

FEATURE: The "Why" Questions

- PROF.: Allan Sandage looked through a telescope, and knew he *had to be an astronomer!*
- VOICE: His boyhood dream came true when he began working with the late Edwin Hubble.
The *New York Times* called him the most influential astronomer of his generation.
- FORMAT: THEME AND ANNOUNCEMENT
- VOICE: Dr. Sandage called his 5-meter telescope a giant candy machine. In his words, "I was [like] a kid in a candy store that was so...full of everything that I wanted, that it was life's greatest carnival."
Dr. Sandage's passion for discovery kept him going energetically until age 84, when he died in November, 2010. His many awards include Gold Medals from several astronomical societies – and the Crafoord Prize, which many consider astronomy's equivalent of the Nobel Prize.
- PROF.: Science writer Dennis Overbye graphically describes the way Sandage prepared for a night of observation through what was then the world's largest telescope. Before the days of computerized imagining, he would use film to make photographic records of galaxies no one else had ever observed. Overbye says Sandage soaked the emulsions in hydrogen or baked them in nitrogen "until the already sensitive grains were *hysterical for the light* that had left some star or galaxy before the human race was born."
- VOICE: So his own "thirst" for new knowledge motivated him to invent new techniques to observe the overall universe.
- PROF.: Yes. That kind of enthusiasm for his work is what won so many awards for new discoveries. One of his grad school classmates remembers his exceptional concentration and curiosity. In his words, "Allan wasn't that much smarter than the rest of us. *He just stuck with a problem ten times as long.*"
- VOICE: His listing in *Encyclopaedia Britannica* calls Dr. Sandage the discoverer of quasars – which are quasi-stellar objects. What are some of his other achievements?
- PROF.: His greatest fame is in the specialty known as *cosmology* – the study of the overall structure of the universe. He devoted years to discovering the size of the universe, and the rate at which it expands.
Previously many astronomers and philosophers had thought the universe had always existed. He and Hubble established firmly the fact that the universe had a beginning.

- VOICE: Didn't astronomers previously consider cosmology an unscientific field – a subject that could only be speculated about, but not observed?
- PROF.: Yes, but Sandage changed that. His pioneering article in the *Astrophysical Journal* spelled out ways his telescope would be able to gather data to decide between the theory that the universe had always existed, and the theory that the universe had a beginning. In 1961 Sandage suggested several tangible observations that could be used for, quote, “...choosing the theory...which best fits the real world.”
- VOICE: How did he get the privilege of working at what was then the world's largest observatory?
- PROF.: He was studying astronomy at California Institute of Technology [Caltech], when the 5-meter Mount Palomar [PAL-oh-mar] telescope was dedicated in 1948. Later, when Dr. Edwin Hubble requested an assistant, Caltech sent Sandage to him.
He had the right education and experience to equip him for the opportunity to work with Hubble – and to take over when Hubble died.
- VOICE: Dr. Sandage died in November 2010 at age 84. Yet he never retired. Why did he continue working?
- PROF.: One journalist observed that as Sandage talked about his work, he had a gleam in his eye and an enthusiastic tone of voice that conveyed his wonder that anyone, let alone he, would have the privilege of doing what he was doing.
- VOICE: With that attitude, Dr. Allan Sandage had answered many of the most important questions about astronomy and cosmology. But he died with a long list of questions he still wanted to research.
- FORMAT: BRIDGE MUSIC AND ANNOUNCEMENT
- PROF.: A sense of wonder and amazement had attracted Allan Sandage into astronomy. Sadly, that sense vanished within two weeks of arriving as a student at California Institute of Technology.
Dr. Sandage recalls, “When I...realized that to become an astronomer, you had to become *an analytical machine*, it was a crushing blow. ...The childlike awe was replaced by the awe of the enormous complication and order of the world of physics that was to be learned.”
- VOICE: Yet in another sense, didn't studying the universe at a deeper level of complexity, make it seem *more awe-inspiring*?

- PROF.: Yes. He explained, "...the world in fact became more *mystical* – in the sense that the *inter-connection of all of physics with mathematics* became so beautiful but also so difficult. ...Why do differential equations describe the world? No one understands how the world knows to work like that, but it does."
- VOICE: In other words, he asked why the universe is constructed in a way that fits the rules of calculus. Did he ever find a satisfactory answer?
- PROF.: Yes. He told the *New York Times*, "...I find it quite improbable that such order came out of chaos. There has to be *some organizing principle*. ...[T]o me...God is the explanation for the miracle of existence, why there is something instead of nothing."
- VOICE: That's an interesting interpretation. "To me...God is the explanation for the miracle of existence, why there is something instead of nothing."
- PROF.: In other words, the universe contains patterns that scientists and mathematicians can analyze by differential equations. That fact seems to imply that it was made by Someone who understood mathematics – and used it to design and create the universe.
- VOICE: So Dr. Sandage discerned God in creation?
- PROF.: Yes, and in more than creation.
In several published interviews, he went beyond the question of cosmic order, to talk about something that occupied his thought even more. About the time when he received his Ph.D., he remembered having asked his father what was *the purpose of life*. His father had no answer.
That question of purpose haunted him for decades. Sandage read philosophers who speculated that life has no meaning. And he observed where their "philosophy of nothing" led them.
- VOICE: Where does a "philosophy of nothing" lead?
- PROF.: One major advocate of that worldview was nineteenth-century German philosopher Friedrich Nietzsche. He used the word *nihilism*, derived from the Latin word for "nothing." Nihilism is defined as "*a mood of despair over the emptiness or triviality of human existence.*"
- VOICE: A mood of despair caused by thinking that human existence has either no purpose, or a very insignificant purpose.
What did you mean when you said Dr. Sandage observed where the "philosophy of nothingness" led some people?

PROF.: After spending much of his life developing and writing about nihilism, Nietzsche spent the closing years of his life, *insane!* Sandage told interviewers for a Harvard University Press book, "...to end up like Nietzsche [NEET-shee], sitting at a window for seven years rocking, not talking to anybody because of his nihilism, is not the way... Nihilism finally ends up in insanity, at least in Nietzsche's case... To avoid that, I'm quite willing to believe there is a purpose."

VOICE: So after rejecting the "philosophy of nothingness," *did Sandage ever find an answer to what the purpose of life is?*

PROF.: Yes. One day someone told him, "The purpose of life is to glorify God." He reacted, "That sounded right." It seemed like an antidote to nihilism. Years later, he commented, "There is no purpose in life, unless there is a *source* for that purpose."

VOICE: "There is no purpose in life, unless there is a *source* for that purpose"?

PROF.: Right. In another article he said we can't prove God with the same type of certainty with which we measure the distance between Earth and the sun. In his words, "Proofs of the existence of God have always been of a different kind – a crucial point to be understood by those scientists who will only accept results that can be obtained via the scientific method. ...Science illuminates brightly, but [it illuminates] only a part of reality."

VOICE: "Science illuminates brightly, but only a part of reality." Did he elaborate?

PROF.: Yes. He explained that science and religion treat different aspects of reality. We don't study the Bible to find the intensities and the wavelengths of the Balmer [BAL-mur] lines of hydrogen. But neither can science discover the ultimate spiritual properties of the world, which are also real.

VOICE: That's interesting.

PROF.: He continued, "...science can answer only a fixed type of question. It is concerned with the *what, when* and *how*. It does not, and indeed cannot, answer within its method, *why*."

VOICE: Please repeat that. "Science can answer only questions about *what, when* and *how*..."

PROF.: The rest of his statement was, "It does not, and indeed cannot, answer within its method, *why*."

VOICE: So science can answer many important questions. But it can not answer the "why questions."

PROF.: That's right. When we ask “Why is there something instead of nothing?” or “Why is the universe constructed in ways that mathematics can analyze?” – we're asking questions that are beyond science's ability to answer.

VOICE: World-famous astronomer and cosmologist, the late Dr. Allan Sandage, has shared his insights on “the why questions.” He concluded that the reason there is something instead of nothing – is because God made it.

PROF.: Before we close, let's ponder these ideas. The galactic universe is something instead of nothing because God made it. And God didn't stop creating when he wound the spiral nebula and the DNA helices. The same mighty power that turned on the nuclear light of the stars, stands ready to transform your life. As the Apostle Paul wrote in the Bible, “For the God who said, ‘Let light shine out of darkness’ made his light shine in our hearts – to give us the light of knowledge of the glory of God in the face of Christ.”

VOICE: He was also convinced that the reason he could analyze the universe by using mathematics, was because an intelligent God made it. And when he recognized that the Creator had made the universe with such precision and order, he allowed God to create order and purpose in his life.

PROF.: Your personal universe can become something instead of nothing. Let's speak to our creator: “God, you made light shine out of cosmic darkness. My soul feels as dark and cold as outer space. Transform me into a person who can respond to your love. Shine into my life an understanding of who you are, and what kind of ‘something’ you would like to make of my life. Please, Lord, make me alive and purposeful, through your Son, Jesus Christ. Amen.”

FORMAT: THEME AND ANNOUNCEMENT

© Copyright 2013 Trans World Radio. All rights reserved.

To contact us:**E-mail:**

Worldwide: truthtest@truthinthetesttube.org

From India: testtube@radio882.com.

Postal mail:**Worldwide:**

Truth in the Test Tube
TWR
P.O. Box 8700
Cary, NC 27512-8700
U.S.A.

From India:

Truth in the Test Tube
P.O. Box 4320
Bangalore 560043
India