

REWRITING HISTORY

THE WORLD'S OLDEST LIVING THING



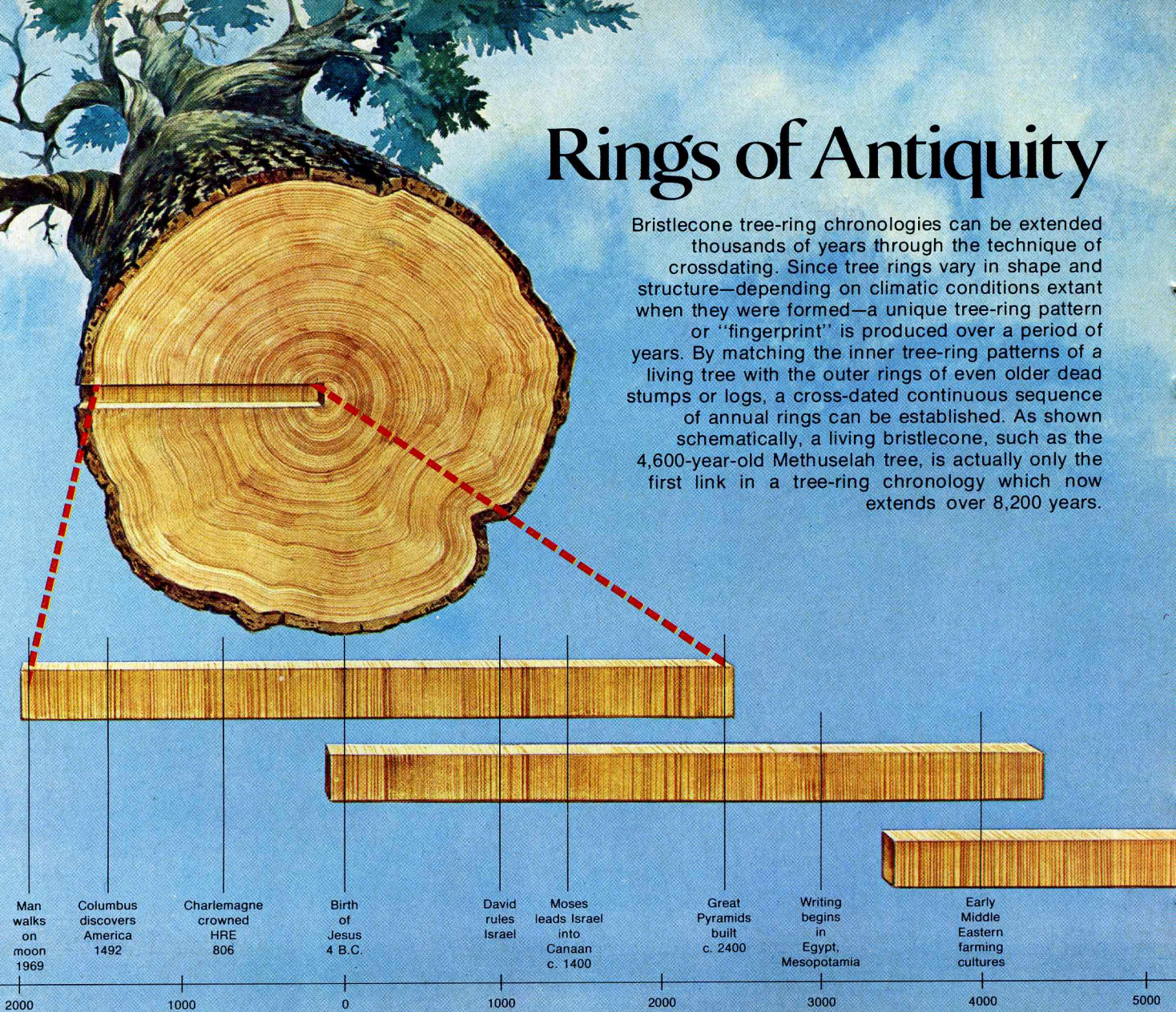
At nearly 5,000 years of age, bristlecone pines are revolutionizing man's understanding of climate, history and archaeology.

by Robert A. Ginskey • Photos by David Muench

High in the mountains of the southwestern United States, the twisted, misshapen and battered forms of bristlecone pines cling precariously to the sparse soil that somehow sustains them. But the stunted, gnomish appearance of the bristlecones belies their incredible age—an awesome antiquity that antedates recorded history. Indeed, in the White Mountains of California, nearly 20 bristlecones have lived more than 4,000 years. One tree, known as Methuselah, is over 4,600 years old. The Methuselah tree was already hundreds of years old when the Egyptians built the Great Pyramid. It had lived over a millennium when Moses led the Israelites out of Egypt. And it had survived over 3,000 mountaintop winters when Charlemagne was proclaimed emperor of the Holy Roman Empire in A.D. 800. An even older bristlecone pine, growing in Nevada, was

Rings of Antiquity

Bristlecone tree-ring chronologies can be extended thousands of years through the technique of crossdating. Since tree rings vary in shape and structure—depending on climatic conditions extant when they were formed—a unique tree-ring pattern or “fingerprint” is produced over a period of years. By matching the inner tree-ring patterns of a living tree with the outer rings of even older dead stumps or logs, a cross-dated continuous sequence of annual rings can be established. As shown schematically, a living bristlecone, such as the 4,600-year-old Methuselah tree, is actually only the first link in a tree-ring chronology which now extends over 8,200 years.



regrettably cut down in 1964. Its age: at least 4,900 years! In addition, dead bristlecone logs and stumps have been found that were living over 8,000 years ago.

How do we know the bristlecones are thousands of years old? The answer is quite simple: Every year most trees add a growth ring of new wood. By counting these annual rings, the tree's age can be determined.

Under ideal conditions, trees may grow quite rapidly, leaving easily discernible annual rings. But bristlecone pines grow in arid, hostile environments where growth can literally be microscopic. In fact, bristlecones may grow so slowly that the annual rings may be only a few

thousandths of an inch thick—requiring a microscope to be clearly seen!

Matching Trees: Cross Dating

Perhaps even more amazing is that tree-ring chronologies are not limited by the age of the oldest tree. By cross-dating the inner tree rings of an old living tree with those in dead stumps and logs, scientists have built up an impressive sequence of bristlecone tree rings extending over 8,200 years into the past (see accompanying box).

Dendrochronologists (scientists who measure time by counting growth rings) have found that tree-ring chronologies extending back hundreds or thousands of years are

very useful in historical and archaeological studies. For example, when an archaeologist finds a wooden beam that was used in an ancient building, he can often date the dwelling by matching the pattern of tree rings in the beam with a master tree-ring chronology for that area. This technique has been especially helpful in dating Indian ruins in the American Southwest.

Tree rings also provide a natural source of information about localized weather and climate patterns prior to man's records. The date can be found by counting the tree's rings, and the climate is determined by studying the size, density and other characteristics of those rings. Obviously, when the rings are small,

Illustration by Frank Germain

we would expect their growth was limited by some climatic factor—usually rainfall.

Dendrochronologists Dr. Valmore C. LaMarche and Dr. Harold C. Fritts have demonstrated that we can acquire a greater understanding of climatic fluctuations and weather patterns over the past several thousand years by examining bristlecone tree-ring patterns. Such studies, they believe, give valuable insights into future climatic trends, such as the potential for a new ice age.

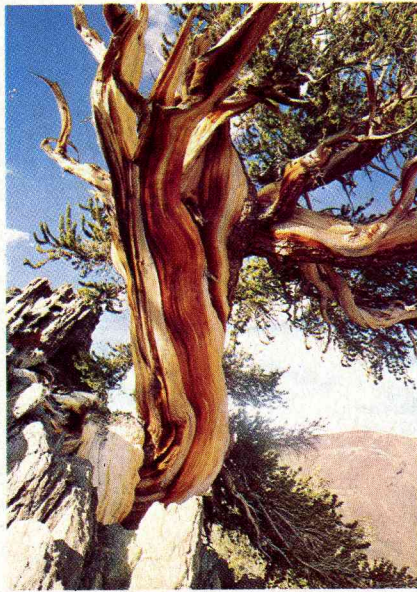
Recalibrating Carbon 14

Yet perhaps the most significant result of the bristlecone pine tree-ring chronology is its revolutionary implications for the carbon-14 dating method and our understanding of prehistory.

What do bristlecone pines have to do with carbon 14? All living things, including the bristlecone pine, contain a small amount of the radioactive element carbon 14. When an organism dies, the carbon 14 begins to decay at a known rate. By measuring the amount of remaining carbon 14 in a once living organism, scientists can closely estimate when that organism died.

But the radiocarbon dating technique is based on the questionable assumption that the amount of carbon 14 available to be incorporated into living organisms has remained constant for thousands of years. Since carbon-14 concentrations have been measured only in the past four decades, scientists could only *assume* that the same carbon-14 concentration applied to those past eras where no historical data was available as a check. Indeed, without that assumption, or at least some method of calibration, the radiocarbon dating method would be largely worthless.

Enter bristlecone pine. The 8,200-year sequence of bristlecone rings has provided a remarkable check on the primary assumption of radiocarbon dating. As each ring in a sequence grew, it recorded the carbon-14 concentration in the atmosphere at that time. By measuring the carbon-14 content of various rings, scientists were able to check the accuracy of the radiocarbon dating method. The conclusion of



many years of research at the Universities of Arizona, Pennsylvania, and California is that the basic assumption of radiocarbon dating is *not* grossly in error. Indeed, the bristlecone studies have shown that radiocarbon dating is generally accurate over the past 3,000 years.

Older by 900 Years

But the bristlecone calibration also produced something unexpected: As we go back in time prior to about 1,000 B.C., the amount of carbon 14 in the environment was somewhat *greater* than at present. This means that certain samples dated by radiocarbon will be dated *too young*. In other words, the bristlecone pine calibration has shown that some archaeological samples should actually be dated up to 900 years older (earlier) than conventional carbon-14 analysis would indicate!

The bristlecone calibration of radiocarbon has drastically changed the archaeologist's understanding of some early cultures, especially in Europe. A leading British archaeologist, Colin Renfrew, believes the bristlecone pine will revolutionize our chronology of the development of early European civilization. Using the calibrated radiocarbon dates, Renfrew contends that megalithic tombs of western Europe are actually *older* than the Egyptian pyramids (which are usually thought to predate the European tombs). He also asserts that Britain's Stonehenge, once thought to have been inspired by Mycenaean (Greek) builders, actually was completed well before the Mycenaean civilization began. "Now it is clear," says Renfrew, "that megalithic chamber tombs were being built in Brittany... a millennium before monumental funerary architecture first appears in the eastern Mediterranean and 1500 years before the raising of the pyramids."

Multiple Rings and the Appearance of Age

According to Renfrew, the bristlecone calibration makes obsolete the formerly accepted theory that prehistoric culture began in the Near East and was only later diffused into "barbaric" Europe.

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But could something be wrong with the bristlecone chronology and the resulting calibration of radiocarbon dating? And what of the common belief that God created the earth and all living things about six thousand years ago? How does this square with a reputed 8,200-year tree-ring chronology?

One explanation sometimes offered is that the bristlecone pines must have produced multiple rings in many years, thus appearing much older (by growth-ring count) than they really are. This explanation might be true for some trees in special environments, but Dr. C. W. Ferguson, the world's leading authority on bristlecone pine dendrochronology, maintains that it is *missing* rings rather than multiple rings that pose the greatest problem.

"Those who claim we're dealing with multiple rings are sadly misinformed," Ferguson told *The Plain Truth*. "The real problem is that these bristlecones grow in an arid environment where they sometimes fail to add a distinguishable annual ring."

Moreover, for at least the past three thousand years, the carbon-14 content of the rings is consistent with what would be predicted on the assumption that each bristlecone ring represents one calendar year. Thus it would seem unlikely that the apparent antiquity of the bristlecones is due to multiple rings.

Another possibility is that God created the trees with the appearance of age. After all, when God created trees, they certainly would have appeared to be at least several years old—and perhaps much older. But would God have created *thousands* of false rings? "If people are

determined to make these bristlecones younger," observes Dr. Bryant Bannister, director of the Laboratory of Tree-Ring Research, University of Arizona, "I suppose they might as well say God created them with thousands of rings already present. I personally don't believe it, but I guess it's a philosophical position that would be hard to disprove."

Bannister tells of an incident in Lebanon, when he was conducting tree-ring research near a mountain

only add one ring every three years!"

"It was obvious," adds Bannister, "that nothing I could say would ever convince him that the tree was not 6,000 years old."

Of course, Bannister's example is not really the appearance of *age* so much as the appearance of *youth!* But the same kind of mentality is involved whenever one claims a tree's true age is other than what the actual number of rings indicates.

A more serious difficulty with the apparent-age theory is that some dead bristlecone logs have rings that indicate the trees lived and died seven or eight thousand years ago—*before* the supposed date of creation. If God created the earth only 6,000 years ago, this would imply that He also made "fossil trees"—trees that never actually grew but were only "planted" by God (perhaps to deceive man into thinking the earth was older?).

Whatever the merits of the concept of creation with the appearance of age, most people would agree it should not be pushed to the point where God becomes a cosmic practical joker. God is not the author of confusion (I Cor. 14:33), and His character makes it impossible for him to lie or devise a deceptive creation (Titus 1:2).

Dr. Paul Damon, chief scientist at the University of Arizona Radiocarbon Laboratory, is one of the principal investigators in the bristlecone calibration of carbon 14. "I know people say carbon 14 can't be accurate because it dates creatures long before 6,000 years ago," observes Damon. "But frankly, I think those who invoke 'apparent age' so they can keep believing the earth is only 6,000 years old are intellectually dishonest. Paul told Timothy to guard against the pitfalls of 'endless genealogies' and

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monastery. "One of the monks told me a 6,000-year-old tree had recently been blown down in a windstorm," recalls Bannister. "I was skeptical, but we went over and started to count the rings. It was soon evident that the tree was not nearly that old."

"I'm afraid this tree is only about 2,000 years old," I informed the monk. "On the contrary," he replied, "it may *appear* by your count to be only 2,000 years old, but you must realize that it was decreed in the beginning that this tree would

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Scripture says a day with the Lord is as a thousand years. I just don't think the Bible should be used to deny what any honest person can plainly see—namely that the earth must be older than 6,000 years."

Indeed, as *The Plain Truth* has often explained, the Bible allows for a world before Adam and a universe that may be billions of years old. (Write for the free booklet *Did God Create a Devil?*)

But what of Noah's Flood, which the Bible chronology would date at between two and three thousand years B.C.? Did the bristlecones survive the Deluge?

The answer is obviously yes. The Flood described in the book of Genesis killed primarily animal life, not plant life. Because of Noah's Flood, "all *flesh* died that moved upon the earth" (Gen. 7:21). Yet plant life generally survived. For example, Noah sent out a dove which brought back an olive leaf growing on the newly emerged land (Gen. 8:11). Perhaps the bristlecones were (supernaturally?) preserved in the same fashion.

Beyond 10,000 Years?

According to Bannister, tree-ring chronologies will probably be extended even further—perhaps beyond 10,000 years. "In the next decade or two," Bannister told *The Plain Truth*, "I believe the Europeans may develop a continuous tree-ring chronology even longer than what we've achieved."

But one thing is certain: If the bristlecone pine chronology is indeed accurate, then many traditional and conventional concepts in archaeology and prehistory are destined to be seriously challenged and perhaps revised.

Outliving even the giant sequoias by nearly 2,000 years, the bristlecone pine is proving to be a treasure trove of intriguing and useful information. Perhaps it is only fitting that the world's oldest living thing should also provide the key to so many fascinating riddles of the past. □

Personal from...

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This coming utopia does not depend on the planning or doing of men. It will be produced *in spite of men*.

The greatest event of all history will be the coming of the *living* Jesus Christ again to earth. But this time, He is not coming as the gentle young man from Nazareth, bringing the announcement that led to His flogging and death at the hands of angry men. Jesus Christ rose from the dead. He went to the throne of the government of the vast universe to be GLORIFIED, and coronated as supreme RULER over the entire earth. When He returns, the world will know something of the meaning of "the power and the glory!"

His eyes will flash like flames of fire. His face will not be pale white. It will be like the sun shining in FULL STRENGTH. He will come with all the POWER that created the universe! He is coming to crush every government of men, as if to grind them into powder! He is coming as the King of kings, ruling over ALL NATIONS.

He is coming to *change human nature!* He is coming to enforce the way of outgoing concern, of love, of giving, serving, sharing, helping, instead of grasping, taking and self-centeredness.

Yes, I see a very bright future—just ahead! It's the only real GOOD NEWS in the world today! □

CHURCH GOERS

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when theologians and the professional clergy "interpret" the Bible to mean the very opposite of what it plainly says, in order to pretend that it supports their pagan teachings, then you may *know* what is wrong.

If you will read Jeremiah 23, Ezekiel 13 and 34, which are prophecies of conditions *now*, in our day; Christ's statement of Matthew 24:4-5, 11, 24 of the false preachers that would deceive the MANY; and the many statements in the Bible that the whole world would be deceived, you will begin to understand. It is indeed hard for one born, reared, and steeped in this world's education, religion, customs and ways, to realize that this is *not* God's world, but Satan's. It comes as a jarring *shock!* I know. I've experienced it!

The Bible ought never to be interpreted. It means what it says, and it says what it means. Taken as it *is*, it *makes sense*. (We have two booklets to help you in your Bible study. They are titled *Read the Book* and *How to Study the Bible*. Request them by return mail.)

Don't be a spiritual coward. Look into it *for yourself*. It's full of surprises—it's full of TRUTH—it's full of the way to a positive peace of mind, to prosperity, abundant living here and now, and to salvation in joyous eternal life—FOREVER! God's world is soon coming—the peaceful, happy world tomorrow! □

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