



Geoffrey Kirby

Wacky and Wonderful Misconceptions About Our Universe



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Astronomers' Universe

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My sincere thanks go out to my partner and best friend Sandy for her unlimited encouragement and patience during the creation of this book. Also to my children, who had to get used to their obsessive father frequently dragging them reluctantly up the garden in freezing weather to peer through his 12-inch aperture Dobsonian telescope just to look at some boring and insignificant fuzzy galaxy.

Preface

This book grew out of the author's fascination for the way in which many "Independent Thinkers" wholly rejected conventional astronomical knowledge and observations. These are the believers that thought the Earth was flat or alternatively hollow, with three inner inhabited worlds each with their own miniature Sun. Then there were those who believed the Sun to be cold and to be host to aliens living on a cool inner world.

Were the advocates of such weird ideas simple-minded and ignorant of the world of real astronomy?

Not quite, as some of the most famous names in astronomy – Sir Edmund Halley of Halley's Comet fame, Sir William Herschel, the discoverer of the Planet Uranus, and John Flamsteed, the first British Astronomer Royal – believed in these wacky theories.

In more recent times, soon after the discoveries of Quasars in the 1960s, it was suggested that what was being observed were the exhaust gases from the engines of vast interstellar spacecraft. This seemed much more plausible than the other explanation: that there were black holes radiating as much energy as a thousand galaxies all containing hundreds of billions of stars.

It was not until the 1920s that the true nature and extent of the universe was finally demonstrated. It is now known that the number of stars in the visible universe is so huge that if a pile of sand were made such that it contained as many grains of sand as there are stars in our visible universe, that sand mountain would stand 100 miles high and have a base smothering an area the size of the State of West Virginia or the Principality of Wales!

This book explores the wackier aspects of astronomy and astronomers that have come into being over the years. No prior knowledge of astronomy is assumed.

Weymouth, Dorset, UK

Geoffrey Kirby

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About the Author



Fig. 1 The author finds these special binoculars very satisfying on cloudy nights!

Geoff Kirby's interest in astronomy started while living in London during World War II. The "Blackout" precautions against enemy bombers provided the intensely dark skies that originally enabled him to see the heavens in spectacular detail. In the 1950s, he started making astronomical telescopes and gained some fame in the following decades for his observations, which were published in several international astronomical journals. His passion

for astronomy has lasted over seventy years, although failing eyesight has now limited his observing abilities as he approaches his eightieth birthday.

Geoffrey made a career in oceanography and specifically the interactions between the atmosphere and the oceans that drive climate change. This involved developing interactive computer models of the transfer through the air/sea interface of heat and gas. He has made measurements in the North Atlantic while enduring violent storm conditions.

Geoffrey has also supervised measurements of the ice thickness of the northern polar ice sheet in association with the Scott Polar Research Institute in Cambridge using equipment carried by Royal Navy nuclear submarines traveling under the ice to the North Pole. These measurements, made in the 1980s, provided a valuable baseline for determining long-term changes in the northern polar ice sheet thickness.

Chapter 1

Introduction



Wacky: Funny or amusing in a slightly odd or peculiar way.

(Oxford English Dictionary)

Sir Patrick Moore was an eminent British astronomer, prolific author and presenter of the “Sky at Night” BBC television program, which he fronted monthly from 1957 until 2013. This made it the longest-running program with the same presenter in world television history. Over the course of these fifty-six years Sir Patrick received thousands of letters from the public, of which the following were typical.

Dear Sir: One evening many years ago in Glasgow I noticed a series of round balls traveling around three walls of a room. Whatever was causing these images about three or four inches in diameter? I looked and looked and could discover nothing. I then noticed that the stars in the sky were fading. And as they faded my balls disappeared. Stars were round. How is it that everyone thinks them pointed? Dear Sir: I think the Sun acts very strangely. I see it go into a red hot disc then changed into a New Moon as on Saturday last. It rocked about a bit, went dim and bright, repeating this for a few minutes until it vanished.

Dear Sir: The planet Venus is inhabited with beings who look just like ourselves. No doubt you cannot see this what with all the education you may possess. For when one becomes educated things become complicated and that simplicity is non-existable.

In 1969 Sir Patrick Moore presented a BBC TV program called “One Pair of Eyes” in which he talked with many ‘independent thinkers’ – like the letter writers above – about their alternative models for our universe and all the stars, galaxies, planets, moons, etc., contained within it. This program is available to watch on the Internet. He discussed the theories that Earth is flat, Earth is hollow and the inner regions are inhabited, the Sun is cold, the plan-

ets are all inhabited and governed by an Interplanetary Parliament based on the planet Saturn – and much more!

This book goes well beyond the scope of that 1960s television program. It explores not only the ideas of those who have alternative theories about the nature of our universe but also describes some of the amazing facts about it that are wackier than many of the off-the-wall theories. Astronomy does seem to attract more than its fair share of unusual personalities, and we will meet some of them in this book: Tycho Brahe with his pet elk that got drunk at a rowdy party and suffered a fatal fall down a flight of stairs; George Ellery Hale, the driving force behind the building of the huge telescope on Mount Palomar with his elf spirit friend who materialized in times of trouble and gave Hale advice; and the eccentric British astronomer Ethel Granger who, by means of extreme corsetry, reduced her waist to a circumference of 13 inches – the same as a liter bottle of wine – and who was the all-time record holder in the Guinness Book of World Records for having the tiniest adult waist ever. It's amazing what the human body can survive! On an astronomical cruise to observe the total solar eclipse in 1973 off the coast of West Africa she won the ship's fancy dress competition dressed – appropriately – as a wasp. Her preferred means of transport was driving her huge Harley Davidson bike with sidecar into which was squeezed her enormously obese husband.

In the 18th century there was a widespread belief that the Sun was hollow and that the inner regions were cool and inhabited. This idea was not the ranting of what some today would unkindly call the “aluminum foil hat brigade” – those who believe that their brains are under attack by electromagnetic radiation from aliens and therefore constantly go around with their heads wrapped in cooking foil. Believers in the theory of alien creatures living inside and on the surface of the Sun included the greatest astronomer of his age, Sir William Herschel, who discovered the planet Uranus. He also mapped the heavens in such detail that he was the first to work out correctly the approximate shape and size of our galaxy and the place of our Sun within it. Many of Herschel's contemporaries, such as the British Astronomer Royal John Flamsteed, agreed with Herschel that aliens could well be living inside the Sun.

Our Earth was also claimed to be hollow and to contain concentric shells that were illuminated and heated by mini-Suns. Each shell was believed to be inhabited. The Aurora Borealis was explained as the light from these subterranean inhabitants' fires shining out through a hole at the North Pole. Many leading astronomers and scientists in the late 17th and early 18th centuries supported these notions, including Sir Edmund Halley of Halley's Comet fame.

These curious ideas had died out in mainstream science by the start of the 19th century, as theoretical and experimental techniques for understanding



Fig. 1.2 A Martian war machine attacks HMS *Thunder Child* from the H. G. Wells novel *War of the Worlds*

canals to transport melting ice from the Martian poles to the temperate latitudes. Changes in color and the varying extent of dark markings adjacent to the canals were taken as evidence of vegetation flourishing and retreating with the varying availability of water delivered by the canals. The publication of the book *War of the Worlds* by H. G. Wells in 1898 further whipped up the widespread belief in Martians, and the claimed reception of radio signals from Mars by Guglielmo Marconi and Nikola Tesla a decade later came as little surprise (Fig. 1.2).

Space probes have totally changed our ideas about the nature of the planets and the prospects for life in the universe. We now know that Venus is a hellish planet with a surface temperature over 900°F, with an atmosphere that is almost entirely composed of carbon dioxide and is nearly one hundred times denser than our own atmosphere. The clouds are made up of droplets of sulfuric acid that rain down upon the surface. Not an ideal home for alien creatures let alone an attractive holiday destination for humans! However, an alien named Valiant Thor and his friend Jill allegedly arrived from Venus in the early 1950s and had many discussions with President Eisenhower and Vice-President Richard Nixon during which much advice was passed on concerning world peace and the development of alien technology.



Fig. 1.3 The author’s partner enjoys the illusion of heat while reading Rev. Francis’s book ‘proving’ that the Sun is cold

Despite the recent explosion of knowledge about the universe the urge of many people to carry on believing in a wacky universe has greatly increased over the past half century. Type “Hollow Earth” into an Internet search engine and you will get over 400,000 responses. Type “UFO” and that number rises to 140 million! Unconventional theories about our universe have exploded exponentially over the past half century despite the increasingly detailed exploration and mapping of our universe. This paradox is largely fed by conspiracy theorists who argue that information that would support alternative theories about our universe are being hidden by a worldwide cadre of mysterious shadowy agents who may be lizards disguised as humans. If the evidence supplied by ‘official’ sources disagrees with a person’s pet alternative theory then it is ‘obvious’ that the official data is being manipulated.

In Chap. 2 we will start our exploration of the wacky ‘alternative’ ideas about our universe beginning our journey through the Solar System and into the greater universe from inside the supposedly cold Sun as proposed by the Reverent Philip Harwood Francis. He published a book in the 1960s entitled *The Temperate Sun* in which he set out his ‘proofs’ about the Sun being cold and that the perception that it is hot is an illusion (Fig. 1.3) [2].

Fig. 1.4 Sir John Herschel, believer in aliens living on the surface of the Sun



Many of the great 18th century astronomers such as Sir William Herschel claimed the Sun to be cold on the inside, allowing it to be inhabited. Others, such as his son Sir John Herschel, believed that the surface of the Sun was also home to alien creatures shaped like tree leaves despite the temperature of their extreme abode being at around 10,000 degrees Fahrenheit! Sir John Herschel's wacky ideas seem appropriately matched to his equally wild hair. Did Albert Einstein model his hair on Sir John Herschel's coiffeur – and expression – in this portrait from 1867 by the pioneer photographer Julia Margaret Cameron (Fig. 1.4)?

Moving out from the Sun we encounter many wacky theories about our Solar System and meet some of the extraordinary personalities who speculated about the origin and construction of our Sun's family. Tycho Brahe was a drunken, wild-living and extremely rich observer of the heavens who owned an island in the Baltic Sea, where he terrorized the fifty or so families living under his demonic authority. He had a dwarf companion who, despite being his confidante on all things occult, was forced to eat his meals sitting under Tycho's dining table in the company of the dogs. Tycho's nose was sliced off during a duel prompted by an argument involving the solution of a mathematical theorem, he seduced the Queen of Denmark, which made him unpopular with her husband, and he died of a burst bladder due to excessive consumption of ale. Shakespeare may have based his play 'Hamlet' on the story of Tycho Brahe's wacky life. Tycho's astronomical observations were

Fig. 1.5 Jupiter's Great Red Spot – the birthplace of Comet Venus in early biblical times?



so extraordinarily accurate and his enthusiastic support for a Sun-centered Solar System so great that he is rightly feted as the astronomer who most kick started the modern astronomical era by directly inspiring Johannes Kepler and Sir Isaac Newton.

Among the more recent ‘characters’ described in Chap. 2 include a description of the momentous events described by Dr. Velikovsky in his book *Worlds in Collision* [3]. This book was a best-selling sensation when it appeared in 1950. It theorized how Venus was originally a comet projected from the interior of Jupiter, leaving the Great Red Spot as a permanent scar of its birthplace (Fig. 1.5). ‘Comet Venus’ then collided with various planets and our Moon in a vast celestial game of pool causing chaos wherever it went. Dr. Velikovsky claimed that frequent very close passes to Earth by Comet Venus caused all the tribulations heaped upon the Israelites during their flight from Egypt as well as raining down hydrocarbon ‘manna’ that sustained them during their decades of wandering in the desert.

The description of Venus careening around the Solar System in biblical times was, to mainstream scientists, totally absurd, but the non-scientific public took Dr. Immanuel Velikovsky to heart and made his book an international best seller. It was the precursor of a huge outpouring of pseudoscientific books, such as Erich von Däniken’s *Chariots of the Gods*.

In Chap. 3 we explore outwards through the Solar System and visit the inner planets, those within Earth's orbit around the Sun. We encounter in Chap. 3 the planet Vulcan – not the home planet of Mr. Spock. Our Solar System's planet Vulcan had a brief existence in the mid-nineteenth century before vanishing and leaving behind one of the most embarrassing episodes in the history of astronomy. Predicted by Urbain Jean Joseph Le Verrier, who was one of the finest mathematical brains of the time, it was several times 'observed' on an orbit inside that of Mercury but then vanished, never to be seen again. We then explore the wackier side of a very real planet – Mercury. For over two centuries astronomers observed markings on the surface of Mercury, and elaborate maps of the surface were produced right up until the middle of the twentieth century. However, all these claimed markings and maps were a delusion. The great astronomer Sir William Herschel stated that once a difficult celestial object had been seen for the first time it became much easier to be seen. Sadly this is also true of things that do not exist, and observers can be tricked into seeing things – such as markings on Mercury – which simply do not exist. What was 'observed' and mapped simply does not exist on Mercury – a classic case of over-enthusiasm creating false results. The observation and study of things that do not exist is called Pathological Science [4]. This wacky branch of science will be explored in Chap. 3.

This chapter also takes us on a tour of the extraordinary ideas about Venus and its inhabitants. Superficially Venus is Earth's twin. Very similar in size, it has an atmosphere full of clouds that totally obscure the planet's solid surface. This created an air of mystery about the planet for centuries. What hides under the clouds? Deserts, oceans, monsters? Nobody knew until Soviet space probes arrived on the surface of Venus in the 1960s. Belief in an inhabited Venus was strengthened in the late 19th century when the prestigious American astronomer Percival Lowell claimed to have observed 'canals' on Venus, like those supposedly on Mars, which were widely believed to be artificial waterways to channel the water from the summer melting of the polar caps to the arid deserts around the Martian equator. In the mid-1950s an alien named Valiant Thor arrived on Earth claiming to be from Venus. We will discover in Chap. 3 the unique and scientifically advanced manner in which human waste is disposed of during long interstellar journeys in a Flying Saucer.

Venus gained a large moon that was 'observed' by a long list of astronomers in the 18th century. Over thirty observations were made of this 'moon,' and an orbit was computed to predict its position into the future. Despite this the moon vanished – just like Vulcan – and was never seen again. Pathological Science at work again!

Chapter 4 brings us to our home planet Earth – hollow with aliens living inside, or is it flat? Some also say it is inside out so that Australia is above the heads of those in Europe and the Indian Ocean is over the United States. In the 1930s a group of amateur rocket builders were paid to develop and fire rockets vertically upwards into space so that they would land in Australia. This group included Werner von Braun, who developed Hitler’s ‘Vengeance Weapons’ in World War 2 and who went on to mastermind the Apollo Moon landing program. When the author was a child his family home in London was destroyed by a V2 missile designed by von Braun [5].

Belief in a Flat Earth is stronger now than at any time in the past. Typing “Flat Earth” into an Internet search engine brings up over 15 million results, and the Flat Earth Society Facebook page has 35,000 followers. How much confidence does the Flat Earth Society have in its theory? Well, in a recent press release it is claimed by the society that it has “...members from all around the globe”!

Other wacky claims about the Earth are explored in this chapter, including the theory that Earth was once shaped like a tetrahedron and that it has been slowly expanding from a proto-Earth about half the present diameter. It was claimed in the late 19th century that this slow expansion of our planet would manifest itself because the telegraph wires strung out across the American Prairies would gradually become stretched to the point that they would all snap. Even as recently as the mid-twentieth century the theory that Earth – and indeed the Sun, plus all the planets and moons have been expanding was seriously suggested to be a consequence of the strength of gravity gradually diminishing as the universe expands from the initial ‘Big Bang’ moment of creation. This modification to Einstein’s General Theory of Relativity was championed by no less a genius than Paul Dirac, Nobel Laureate in Physics in 1933.

Chapter 5 is about our Moon, which has been endowed with more than its fair share of wackiness, including an alien bridge ‘discovered’ in the mid-1950s with a span of 20 miles arching 5000 feet high. Herds of lunar bison and giant insects have been ‘seen’ migrating across the surface of the Moon. In 1835 it was claimed that the great Sir John Herschel had observed humanoid flying Moon creatures along with multicolored unicorns and strange lunar birds in lush surroundings. This had been achieved using a telescope with a huge lens weighing 5 tons, which magnified the surface of our Moon by an incredible 42,000 times. It was, of course, all an elaborate hoax perpetrated by a journalist working for a Baltimore newspaper and blatantly intended to increase sales by publishing this sensational and totally untrue story.

Until the 1950s it was widely believed that the countless craters on our Moon were the relicts of long-dead volcanoes, and Fig. 1.6 shows an imagi-

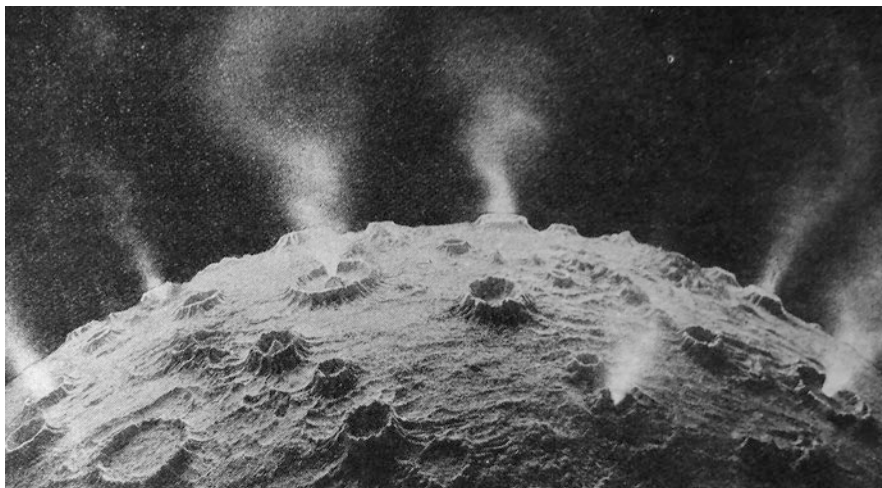


Fig. 1.6 The surface of the Moon according to the consensus of 19th century astronomers

native view of what the Moon was like billions of years ago. In fact the craters were formed by impacts of huge asteroids, and there has never been any significant volcanic activity on our dead companion. Despite this modern confidence that the surface of the Moon has been unchanging for millions – even billions – of years Sir William Herschel described seeing volcanoes erupting on the Moon and spewing molten lava over its surface two centuries ago.

Chapter 6 moves on to the planet Mars. Many books could be written about the Martians, their canal-building activities, a huge ‘carved face’ constructed on the Martian desert to attract our attention and our plans to signal our existence to the Martians by means of a humungous mirror that would concentrate the Sun’s heat onto the Martian surface and burn the proof of Pythagoras’s theorem into the Martian soil. We examine the wacky ideas of Percival Lowell that a dying Martian race lives on the planet and have been building canals to bring water to the equatorial deserts from the melting polar ice caps (Fig. 1.7).

Until around the first half of the 20th century this could have been plausible, although opinion was turning away by then from the belief in a Mars populated by canal-building aliens.

In 1950 the author was given a children’s astronomy text book, and this firmly proposed the existence of Martians and even included a drawing showing what they might look like (Fig. 1.8). Even today and despite the incredible images returned by spacecraft from the Martian surface there are many people who claim to have evidence of life on Mars in the images.

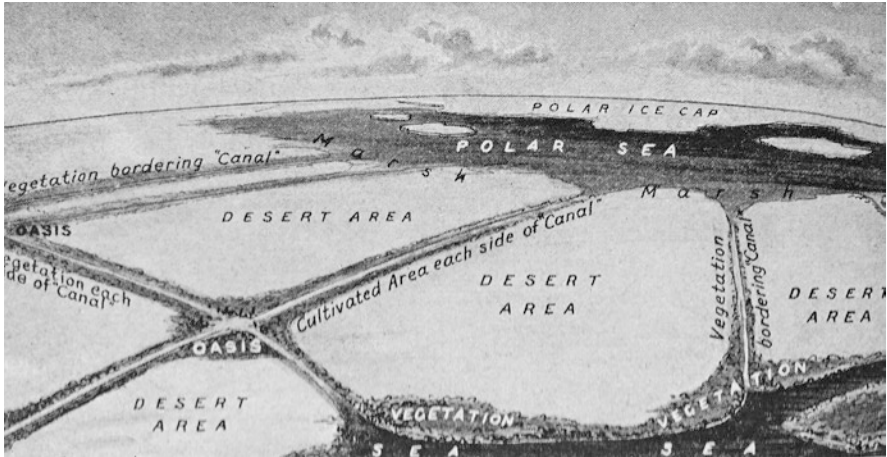


Fig. 1.7 A typical 19th century drawing of part of the Martian surface showing canals, oases and vegetation

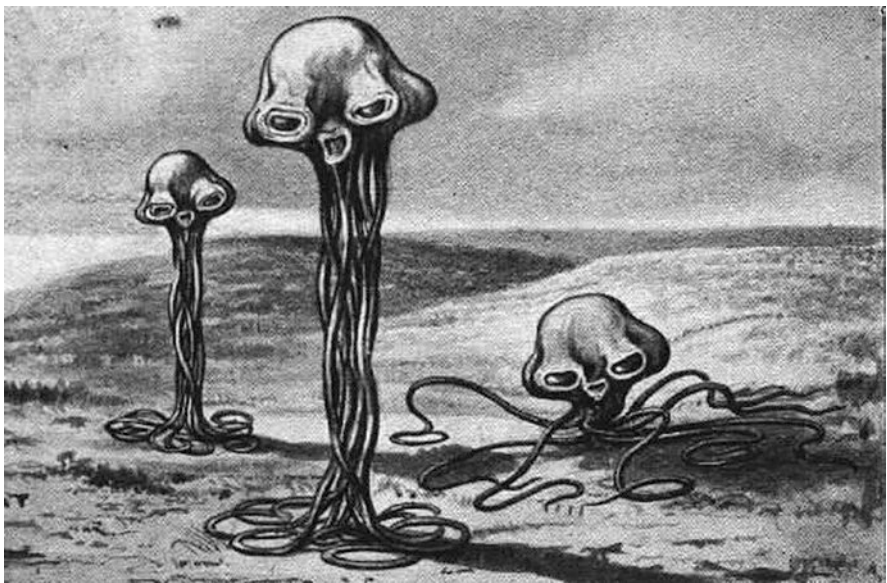


Fig. 1.8 A speculative drawing of what Martians might look like

These include a humanoid female about 2 inches tall, a bust of Barack Obama and even a photograph of a Martian insect that looks remarkably like a bee, which ties in with a claim made in a book published in 1950 that the Martians are actually super intelligent alien bees who are the pilots of the Flying Saucers seen in such abundance in our Earthly skies.



Fig. 1.9 The Mars monolith looking remarkably like that from the film *2001: A Space Odyssey*

The theory that the tiny moons Phobos and Deimos circling close to Mars are artificial hollow bodies built by a long-lost spacefaring race was not disproved until a couple of decades ago. These twin tiny moons have their own mysteries, which include a monolith on Phobos imaged by the Mars Global Explorer in 1998 that measures about 279 feet across (Fig. 1.9). This monolith is a possible landing site for a mission to Phobos known as PRIME (Phobos Reconnaissance and International Mars Exploration). This space mission is yet to be funded, so it may be many decades before we discover whether the mysterious Phobos monolith is actually an artifact left by a long-dead spacefaring race of aliens or just a humongous lump of rock.

Chapter 7 moves out into the Solar System's rubble: the asteroids, comets and meteorites made up from the debris left behind from the formation of the Solar System planets. The main Asteroid Belt between Mars and Jupiter is claimed by some to be a natural hiding place for flying saucers. Where better to discretely park your spacecraft? Han Solo of *Star Wars* fame chose such a place to evade the Imperial Forces by hiding in an alien star system's asteroid belt but with near fatal consequences when the tunnel inside an asteroid in which he had chosen to hide turned out to be a monster's throat! [6].

The asteroids are conventionally believed to be lifeless. Nevertheless, in the 1960s Princess Moon Owl visited Earth from Ceres, the first asteroid to be discovered and the largest of the bodies orbiting between Mars and Jupiter. She was described as being extremely tall, covered in feathers and

Fig. 1.10 Illustration of the terror created by the appearance of a bright comet



stinking of rotten eggs. The naming of asteroids requires that almost any name can be given except for that of the discoverer, but asteroid hunters have gotten around this by naming asteroids after each other. Many wacky names have been given to these lumps of rocks such as number 3834 Zappafrank named after rock god Frank Zappa, 4321 Zero, 6042 Cheshirecat, 9007 JamesBond, 13,579 Allodd, 24,680 Alleven, 8749 Beatles and 26,858 Misterrogers (after the famous U.S. children’s TV program presenter). Asteroid number 5460 is named Tsenaat’a’i, which means – appropriately – “flying rock” in the Navaho language. The Simpsons cheeky lad Bart does not have an asteroid named after him, but there is a landslide on the minor planet Ceres, which is claimed to have a strong resemblance to his distinctive head. See the NASA image in Chap. 7, and you be the judge.

Comets have long been a portent of disaster [7] and source of great fear. Even in recent years the appearance of a comet in our skies brings out cults whose members gather on mountaintops awaiting the destruction of Earth. They climb down again when Earth survives this close catastrophe only for them to get into another panic when the next comet appears.

Figure 1.10 from 1857 shows how widespread panic can be whipped up every time a comet appears in the night sky. In 1910 Earth passed through the tail of Comet Halley. Just before this event the deadly chemical cyanide had been discovered in the gases streaming from the head of the comet. This caused panic, with huge fortunes being made by quacks selling gas masks, anti-comet pills, etc. In a letter sent to the Royal Greenwich Observatory the