as a production and promotional tool for blockbuster films, rather than as a mere niche or novelty experiment. 'This is why all these 3-D venues were built', he said. 'This is the one. The behemoth... The holy grail of 3-D has finally arrived'.

C. Those who embrace 3-D note that it spices up a trip to the cinema by adding a more active 'embodied' layer of experience instead of the viewer passively receiving the film through eyes and ears only. A blogger on Animation Ideas writes, '...when 3-D is done well—like in the flying scenes in Up , How to Train Your Dragon and Avatar , there is an added feeling of vertigo. If you have any fear of heights, the 3-D really adds to this element...' Kevin Carr argues that the backlash against 3-D is similar to that which occurred against CGI (\*2) several years ago, and points out that CGI is now widely regarded as part of the film-maker's artistic toolkit. He also notes that new technology is frequently seen to be a 'gimmick' in its early days, pointing out that many commentators slapped the first 'talkie' films of the early 1920s with this same label.

D. But not everyone greets the rise of 3-D with open arms. Some ophthalmologists point out that 3-D can have unsettling physical effects for many viewers. Dr. Michael Rosenberg, a professor at Northwestern University, has pointed out that many people go through life with minor eye disturbances—a slight muscular imbalance, for example—that does not interrupt day-to-day activities. In the experience of a 3-D movie, however, this problem can be exacerbated through the viewer trying to concentrate on unusual visual phenomena. Dr. Deborah Friedman, from the University of Rochester Medical Center, notes that the perception of depth conjured through three dimensions does not complement the angles from which we take in the world. Eyestrains, headaches and nausea are therefore a problem for around 15% of a 3-D film audience.

E. Film critic Roger Ebert warns that 3-D is detrimental to good film-making. Firstly, he argues, the technology is simply unnecessary; 2-D movies are 'already' 3-D, as far as our minds are concerned. Adding the extra dimension with technology, instead of letting our minds do the work, can actually be counter-purposeful and make the over-all effect seem clumsy and contrived. Ebert also points out that the special glasses dim the effect by soaking up light from the screen, making 3-D films a slightly duller experience than they might otherwise be. Finally, Ebert suggests that 3-D encourages film-makers to undercut drama and narrative in favour of simply piling on more gimmicks and special effects. 'Hollywood is racing headlong toward the kiddie market,' he says, pointing to Disney's announcement that it will no longer make traditional films in favour of animation, franchises, and superheroes.

F. Whether or not 3-D becomes a powerful force for the film-maker's vision and the film-going experience, or goes down in history as an over-hyped, expensive novelty, the technology certainly shows no signs of fading in the popularity stakes at the moment. Clash of the Titans , Alice in Wonderland and How to Train Your Dragon have all recently benefited at the box office due to the added sales that 3-D provides, and with Avatar's record set to last some time as a totem of 3-D's commercial possibilities, studios are not prepared to back down.

\*1. Three Dimensional

\*2. Computer Generated Imagery