

Inspirational Realism: Chesley Bonestell and Astronomical Art

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Abstract. At the very beginning of the space age, some sixty years ago, the American artist and illustrator Chesley Bonestell portrayed planets, stars, and spacecraft with stunning, near-photographic realism. Collaborating with experts like rocket pioneer Wernher von Braun, Bonestell's renditions combined the best scientific and engineering knowledge of the time, and scientific exactness, with artistic imagination.

Chesley Bonestell was born in San Francisco in 1888 and came to astronomical art early, inspired as a teenager after seeing Saturn through a telescope at the Lick Observatory near San Jose. However, he was trained as an architect and contributed both to a famous West Coast structure, the Golden Gate Bridge, and to an equally famous East Coast structure, New York City's Chrysler Building. In 1938, he became a special effects artist who painted background scenes for films. In this way he also contributed to a famous imaginary structure, Charles Foster Kane's castle Xanadu in *Citizen Kane* (1941), considered by many to be the all-time greatest American film (Miller, 1994).

Bonestell's experience in film heightened his awareness of the importance of camera angle and point of view as directed toward a scene. Like a cinematographer, he incorporated this sensibility into his astronomical art, which added to its immediacy along with his hard-edged, almost hyper-realistic style.

The scientific validity of Bonestell's work was confirmed in the 1950s when he began collaborating with space scientists, especially Wernher von Braun, a leading rocket scientist who had worked on Nazi V2 rockets during World War II and then became instrumental in the US space program. Von Braun greatly esteemed Bonestell's devotion to precise depiction, saying that Bonestell's pictures

present the most accurate portrayal of those faraway heavenly bodies that modern science can offer. . . In my many years of association with Chesley I have learned to respect, nay, *fear*, this wonderful artist's obsession with perfection. (Schuetz, 1999, p. xxii; Durant and Miller, 1983, p. 9 - 10).

In a series of books, magazine covers and articles, and background art for films, Bonestell's images in the 1950s of what awaited us when we left Earth, along with images of the spacecraft and equipment we would use, virtually defined "space" for the public. His output is credited with helping create an atmosphere that favored and supported the idea of human exploration of space.

Bonestell's use of unusual viewpoints is illustrated in his images of the planets of our solar system, for instance his views of Mars (Fig. 1) and Jupiter (Fig. 2) from their respective satellites. In his image of Jupiter, Bonestell was ahead of his time in putting the small satellite Europa in the foreground rather than the infinitely more imposing

Jupiter; scientists now believe that Europa is highly significant as one of the few bodies in the solar system with liquid water.



Figure 1. Mars from its outer satellite Deimos. Space-suited figures at lower left center have jumped high off the surface, illustrating the weak gravity of this tiny body, only a few kilometers across.

When it came to depicting the hardware that would carry humanity into space, Bonestell was strongly influenced by von Braun, who carefully worked out designs for everything from multi-stage rockets that could lift off the Earth, to craft designed to land on the Moon and Mars. Bonestell's drawing of a lunar lander blasting its retro rockets as it descends onto the Moon's surface (Fig. 3) puts life and color into von Braun's detailed engineering drawing. Echoes of this design, with its lack of streamlining for an airless environment, its crew compartment above, and its landing struts suitable for a rough surface, can be seen in NASA's Apollo 11 Lunar Module that landed Neil Armstrong and Buzz Aldrin on the Moon in 1969, though von Braun had designed a much bigger craft.

One of the most influential results of the von Braun–Bonestell collaboration was a series of articles published in several issues of *Collier's Magazine*, from March 1952



Figure 2. Jupiter from its satellite Europa. A second moon can be seen to the right of the planet, and a third satellite casts a shadow on Jupiter itself (left of center). The large oval in Jupiter's lower right quadrant is the Great Red Spot.

to April 1954, that traced the steps of developing a space program and showed how we could put humans on the Moon and Mars. Bonestell's lunar lander graced the cover of one of these issues, and one of his interior illustrations for the series (Fig. 4) again shows his use of dramatic viewpoints, as we look down at a spacecraft under assembly in Earth orbit with a clear view of the Earth below. It also demonstrates the engineering detail that von Braun provided and that Bonestell expressed so well in his art. The winged spacecraft is von Braun's design. Remarkably, the image also shows a tele-

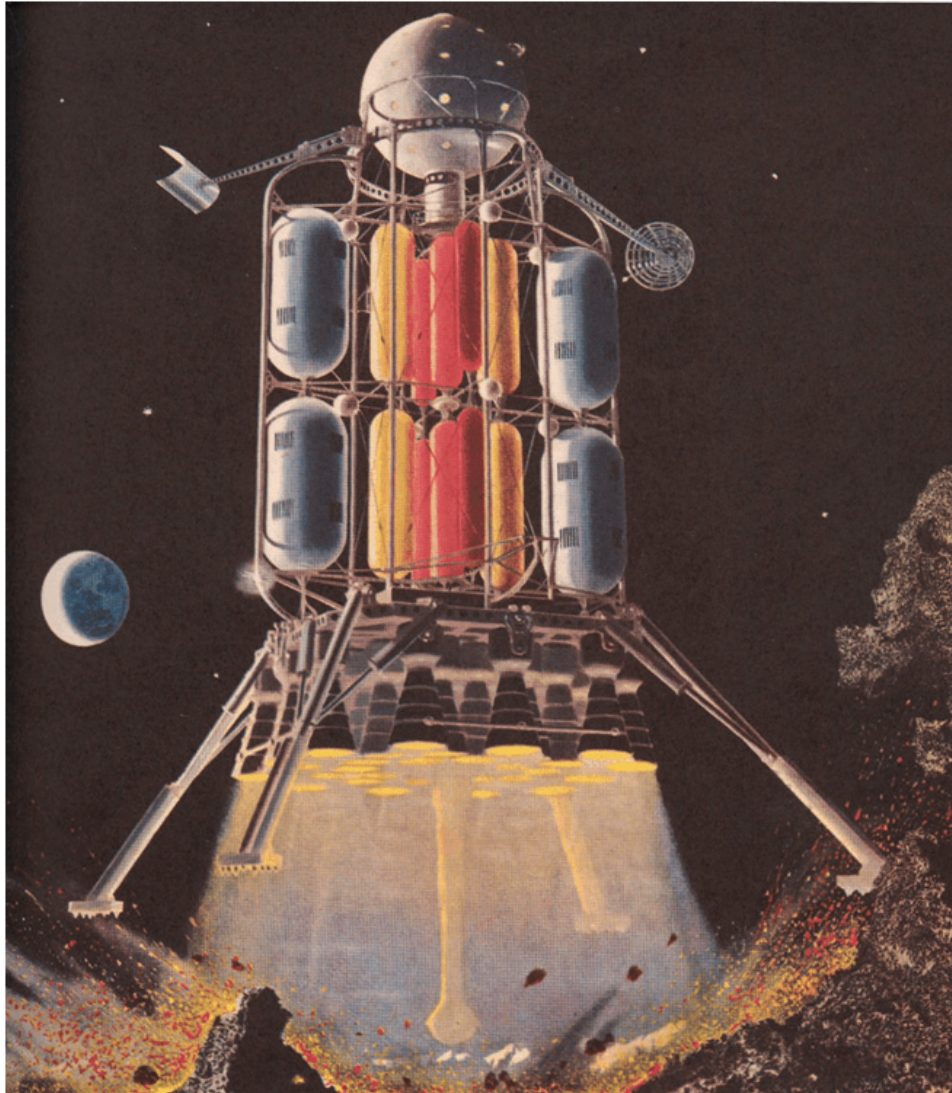


Figure 3. A lunar craft descending to the Moon's rugged surface, based on Werner von Braun's engineering design, which includes a radar dish and solar power collector. The cylinders below the spherical crew compartment are fuel tanks. A crescent Earth, huge in the sky compared to the Moon as we see it from Earth, appears on the left.

scope floating in space that is amazingly similar to NASA's Hubble Space Telescope, launched in 1990, nearly four decades after this image appeared.

In addition to his efforts for books and magazines, Bonestell continued his work for films and television through the 1950s. Acting as technical adviser, he contributed to the look of several classic science fiction movies that also shaped public perceptions of space and of technology. These include *Destination Moon* (1950), based on a story by Robert Heinlein and featuring realistic depictions of a spaceship and of the Moon's surface; *When Worlds Collide* (1951), about the destruction of the Earth through a collision

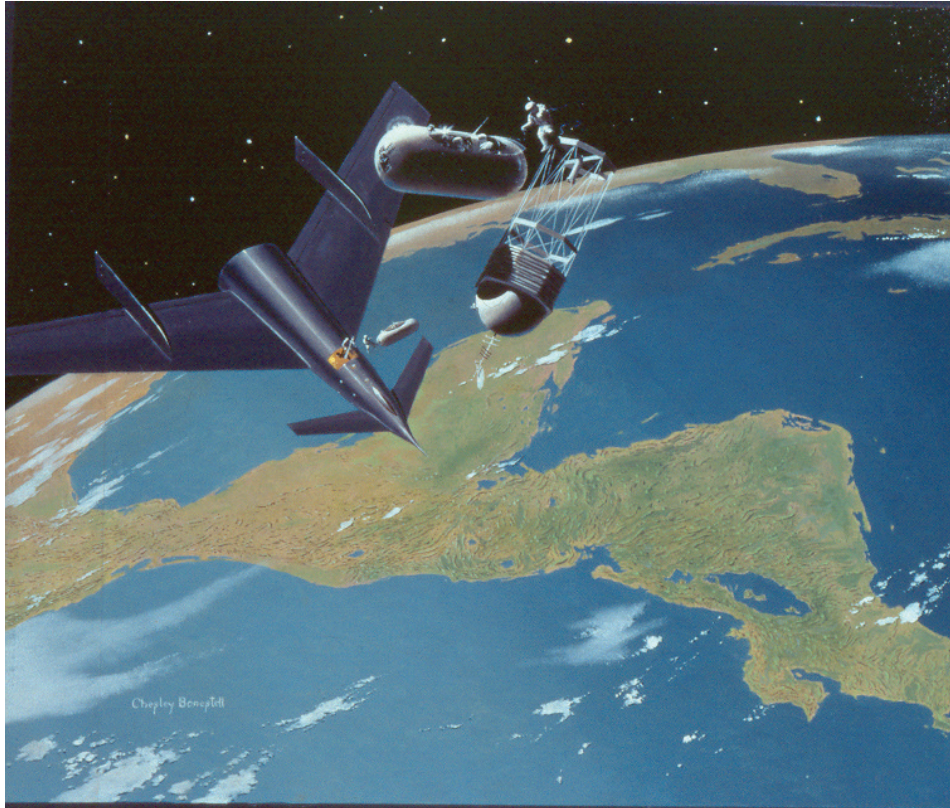


Figure 4. A spacecraft being assembled in Earth orbit over Central America with the Gulf of Mexico and Florida in the distance. The openwork cylindrical cage in the upper center, under the space-suited figure, is a telescope that resembles the Hubble Telescope (detail from original image).

with an incoming space object; *The War of the Worlds* (1953), based on H. G. Wells' 1898 book of the same title, about invading Martians; and the television series *Men into Space* (1959). He also painted striking cover art for the two leading science fiction magazines of the era, *Astounding* (later *Analog*) *Science Fiction* and *The Magazine of Fantasy and Science Fiction*.

Bonestell's role in making space real to the public and in inspiring young people to enter into space research, astronomy, or other science and engineering careers, was so widely recognized and respected that both a crater on Mars and an asteroid were named after him. On the occasion of naming that asteroid "3129 Bonestell," astronomer Carl Sagan perfectly summed up Bonestell's great contributions when he said, "It is only fitting that we give back a world to Bonestell, who has given us so many" (Miller and Durant, 2001, p. 107)—which could also serve as Bonestell's epitaph after his death in 1986.

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