

1939

# LIFE HISTORY of the GINKO PETRIFIED FOREST or The Autobiography of an Ancient Oak Tree

George F. Beck

Follow this and additional works at: [https://digitalcommons.cwu.edu/geological\\_sciences](https://digitalcommons.cwu.edu/geological_sciences)



Part of the [Geology Commons](#)

---

## Recommended Citation

Beck, George F., "LIFE HISTORY of the GINKO PETRIFIED FOREST or The Autobiography of an Ancient Oak Tree" (1939).  
*Geological Sciences Faculty Scholarship*. 22.  
[https://digitalcommons.cwu.edu/geological\\_sciences/22](https://digitalcommons.cwu.edu/geological_sciences/22)

This Book is brought to you for free and open access by the College of the Sciences at ScholarWorks@CWU. It has been accepted for inclusion in Geological Sciences Faculty Scholarship by an authorized administrator of ScholarWorks@CWU. For more information, please contact [pingfu@cwu.edu](mailto:pingfu@cwu.edu).

L I F E   H I S T O R Y  
of the  
G I N K O   P E T R I F F I E D   F O R E S T  
or  
T H E   A U T O B I O G R A P H Y   O F   A N   A N C I E N T   O A K   T R E E

By GEORGE F. BECK  
Central Washington College of Education

1939

QE  
991  
B4  
1939

Spec  
Coll

LIBRARY  
CENTRAL WASHINGTON UNIVERSITY



02176394  
QE0991B4 1939  
0037607

QE  
91  
4  
939

QE  
991  
B4  
1939

37607

CENTRAL WASHINGTON  
COLLEGE OF EDUCATION  
ELLENSBURG

Please have this book charged at the  
Circulation Desk.

It is due on the last date stamped on  
the Date Due Slip.

A fine of 2 cents a day is charged for  
each day the book is retained after the date  
due.

Date Due	
Nov 4 '42	AUG 2 1969
Jul 7 '47	OCT 17 1980
Nov 26 '47	OCT 12 1998
Jun 20 '48	INTERLIBRARY LOANS
Jun 25 '48	FEB 12 1999
July 2	
Feb 28 '49	
Nov 17 '50	
Feb 16 '55	
Apr 15 '58	
Apr 19 '56	
Apr 27 '56	
Jul 23 '57	
Apr 27 '59	
Oct 20 '60	
May 16 '61	
JUL 25 1962	
JUL 26 1964	



LIFE HISTORY  
of the  
**GINKO PETRIFIED FOREST**  
or  
*The Autobiography of an Ancient  
Oak Tree*



By **GEORGE F. BECK**  
Central Washington College of Education  
1939

GF  
991  
B4  
1939  
Spec Coll  
CWCEC

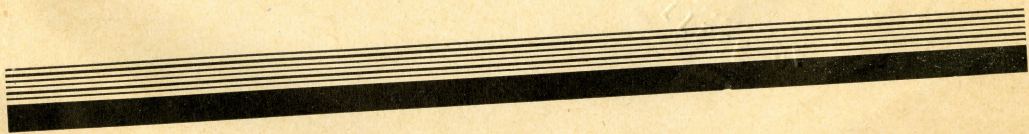
ores.  
rests  
mong  
pov-  
ates.  
roud  
wood  
tree  
more  
now

But  
ape  
and  
as  
als  
ms  
ny  
ere  
red

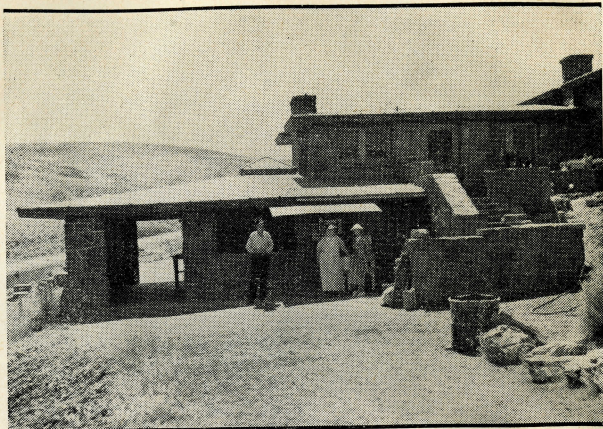
on-  
lly  
lly  
a  
i-  
er  
ne  
et  
rs  
e  
n  
g  
t.  
s  
e

s

2



THE GINKGO Petrified Forest at Vantage on the Columbia is only the largest and best of the many stone forests scattered through Central Washington. It was chosen to be preserved because of (1) its accessibility (on a major highway), (2) the size and abundance of finely preserved logs, (3) the exceptional number of tree species involved. It is quite probable that 200 tree types will have been encountered before all the individual logs have been studied, many of them Eastern American, some of them Asiatic, and a few of them subtropical in character.



The park contains about 11 sections of 7,000 acres as now organized. It was discovered by the author in 1931 and set aside as a state park by the legislature of 1935. In the meantime the National Park Service and Civilian Conservation Corps have spent thousands of dollars in erecting buildings, making trails, etc.

No fossil forest in the world approaches the Ginkgo Petrified Forest in the kinds of trees present. No other forest in the world is known to have been buried and preserved in liquid lava. The forest was named after the most interesting fossil tree of all time, the sacred temple tree of China and Japan; however, the number of these ginkgos in the forest is not large. In the following, one of the splendid "Roosevelt oaks" on the crest of Frenchman Mountain, in the forest, is understood to be telling its life story.

\* \* \* \*

Those were the good old days, those days of 10 million years ago. I was no mean member of an imperial forest which clothed the low rolling hills of what is now the Oroville district of the Okanogan Valley, Washington. By this I mean to say that my native haunts are far northward of these bare and sagebrush-clad bluffs of Vantage on the Columbia. My native home may in fact have extended beyond the international boundary and I myself claim citizenship of British Columbia. As I will explain later, there are fossil trees in these bluffs at Vantage, Washington, such as swamp cypress, which lie buried and rooted in the exact spot where once they grew, but we prostrate logs of this particular forest, such as walnuts, elms, spruces, and red gums, hail from another and far distant setting.

The oaks are a royal family and you will pardon me for calling attention to the fact that no member of the clan today boasts a trunk girth and implied spread of crown exceeding that you behold in me. In my time I ruled over a forest whose grandeur is matched nowhere on earth today, virtually a king of kings. From our commanding position on a hill, we looked down upon a spacious

NW  
561.0216  
B39L  
e.1

valley studded with groves of maples, oaks, spruces, tamaracks, and sycamores. Seen blue against the skyline and above in the distance extended noble forests of fir, pine, hemlock, beech, birch, hickory, hard maple and chestnut. In among these all grew a liberal sprinkling of aristocrats from the past, haughty but impoverished descendants of ancient lines being crowded out by my own associates. Some of these failing lines, all on the verge of extinction, traced their proud lineage back to subtropical times, such as the odorous *Cedrela*, the cigar-box-wood tree. Others as the sacred Ginkgo traced their ancestry back to the dawn of tree history, although their relatives still defy the laws of extinction under the more favorable conditions of the continent Asia. Others as the noble Sequoias now challenge time in the mountain retreats of California.

So far I have mentioned only the tree associates of my native setting. But the feature which gives zest to my recollections, life and action to the landscape I have been calling to mind, relates to the movement of the animals we knew and sheltered. I am not sure that you would look upon our forest guests as being as familiar to you as the tree members themselves. In some respects the animals looked and behaved exactly as they do today. This can be said of the lower forms and of the birds and rodents in general. The larger mammals had in them many points of resemblance to their descendants of today, though in general, they were smaller. There were a few grotesque individuals who as a race have not survived in Western America, if at all.

The ruling member of this association of animals, if mere bulk can be considered equivalent to dominance, was the giant clawed horse, *Moropus*, who daily lumbered past on his way to the nearby spring. Occasionally on his leisurely return he stopped to claw among the roots and dead leaves at my base for a few choice morsels. Next in size was the long-necked and annoying camel, *Alticamelus*, who as a matter of routine fed himself full on any leaves and tender shoots under the twelve-foot level. In fact, we could not be indifferent to the denizens of the forest in those days, for many groups still emphasized a diet of leaves and shoots. Only certain strains of camels and horses among others had accustomed themselves to harsh grass and were venturing out upon the exposed grassland parks which already were intruding themselves into what in ages past had been continuous forest. These new prairie animals were growing longer teeth to withstand wear, and longer legs to give them speed in flight. Other than the squirrels and birds which nested and carried on life's activities within my own leafy confines—and were my special charge—I learned to love the little three-toed horses which still clung to the forest depths.

"What is so rare as a day in June" was as true 10 millions of years ago as now. A profusion of flowers colored every nook exposed to the rays of the sun. Insects buzzed about their business. Many such a scene of a happy, contented nature spread itself immediately before me. "October's bright blue weather"—Indian Summer—carried all the glamour and appeal of modern times. Look back with me upon a forest scene of rainbow tints following the early visitations of Jack Frost. It was at this time that I decked myself in royal colors and became the envy of all the trees of the forest.

On the other hand there were then as now many terrible and unceasing struggles for existence. There were times when the snow ran red with blood,

when cries of predator and prey too often pierced the quiet of the night. I was reluctant to see winter approach, for with it came an accentuation of the struggle between herbivores concentrated at lower levels by deep snow and the blood-thirsty carnivores which harassed them. Many a beautiful star- and moonlit scene of glistening snow was desecrated by relentless slaughter as dog and catlike carnivores competed for a warmblooded meal. Never in the world, before or since was the land overrun with such numbers and varieties of animals closely allied to the dog and cat.

There were of course amusing though sometimes irritating long-drawn-out combats for the sheer love of fight. Such an event transpired almost daily beneath my boughs as Perky, the peccary, and Amphicyon, the bear-dog, disputed the right of way of the trail. One member of this fauna was looked upon with scorn and avoided as a rank outsider. This fell to the lot of the small four-tusked mastodon who had just arrived from Africa by way of the Alaska land bridge. He was still a foreigner in custom and manner and received in the same spirit as the new outsider in any backwoods school. Strangely enough none of us realized that out of this unpretentious newcomer should arise the proud line of imperial elephants, the highest type of animal to walk the earth in advance of man.

There were hornless deer in this our forest and numberless herds of pigs of one kind and another. In addition to the swine there were bands of an animal in appearance a cross between pigs and sheep but related to neither. Trails there were and clearings, but in no trail the footprint of man, in no clearing ascended skyward the smoke curl of his campfire; along no shore shimmered the reflection of his lodge. Nor did my boughs ever feel the spring of monkey-like hands or tails as such creatures swing from tree to tree. There was a tradition among the old aristocrats of our forest that in the remote past, before the palms had migrated southward with the warmer climate, primitive monkey-like animals were existent, and warmth loving, they had followed the genial climate and tropical forests in their retreat.

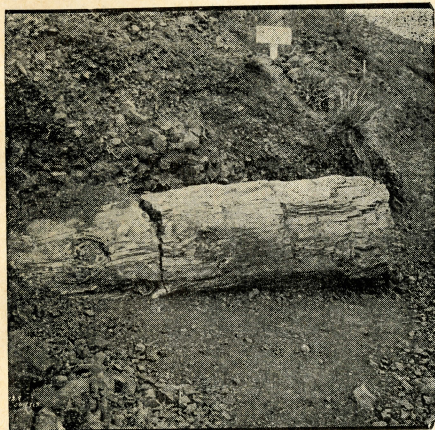
This completes the general picture of ten million years ago. As for me, youth, maturity, and old age succeeded each other. In stature I was still a giant, but at heart an infant in its second childhood. Concealed from without, my core was succumbing to the ravages of parasites and disease. Then came the autumn of the Great Wind. When this day had passed, I and my older associates lay heaped upon each other in a tangled mass. Winter came, with no bears at hand to avail themselves of our hollow exposed trunks for their hibernation sleep.

A few years later came the winter of the Big Snow, followed by the spring of the High Flood. Within the span of a few days a soft, caressing chinook transformed a deep blanket of snow into raging torrents, and before I was aware of the situation, I and many of my old friends were lifted bodily from our resting places and wafted southward like so many straws. Tossed from log to log and rock to rock, we were readily divested of most of our branches and bark. Soon the hills on either side began to flatten out and the valley to widen considerably. Having passed what is now the town of Brewster at the mouth of the Okanogan, we found ourselves in less turbulent water upon a monotonous plain. On the low-lying ground between endless chains of lakes and swamps, and actually within the shallow water of the latter we found swamp-loving trees

entirely unknown in our old setting. Among these forest trees and in the water existed a strange world of animals, long-legged wading birds, semi-aquatic rhinoceroses, water-loving alligator-like creatures, raccoons and the like. Swamp cypress, swamp ash, tupelo gums and many exotic trees sheltered these hardly less exotic animals.

The flood was over, and the swollen lakes began to return to their natural boundaries. Many of my old associates were left stranded among the terribly abused and torn native trees of the flood lands, but by fortune, as it turned out, I found myself among a host left to drift about the open water at the caprice of seasonal winds.

Fortunately, as I say, I was left stranded in open water, for the first communication we received from the natives of these interminable swamps carried the



disturbing news that we had been exiled, trapped, in a forbidden land periodically ravaged as no province upon earth in all history. At first we were at loss to understand the character of these visitations, but in time it dawned upon us that beneath these quiet cooling lakes lay the charred and hardly-chilled wastes of a lava plain. Just when or where the next outburst of hot liquid lava, steam, and poisonous gases would take place was beyond any reckoning, but it would come as it always had, each outpouring spreading wholesale ruin and death and destruction in its course.

Time and again all life had been wiped out; living things had cautiously re-invaded the area only to be completely destroyed in another fatal stroke. Flee? Whither could those with legs to serve them flee before a devastating flood of molten lava which advanced with the ease and speed of water unresting for scores of miles? And if spared the molten flood's pathway there were the hardly less fatal accompanying clouds of poisonous gases.

Aphelops, the aquatic short-legged rhino, and I became fast friends all the more that he claimed the little three-toed horses of my ancient home as cousins of his. He himself gave no credence to the tradition of past lava inundations, although I myself could never get the horror out of mind. The delay was not long. All the bark and limbs had been broken free as I turned over and over and jarred against this and that, but the wood of my trunk showed hardly any effect of waterlogging or rot when the catastrophe awaited broke loose. The first evidence we recognized was a cloud of steam and gas, as though a great dust storm were advancing from the southeast. Soon there was a perceptible hissing and rumbling and a fiery glow at the base of the steam and smoke cloud. The water of our lake became warmer and charged with unpleasant chemicals and a current was set up in sympathy with the direction of the advancing mass of destruction.



In the matter of a few hours it was all over, we logs of the open water preserved from burning thereby, but sealed up for what might prove to be eternity in the unbearable heat and pressure of the passing lava stream. Stony chemicals worked their way into our open cells and pores, and in no time we were to all intents and purposes stone. Aphelops, the rhino, in shallow water had succumbed to the gases, his body had distilled in part, but not until the impression of his carcass had been left as a mold within the chilling lava.\*

Here we lay hidden from the light of day with succeeding lava flows piling up upon each other until 500 feet of basaltic plain accumulated above us. Would we ever again see the sun? Not until all but one of these 10 million years had passed and the snows and rains and the frost of one year after the other had slowly removed the overlying blanket of chilled, intensely hard basalt. But time will pass, and at length our trunks lay once more exposed to the surface, bathed in life-giving sun and air, but past all hope of participation in the activities of this new world into which, like Rip Van Winkle, we had been thrust.

Once I had adjusted myself to the light of the sun and the release of weight I was free to take stock of my new surroundings. What a new and different world presented itself to my senses. A wholly unfamiliar setting revealed itself about me. Where were the swamps and the swamp life of the ages past? Had the equator and poles reversed themselves? Had I found myself upon a new continent? A parched landscape of alternating sage and rocky bluffs stretched to the margin of the nearby entrenched Columbia. My old companions, the logs buried with me in the period of the lava flows, were as much at loss in this strange environment as I.

In this new setting there were no living trees at all, only shrubby junipers and varieties of sage. Smaller animals reminiscent of bygone days scampered from bush to bush. Certain of the larger animals were suggestive of those we had known, and soon we recognized the maturely developed descendants of the horses, camels and elephants. The horses no longer showed any traces of the second and third side toes, and the elephants had lost their lower tusks. Deer and antelope had come into possession of full-sized horns. Some of our old friends were missing. The pig-sheep clan, old Moropus, and the rhinos had failed to meet the test of time. Some very outlandish brutes from South America, the sloths and armadillos, had somehow squeezed in. Less exotic bison and bears had arrived as immigrants from Asia. Terrifying enormous sabre-tooth tigers and lions had evolved from the cat family that infested our old native forest. Large wolves traced their ancestry back to the lava period, but as a whole the cat and dog tribes were reduced in variety and number.

From my old intimates, the horses, I gleaned an account of what had happened during the millions of years I had been exiled from the face of the earth. Briefly the tremendous change had resulted from two major geologic events: (1) The elevation of the Cascade Mountains, shutting off abundant rain from the Pacific, and (2) the lifting of the old lava plain some 1,500 feet. With the consequent shift in climate many trees and animals drifted laterally or southward. Others gave up the ghost in despair.

---

\* Reference here is made to the Blue Lake Rhino, found in Grand Coulee, in 1935, by Mrs. G. B. Peabody.

Those of us who had gone through the sore trial of the lava outbursts were marked for still another ordeal. Truly the Columbia Basin was turning out to be anything but a paradise. Over a span of years it was evident that the winters were becoming longer and more severe. Arctic plants and animals began to displace the forms driven south by the unaccustomed cold. Caribou and moose became established members of our setting and when the musk-ox joined them we knew that the Ice Age had come in earnest.

It was not long until huge ice cakes jammed the gorges of the Columbia and most of the surrounding country was hidden beneath water or ice. One of these large bergs stranded on the brow of the hill nearby and when it had melted it left behind a collection of large and small grayish rocks so like the familiar granite ledges we had left behind in the Okanogan Valley. What a roar and what a rush of water when one of these ice jams gave way!

Several times the climate swung to this extreme cold with intervening contrasting intervals of almost sub-tropical conditions. From the last advance of the ice we are at the moment recovering.

Out of my 10 million years on earth but 50,000 or so represent post-glacial times, the time elapsed since the close of the Ice Age. But much of importance has occurred in that brief interval. Just as an old range cow may struggle through the rigors of a hard winter and emerge starved and frozen to perish in the first fine days of spring, so many of my old friends weathered the Ice Age only to collapse completely with the return of normal conditions. The sabre-tooths, the elephants, the lions, the camels and even the horses joined the extinct throng of the ages. Bison and antelope became the dominant elements in the new animal assemblage. And then one day I noticed the presence of men. They were hunters. They had undoubtedly harried and hunted to their earlier extinction the enfeebled horses, elephants and camels. They were in need of flint-like material for their arrow and spear points and hit upon the idea that the stony material represented in petrification could be turned to their purpose. Several of my old entombed neighbors were exhumed piece by piece and our location became the site of a considerable activity. My own structure showed a decided tendency to split on the original wood grain and I was therefore spared immediate destruction. The pits from which my neighbors were excavated are still visible.

In appearance and customs these men were Asiatic in type and it is reasonable to assume that they had followed the route of animal migration across the Alaska land bridge. From that day on, men were never out of sight, for the Columbia River served as a magnet of attraction for their campsites. Imagine my surprise at last to witness domesticated horses appearing among these men and a consequent revolution in their manner of life. An up-river trail was soon beaten past my very threshold, and horse bands thronged the hills. This transition occurred about two hundred years ago, and the price was the extinction of the buffalo and antelope from the region.

Just a little over a century ago the first white man presented himself upon the majestic Columbia. This was David Thompson, the intrepid geographer and explorer of the British fur trade, and with him the historic period was ushered in. What has happened since is but a matter of written history. However, I am tempted to make a few comments relative to the camel days of the 1860's.

Horses had already become firmly reestablished upon the sage plains skirting the Columbia. Undoubtedly before the Ice Age they had crossed to the old world in a migration wave opposite to that of the elephants, the bears and the bison, and had been followed by the camels. The Spanish conquerors had brought the horses back to America and enough had escaped them and the Indians to repopulate the Western plains. How well these wild horses thrived and multiplied belies the extinction of the native stock a few thousand years previously.

It was not until almost a century ago that camel pack trains were to be seen upon Western trails. I recognized these shaggy and stubborn beasts immediately as they began to file by. There were only a few of these small trains and in a year or two they ceased entirely as an economic failure. I think the vile temper of the camel as compared with the docility and willingness of the horse was the determining factor. Some of these camels were abandoned on the range, but it was soon apparent that they were failing to increase or even hold their own.

In addition to the familiar horses back upon the range, the buffalo were succeeded by a very close relative said to have been obtained from the settlements by the Indians of our neighborhood. Whether or not tame originally, they became as wild as deer and the men of the Columbia Gorge were compelled to resort to weapons and hunt these cattle as wild game.

Throughout the years, as it has become more and more apparent that horses and cattle thrive when released to make their own upon the range I have wondered at the failure of the camels. Whatever element has turned the tide against the camel in modern times, I am sure of one thing—that if these first men of ours on the Columbia had tamed the native horse, the camel and the elephant, these creatures would not have perished in America. As it was, these large forms dwindled away to nothing and my early men associates were content to transport themselves on foot and carry their own burdens, with dogs as their only domesticated animal.

This has proved to be an account of a long and somewhat involved series of incidents connected with the past. It is hardly to be expected that there should lie before me an equally extended interval of time, yet I am sure that another ten million years will see changes upon the earth as striking and dramatic as those I have related. So endeth this chronicle of the overlong and overfull world's experience of an ancient oak tree.



37607