

Mines and Mining.

DRILLING FOR OIL

SMALLHORN CANYON THE SCENE OF GREAT ACTIVITY.

THE HOLE IS DOWN 100 FEET

Montana Oil & Fuel Company, Which Is Doing the Work, Has Confidence in the Outcome of the Enterprise.

The Montana Oil and Fuel company, comprising Lee Mantle, Charles S. Warren, ex-Governor White, Harry C. Kessler, Matt Orr, Hugh I. Wilson, Conrad Kohrs, Dr. Peter Mussigbrod, D. S. Fotheringham and other well-known Montana men, has settled to a working basis and is now drilling for the lake of oil which it is believed lies beneath the surface of the earth in Smallhorn canyon, near Dillon, Beaverhead county.

General Warren visited the property a few days ago to see how things were moving and found the drill chugging merrily away with a hole 50 feet deep to its credit. It is probably 100 feet deep now, as very good headway was being made while the general was there. Of the work the Dillon Examiner says:

For a short distance it was necessary to case the drill hole with a six-inch iron pipe, but when solid rock was encountered this casing was dispensed with. The company has over 500 feet of this piping on the ground and it will be used should the occasion demand it.

The drills, which are on the same principle as the ordinary drills used in quartz mines, and which are sharpened in the same manner, have a shaft about 12 feet long attached. A specially-made rope passes over the top of the derrick, through the "sheaves" and is then fastened to the drill. The power is applied after the same manner as the "spring pole" which was used in the early history of oil mining in Pennsylvania. When the drill hole is "choked up," the drill is drawn up and a suction pump inserted which cleans out all of the drillings. The machinery is so arranged that it requires but a few minutes to draw out the drill, clean out the hole, and resume operations.

May Strike Oil at 500 Feet. The drill, which was used on the

Gravelly Range in Madison county a year or two ago, when that placer field was exploited by the Clarks and Mr. Fine, has a capacity of sinking 2000 feet, but it is thought by expert oil men who have visited Smallhorn, that a gusher will be encountered by the company before the 500-foot mark is reached.

The place selected for the first borings is located on the Stolle placer, a 20-acre tract which is situated just below the forks of Smallhorn canyon and in a natural basin. Dipping toward it on two sides are two shale beds, each from 50 to 100 feet thick, at an angle of about 20 degrees. On another side is a bed of sandstone, which has an angle of 40 degrees. All three of these deposits appear to be dipping toward this central basin in which the Stolle placer is situated. Mr. Fine stated that the drill will go down on an average of 20 feet each day and the new year ought to pretty thoroughly demonstrate whether or not oil exists in the formations which underlie the Smallhorn sections.

Country All Located.

For the past two years considerable work has been going on in that section, but during the past six months things have been booming to a greater or less extent and placer locations containing valuable deposits of the various forms of petroleum have been made by the hundreds, and now nearly the entire southern part of this county, from Dillon to Dell, for half a dozen miles wide, bristles with the corner stakes of locators.

In recent years Messrs. Rodden and Burrows have been the most persistent of the oilmen of the Smallhorn section. When they first discovered the shale deposits they mined it for coal and ran three different tunnels on their claims. The upper one is on the southern, or highest shale deposit, and it was run to a depth of about 40 feet. Lower down on the hill a second tunnel was run underneath the shale deposit. This, also, gave but little satisfaction. Later on a third tunnel was driven, this time near where the lower deposit crosses a gulch made by erosion. This is where the last of the work was done and it was driven for a distance of about 60 feet. It is in the shale all of the way and it has a slight decline. The shale is found in great blocks, like coal in a coal mine, and it had to be blasted to be mined. In the face of the tunnel the shale is very damp, but, once dried, it can be burned readily in a fire.

Sand Is Soaked With Oil.

In the bottom of the tunnel is found a sand which is impregnated with petroleum and from which oil has been retorted. Several hundred pounds of this shale has been taken from this

dump to Dillon and to Butte and subjected to a destructive distillation, with the result that from two to four ounces of crude petroleum has been retorted from a pound of the shale. The shale appears to be in inexhaustible quantities. In the Smallhorn section are the two deposits, or strata, each from 50 to 100 feet thick. On the other side of the mountain, in Gallagher basin, still another immense vein of shale carrying a still higher per cent of petroleum is found. The entire section is traversed by dikes of sandstone and every hand is found an enormous quantity of wash boulders scattered over the side of the hills, showing conclusively that a lake-bed once covered this section. Everywhere is found an abundance of fossils of the cretaceous period, and this, with the presence of "oil sand" is taken as indisputed evidence that oil will be found once the drill is sent to tap the reservoirs below the surface. Another phenomenon, which is taken as a favorable indication, is the explosions or gas detonations which have been heard in that section every winter for a number of years past. These are supposed to have been caused by gas explosions in the interior of the earth, and one of these explosions caused a landslide a few weeks ago which exposed a coal bed to the eyes of some prospectors on the opposite side of the mountain from Smallhorn canyon.

THE B. & M. SITUATION.

It Is Believed the Mines and Smelter Will Be Started About the 1st.

As to the prospects for a resumption of operations at the mines and smelters of the Boston & Montana company, the Great Falls Tribune of Thursday says:

The directors of the Amalgamated Copper company are to meet in New York today to declare a dividend and transact other business. It is possible they will adjourn until next Thursday without taking any action, but if they do transact business today it is likely that they will fix a date for the resumption of operations at the Boston & Montana smelters in this city.

It may be stated positively that, despite the reports to the contrary, there is no one in Great Falls who knows just when the plant is to be started up; but it may be stated that, unless there should intervene something that is not now anticipated, the plant will be running again just as soon after the 1st of January as the plant can be placed in readiness. That statement is not made by any official who is at the smelter, but it has been officially made elsewhere, and it gives the situation exactly and is full of encouragement to the people of the city.

It is not likely that the plant will be in readiness to start up on the 1st of January, but that is due to the fact that the repairs, improvements and enlargements in progress are much greater than were anticipated when the plant was shut down, and when operations are resumed they will be on a scale of such great magnitude as has never been dreamed of by the general public, and in realization of the recent prediction by an official that 500 men would be employed at the works within a year.

Practically all departments of the great works are now in readiness to be started whenever power is available; if orders should be issued today to start as soon as possible, delay would be caused only by the work that is being done to secure an immense increase in power. The principal portion of this work is the deepening of the tail race by three feet, and the addition of two great turbine wheels at the power house. That means an enormous increase in capacity and a corresponding increase in the number of employees.

Tomorrow will be the monthly payday at the works, and while less than the usual number of men were employed in November, it is satisfying for the public to bear in mind the fact that the amount of wages to be disbursed tomorrow will be greater than was paid for labor for the month of November, 1898, when the plant—of its then capacity—was in full blast throughout the month.

Nearly all married men who were in the employ of the company prior to the shut-down are still employed. To those who have heard the late rumors that very many men have been laid off, a visit to the works is a revelation. There are men employed in construction and repairs in every portion of the plant, and when the work in progress shall have been completed the plant will be far greater and much more adequate than ever before. All about the plant there are evidences of an intention to have it in readiness for a greatly increased output, and while the exact date of resumption may not now be stated, there is no reason to believe that smoke will be rolling from the stack on Indian point very soon after the beginning of the new year.

A SNOW-BOUND CAMP.

Miners Who Come From Thunder Mountain Must Use Snow Shoes.

W. A. Anderson has arrived from Thunder mountain, says the Boise Statesman. He left there November 22, accompanied by four others. These were George Brue and a man in his employ, Charles Lillian and E. A. Lang. They came out on the Warren trail. At Van Wyck Mr. Anderson caught the stage, and the others are coming on by horseback, excepting Lang, who will go to Payette.

This is the last party that will make the trip this season with animals. The snow was already some four feet deep and it has been snowing heavily since. There is no feed for animals, and it will be impossible to take any through. Those who make the journey during the winter will have to do so on snowshoes. The mail will be carried in that way from Warren twice a month. The mail carrier is Curley Brewer. He is paid \$2 a month by each of the miners and the Dewey company contributes the rest.

It is probable that six or seven other men will come out during the winter, but they have planned to make the trip on snowshoes. There will be 33 men in there all winter working for the Dewey company.

When Mr. Anderson left the mill was under cover and everything had been made comfortable for the winter. Considerable inconvenience had been caused by failure to get in all the freight from Bear valley. Some rods for the mill were missing, and it was impossible to brace the battery properly. Part of the big ore car was also left out and the rail for the track.

It was expected when the party left that the mill would be running some time in January. Mr. Anderson did not know much about the mine, though it was understood that the work was



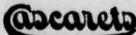
Beauty's Blood Deep

How untrue the old adage "Beauty's Skin Deep." How many women of beautiful features marred by impure blood try in vain to get a pure complexion by doctoring the skin. The quickest, surest, only way to beauty is to cleanse the blood.

"I have been taking Cascarets for pimples and have been greatly benefited." — Miss Gertrude Grant, Cambridge, Mass. "I am very well pleased with Cascarets. They are fine for the complexion." — Miss Catherine C. Coffman, S. English, Ia. "Cascarets will clear the complexion of boils, pimples and blackheads caused by impure blood." — A. E. Griffin, M. D., Stubblefield, Texas. "Cascarets have done a great deal of good for me and for all our family." — Miss Florence Cook, Webster City, Ia.

"I must add my testimonial to your valuable medicine Cascarets for stomach trouble." — Irene Ackerman (anxious singer), 30 West Fifteenth Street, New York. "I was suffering with sick headaches a great deal, but after taking a box of Cascarets, was entirely cured." — Miss Clara Stimmel, 220 So. Sandusky Street, Delaware, Ohio. "Cascarets did me a world of good. My liver was in bad condition for some time and one box cured me." — Miss Mabel Allen, Clare, Michigan.

How many, many young women are anaemic, pale, sickly-looking, perhaps with pimples on face and neck, owing to poor, unhealthy blood. Perhaps womanhood is approaching, that serious time of life when irregularities are liable to break down a constitution. The first rule for purifying and enriching the blood is to keep the bowels free and natural, gently but positively, without nervous shock, and Cascarets Candy Cathartic is the only medicine to do it.



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PEN OF EXQUISITE DESIGN PRESENTED TO POPE LEO.



Some time ago there was presented to Pope Leo by pilgrims from Southern Italy a gold pen of exquisite design. The pen is in the Italian gothic style of the twelfth century and was designed by the celebrated artist, E. Inghaldi.

It is ornamented with precious stones and surmounting a canopy at the end of the pen is a figure of the Christ. In niches under the canopy are beautifully

designed figures, and in other respects the pen is an ornate work of art.

The subscriptions for the rich present were raised by the Neapolitan journal, La Croix. It is asserted that at the opening of the new century the pontiff wrote the first date with the pen.

With reference to writing utensils, it is said that a fountain pen can be made out of pine needles. The needles of the pine

are in pairs, and when a pair is bound with fine wire near the point, a pen capable of writing is procured. As penholder, put the length of the needles in a piece of lilac branch, only leaving the points to show by about a centimeter. The space between the needles fills with ink by its capillarity and you have a "fountain" pen capable of writing 20 lines right away.

proving the property to be bigger and richer every day.

Mr. Anderson is from Minneapolis. He expects to return in the spring and will bring in some sawmill people with him. These asked him to look out for a location for them, and he thinks there is no better place for the business than Thunder mountain will be.

KENNETT CLOSED DOWN.

Pumps Pulled Last Sunday—Oldest Mine in Madison County.

Andrew Lindford came over from the Kennett mine near Virginia City Sunday for a visit with his family, says the Dillon Examiner. Mr. Lindford states that the Kennett has been shut down for the winter, the pumps having been pulled out Sunday. In the 600-foot level of the mine a four-foot body of sulphide ore was struck and assays show that it carries a high value in gold. The Kennett people are the owners of a 60-stamp mill located a few miles from the mine on Moore's creek, but this will prove valueless to treat the new body of ore, as the mill was built for free-milling ore.

The Kennett has had many ups and downs in the 30 odd years it has been worked. It is one of the oldest mines in Madison county. The strike in the 600-foot level is the first real indication of a mine ever found on Postlewaithe creek.

Mr. Lindford will work on the Kearsarge, near Summit, when he returns to Madison county. This property is now being developed by the same men who control the Kennett, the Millards of Omaha.

Cheap Coal Mining in America.

The industrial supremacy of the United States is being increased in many of the products of mine, forest and workshop, and in none more earnestly than in the matter of coal; this will no doubt be hastened in many of the foreign ports by English houses, already established for so many years and having all the facilities for doing business in the Continental and other ports, and this will give the opportunity for the conservation of British coal, which is produced at greater cost than American because of the depths to which it is now necessary to extend the workings and the great cost of labor per ton, there being little other than manual labor employed in the extraction of the coal at British pits. On the contrary, a large tonnage in the United States is mined by machinery; the great increase in machine-mined product in the United States—i. e., 188 per cent in the last five years—is the best evidence obtainable of the economic advantages thereby secured of the economic advantages thereby secured in raising coal, and there is no doubt that British collieries would derive great benefit by following the American example in the more general adoption of coal-getting by electric or by compressed air driver machines. The number of mechanical coal cutters employed in the United Kingdom during 1900 was only 311, of which 240 were driven by compressed air and 71 by electricity, the quantity of coal so obtained amounting only to 3,312,000 tons; while in the bituminous coal districts of the United States there were employing above 100,000 persons which yielded an output of about 45,000,000 gross tons. It is this cutting by machinery that enables the American producer to put his coal on cars in Pennsylvania at 95 cents a ton, and in West Virginia at 80 cents a ton.—F. E. Saward, in The Engineering Magazine.

Development of the Automobile.

The application of mechanical power to vehicles for common roads had been attempted early in the nineteenth century, and at intervals thereafter, and while such machines as heavy traction engines using steam power found a limited application, the question of weight prevented the employment of self-propelled vehicles for general purposes. Sporadic attempts were made at the construction of motors adapted for vehicle propulsion, but until the work of Daimler, such machines were but the isolated attempts of their projectors and not efforts to produce automobile vehicles for general use.

The first grasp of the fundamental condition of success lay in the realization of the fact that the weight and size of the motor must be reduced by running it at a high speed, but this idea was of no practical use until it was followed up by the invention of a means for enabling the internal-combustion motor to be transformed from the slow, heavy machine of 1882 into the small, light, rapid motor of today.—Paul Daimler, in The Engineering Magazine.

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