

From Marshfield, Missouri

Edwin Hubble—The man who brought us the universe

Edwin Hubble, 1889-1953, was born to Virginia and John Powell Hubble, an insurance executive, in Marshfield, Missouri, and moved to Wheaton, Illinois, in 1900. In his younger days, he was noted more for his athletic prowess than his intellectual abilities, however, he did love science fiction, especially Jules Verne.¹ One of his favorite books was “20,000 Leagues Under the Sea.”

After the United States declared war on Germany in 1917, Hubble rushed to complete his PhD dissertation so he could join the military. Hubble volunteered for the United States Army and was assigned to the 86th Division. He rose to the rank of lieutenant colonel,² and was found fit for overseas duty on July 9, 1918, but the 86th Division never saw combat. After the end of World War I, Hubble spent a year in Cambridge, where he renewed his studies of Astronomy. In 1919, Hubble was offered a staff position at the Carnegie Institution's Mount Wilson Observatory, near

Pasadena, California, by George Ellery Hale, the founder and director of the observatory. Hubble remained on staff at Mount Wilson until his death in 1953. Hubble is renowned for determining that there are other galaxies in the Universe beyond the Milky Way, and for observing that the universe is expanding at a constant rate.

Before his death in 1953, at the age of 63, he oversaw the construction of the 200-inch Hale Telescope on Palomar Mountain, which would be the largest telescope on Earth until the Russian BTA-6 was built in 1976.³



As with the telescope that bears his name, Edwin Hubble transformed our understanding of the universe. His discoveries live on today in the Hubble Space Telescope.

Edwin Hubble's observations of V1 became the critical first step in uncovering a larger, grander universe. He went on to find many galaxies beyond the Milky Way. Those galaxies, in turn, allowed him to determine that the universe is expanding.

Could Hubble ever have imagined that nearly 100 years later, technological advances would allow amateur astronomers to perform

similar observations of V1 with small telescopes in their backyards? Or, could Hubble ever have dreamed that a space-based telescope that bears his name would continue his quest to precisely measure the universe's expansion rate?

At the age of 63, he died of a blood clot in his brain, still preparing for an observing session on Mt. Wilson, which then housed a telescope twice as large and four times as powerful as the one he used to discover the expanding Universe. November 20, 2016, would have been Hubble's 127th birthday, meaning just as much time has passed between Hubble's birth and death as between his death and the present. Yet the discoveries he made and the knowledge he added to our understanding of the Universe will live on for an eternity.

While every scientist must someday die, the great scientific discoveries that they made never will.

Article Source: Wikipedia.

Einstein Discovers God

By DR. HUGH ROSS

The first such scientific breakthrough arose from Albert Einstein's theory of general relativity. Subtracting one set of his famous field equations from the other yielded the surprising result that everything in the universe is simultaneously expanding and decelerating. The only physical phenomenon satisfying simultaneous expansion and deceleration is an explosion. But, if the universe is the aftermath of an explosion, then sometime in the past it must have had a beginning. If it had a beginning, then there must be a Beginner.

Einstein's own world view initially kept him from adopting such a conclusion. Rather he proposed a new force of physics that would perfectly cancel out the deceleration and expansion induced by gravity. However, Edwin Hubble soon proved that the galaxies indeed were expanding away from one another in the manner predicted by Einstein's original formulation of general relativity. Confronted with this, Einstein gave grudging acceptance to “the necessity for a beginning,”¹ and to “the presence of a superior reasoning power.”²

¹ Douglas, A. Vihert, “Forty Minutes With Einstein,” in *Journal of the Royal Astronomical Society of Canada*, 50. (1956), p.100.
² Barnett, Lincoln. *The Universe and Dr. Einstein*. (New York: William Sloane Associates, 1948), p.106.

Wanna' Get Involved?

The Springfield Astronomical Society meets every 4th Tuesday of the month at the Library Station at 2435 N. Kansas Expressway in Springfield.

Each meeting starts at 7:00 P.M. and generally lasts until 8:30 P.M.

If you wish more information about the group itself, please come by for a visit during one of their meetings.



A one-quarter size, 1,200-pound replica of the Hubble Space Telescope. The telescope replica is located on the west side of the square in Marshfield. The replica was dedicated on July 4, 1994.

1. <http://www.forbes.com/sites/startswithabang/2015/11/20/happy-birthday-to-the-person-who-brought-us-the-entire-universe-edwin-hubble/#705b2d271e2a>
2. “Major Edwin Hubble is Made Lieutenant Colonel.” *Springfield Missouri Republican*. 11 Aug 1918. p. 6. Retrieved 19 October 2015.
3. Space.com