The New Cosmos: Answering Astronomy's Big Questions

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With a foreword by ALEX FILIPPENKO

THE NEW COSMOS
Answering Astronomy's Big Questions

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Over the past decade, astronomers, planetary scientists, and cosmologists have answered - or are closing in on the answers to - some of the biggest questions about the universe. David J. Eicher presents a spectacular exploration of the cosmos that provides a balanced and precise view of the latest discoveries. Detailed and entertaining narratives on compelling topics such as how the Sun will die, the end of life on Earth, why Venus turned itself inside-out, the Big Bang Theory, the mysteries of dark matter and dark energy, and the meaning of life in the universe are supported by numerous color illustrations including photos, maps and explanatory diagrams. In each chapter the author sets out the scientific history of a specific question or problem, before tracing the modern observations and evidence in order to solve it. Join David J. Eicher on this fascinating journey through the cosmos!

This is an outstanding book, making some rather difficult concepts understandable, and bringing the reader up to date with advances in astronomy and related fields. The photos are good. The writing is clear and it is also clear that Eicher knows his subject and is enthusiastic about it, as you would expect from the editor of a well known astronomy magazine. That said, be aware that the science in this book is still somewhat difficult; it may be a bit of a slow read for some readers, but keep at it, you'll learn a great deal. Some of the details in the book represent consensus astronomy, understandings shared by many or most astronomers, useful in the present state of knowledge but...
apt to change quickly with new data. We're in something of a golden age for astronomy and related sciences, despite budget limitations imposed on space agencies such as NASA. Among other things, consensus is that in a billion years the sun will be far larger and hotter and Earth's oceans will boil away, and dark energy is 68.3% of the mass/energy of the universe. On average a 1-kn asteroid should hit the earth once every 700,000 years and a 140-meter asteroid should hit once every 20,000 years. Readers interested in the moon will find Chapter 4 of interest. It discusses recent theories of moon formation, including the wonderfully named Great Impact Hypothesis. Chapter 5, "Where has all the water gone" discusses water on Mars and elsewhere in the solar system. It appears that Mars once had liquid water on the surface, and many large valleys suggest erosion by water. So where is it? Water is important because it is intimately tied to life, and also because humans venturing there would find water useful.

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