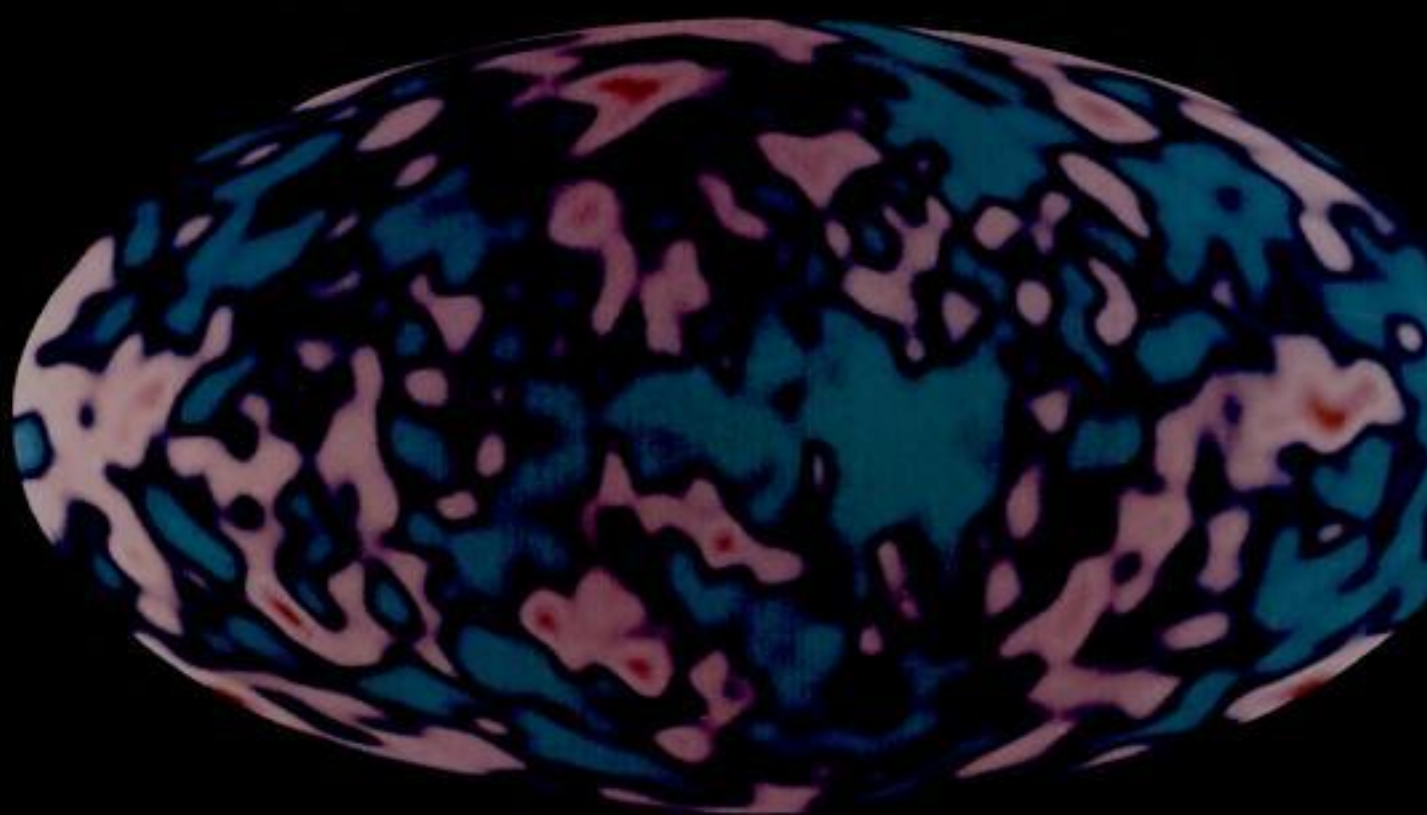


AFTERGLOW OF CREATION

FROM THE FIREBALL TO THE DISCOVERY OF COSMIC RIPPLES



MARCUS CHOWN

Afterglow of Creation: From the Fireball to the Discovery of Cosmic Ripples, Marcus Chown, University Science Books, 1996, 0935702407, 9780935702408, 222 pages. This is the story of the cosmic background radiation, the "afterglow" of the Big Bang in which the Universe was born. Fifteen billion years after the event, the afterglow still permeates all of space, making it the oldest relic in creation and providing an imprint of the Universe as it was in its infancy. But the most astonishing thing about the afterglow of creation is that it wasn't discovered until 1965, and then only by accident - despite the fact that it had been predicted in 1948 and the technology to detect it existed during World War II. Chown brilliantly weaves a tale of the search for the origins of the Universe. Beginning in the 1920s and culminating with the flight of the COBE satellite and what it found, this book uncovers the secrets of the Universe..

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Thermal asymmetry of the cosmic microwave background radiation , IgorĐšâ„– Nikolaevich Taganov, Russkoe geograficheskoe obshchestvo, 2008, , 12 pages. .

The Next Step Medical Coding, From Classroom To Practice: A Worktext, Carol J. Buck, Apr 9, 2007, , 758 pages. A complete course on advanced coding, Advanced Medical Coding Online combines content, self-study, and assessment into a single product that can be used to enhance a

The Search for Life in the Universe , Donald W. Goldsmith, Tobias C. Owen, 2001, Science, 573 pages. The Search for Life in the Universe is now available in a completely updated Third Edition. This book presents astronomy from the standpoint of estimating the likelihood of

Universe , Roger A. Freedman, William J. Kaufmann, 2005, , 693 pages. .

After you've said goodbye how to recover after ending a relationship, Trudy Helmlinger, 1977, Family & Relationships, 273 pages. An experienced marriage counselor offers guidance in coping with all the difficulties and painful moments involved in ending an intimate relationship and in developing self

The universe , Otto Struve, 1962, Science, 159 pages. .

The arrow of time a voyage through science to solve time's greatest mystery, Peter Coveney, Roger Highfield, Jan 1, 1990, , 378 pages. .

The 21st Century's All New Cosmology As Galileo Changed Our Understanding of the Solar System, this Book Changes Our Understanding of the Universe, Charles J. Sven, 1999, Cosmology, 192 pages. .

Cosmic Strings and Other Topological Defects , A. Vilenkin, E. P. S. Shellard, Jul 13, 2000, Science, 517 pages. Comprehensive introduction to the role of cosmic strings and other topological defects in the universe..

How far is up? measuring the size of the universe, John R. Gribbin, Mary Gribbin, Mar 3, 2003, Science, 134 pages. .

Conference on the High Energy Radiation Background in Space workshop record : held in conjunction with the IEEE Nuclear and Space Radiation Effects Conference, Snowmass, Colorado, July 22-23, 1997, IEEE Nuclear and Plasma Sciences Society, Institute of Electrical and Electronics Engineers, Goddard Space Flight Center, Aug 31, 1998, Science, 137 pages. CHERBS brings together workers from interrelated fields to share useful but often unpublished data, to examine the common needs, and to develop a consensus on types of

Felicity Frobisher and the Three-Headed Aldebaran Dust Devil , Marcus Chown, Ned Jolliffe, Apr 1, 2008, , 119 pages. When Felicity Frobisher is paid a visit by a Three-Headed Aldebaran Dust Devil,

she has the most extraordinary day of her life. Travelling through wormholes, beating the school

Step-by-step Medical Coding 2009 + Workbook + CD-ROM , Carol J. Buck, Jan 23, 2009, , . This valuable, money-saving package includes Step-by-Step Medical Coding 2009 Edition, Workbook for Step-by-Step Medical Coding 2009 Edition, and Virtual Medical Office for

A new theory of cosmology symmetrical expansion of the metagalaxy and of the antimetagalaxy into the opposite directions of the time dimension and changes of "fundamental constants" of atomic physics as a function of expanding spacetime, Nicodemus E. Boyer, 1983, Science, 729 pages. .

The universe next door the making of tomorrow's science, Marcus Chown, Mar 14, 2002, , 191 pages. Provides insights into the future of technology, covering such topics as time travel, immortality, and the fifth dimension..

The Solar System Analysed, Old Laws from a New Angle , Frederick Charles Attwood, 1948, Cosmogony, 88 pages. .

This is the story of the cosmic background radiation - the 'afterglow' of the Big Bang in which the Universe was born - and how it was discovered. Chown brilliantly weaves a tale of the search for the origins of the Universe, beginning in the 1920s and culminating with the flight of the COBE satellite and its crucial discovery.

Throughout the 20th century, cosmological theory has been significantly revised every five to ten years. Chown's book, first published in England, is excellent for lay readers trying to keep up with these changes. It begins in 1924 with Hubble's discovery of galaxies and continues through the 1992 discovery of extremely distant remnants of the Big Bang?so-called "wrinkles in time." Well received overseas, this book was nominated the prestigious Rhone Poulenc prize for science writing. Very readable, even somewhat breezy, Chown's work compares most closely with Barry Parker's Vindication of the Big Bang (Plenum, 1994). Either could serve as a novice introduction to this complex subject.?Gregg Sapp, Univ. of Miami Lib., Coral Gables, FL.

This account of the scientific work that has created our modern picture of the origins of the universe was a best-seller in Britain; it deserves to be equally popular here. Chown, the cosmology consultant for New Scientist, begins by showing how scientists concluded that at some time in the distant past the universe, then very tiny, exploded. George Gamow was among the first to explore the consequences of the ``Big Bang," especially the fact that the early universe would have had an extremely high temperature. Two of Gamow's research students pointed out (in 1948) that the original explosion would in theory be detectable today as a residual layer of energy throughout the universe. More than 15 years passed before anyone attempted the measurement. Ironically, two teams worked on it within a few miles of each other--one at Princeton, the other at Bell Laboratories in Holmdel, N.J. The Bell team, composed of Robert Wilson and Arno Penzias, made the key discovery in 1965 and won the Nobel Prize for it. But a subtler measurement remained to be made. Theory implied that the Big Bang radiation would show irregularities--``ripples," as they were dubbed--to account for the present structure of the universe, which is far from uniform. In one of the largest scientific team efforts ever assembled, the COBE (COsmic Background Explorer) satellite was created to attempt the measurements, which Chown describes as the most difficult ever made. After rigorous testing, several redesigns, and unprecedented difficulties, COBE was launched. The results were stunning--including a measurement of the cosmic background radiation that matched the theoretical predictions within 0.25 percent. Chown concludes his account with a description of the resulting publicity and wrangling among team members who felt that one team leader, George Smoot (who had described a ``map" of the ripples as ``like seeing the face of God"), was hogging the spotlight. A lucid account of the key developments in modern cosmology, especially good at capturing the human dimension of scientific work. -- Copyright ©1996, Kirkus Associates, LP. All rights reserved.

Very little math, but very carefully written. This is the first place to start if you want to get a

perspective on the whole range of experiments that led up to the Cobe data. I am particularly impressed with the quality and clarity of the writing. This book is so carefully written that you can actually understand much of the physics involved

The Afterglow of Creation is a very fine history of the discovery of evidence to support the Big Bang Theory, in particular the microwave background radiation. Although primarily a history of this effort and a list of the Who's Who of scientists associated with it, the book is also a wonderful demonstration of the scientific method at work. If nothing else, it shows that science is not done all at once or by one single individual; it's a collaborative effort--and one that is not always harmonious as the final pages of the book point out to the reader. Probably the most important thing the book does is show that there is never a point where one can say "this is the last word on the subject." Some theories thought to be irrelevant or downright wrong have surfaced again at a later time with important points to offer an on-going scientific process.

I think the book would be a very good resource for high school students interested in knowing more about science and who it's done. It certainly shows that while individual scientists can make mistakes the scientific process is designed to correct them. I think this book and the author's other volumes on science and its history would make a fine collection for any public or school library.

This is the story of the cosmic background radiation, the "afterglow" of the Big Bang in which the Universe was born. Fifteen billion years after the event, the afterglow still permeates all of space, making it the oldest relic in creation and providing an imprint of the Universe as it was in its infancy. But the most astonishing thing about the afterglow of creation is that it wasn't discovered until 1965, and then only by accident - despite the fact that it had been predicted in 1948 and the technology to ...

In Chown's acknowledgments, the astrophysicist and BBC broadcaster thanks his mother for talking to him as a baby and his father for waking him up to see the moon landing. The author makes good use of both his gifts of descriptive language and fascination with astronomy to create this lively tale of the 1965 discovery of the Big Bang's "afterglow"--a background radiation providing an imprint of the Universe in its infancy. Besides offering insights into the science of the astronomy, astronomy's scientists are also telescoped in their discoveries, their misses, and the in-fighting between the two. Lacks a bibliography. Annotation c. Book News, Inc., Portland, OR (booknews.com)

This is an excellent book for laypeople about the Cosmic Background Explorer (COBE) satellite, and its discovery of ripples in the radiation from the Big Bang. Electrons jiggling around generate radio waves. Temperature is just a measure of the average speed with which the atoms of a body are moving, vibrating and spinning. So any body, at any temperature above absolute zero, emits radio waves. Cool! Why tell you this? Well, when they say the Background radiation is at a temperature of 3 degrees what they mean is, it's of the type of radiowaves that are emitted by a body at a temperature of 3 degrees. -- and that's something I didn't know, before I read the book. It's the least of what you'll get: 1. You get a history of the theory. 2. Details about radioastronomy, and how astronomers work around their problems (since everything -- the ground, the air, the dust in the galaxy, the cables on a balloon carrying a detector -- glows with radio waves, it's a bit tricky seeing the background radiation of the Big Bang) 3. Peeks into how science works: you propose a theory, and then chuck it if it doesn't fit the data, except that sometimes it's the data that's at fault not the theory 4. The importance of confirming your results, so that scientific discovery's a community effort despite all the pushing to get there first 5. The importance of looking at all the ramifications of a theory: gas clouds in interstellar space are warmed by the background radiation, and people measured their temperature, and wondered why they weren't stone cold, long before the radiation itself was observed 6. Why that famous photo of pink and blue patches is both the truth and not 7. Interesting tidbits on cosmology 8. the personalities involved ... and more, and more, in only 170 pages. Students doing London A Level Astrophysics will find this an exceedingly useful read. (Though no mathematical equations at all, you get a load of physics, painlessly) And to top it all, some neat rhetoric: ' ... COBE had reached its orbit 900 kilometres above the Earth. It was now circling the Earth every 72 seconds as it turned on its axis. It could be seen in the night sky, going from south to north a little after sunset, or from north to south a little before dawn. COBE awakened,

opening its eyes to the microwave Universe. ' The bit at the end's the best, though. Read, enjoy, learn.

15 billion absolute zero afterglow of creation Alpher and Herman Arno Penzias atmosphere atoms balloon Bell Labs Berkeley Big Bang radiation black body Bob Dicke bright Bruce Partridge clusters of galaxies coBE result coBE team coBE's cold dark matter cold load cooled cosmic background radiation cosmic ripples cosmology courtesy Dave Wilkinson degrees above absolute discovery early Universe Earth Einstein electrons energy expanding experiment fireball radiation galaxy formation Gamow George Smoot glowing Goddard gravity Gush Holmdel hot Big Bang hot spots hotter Hubble Hubble's idea inflation instrument Jim Peebles John Mather launch light look measure microwave background Milky nasa orbit particles Penzias and Wilson photons physicist pigeon prediction Princeton problem radio astronomers radio waves rocket satellite says Bennett says Mather says Partridge says Peebles says Wilkinson says Wilson scientists signal simply space spectrum stars static Steady State theory telescope temperature theorists thing tiny tion verse wavelength Wilkinson and Roll

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Chown brilliantly weaves a tale of the search for the origins of the Universe beginning in the 1920s and culminating with the flight of the COBE satellite and what it found. Scientists worldwide were rocked by the remarkable image on the book's cover above, which show cosmic ripples from a microwave map of the whole sky. Made from one year of COBE data, the Milky Way is positioned across the middle of the map. Red indicates areas that are slightly warmer and blue indicates areas that are slightly colder than the average sky temperature of 2.73 degrees above absolute zero.

Marcus Chown is the cosmology consultant for New Scientist. He graduated from the University of London with a first-class degree in physics, and four years later he gained a Master of Science in astrophysics from the California Institute of Technology. He has been a lecturer in Madagascar, a freelance writer, and a broadcaster for the BBC. He is the author of a children's book, Stars and Planets, and the coauthor of two science fiction novels, Double Planet and Reunion. Afterglow of Creation is his first venture into popular science. He is married and lives in Worcestershire, England.

Marcus Chown is an award-winning writer and broadcaster. Formerly a radio astronomer at the California Institute of Technology in Pasadena, he is currently cosmology consultant of the weekly science magazine New Scientist. His most recent books are We Need to Talk About Kelvin, Quantum Theory Cannot Hurt You and The Never-Ending Days of Being Dead. He has also written

a work for children, Felicity Frobisher and the Three-Headed Aldebaran Dust Devil. -- Dieser Text bezieht sich auf eine andere Ausgabe: Taschenbuch .

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