

Great Reduction Works to be Built Near Ogden.

THE most satisfactory information that has come from northern Utah mining districts during the year is the announcement from Ogden to the effect that developments made in the Sierra Madre district during the present year have been sufficient to justify the early construction of reduction works. Steps in that direction have already been taken; an extensive tract of land has been secured out on the desert west of Bonanza, where it is stated a syndicate, backed by ample capital, proposes to erect a smelter that will be equal to any now in existence in America.

Abundant fluxes for smelter purposes exist in Sierra Madre mountain, and a sufficient water supply is near at hand for general smelter uses. A tonnage of about 1,000 tons per day now appears available for such a plant as has been planned, and this will include zinc ores for the reduction of which special treatment will be prepared. The consideration of zinc reduction at this plant will be the most extensive and exhaustive of any west of Iowa, Kan. It will be very important to the mines of Utah, Idaho and Nevada, where zinc values have hitherto been not only unvalued, but a positive curse to any mine containing such. Henceforth, however, zinc is destined to become as much of a source of profit in western mines as lead has been, and when once a proper method of handling it is established in this state no class of ores will be more sought than those containing zinc.

Although in the active stage of development, the Sierra Madre district did not become an extensive shipper during the year of 1905. Yet notwithstanding this fact, the greatness of its future is no less apparent and the work done during the year now closed shows up in high relief the copper, gold and lead values of the rugged country that shows up so conspicuously in northern Utah. The Sierra Madre district is only 40 miles north of the Salt Lake smelters, two railway lines pass through its border, and in as much as almost all of the mines there are opened by means of tunnels no district of the state is more highly favored in drainage, extensive ore bodies and cheap development, as well as low rates to ore market.

Principal Properties There.

Of the properties on which most of the work has been done in this district during the year of 1905, might be mentioned the Eldorado, the Napoleon Maghera, the Santa Maria, the Illinois, the Chicago, the Wisconsin Midland, Southern Pacific, Great Northern and also the Boiler Makers.

In each case the work has been chiefly in tunnels and upraises, the work following the veins, although silver-lead ore is very abundant in the Eldorado, and also in the cross breaks of the Santa Maria, yet the bonanza features of the Sierra Madre district are in copper with its accompanying values of gold and silver.

The Santa Maria.

The Santa Maria, in which most of the development work performed in the district during 1905 was performed, justifies all that was anticipated of it before active development began in the early months of the year.

In this property there are five measures or fissure veins, one flat vein, one contact vein between quartzite and

gneiss and three thousand feet of the Eldorado lode, which lies in slate and limestone. The Santa Maria is itself a true fissure, wide and strong, for 6,000 feet through the granite rock it breaks away from the quartzite where its wide base or termination forms as a contact vein, similar to the copper veins at Butte and elsewhere. The Santa Maria as a copper vein does not show up as such at the surface; there it shows only gold, silver and some lead values. True, there are traces of copper sulphide and occasional patches of oxidized copper give green and blue markings to the outcrop of the vein. Even when work had progressed some distance on this great lode only gold values gave returns to the assayer.

At times an intrusion of from 50 to 100 pounds of chalcocite or chalcocite would appear in the soft friable body of the vein but it was not until about 200 feet had been mined that the true nature of this lode began to unfold itself. At that distance in the tunnel the copper began to appear in every ear of ore removed and the vein widened far beyond the sides of the five-foot tunnel. At some places the vein shows a width of 12 feet; again it narrows to three or four feet, but strong clear walls continue. Its gold and silver values kept pace with its copper values and the near approach of the east contact was indicated by the silver-lead charged oxidized spar that still shows in the face of the tunnel and that runs directly along the vein. The silver-lead ore reported at the time of discovery did not occur in wide shoots. They are simply blebs or faults in the vein but so narrow that the silver-lead contained therein are but thin bands creating immense bodies of gold bearing copper ore. On this lode, the present tunnel is now driven 600 feet, with ore the entire distance; it is mostly a concentrating ore, but there are immense bonanzas.

When the new tunnel, now about to be placed under way is completed, it will cut the Santa Maria lode 600 feet deeper than at present; this lower level attained by few mines of our country that is if the fact is taken into consideration that the tunnel so driven will cut into a point fully 1,000 feet below the outcrop of the vein at the corner. This tunnel now about to be started will be, when completed, about 1,400 feet in length and might be termed a cross country tunnel that will cut at right angles five strong mineral lodes three of which run parallel with the Santa Maria lode and the fifth is that tremendously strong and bold vein known as the New York lode which is really a flat vein that rises at the contact of the quartzite with the gneiss and spreads southwestward like an immense wedge and that gradually tapers down from 100 feet in thickness at the contact until at a point 1,000 feet from the above contact it shows its surface outcrop only about 15 feet in thickness.

To the student of geology and vein formation the six lodes of the Santa Maria presents an example of marvelous interest. The veins, six in number, represent as many different periods of vein formation for there are no two of them of contemporary age no two of them similar in their width, none of them that show metallic values coping after the bowl inclusions of its next neighbor and no two of them of the same dip into the mountain.

Lode Cuts Charles Dyke.

The Santa Maria is a lode youngest in age. It cuts or faults the Charles dyke and it shows evidence that it is but a few thousand years since it did



SIERRA MADRE MINERS WATCHING THE FLYING DEBRIS OF A BIG BLAST.

not exist. It seems to be one of the interesting results of awful seismic action that took place shortly after the gradual upheaval that produces the Wasatch range of mountains; man knows nothing of the awful physical conditions that gave birth to this most wonderful mineral lode. The measurement of such force as was required to produce this fissure is simply beyond comprehension by man. One can but feebly realize the compound force that acted in conjunction with each other when the solid old granite was rifted, when the other dykes and veins of the neighborhood were twisted, distorted in their course and faulted into their present situations in order to give birth to what is now really one of the most unique and interest producing mineral veins of the world. Accompanying the evidence of the tremendous force and heat in its production, there comes within the body of this vein matter itself a condition of physical interest sufficient to hold for hours spellbound, in admiration, the prospector or mineral collector. The average avaricious money grabber looking at oxidized outcrop of this rare lode beholds proof of the wealth in gold, silver and copper that lies between its rugged smooth walls that

stand at an average distance of 16 feet from each other. The vein matter itself that seems to have been forced up from fiery depths; to the plain practical mining man, presents a simple example of what constitutes a true fissure through whose cubic measurement lie the values in the white, red and the yellow metals and that, constitute unitedly an unusually large and easily worked pay vein of gold, silver and copper bearing ore, and, as the plans now laid down for the development and exploration are gradually carried out it will when this work is completed present one of the most perfect examples of an ideal mine to be found anywhere. This expression of an ideal mine does not wholly refer to the feature of the Santa Maria vein alone but to all of the five lodes that lie in the west part of the Santa Maria group, that will be united by a net work of tunnels, drifts and up raises and the ore from which, will largely pass through the adit or main tunnel, now about to be constructed.

Cut Lodges at Great Depth.

This tunnel, as before remarked, will be when completed, a little over 1,400 feet in length; for 1,100 feet it will run

directly north and south a perfect tangent line deflecting at out 27 degrees to northwest in order to cut into the New York lode at right angles; it will cut the different veins through which it will pass at a depth of from 400 to 1,300 feet. It will drain each vein of water above that level and enable drifting from east to west and from right to left on the main veins parallel with the Santa Maria and on the New York lode it will enable removal of ore from very large bodies that otherwise would be extremely difficult to work. As upper levels and upraises are completed, it will create perfect ventilation. The waters flowing from this tunnel when its drifts are carried to the contact will be sufficient to create a great volume of power and when, no longer of use in concentrating ores and creating forces for lighting, concentration and other miners' uses, its earning capacity for irrigation in the valley below will be very great and an unending source of use to man in fruitifying the now worthless desert plateaus that skirt the base of Sierra Madre mountains.

Many Properties of Merit.

In giving specific notice thus, to the Santa Maria group of mines in Sierra Madre district, it must not be forgot-

ten that many other properties of the locality have great merit; in their development work, they are giving forth promise of becoming large producers; but in the Santa Maria Basin, is found such an example as is seldom found anywhere, here, there is an aggregation of fissures, contacts, blankets, veins and dykes associated together in one vast net work of veins and so situated as to render it possible to work an entire group of mines from one common tunnel. The system of veins above described lie wholly in the granite rocks of the district. In the sedimentary rocks that overlie the granite there is a measure of quartzite 1,500 feet in thickness, this is Cambrian and into this, narrow fissures, bearing silver-lead ore break out from the contact vein; these have not yet been prospected and only exploration has been carried forward above the granite measure in which lie the Santa Maria proper and the other veins of this

group. Again resting on the quartzite as here described, there is a capping of 2,000 feet of silurian limestone through which runs the south extension of the Eldorado, silver-lead vein, that of this vein which thus passes through the Santa Maria territory presents conditions similar to those that the deep workings of the Eldorado. The silver-lead ore here found is chiefly associated with much pyrite, galena exists in considerable quantity along with the lead, but they do not occur certain and distinct part confined to. The foregoing short sketch of conditions of the mine development in Sierra Madre mountain during the year of 1905 proves the earnestness with which the property owners there are pushing development, and it all gives great confidence in the successful result of the glorious mountain state, rock ribbed, treasure laden, Utah.

CHRISTMAS ON AN OCEAN LINER.

Trees For Passengers and Crew, Presents, Toasts, Singing and Dancing Make it a Gala Day.

THE man who spends his life on board a big passenger ship sees about as many different kinds of Christmases as anybody, I guess," said the captain of a North German Lloyd steamship as he sat in his cabin preparing for a holiday voyage to the Mediterranean. "With a crowd of jolly passengers aboard who are off on a trip to enjoy themselves Christmas is a day to be remembered. Friends and relatives send gifts on ahead, so that they may be handed to passengers at the right time, and of course this personal remembrance from home makes more enjoyable the celebration which is always prepared on board the ship itself. The 24th of December passes about as do other days until dinner time arrives, and then the chefs and stewards outdo themselves in providing an elaborate menu and in table decorations.

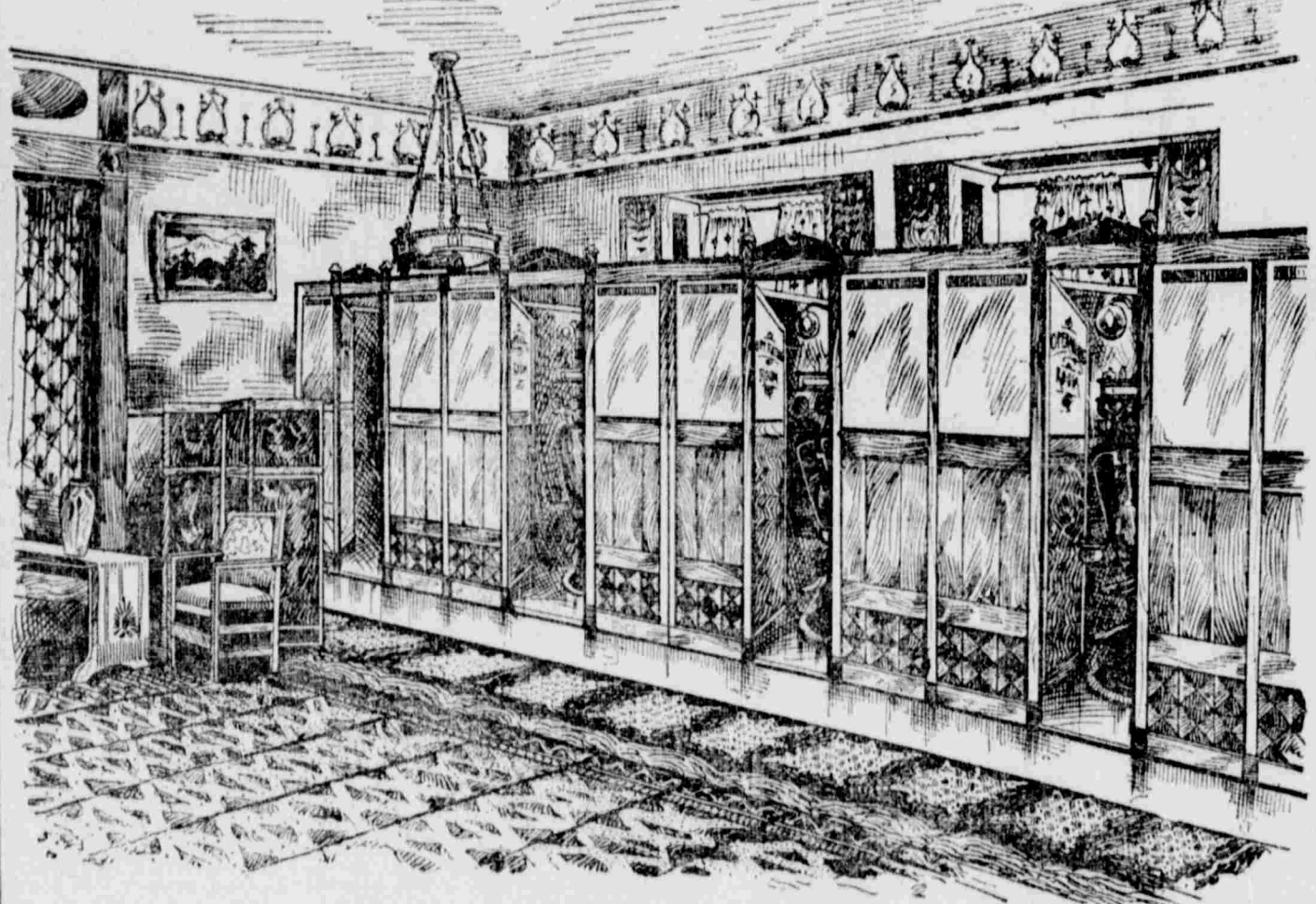
"If the weather is fine, as it is likely to be, the passengers are in high spirits, for the Christmas feeling is infectious, no matter where you go. Toward the end of the dinner speeches are made, songs are rendered, stories are told and toasts are given, and when this is completed all go to the main saloon, and the Christmas tree is revealed, standing there in the middle, under the big skylight. It is a big tree, too, just as big as can be obtained and put in place, and on it are hung gifts from the ship for every passenger—not costly at all, but remembrances are likely to be long preserved as souvenirs of a pleasant occasion. Then, if the sea is not high, the candles are lighted, and the tree bursts into beautiful illumination.

"After the distribution of gifts from the tree a concert is given if the weather is bad, but whenever Christmas eve is pleasant and the latitude is suitable the passengers go on deck, which they find to be shielded from the wind by canvas, brilliantly lighted and decorated with flags and bunting. And I tell you, on a moonlight night, with a calm sea and soft, pleasant air, in the Mediterranean, for example, a Christmas

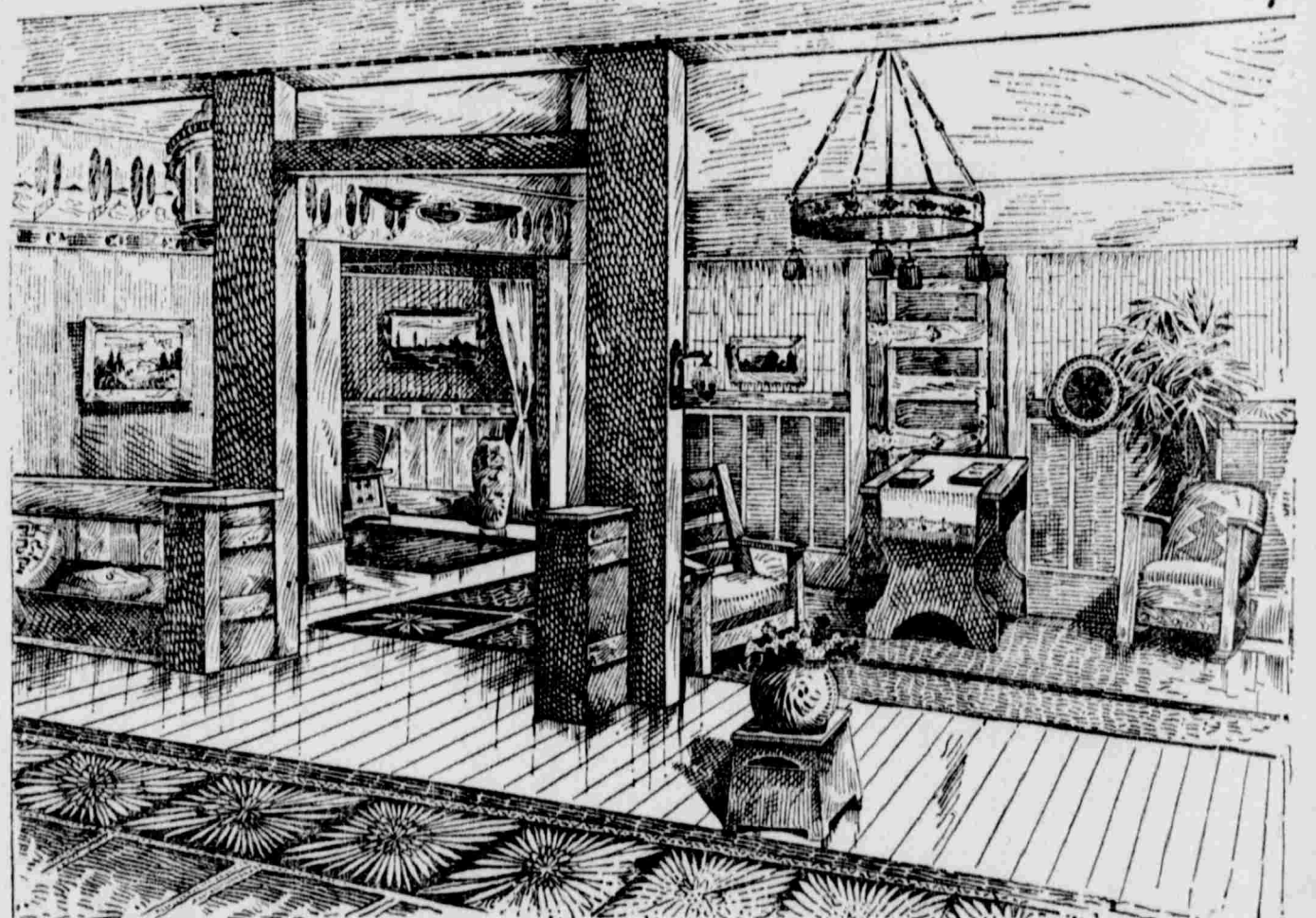
A Perpetual Calendar.

Camille Flammarion, the well known French astronomer, has decided to submit a new calendar for adoption by the state to the chamber of deputies. He makes the year begin with March 2, the advent of spring, a month of 31 days following every two months of 31 days each. The year would thus consist of 364 days, with a special feast day annually, while a leap year would have two such feast days. These extra days would be known by special names and not by the recognized names of the days of the week. The same dates thus would always fall on the same week days, so that the calendar would remain stationary every year.

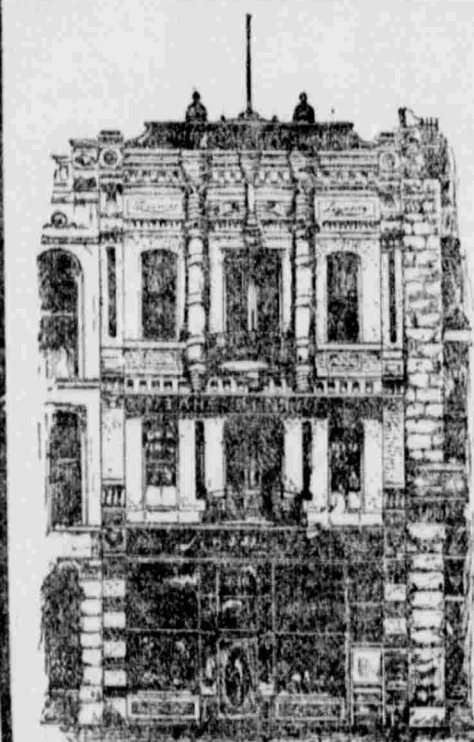
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