Stargazers

The world of astronomy is viewed through its stellar scientists

By Simson L. Garfinkel

"LONELY Hearts of the Cosmos" opens with the story of Allan Sandage, a cocky young PhD who just happened to be in the right place at the right time. When the great astronomer Edwin Hubble died suddenly in 1953, Sandage inherited Hubble's grand project: measuring the size and age of the universe, and divining its fate.

Sandage certainly seemed up to the task: An expert in the evolution of stars and Hubble's former student, he had all the intellectual tools necessary to do the job. That was because in the early '50s, Sandage and the world's other astronomers thought that all they needed was hard work – and a lot of it – to understand the order of the cosmos.

But as the years passed and their observations accumulated, the pieces they collected made less and less sense. The closer they looked and the harder they thought, the more they were confounded by the macrocosm.

For nonscientists, the world of astronomy often seems equally incomprehensible. Now, for anyone who has ever heard the words "quasar" or "cosmic string" and felt his or her head reeling like a supernova, Dennis Overbye has written a mammoth volume that puts the past 40 years of cosmology into an understandable and entertaining framework.

Overbye's tool for explaining cosmology is people. There is Hubble, seen though Sandage's eyes, who knew the universe so well that he always came up with the right answer, even when his calculations were wrong. There is Stephen Hawking, a bright graduate student studying black holes that trap light, himself trapped by a degenerating physical condition. There is also David Schramm, nearly as brash as he is brilliant, who seeks to do the best physics and build himself an academic empire at the same time.

"Lonely Hearts" is a comprehensive look at both the people and the science. One would be hard-pressed to imagine a journalist more up to the task. A former editor and writer for Sky & Telescope and Discover, Overbye has written about astronomy for more than a quarter of a century. Now, he's used his wealth of knowledge, notes, and personal relationships to take the reader inside the minds of all of this century's great astronomers and show how discoveries happen.

By following the evolution of astronomy in laboratories and observatories around the world, Overbye also shows that the popular notion of "discovery" itself is frequently in error.

"In 1979 a man came as close as anyone ever had to Figuring It All Out, to the magic idea that would cause the universe to unfold its wings from practically nothing and evolve smoothly and inevitably into the configuration of reality as astronomers could see it today." Note well that this man, Alan Guth, only came close.

Several groups of scientists around the world are often just footsteps apart from solving the same problem. Often little more than luck and accident determines who gets credited with a particular discovery. Sometimes discoveries made by unpopular physicists are ignored until they are rediscovered by popular, mainstream physicists, who then receive the credit and the glory.

Such was the case, Overbye assures us, with the naturalized Swiss physicist Fritz Zwicky, who "had so many ideas it was almost impossible for other astronomers to sort the good from the off-the-wall." Zwicky's greatest discovery, that perhaps 90 percent of the matter in the universe is invisible, was ignored for nearly 40 years before the astronomer Vera Rubin found that she needed to postulate the existence of "dark matter" to explain the motion of stars in galaxies.

In telling Rubin's story – and the stories of the very few other women scientists in the field – Overbye bears witness to the terrible discrimination that women in astronomy have faced. The harassment is both subtle and overt. At one point, Rubin has to meet with a colleague in the lobby of his building because women aren't allowed in the physicists' offices. Yet all the women Overbye writes about left their indelible mark on the science, as their theories and discoveries changed the course of cosmology.

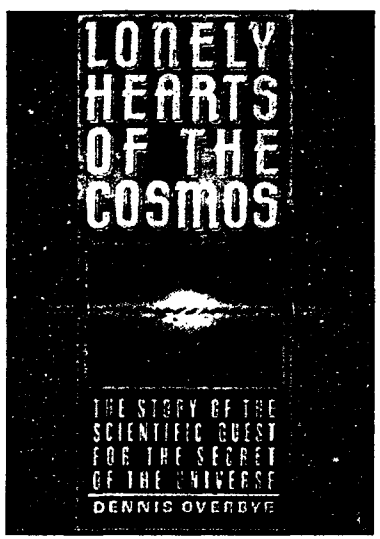
"Lonely Hearts of the Cosmos" is also a lot of fun. The book is filled with inside stories, like the time then-Harvard professor Marc Davis used his wife's black doctor's bag to fool the Cambridge (Mass.) police and get permission to drive during the blizzard of 1978, when Governor Michael Dukakis temporarily closed all roads. Stories of French cooking, skiing in Aspen, and barnstorming in Big Bang Aviation's Cessna fill the pages between the cosmological theorizing.

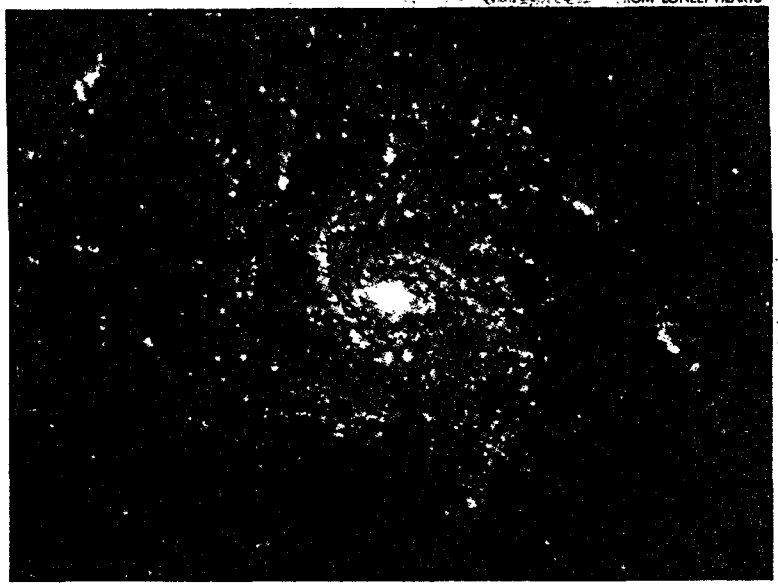
Overbye's prose is a pleasure to read, tying everything together, and never depending on the reader to remember some fact casually mentioned in a previous chapter. This thorough survey makes a generation of physics discoveries understandable and is a must-read for anyone who wants to know what the big deal is all about.

■ *Simson L. Garfinkel is a freelance writer who specializes in science and technology.*

BOOKS

LONELY HEARTS OF THE COSMOS
By Dennis Overbye
HarperCollins, 438 pp., $25





HEAVENLY PINWHEEL: *The giant spiral galaxy M101, visible above the handle of the Big Dipper, played a key role in the attempts by Allan Sandage and other astronomers to measure the universe's rate of expansion.*