STATE OF OREGON
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES

PORTLAND, OREGON

THE ORE.-BIN

VOL. 3 NO. 6 PORTLAND, OREGON June 1941

The Department of Geology and Mineral Industries announces publication of its Bulletin no.12 entitled "Geology and Physiography of the Northern Wallowa Mountains, Oregon". The authors are Dr. Warren D. Smith, professor of geology at the University of Oregon, and John Eliot Allen, geologist, State Department of Geology & Mineral Industries. In this bulletin various phases of the study are covered in separate chapters by different authors. A detailed technical description of the rocks and their petrography with a number of photomicrographs is given by Dr. Lloyd W. Staples. The chapter on glaciation is by Wayne R. Lowell.

In his chapter on Scenic Resources of the Wallowas, Dr. Smith refers to them as the Switzerland of America, and points out a number of scheduled trips or hikes that might be of interest to parties or tourists.

Other sections of the bulletin give special attention to structural and economic geology.

This bulletin is believed to be the first comprehensive coverage of this most unique and little-known part of Oregon, the northern Wallowa Mountains. Various photographs of the rugged mountain scenery are included in the 65-page bulletin. In addition--and this is perhaps the most interesting feature of the report--a large geologic map of the entire quadrangle in a number of colors is incorporated as a part of the bulletin. Tourists, prospectors, and miners can see by a glance at the colored map the general distribution of rocks and formations they encounter on the numerous trails that traverse these mountains.

The study of this area by the State Department of Geology & Mineral Industries was made in the summers of 1938 and 1939 mainly because of the Department's desire to determine the economic importance of the region for future mining purposes, since a movement had been started to set aside this great region as a national park or primitive area. The bulletin contains all of the results of the study in question.

The price of the bulletin is 65 cents postpaid. Copies may be obtained at the State Department of Geology & Mineral Industries, 702 Woodlark Building, Portland, Oregon, and are available also at the State Assay Laboratories at Baker and Grants Pass.

TO ALL EXCHANGE LIBRARIES

Copies of this publication were mailed from this office May 21st, 1941. If not received within ten days from the above date, advise this office immediately; otherwise, replacement of copies lost in the mail or otherwise cannot be made.

TIMING AND BULL

Let's don our house slippers, light up the old smoke nuisance, and do a little plain and fancy mental meandering. (Some people call it "thinking", but let's be less formal).

Our blatting about Hitler the beast, the inhuman, the atheist, the despoiler of men and nations; - about how his oil will soon play out, how the sane people of Germany will rise up and throw him over, and how he is bound to lose in the end because his motives and methods are criminal -- is so much moronic patter and wasted time. The facts are that Hitler has conquered Europe and wrecked the British Empire in the last three years, while the world looked stupidly on and merely "Oh'd" and "Ah'd" at the daily headlines that depicted the inexorable method of a fiendish war machine.

Let no one think that England is not beaten, shattered, right now. Only her indomitable will remains; her body is gone. Britain is like a bull in the ring. his shoulders full of darts, exhausted from loss of blood, bewildered by the crowd, woozy from dashing this way and that, always pitted against an opponent that is smarter and faster. He knew only one way of fighting, this big white fellow - let's call him Johnny Bull -- to rush and kill by main strength; that had been the tradition of this land fighting of which we are speaking, carried down through all his ancestors. The method had always won. True, the method had wobbled at times, looking back through the centuries, but the Johnny Bull colors had always muddled through. But this fight was a different kind of contest,- against a wiry matador dressed mainly in red clothing - who didn't play the game according to rules. His rule of fighting was no rule, and he had no traditions. Nothing "had to be" because it "had been before". The matador had this time beaten Johnny Bull down, taken all his strength, much more than matched Johnny's cunning, and now the end may not be far off. After all, unless help comes, the coup de grace, the final touch of death is a mere perfunctory gesture, the battle is already lost; the animal is insensible to pain.

But now a strange thing happens. Into the ring walks a strange new bull - a great, huge fellow, mainly white in color, but with spots and streaks of red and yellow and black. Let's call this new entry Sammy Sitting Bull. The matador had not counted on him but pays no attention anyway as he is busy finishing off Johnny Bull. Sammy Sitting Bull sniffs the air and it smells of blood - of his own blood!! Sammy looks across the ring and there sees his half-brother Johnny He raises a little cloud of dust with a front hoof. He glances at his blood relative making feeble rushes, each slower than the last. Johnny is surely in a bad way. Well, it wasn't Sammy's squabble anyway. He never cared too much for Johnny Bull either. Always belittlin', always thinking of his own pastures, always winning any business deal, always rather arrogant - but now in a terrible jam and calling for help. He helped Johnny Bull once before and Johnny never paid the bill nor even thanked him - called him Uncle Shylock. After this fracas would Johnny thank Sammy?

And then Sammy Sitting Bull began to note that this matador was just about the length of a pasture fence better and faster than any matador that ever came down the lane; and it began to dawn on Sammy that after finishing off Johnny Bull, this darting cyclone in the red outfit might decide to clean up everything in the ring. Then Sammy began to shiver. The more he thought of it the more frightened he became, and madder at the matador. He gave a great bellow and

kicked up another little cloud of dust with a front foot - but the matador went right on working on Johnny. Sammy lowered his head to make a charge, but just then one of the red spots on his belly started to burn and itch, so Sammy had to stop and scratch the red spot with a hind foot. He let out another bellow and got braced again for a charge to help Johnny when another spot, a yellow menace this time, on his left flank started bothering. So he stopped again and swung his shaggy head and gouged the offending flank with the tip of his horn . . .

That's enough bull for the moment; let's get back to where we started. . . The causes--not of the war, but of Hitler's success--were obscure for many months. We never gave much thought, as a matter of fact, to the causes of Hitler's successes. Our advices through the press have been almost altogether the EFFECTS of his actions: the bombing of cities, the sinking of ships, the splitting of empires, and the conquering of nations in a matter of days. Our senses have been numbed by the shock of news the like of which never occurred in a former war, until we have floundered without trying to assay WHY or HOW any human combination could bring about such almost inconceivable effects or results.

Now it is becoming clear that Hitler's success is due to a superlative combination of perfect timing and split-hair balance in planning and execution.

We must reason not from cause to effect but from effect backward. We can see the effect. The proposition of Hitler's conquering a country, any one of several, in a few days by blitzkrieg indicates his reasoning must have been something like this: "Since the time of Caesar war on land has been principally "main strength and awkwardness" except in a few outstanding cases in history where lightning thrusts won. Since we are starting from scratch with no rules, no traditions, no carry-over from the old school- either of officers or methods, our cue is to speed up war as we have speeded up industry; develop a defense against which our adversaries, burdened down with orthodox armies and equipment and traditions, will have no prepared defense. The essence of our strategy and operations will be TIMING, because it is something we can control absolutely, since we control every ounce of human effort in the Reich and every resource. We can eliminate all red tape, can coordinate all effort regardless of factional objection. Our plan must win because no other country can follow it, since their equipment and training are not right. No democracy can act with the celerity we can. They must listen patiently to the protests of the loyal opposition before voting on the issue. We don't vote; we act. By the time they learn our style and can match us at our own game, we may change style because we have no inhibitions as to thoughts or action." Anyway, some such reasoning has brought results such as the world has never seen before.

Now, the pattern of Model 1941 War is perfectly clear to us. It's streamlined; it's based entirely on speed and coordination of properly selected units which requires PERFECT TIMING; it's quick paralysis of vital points, NOT slow major pushes with shock troops. The old fashioned infantry soldier with rifle and heavy pack, the boys who knew close order and extended order fighting - are gone forever, so far as offense and primary conquest are concerned. The new soldier will conquer with planes and tanks of all sizes and armored trucks and motor cycles. Our old fashioned smooth parade and drill grounds will (or should be) roughed up liked golf courses for mechanized unit manouevers. It's an engineer's war now.

And what about Democracy? Well, it's got to be streamlined for speed, too. We can't stop to scratch the red spots that ruin our timing. That's fatal. We've got to eliminate the spots. We may have to have a one-man government for a few years to fight fire with fire. Okay, let's have it. We've virtually got it now! Then let's make the very best of it. And let's remember, England slept at the switch four years. Her timing was slow. It may cause her complete ruin. We've seen Hitler's machine work - do the impossible. The Western Hemisphere is vulnerable - terribly so. A German panzer-battalion probably could take any South American capital (or very likely, any U.S. city either) in a couple of hours. Then would Uncle Sammy be embarrassed! It needn't happen if we plan right and act quickly - watch our TIMING.

- E. K. NIXON

****

APRIL MERCURY PRODUCTION

According to the monthly mercury report by the United States Bureau of Mines, domestic production for April amounted to 3,500 flasks, the same amount as reported for March. Consumption for April was 3,200 flasks, a decline of 800 flasks from the 4,000 reported for March, which in turn had shown a decline of 700 flasks compared to the 4,700 reported for February. Consumers and dealers' stocks at the end of April increased to 11,700 flasks from the 11,600 flasks reported at the end of March. This amount on hand at the end of April would be equivalent to almost four months' requirements at the present rate of consumption. Producers' stocks on hand at the end of April were reported as 459 flasks compared to 350 flasks on hand at the end of March. Of the principal producing states, California production increased in April as compared with the preceding month, while Oregon production showed a slight decrease. Statistics on imports and exports for April as compiled by the Bureau of Foreign and Domestic Commerce were not available at the time of the release of the Bureau of Mines report. Price quotations ranged from $179 to $184 in April. On March 28th the Price Stabilization Division of the Advisory Commission issued a warning that the price was too high. The softening tendency of the market price in April was attributed in part to this warning.

Present market prices, however, are quoted as $183 to $185 per flask.

****

CUTTING THE LARGEST DIAMOND.

In U.S.Bureau of Mines Mineral Trade Notes, dated May 20, 1941, is the following information concerning the cutting of the largest known rough diamond in the world - the Presidente Vargas.

"This particular cutting operation is unusual in that it involves the removal of a small segment of the stone before cleaving. According to information available to the Bureau of Mines the cutting follows more than a year of study by experts and three weeks will be required for the first cut. A phosphor-bronze cutting disk fed with olive oil and diamond dust is being used.

"The Presidente Vargas supplants the Jonker as the third largest diamond discovered so far. Largest was the Cullinan, 3,024.75 carats, followed by the Excelsior, 971.75 carats. The Vargas is third, 726.6 carats, and the Jonker fourth, 726 carats. These stones, while free of the murder and intrigue that have stalked famous gems of earlier centuries, nevertheless have provided excitement. The Cullinan, sent overseas by registered mail, was cleaved by Edward Asscher, a Netherlands gem expert, after months of study. It is said that Asscher had two nurses and a doctor in attendance and fainted immediately after delivering the cleavage stroke. Despite the successful work, he spent three months in a hospital recovering from a nervous breakdown. The Cullinan provided the Star of Africa (516½ carats) and the Cullinan II (309-3/16 carats). These two gems, the largest in existence, together with 103 other stones cut from the Cullinan, were presented to King Edward VII on November 21, 1908.

"The Excelsior, found in 1893 in the Jagersfontaine mine in South Africa likewise was cleaved by a member of the Asscher firm in 1903, and later it was cut into ten stones ranging in size from 13 to 68 carats.

"The cleaving of the Jonker provides another interesting episode in diamond history. Discovered by a Pretorian native in 1934, it was purchased for about $750,000 by the same New York jewel merchant who now owns the Vargas and was shipped to New York by ordinary registered mail. When the stone was being studied for cleaving, Edward Asscher, supported by virtually all other European experts, contended that it should be split along one plane, whereas Lazare Kaplan, who had been engaged to perform this vital step, believed that the blow should be struck in quite a different plane. A fortune hung in the balance, for if the hammer blow were struck "against the grain" the stone would fly into shards of little value. Expert opinion ran so heavily counter to the Kaplan plan that even Lloyd's refused to insure it. The owner, however, backed his judgment and Kaplan proved he was right, for the stone split perfectly. From the Jonker was cut a gem of 143 carats - the third largest cut diamond extant - and 11 smaller jewels.

"The Presidente Vargas, named for Brazil's Presidente Getulio Vargas, was discovered in October 1938 in Coromandel, Brazil, by a "garimpeiro" or digger. By prearrangement with the farmer on whose land he was prospecting the digger was to receive a half share in the stone. He relinquished his share, however, for $8,000, whereas the farmer got $60,000 for his half. This great gem, according to present plans, should yield 23 smaller stones ranging in size from 5 to 50 carats, worth $2,000,000. Half the stone will be reduced to fine chips and dust. But even dust, when it is diamond dust, is worth about $3,100 a pound. (Charles L. Harness, Bureau of Mines)".

****

SEVENTY-FIVE YEARS AGO

In Mineral Resources of the United States, issued in 1868 - the second report made by J. Ross Brown, Mineral Commissioner, to the Secretary of the Treasury on the mineral resources of the states and territories west of the Rocky Mountains, the following brief picture of Portland in 1866 is given in a chapter on Oregon resources.

It would be trite to comment on the changes time has wrought, but we cannot but observe that in the table showing the population the proportion of males to females indicates that there must have been a strong "seller's market" those days in the marriage mart.

"Portland.- The principal town on the Willamette river is Portland, situate on the west bank about 12 miles from its mouth. The location is excellent, and the city presents an appearance of thrift and prosperity indicative of the steady progress of the State. Many of the public buildings would be creditable to the best cities of the east of equal population. The new court-house, completed in 1866, the buildings of the Oregon Steam Navigation Company, and other public and private edifices, are among the neatest and most substantial specimens of architecture on the Pacific slope.

"Population.- Another evidence of the prosperity of Portland, says Mr. McCormick in his valuable diretory, may be found in the annually increasing population of the city, which has increased in ratio almost equal to any city in the Union. In 1863 the population of Portland was 4,057. In 1864 it amounted to 5,819; in 1865 it was estimated at 6,068. In 1866 it increased to 6,508, according to a census taken especially by canvassers for this work. The following table shows the population according to the several classifications:

"Males 21 years and upwards	2,017
Males under 21 years	1,104
Females 21 years and upwards	1,330
Females under 21 years	1,108
Colored, males	82
Colored, females	43
Chinese, males	208
Chinese, females	116
Floating population, estimated from hotel registers, etc.	500
	6,508

"Being an increase of 440 inhabitants during the year just closed. These figures do not exhibit a very rapid growth, but they denote a steady progress, which must prove not only interesting but even satisfactory to the well-wishers of Portland.

"The present population of Portland is estimated at 8,000, and a rapid increase is expected during the ensuing year, owing to the reduced rates of passage from the east, and the recent gratifying progress in the development of the iron, coal, and agricultural interests of the State.

"Assessable Property.- Mr. McCormick says:

'The assessable property in Portland is valued at $4,200,000. Taxes levied and collected during 1866, $400,000. Of this amount $91,000 was collected for

State, county, school, and road purposes; $150,000 was collected by the officers of the United States for federal purposes, and $159,000 (including licenses and fines) was collected by the city of Portland. Of this amount $75,000 was expended for street improvements, and $84,000 for general and special purposes. The salaries and fees of city officers during 1866 amounted to $15,000. The expense of city surveys, $3,700. The cost of boarding city prisoners, $950. Salary of the city attorney, $1,000. Expense of the recorder's court and city police, $6,000. The amount expended in the improvement of the Willamette river last year exceeded $30,000. Of this amount $20,000 was raised by loan, and $10,862 was obtained by special tax. The expense of lighting the city with gas was $3,000, and for furnishing the engine house and city offices with water, $600. The city printing during the year just closed cost $700. From the foregoing figures a crude idea may be gathered of the approximate expenses of the several departments of the municipal government of Portland."

A summary of produce shipped from Portland during the year 1866 is given. The value of the specified merchandise, produce, etc., shipped was $455,457. Added to this is "value of gold dust, bars, etc., given as $8,070,600."

****

GARNET SAND IN SAWING STONE

In Mining Technology for May 1941, published by the American Institute of Mining and Metallurgical Engineers, Oliver Bowles and P. deVitry describe a new type of wire used in a single strand for high-speed sawing of structural stone. Sand grains are the "teeth" of the saw and silica sand is the usual abrasive used. However, tests substituting garnet sand for silica sand have given highly satisfactory results. These tests indicate that by the use of garnet the speed of sawing was about doubled, while the direct cost was reduced 50 percent.

****

FIRST PRIZE TO DR. BOOTH

At the recent convention of Federated Mineralogical Societies held at Oakland, Calif., early in May, Dr. Courtland L. Booth of Portland was awarded first prize for his display of fluorescent minerals.

****

INDUSTRIAL DIAMONDS

Usually we think of the diamond as the precious stone - the beautiful gem. The industrial use of the diamond, not generally fully appreciated, is essential for certain abrasive purposes. No substitutes are satisfactory. Diamonds are the hardest substance known, natural or artificial, and their unique qualities are illustrated by the following extract from U.S.Bureau of Mines Mineral Trade Notes of April 19, 1941:

"In January some of the London papers commented on the operations of the Nazi diamond organization in Brazil and said that it had been reported recently that if Germany were unable to continue to corner the Brazilian market its war machine would have to cease work within six months. (Acting Commercial Attache James Somerville, London, Feb.27, 1941)".

****

BUYERS OF CHROME AND MANGANESE ORES

The U.S.Vanadium Corporation, a unit of Union Carbide Co., is interested in purchasing manganese and chromium ores and has an engineer in the field in southern Oregon. Owners of manganese and chrome properties interested in contacting this company may do so through the State Assay Laboratory in Grants Pass.

The Rustless Iron and Steel Corporation, Baltimore, Maryland, is in the market for chrome ore. Producers or prospective producers who wish to market chrome ore should write H. F. Byram, 924-22nd Street, Sacramento, California, or inquire at the State Assay Laboratory, Grants Pass, Oregon.

The Ohio Ferro-Alloys Company, Tacoma, Washington, is in the market for chrome ore. A schedule of prices paid may be obtained by addressing James F. Magee, 544 Tennyson Avenue, Palo Alto, California.

****

MINERAL MARKET QUOTATIONS

The market quotations of certain ores is given in price per unit of metal or metallic compound contained. Inquiries received at the Department show that such quotations are not always clearly understood.

A unit is one percent.

The market quotation for a certain grade of manganese ore may be 70 cents a long ton unit for ore assaying 55 percent manganese (Mn). This means that the ore is quoted at $0.70x55 or $38.50 a long ton (2240 pounds).

An antimony ore may be quoted at $1.50 per unit for ore assaying 50 percent antimony (Sb). This means that the ore is quoted at $1.50x50 or $75.00 per ton (2000 pounds).

A tungsten ore may be quoted at $24.00 per unit for concentrates assaying 65 percent tungstic oxide (WO_3). This would mean a value of $24.00x65 or $1560 a ton (2000 pounds). Tungsten concentrates are always graded according to the percent of tungstic oxide (WO_3) present.

For ores of base metals not quoted at a value per unit, the price is usually given at a price perpound of metal or metallic compound contained. For example : Molybdenum ore is graded as to the amount of molybdenite (MoS_2) it contains. Thus quotations at present are 45 cents per pound of MoS_2 contained for concentrates containing 90 percent of MoS_2 or better. 90 percent would be 1800 pounds; therefore, the value would be $0.45x1800 or $810 per ton of concentrate.

Iron, manganese, and chrome ores are sold on a long ton basis (1 ton = 2240 pounds). Most other ores are reckoned in short tons (2000 pounds).

****

The ORE.-BIN
State of Oregon
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
702 Woodlark Bldg., Portland 5, Oregon
POSTMASTER: Return Postage Guaranteed

Sec. 562, P. L. & R.