

Ban To Protect Fossils Extended

CHRISTMAS VALLEY — One of the most important fossil areas of North America will continue to be protected under a ban on off-road vehicles which break up the fragile prehistoric remains.

The Bureau of Land Management has decided to extend the ban on off-road vehicle travel in the sand dunes near Fossil Lake which was originally imposed in January of last year.

A new fossil inventory of the area by two researchers from Oregon State University and University of Washington recommended the action stating the closure "should be maintained to preserve and protect the fossils from destruction."

The BLM closed off 4,100 acres last year because of the growing numbers of people on motorcycles, dune buggies and four-wheel drive vehicles that were using the 15,000 acre area near Fossil Lake. Another 2,880 acres will also be closed off making a total of 7,000 acres of Christmas Valley Sand Dunes banned to off-road vehicles.

The Lakeview District of the BLM estimated more than 1,000 people with off-road vehicles visit the area each year. Many others come to the area to camp and play in the sand dunes.

History of the Fossil Lake area dates back to the 1870s when cattlemen first discovered fossils there. In 1877, a

professor from the University of Oregon, Thomas Condon, collected fossils.

Through the years, scientists from museums and universities across the United States have collected and identified the fossil remains of 23 species of birds, seven species of fish and 11 species of mollusks.

The fossils are from 30,000 to 1 million years old. In the recent inventory done by Kevin Howe and James Martin, at least four new fossil forms were found. The two also found many interconnected skeletal remains of fish and mammals.

The scientists believe different deposits of volcanic ash within the remaining

strata of the lake bed will enable them to give more reliable ages for the fossils.

Art Gerity, district BLM manager, said the agency was obligated by law to protect fossil beds on federal land. He said the recent inventory showed the area near Christmas Valley was one of the most important on the continent.

Gerity said a description of the area which will be closed will be published in the near future. Signs will be placed along the boundary.

Federal laws also protect fossils within the area from being removed.

Fossil Lake ban extended

A fossil inventory of the Fossil Lake area near Christmas Valley indicates the need to continue a vehicle travel closure put on the area by the Bureau of Land Management in January, 1977.

The inventory report, compiled by Kevin Howe of Oregon State University and James Martin of the University of Washington, recommends that the present off-road vehicle closure "be maintained to preserve and protect the fossils from destruction," and also suggests an expansion of the present protected area.

The BLM closed 4,100 acres of the fossil beds last year because of the growing number of off-road vehicles using the 15,000 acres of sand dunes near Fossil Lake. The Lakeview District of the BLM estimates that more than 1,000 people with motorcycles, dune buggies and four-wheel drives visit the area each year. Many other recreationists visit the area to camp and play in the sand dunes.

Fossils were first discovered at Fossil

Lake by cattlemen in the early 1870's. Professor Thomas Condon of the University of Oregon collected fossils from the area in 1877. Over the years, scientists from museums and universities throughout the United States have collected and identified fossil remains of 23 species of birds, 7 species of fish and 11 species of mollusks at Fossil Lake.

The fossilized bones range in age from 30,000 to one million years. The recent inventory conducted by Howe and Martin produced at least four new fossil forms not recorded before. The two scientists were also amazed to find numerous associated skeletal parts of fish and some other mammals.

They also felt that different deposits of volcanic ash within the remaining lake bed strata of Fossil Lake would enable them to determine more reliable ages for the fossil material found there. The fossil beds also contain information that will help analyze past climatic changes.

The inventory also indicated the need to close an additional 2,880 acres of fossil beds to off-road vehicle use. This would make about 7,000 acres of public lands in and near the Christmas Valley Sand Dunes off-limits to off-road vehicles.

"We're obligated by law to protect

fossil beds occurring on Federal lands, said Art Gerity, Lakeview District BLM manager. "The recent inventory at Fossil Lake shows that this is one of the more important fossil areas in North America. We're going to expand the vehicle closure area to include the 2,800 acres recommended by the inventory team."

"The description of the closure area will be published in the near future. The BLM will identify the area to be closed with signs along the boundaries," Gerity said.

People are asked to obey the closures and use the large area of sand dunes west of Lost Forest for their off-road vehicle recreation.

Fossils within the closure area are protected from unauthorized removal by several Federal laws. People or institutions wanting more information about Fossil Lake should contact the BLM office at 1000 South 9th Street, Lakeview.

Chicago industrial firm negotiates for Christmas Valley fossil plant

The Oregon Economic Development Commission, at its meeting in Portland April 27, approved the issuance of \$1.5 million in bonds for expansion of the Christmas Valley diatomaceous earth plant by Oil-Dri Corporation of America, Chicago.

The plant is currently owned by American Fossil, based in Portland. It produces industrial oil absorbant material and cat-box filler from the diatomaceous earth of Christmas Valley.

John Floweree, manager of the plant for American Fossil, said the sale of the plant to Oil-Dri is not yet complete, and still awaits approval by that corporation's board of directors and of the American Fossil stockholders.

If Oil-Dri does purchase the plant, plans call for an expansion of it to employ

about 50 persons, 20 more than at present, according to both Floweree and Jim Curtis of the Department of Economic Development. The state approves bonds for such projects that will enhance the economic base of a community. The bonds have low interest rates provided by the state, but they are issued through private lending institutions.

Floweree said if the plant is sold and expanded, it will help the employment picture in Christmas Valley.

"If the thing goes through, it will certainly be a good deal for everybody," Floweree said. But he cautioned against any premature hopes, since negotiations for sale of the plant reached this stage once before with no results.

"They just got the industrial bond

approval, which happened before," he said.

The expansion, if it occurs, will probably begin this summer, with other expansions as needed.

5/3/79



PLANT MAY BE SOLD--The American Fossil plant at Christmas Valley, which manufactures industrial oil absorbant and cat-box filler, may be sold to Oil-Dri Corporation of America, a Chicago based company. The Economic Development Commission last week approved

\$1.5 million in industrial bonds for Oil-Dri to expand the plant. Purchase is now awaiting approval of Oil-Dri's board of directors and the stockholders of American Fossil.

(Examiner photo)

Country's Mineral Base Menaced By Government Land Withdrawals

Much of America's vast stores of minerals—basic to the nation's economic health and security—will remain unavailable if the present uncoordinated government policy continues, a study made by two Department of the Interior employees has revealed.

Published in the September issue of MINING CONGRESS JOURNAL, the monthly magazine of the American Mining Congress, the report asserts that the U.S. Congress and the Executive Branch, acting independently, have hindered mineral exploration development to the point that a serious reconsideration of mining and mineral policy is required. The process which began slowly, sharply accelerated after 1968 until today, when more than two-thirds of the nation's public, federally owned lands are not available for mining. Entitled, "Is Our Account Overdrawn?" the report was prepared by Gary Bennethum, Staff Assistant for Energy and Minerals to the Assistant Secretary of the Interior, and L. Courtland Lee, a geologist with the Bureau of Land Management.

The authors of the study compare U.S. public lands to a bank account and indicate that the rate of withdrawals may bring us to the point where our checks begin to bounce. This is not the result of conscious planning, much less any deliberate policy of Congress. Rather, it's as if every member of a big family has his own checkbook to draw on a common account, but nobody pays attention to the balance. What is particularly alarming, they point out, is that much of the withdrawn land has potential for discovery of significant mineral deposits.

These things have all transpired in the face of the Mining and Minerals Policy Act of 1970, which declares "...it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise...in the development of economically sound and stable mining, minerals, metal and minerals reclamation industries..."

According to J. Allen Overton, Jr., president of the American Mining Congress, "The picture painted is one that has to be of great concern to a nation whose economic health and very survival are tied so closely to minerals."

A report issued last year by the Secretary of the Interior points out that each year we have to produce about 40,000 pounds of new minerals for each citizen, plus enough energy to equal 300 persons working around the clock for each of us.

"Those minerals have to be found somewhere. They have to be developed

somehow. And somebody has to do it," Overton said.

The mining industry of the United States is equal to the task, but it has to be granted the chance, according to Overton. In the face of this tremendous need, the federal government has put a fence effectively prohibiting mineral exploration and mining around an area equivalent to every state east of the Mississippi except Maine.

Noting that it takes considerable time and money—often over a decade and at

a cost of many millions of dollars—to bring a mine onstream after mineral deposits are discovered, Overton stated that the nation is rapidly running out of options. "This is a matter of the utmost concern, not just to mining operators but to everybody in the nation. Because ultimately, all of us will be affected.

"The American Mining Congress hopes to arouse the interest of the nation and its voters to the point where this withdrawal process will be reversed."

Fossil Lake is closed to all vehicles

Two areas of fossil beds near Christmas Valley, Ore. have been closed to all vehicles by the Bureau of Land Management. Closed are 4,120 acres of National Resource lands near the 15,000 acre Sand Dunes, in Christmas Valley. The areas have been closed because of the increasing damage to fossils by vehicles. The Sand Dunes area and the adjacent fossil beds are popular off-road vehicle recreation

area. The Lakeview District of the Bureau of Land Management estimates that over 1,000 people with motorcycles, dune buggies and four-wheel drives visit the area during the year and many others drive into camp or look at the scenery:

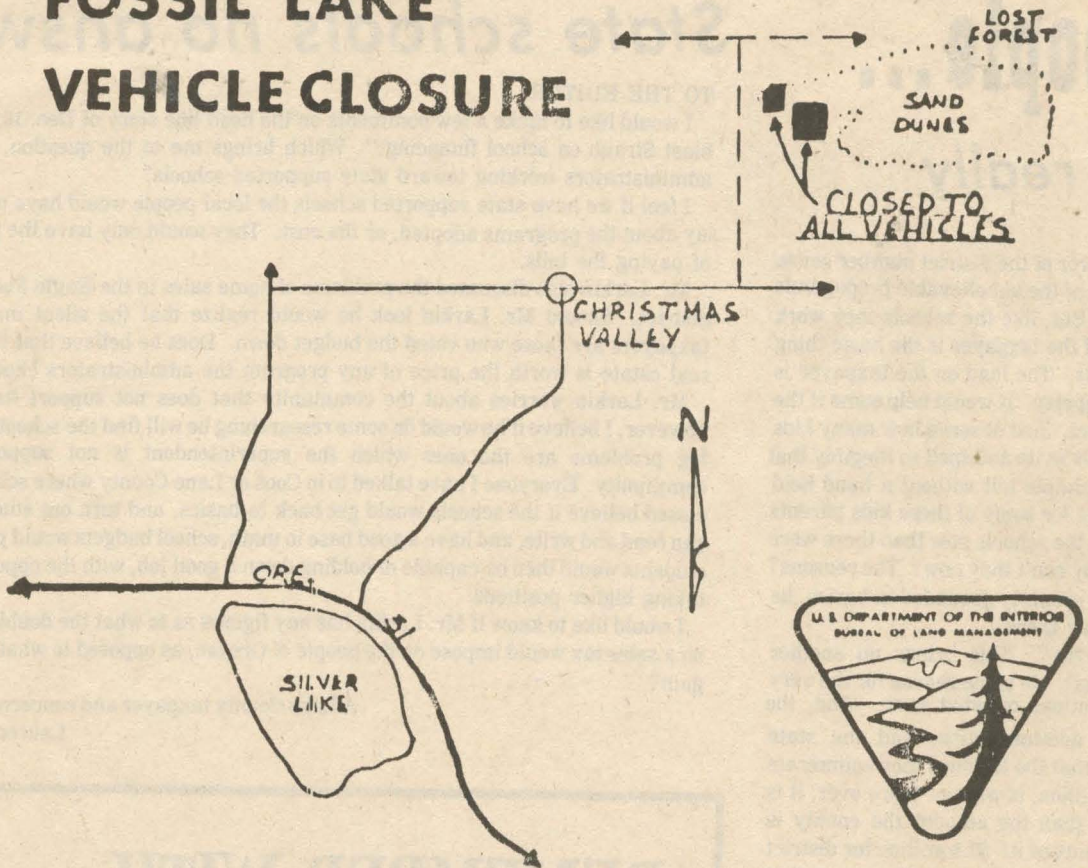
Ed Depaoli, BLM Area Manager in Lakeview, said that the BLM had become more concerned with the fossil values in the area with the growing vehicle use over the years. "We visited Fossil Lake with several scientists and surveyed the vehicle damage to the fragile fossils," he said. "Several universities and museums through out the country supplied us with information about the location and significance of the fossils at Fossil Lake. With this information at hand, we decided to immediately close the area until we can get a better inventory of fossils and other cultural resources and until we can get more public input on how best to manage the total resources of the Sand Dunes-Fossil Lake area. The vehicle closure we have in force now is temporary and will expire on July 31, 1978. By that time we should have an inventory of the area, more public input and be ready to designate a permanent closure. The size of the permanent closure may be the same as the current closure or it could be smaller or larger," he added.

The BLM will identify the area to be closed with signs along the boundaries, leaving the existing vehicle trail into the Sand Dunes from the west open. People are asked to obey the closures and use the large area of Sand Dunes west of Lost Forest for their recreation pursuits. "Generally, if people stay

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Lake Co Examiner
2-10-77

FOSSIL LAKE VEHICLE CLOSURE



Vehicles not allowed at Fossil Lake

(Continued from Page A1)
east of the BPA powerline and west of Lost Forest," said Mr. Depaoli, "they won't get into the closure areas."

Fossils were first discovered at Fossil Lake by cattlemen in the early 1870's. Oregon Governor John Whiteaker visited the site in 1876 and brought the area to the attention of Professor Thomas Condon, of the University of Oregon who collected fossils from there in 1877. Scientists from museums and universities through out the United States have collected fossils from the surface of the Fossil Lake since

Condon's visit, but little subsurface excavation has been done. The fossils collected by scientists have been identified as representing 23 species of mammals, 68 species of birds, seven species of fishes and 11 species of mollusks. The fossils range in age from 30,000 years to 1,000,000 years and reflect an environment much different

than it is now.
Fossils are protected from unauthorized removal by several Federal laws. People or institutions wishing to gather

fossils from Fossil Lake should contact the BLM office, 357 North L Street, Lakeview, OR 97630 for proper application procedures.



The Key — Tom Chambers and Lake County's 'phoenix,' a kitty litter manufacturing plant that rises up out of the sagebrush. Diatomaceous earth is the key.

Lake County's Version Of Legendary Phoenix

By JOHN ELLIOTT
H & N Regional Editor

CHRISTMAS VALLEY — Kitty litter, all things considered, isn't normally too high on the list of things to be discussed when neighbors gather.

That's not the case here, about 100 miles north of Lakeview, where the American Fossil Co. manufacturing plant and smokestack suddenly looms on the desert floor.

It spirals up out of the sagebrush like a Lake County phoenix — a "tomorrow" venture hinged on happenings that occurred eons before man straightened himself up and ambled onto the scene.

What's evolving here now began about four years ago, but the genesis really stretches back somewhere between 100,000 and 15 million years. And time frames like that make a johnny-come-lately out of the phoenix, a mythical Egyptian bird that consumed itself by fire in only 500 years before rising renewed from its ashes.

Way back when, thousands of years before the Early Stone Age began, tiny critters called diatomites attached themselves to aquatic plants and extracted silica from them to build

alone.

It's a far cry, agrees Floweree by phone, from original capitalization of \$7,500 in 1973 to recent completion of a modern factory on 320 acres of their own land. Somehow "we managed to keep raising the money" to proceed, he says, noting all funds involved in establishment were private and not corporate.

In addition to main sales office personnel in Portland, American Fossil employs 10 people in three shifts which work around the clock, five days a week, here. One shift bags kitty litter and the other two process the material toward that end.

The whole operation "could very easily" expand, according to Chambers. Floweree figures present capacity of about three tons per hour could be more than tripled without much problem.

Also Used In Barbecues

The focus here is on "Kitty Diggin's" and "Catsworth" but Royal Oak barbecue base is also processed when needed. All three come from the same earth, with gradation determining what label is applied. "Catsworth" is their premium grade kitty litter.

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Way back when, thousands of years before the Early Stone Age began, tiny critters called diatomites attached themselves to aquatic plants and extracted silica from the water in which they resided, using it to form an outer shell. When the plant died, the microscopic and hollow shells settled to the bottom of the body of water, slowly building into layers of what has evolved into today's diatomaceous earth.

That's about where it all stood into this decade when three young, eager graduates of the University of Oregon — John Floweree, Dan Driscoll and Don Easley — came upon an "old mining prospector who lived in Eugene."

Floweree is now president of American Fossil. Driscoll is a vice president and secretary-treasurer. Easley holds stock and Mike Denton is now vice president in charge of marketing. All three active officers are based in the firm's Portland headquarters.

'Big Boss Man'

In charge here at the factory nestled in the sagebrush is Tom Chambers, "big boss man," according to a sign on his desk but plant manager by actual job description. He's assisted by Norm Adeene, maintenance foreman.

As Chambers tells the story, the three young men heeded the prospector's advice, traveled here to view the diatomaceous earth and, virtually as one, said, "Let's do something with this."

Living together on their original claim site in what had once been a dog kennel, the trio dug and studied, dug and pondered. Considered at various stages were use of the unique earth for bricks, floor sweep, soil mulcher, organic fertilizer mix.

"And then" says Chambers, "they came up with kitty litter, the only one of the bunch they felt had market value."

They were right to the tune of an operation that today pumps about \$120,000 a year into the local economy in salaries

alone.

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The firm sells in Oregon, Washington, Idaho and Utah, with plans being formulated now to "crack the biggie," California.

In support of that which the diatomites began lo these many centuries ago, American Fossil stresses the natural baking soda derived from diatomaceous earth, coming down hard on the fact the built-in derivative is a potent odor filter.

Just in case you don't own a kitty (don't bandy it about but local rumor has it that Floweree is among those who don't), salesmen advocate the product for garbage pail and refrigerator deodorizing, oil sweep or, just in case, vehicle traction in ice or snow.

"Catsworth' Angels," T-shirt clad young ladies who appear at special marketing events, will likely tell all who listen of the variable size particles used, meaning smaller ones sink to the bottom of the litter box and won't be tracked about by the feline recipient. At the point it is time to replace the litter, urges the firm, throw it on the ground if fertilizer is needed since it's also a soil conditioner and water retainer.

By all accounts, American Fossil's inaugural plant was primitive. Chambers, in fact, contends it consisted primarily of "remnants picked up God knows where."

The new facility, built primarily by American Fossil employes between last July and October, keeps the bulk of dirt and dust operations outside and clean bagging and storage stages within. Byproduct dust is washed and scrubbed before release into the air.

Left To Aerate

The process calls for diatomaceous "lumps" of earth to be dug with a loader and left in windrows to aerate for three days. It's then stockpiled before going

(Continued On Page 2)

* **Legendary Phoenix**

through a crushing system set to the gradation desired. A trip through a 300-degree kiln removes moisture, at which point the material can be conveyed into the plant for automated bagging into eight-pound capacity plastic bags.

Workers put five bags into a 40-pound bale, stack 30 bales to a pallet and then encase the whole affair with a black plastic "shroud" which is run through an oven to shrink it to a tight fit. A truck leased by the firm, and there is presently talk of adding another soon, accommodates 36 pallets or 8,640 bags of litter per load. The truck, indicative of company growth, is on the road about 80 per cent of the time these days.

Floweree indicates the immediate goal is continued development of the litter market, while Chambers says there's enough raw material here to handle that demand far into the future.

The next step could be aimed at powder products, according to Floweree. He says "there's a big market" for diatomaceous earth powder for fillers, fertilizers and petro-chemical uses.

Beyond that, the demand would be for "refined" uses, primarily filtration — whether it be for backyard swimming pool or that sip of scotch at the end of the day.

As the needs become more precise, Floweree talks of possible expansion to diatomaceous claims elsewhere.

No one, however, is talking about shutting down here at the spot where the diatomites were on duty long before the phoenix blazed.



The Process — When the lump in the hand at right of picture is as small as the particles at left, it's ready for packaging in the bags below.

LAKE CO. EXAMINER

Remains endangered by ORV's

Fossil Lake bed turns up key sites

A temporary vehicle closure remains in effect on the Fossil Lake area in northern Lake County, as the BLM attempts to protect what has turned out to be an extremely valuable and scientifically interesting site containing fossilized remains of animals and clues to man's past in North America.

Bill Cannon, BLM cultural specialist and archeologist, said the site is extremely valuable, and must be at least temporarily protected from possible harm from off-road vehicle (ORV) use.

"As it's turning out, Fossil Lake is one of the most significant Pleistocene (Ice Age) areas in North America," Cannon said.

The area was closed to vehicles last spring in order to make a survey of archeological and paleontological sites there. (Archeology refers to remains of man's past; paleontology, the study of prehistoric animal and plant forms.) Scientists turned up some interesting finds since then.

Cannon said the paleontologists discovered remains of plants and animals of incredible diversity, "from shrews to elephants, literally." The area was probably a marsh-like site, and also has remains of many kinds of now-extinct fish.

At the same time, the Fossil Lake area also produced a very important "kill site" giving evidence of habitation by man.

The site, discovered by archeologists from the University of Oregon Museum of Natural History, consists of the scattered remains of a prehistoric camel, along with broken fragments of a projectile point. Preliminary investigation shows it was probably the site of the killing of the "Camelid" by prehistoric men.

The bones are not fossilized, and scientists are presently attempting to determine their age. Cannon said they would probably be in the neighborhood of 11,000 years old. This date has been arrived at because the area was all lake 13,000 years ago, and the camel was no longer to be found just 10,000 years ago. So the date must fall somewhere in between.

"Everything does look good for it being an early man site, and it fits in pretty well with our dates for man in this area," Cannon said.

Because of the importance of the area and the need for further study, the

Some, though, are not so cooperative.

Cannon said he watched two young motorcycle riders ride up to a closure sign, read it, and drive into the area. When he caught up with them, they were spinning their bikes in circles in the exact area the scientist said could provide a lifetime of work for him.

"There they were, just spinning on their bikes."

The BLM is encouraging ORV users to

write to the Bureau with comments and suggestions as to the permanent management decision to be made about the area. The final decision in this area will be made by Art Gerity, district manager.

A public meeting was scheduled for Tuesday, August 15, for comments on the total proposed ORV policy plan for BLM land. It is not known at this time how many attended and what the general public feeling is about closures.

of the area.

It also turns out that Fossil Lake was the place where many of the fossil types of North America were first identified and named, he said. Much remains to be done to study the area fully.

One of the paleontologists told Cannon that one small area, about the size of a room, could give a scientist a life-time of work and still not be exhausted.

Unfortunately for some, Fossil Lake is also a good area for ORV use, and is a favorite site for dune buggy and motorcycle riders. But many of the fossils lay close to or right on the surface, and are easily damaged or destroyed by vehicles.

All in all, ORV users have been very cooperative with the BLM on the closure, Cannon said. In fact, ORV clubs from Klamath Falls and Redmond helped post the closure signs last spring.

Bone Discoveries Excite Scientists

Ancient animal bones and fragments of ancient Indian arrowheads from Lake County's Fossil Lake area have archeologists excited.

Based on the findings, it's believed the area may be North America's first kill site for a llama-type animal that has been extinct for at least 11,000 years.

According to Rick Minor, a University of Oregon doctoral candidate in archeology, the bones and fragments were found last August. The Bureau of Land Management's Lakeview District had Minor and others conduct a study because the initial findings were located only a few feet from an area used by off-road vehicles.

It was originally believed the bones were remains of bisons, but following the study it was determined they are from camelids, a horse-sized animal that was a cross between camels and South American llamas. Minor said the discovery of arrowheads indicates the area was used by hunters as a "kill site."

Bone fragments discovered at the site have been sent to the Smithsonian Institution, Washington, D.C., for radio-carbon dating. If the arrowhead fragments are as old as Minor believes, it will strengthen contentions the area was used to kill camelids.

Minor and another Oregon graduate student excavated the site located about 37 miles from Fort Rock Cave, where a 13,000-year-old sandal was found by other archeologists. The most recent bones and fragments were found in an eroding bank. According to Minor, most archeological work in the area has been done in caves, where the climate has preserved evidences of ancient man.

The recent findings at Fossil Lake, Minor said, are also significant because it may help in determining how long it took for Fossil Lake's water level to decrease. About 13,000 years ago the lake level had dropped enough to allow Indians to live at Fort Rock Cave.

If man worked at the camelid kill sites 11,000 years later, Minor said it indicate the lake level dropped about 80 feet.

The area where the bones and fragments were found has been closed to off-road vehicles and other uses. The BLM, Minor said, is attempting to gain special classification for the area.

Lakeview group to tour Kitty Litter plant in northern Lake County

The Lake County Chamber of Commerce took 26 persons on a tour of various sites in the north end of Lake County Saturday, October 14.

The tour left Lakeview at 8 p.m. The trip was arranged by Bud Reynolds and Jack Brazeal of the tourism committee of the Chamber.

The first stop for the group was at the Summer Lake Fish and Wildlife Refuge, managed by the State of Oregon. Boyd Claggett, manager, explained the refuge to the persons on the tour.

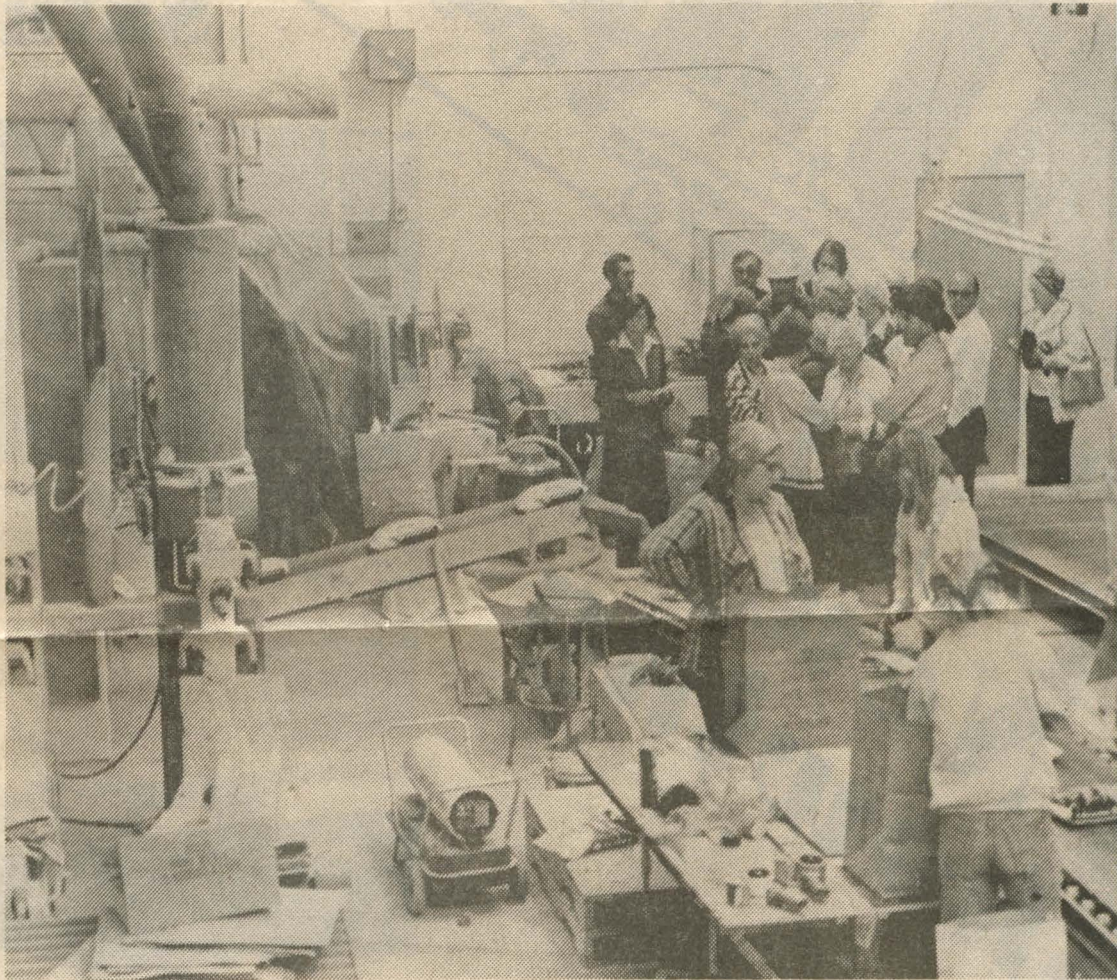
Claggett has been with the Oregon Fish and Wildlife Department for 33 years. He explained the operation of the refuge, the numbers of hunters who hunt there and the number of birds taken each year. The description was graphically illustrated by hunters at the refuge for opening day of the waterfowl and upland game season.

During that opening weekend, a total of 1,552 persons hunted on the refuge, taking 3,716 ducks, 151 geese, 45 coot, 48 pheasant and 121 quail, Claggett said.

Far more persons hunted Saturday than Sunday, and the kills were proportionate, he said. Saturday, 3,337 ducks were killed, with only 379 killed Sunday.

Over 1½ tons of lead shot were probably fired into the air over the weekend, Claggett said.

Claggett will be the guest of the Chamber of Commerce at its next luncheon Monday, November 6.



PLANT TOUR--This was the scene inside the Kitty Litter plant as the Chamber group toured

it, part of its tour of the county's
(Exam

group tours county sites



From Summer Lake, the group travelled to Christmas Valley, which has been the scene of noted agricultural growth over the past several years. The main stop was the kitty litter plant, owned and operated by American Fossil Company.

George Van Agtmael, plant superintendent, toured the group through the plant, where kitty litter was being bagged. The company, the only plant serving the Western United States and Canada, mines fossil remains called diatomaceous earth from 320 acres in Christmas Valley. The firm also manufactures an industrial absorbant product for sweeping floors.

During the week preceding the tour, American Fossil produced 250 tons of the product. Production is expected to rise to 285 tons a week in November, to meet expanding demand. The plant hopes to produce 300 tons a week by January or February.

The material, remains of fresh-water organisms containing no salt, is mined, crushed and classified. Two grades of the material are produced, the finer for the floorsweep product. The material is dumped into a crusher, washed, and heated in a kiln, to reduce the moisture content, the group was told.

The moisture content must be two percent for the kitty litter, and even less for the industrial product. The floorsweep is heated in a separate kiln to 1,400 degrees.

The finished products are stored in the warehouse on location at Christmas Valley, and also at a warehouse at Beaver Marsh. The group was told the material is shipped in trucks at the rate of four truckloads a day, seven days a week.

it, part of its tour of the county's north end.
(Examiner photo)



HANDFULL OF KITTY LITTER--American Fossil plant manager George Van Agtmael pours Delphie Chandler a handful of the final product of the plant--kitty litter. (Examiner photo)

The Oregon Desert Country: A Diffe

Big sagebrush. *Artemisia Tridentata* is its label in botanical books. The great, western desert vegetation that once made the vast plains from the Dakotas to the snow caps of British Columbia and southward into Arizona and Baja as green as a summer sea, a green that held its own soft hue through summer, fall, winter, spring and on again into the new summer again. A lusty plant, but a delicate one as was proven when agricultural practice after World War II saw volatile types of weed-killer 2-4-D released into the atmosphere, blighting California and Washington vineyards for distances up to as much as 40 miles, producing a similar effect on the sage where it then existed on the open rangeland.

Artemisia Tridentata. The name rolls from the tongue like the name of a fairy princess, something magic, and there is magic that can still be seen in the few remaining places where the gray-green sea of sage rolls on beyond the horizon, a magic that is enlivened when a short burst of desert rain lashes the plants, bringing forth the indescribably sweet and spicy pungency that belongs to the desert alone, a fragrance no costly perfumier has ever been able to match.

Few people really know the sage, few, even among those who live with it. In their season, the tick, the rattlesnake, the scorpion, the centipede and the tarantula lurk among the sage plants, species which spell terror to the uninformed and those who do not rouse the wish to learn how to safely live among such creatures. For those who have gained a little knowledge, the insects and the reptiles offer no real threat. They cannot live without some water and are difficult to find after the spring desert flowers are dry. As people become better informed about venomous desert reptiles and insects, they usually forget their fear and become accustomed to them, on the infrequent occasions when such desert life is encountered. The rocks of central Oregon are home for some of the larger and more placid scorpions. If a stone under which it happens to be is moved, the little desert denizen will scurry away, hunting a safe retreat, precisely holding its stinger-ended tail curved over above its back like a trotting fox terrier. A centipede behaves like a well-drilled platoon of soldiers marching single file on the double, each segment of the jointed body handling its pair of legs with amazing skill, all of the dozens of legs in perfect step. The front pair sets the pace and selects the route. Every following step of the other segments seems to track in the chosen place as the insect hurries along like a small freight train curving its way among the desert pebbles.

The tarantula, fairly common along watercourses of the Mohave desert, seen occasionally in the southern Oregon rocklands, is a bluffer. Blind, non-venomous, depending on his wits for survival, the creature will assume a horrendous, threatening posture if disturbed, crouching as though ready to spring, which he is. On occasion it can

bite, and while non-poisonous, the wound may infect from unclean saliva, as with the gila monster of the Mohave country.

All of the desert rattlesnakes are peaceful, reticent beings, preferring to slither away if possible when molested, unlike the Western Oregon or timber rattler which delights to strike without any warning at all. A person is rarely bitten by a rattlesnake unless he is impinging in the snake's affairs like stepping on him. A person used to rattlesnake country walks with care through grass or weeds. Beyond that precaution most people in snake country are not particularly worried.

Thus the gray-green landscape of the desert sage is a somewhat different kind of world. Its citizens, the wild things, as a group, are peaceable, will avoid trouble with strangers rather

than seek it. It is a world where the appearance of the scene changes little during the year, for the sagebrush is evergreen and shows no noticeable change whether it be winter, summer, spring or fall. The tick season comes with the spring and fades away as the blazing sun of the desert summer takes over. For that reason, most visitors shun hiking in the brush during spring flower time, the only part of the year when ticks that may carry spotted fever are hungrily on the prowl.

As though realizing that many visitors will shun the desert in the usual flower, and tick, season of spring, *Artemisia Tridentata* chooses the fall for its blossom time. The flowers are yellow, fragrant, so tiny, no larger than the smallest of the explosion of minute Alpine blooms which flood the high meadows as snow packs recede, so

small that many people entire lives on the desert happened to see them. season of many herbs consequently sage has become gourmets' treasure. Those who have tasted it call it the smooth, even flavor. It can be seasoned with a strong bouquet which lays judgment on the ability of the palate.

These are some of the lures which beckon people again onto the great desert. The list that has been mentioned is not complete. Perhaps some of the best and best have been of choice is a personal thing from person to person. However, that the desert hunting country of the Oregon is largely explored,

Different Kind of World

small that many people who live their entire lives on the desert have never happened to see them. Fall is not the season of many honey bees and consequently sage honey is a rare gourmets' treasure. The fortunate few who have tasted it can never forget the smooth, even flavor which seems to be seasoned with a strangely delicious bouquet which lays just beyond the ability of the palate to capture.

These are some of the Lorelei type lures which beckon people again and again onto the great deserts, though the list that has been mentioned is far from complete. Perhaps some of the finest and best have been omitted, for the choice is a personal thing which varies from person to person. It can be said, however, that the desert is meteorite hunting country of the finest kind. And it is largely explored, even in the case

of the vast Mohave-Sonora desert which covers most of the southwest U.S. and extends down into Mexico. Meteorites have been found there, but thus far only the easiest to locate and the most obvious. It is true as an old proverb to say that where there is sage there are meteorites to be found.

Thus, for much of the West, when a person queries where his chances might be best for happening onto some of the fabulous fragments from far away in space, the answer can be, "Try the sagelands."

It is a thrilling experience to reach down and recover a meteorite from where it has been laying since sometime when it happened to drop on the planet. But that is not the whole part of the story. It is just as thrilling to be learning how to recognize a meteorite,

to pick up a spurious specimen and to be able to judge, in a general way, whether or not it may be genuine. The meteorite hunter is afield for important treasure. There will be many facets to his story and experiences, not the least of which will be finding things which might possibly be meteorites but which turn out otherwise.

Meteorite scientists of America and the world, acting as a group under auspices of the Meteorite Study Center, Arizona State University, Tempe, have prepared a terse, information-packed, 8-page folder in color about how to recognize meteorites. Copies of this publication may be obtained from the Oregon Museum of Science and Industry, Portland, and other centers. This booklet is a Season Pass to meteorite marvels that still lay hidden in the shadow of the desert sage.



WIDE OPEN SPACE

By Leslie Shaw

30,000,000 YEAR OLD RHINO TOOTH

A tooth of a rhinoceros that called Lake County home some 25 to 30 million years ago was found recently on Thomas Creek by Norman Peterson, of Grants Pass, field geologist for the State Department of Geology and Mineral Industries. The fully replaced (fossilized) tooth has been given to the Museum of Natural History at the University of Oregon.

DR. HOLLIS M. Dole, director of the State geology department, on a recent visit at Lakeview said this fossil may be the most important geological discovery of this region to date.

THE TOOTH has been identified by Dr. J. A. Shotwell, of the University of Oregon's Museum of Natural History, as an "upper premolar of Diceratherium, a rhino of John Day Age (lower Miocene).

PETERSON found the tooth July 9 just west of the Thomas Creek Forest Camp, about 200 feet up the steep hillside south of Thomas Creek. The geologist has been spending most of this summer in Lake County doing geological reconnaissance, attempting to establish stratigraphic position of the uranium deposits.

PETRESON identified the John Day Age, or Lower Miocene, as between 25 and 30 million years ago. He pointed out the following excerpt from "The Ancient Volcanoes of Oregon," by Howell Williams (University of Oregon Press):

"DURING early Miocene time, most of Central Oregon was an extensive plain relieved only by a few hills and ridges. Some volcanoes poured out short flows of andesite and rhyolite, but explosive eruptions were far more common than quiet effusions.

"THE CLIMATE is believed to be mild and humid, annual rainfall about 40 inches. The redwood was still dominant in most of the forests, thriving side by side with alder, hazel, dogwood, pepperwood and tan oak. Bordering the redwoods, just as they are in California today, were ash, cherry, hackberry, live oak, madrone, pine, plane tree, rose and willow.

"TOWARD the close of early Miocene time, when erosion of the hills and filling of the valleys with ash had made

indeed. Giant pigs and primitive peccaries rooted under the trees for nuts. Long tailed oreodonts, three-toed browsing horses six hands high at the withers, camels the size of sheep, squirrels and weasels were plentiful. Wolves, bear-dogs, saber-toothed cats, and flesh eating cerodonts roamed in herds searching for prey. Large horned beasts resembling rhinoceroses lived on the banks of rivers while beavers and turtles swam in the waters."

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"TOWARD the close of early Miocene time, when erosion of the hills and filling of the valleys with ash had made most of Central Oregon an undulating plain, the forests became less dense and more park like. Open glades were numerous, and in places the forests gave way to wide, grass covered savannahs.

"THERE was a varied fauna and to a modern observer it would have seemed strange

Rim Area Awaits Geyser Show

By PHIL F. BROGAN

Staff Correspondent, The Oregonian

ADEL (Special) — Winter is just around the corner in this grand rim country of the Warner Valley 35 miles east of Lakeview, and residents of the area are wondering about the kind of show the Crump Geyser will stage in subzero weather.

The guess in this range country is that it will be spectacular.

Ice Layers Anticipated

On a few frosty mornings recently, as hunters and ranchers watched, the continuous geyser, named for Charles Crump, presented a preview of its possibilities. Water issuing from the earth to a height of around 150 or 200 feet became a billowing cloud of vapor that ascended to rim level. A miniature rainbow formed above the hole from which 200 degree water is rushing at a rate of 500 gallons a minute. A stream leading from the geyser and

into a field became a river of vapor.

But, residents of the area believe, the perpetual spouter will not put on its big show until sub-zero weather comes to this rangeland valley, where temperatures occasionally drop to bone - chilling marks of 35-degrees below freezing.

As the hot water billows into the sky, it quickly chills, and by the time it reaches the ground it is near air-temperature. In periods of sub-zero weather, it is expected that the geyser will build up spectacular terraces of ice area, where the spray falls to the earth from the chilled atmosphere.

Well Turns to Spout

The continuous geyser, most spectacular in the Pacific tier of states and vieing with some of the perpetual spouters of Yellowstone, has been in continuous eruption since July 1, when it erupted with an earth-shaking rumble.

Recently, the Oregon Department of Geology and Mineral Industries made a study of the spouter and reported on its findings in the current issue of the Ore.-Bin, department publication. The report was compiled by Norman V. Peterson, department geologist.

The Crump Geyser resulted from a well drilled by the Nevada Thermal Power Co. this past summer, in a search for natural superheated steam. After drilling to a depth of 1,684 feet and not finding sufficient hot water, the company abandoned the well on June 29. On July 1 it erupted.

Peterson in his report noted that the prevalent belief is that the water is heated on contact with hot rock at a moderate depth below the surface. The geyser is near a fault zone. Peterson believes that most of the heat probably originates from a cooling lava mass.

Since its eruption last July 1, the flow of water from the hole has been continuous.

Fossil Tooth Discovery Extends Range for Rhino

By PHIL F. BROGAN

Staff Correspondent, The Oregonian

BEND (Special)—The range of rhinos in Oregon has been extended to the aged, tilted hills of Lake County with a discovery of a fossil tooth in the Thomas Creek area, about 20 miles northwest of Lakeview.

Hollis M. Dole of the State Department of Geology and Mineral Industries, said the find may prove to be the most important paleontological discovery in the old lake region of south-central Oregon in many years. Found by Norman Peterson of Grants Pass,

field geologist for the state department, the rhino tooth has been given to Museum of Natural History at the University of Oregon.

The fossil has been identified by Dr. J. A. Shotwell, University of Oregon paleontologist, as representatives of the ancient family of rhinos known as the diceratheres, which ranged over John Day and lower Miocene lands of Oregon some 30 million years ago.

Transverse Horns Unique

These rhinos of ancient Oregon were a horned genus, which followed hornless members of the family of earlier ones. They differed from all other rhinos in the fact that they were equipped with a transverse pair of horns on the nose. Also, the species was quite small and light, in contrast with the larger and heavier animals of earlier ones.

It has been established that members of the rhino family lived in Oregon from dawn age days to the epoch known as the Pliocene, when the barrel-bellied rhino left its bones in clays near Gateway and other parts of the state.

In John Day times, long millions of years ago when the Cascades were a mere hump on the western horizon, diceratheres were abundant in Oregon. They thrived in such great numbers in one phase of the John Day times that their names have been given to a formation. This embraces the diceratherium beds, where blue John Day clays are buried by the capping Miocene lavas.

The transverse-horned creatures lived in ancient Oregon before the Columbia, Steens and other lavas poured over the eastern part of the state.

Ancient Climate Mild

In that epoch, most of interior Oregon was an extensive plain, relieved by only a few hills and ridges. Volcanoes were still active, and some of these poured out short flows of lava. But explosive eruptions were far more common than the quiet outpouring of liquid rock.

The ancestral Cascades, at times slumping into the earth under their own great weight, were taking shape just to the west, where the present Cascades shove their peaks into the autumn sky.

Geologists believe that the climate of that distant day was mild and humid. Redwoods were still dominant in the forests, and in their shade grew alders, hazel, dogwood, pepperwood and tan oak. Ash, cherry, hackberry and madrone also grew there.

Some 20 years ago, lower Miocene fossils, including those of camels and horses, were discovered in the Summer Lake area of Lake County.

Former Resident Finds 30,000,000 Year Old Tooth

Norman Peterson of Grants Pass, Oregon, son of Mrs. Art Westerlund, Windom, recently found what is believed to be the tooth of a rhinoceros that roamed the Oregon area about 30,000,000 years ago.

Peterson, who received his high school education in Windom, is a field geologist for the State Department of Geology and Mineral Industries.

The fossilized tooth he located has been given to the Museum of Natural History at the University of Oregon.

Peterson found the tooth while doing geological reconnaissance near Thomas Creek Forest Camp in Oregon. He had been attempting to establish stratigraphic position of the uranium deposits there.