

of gas, and a smaller pipe containing a dozen insulated telegraph-wires. At intervals you see two species of vaulted chambers communicating with the vast gallery; these are the air holes and safety-stairs provided for the workmen in case of sudden inundation, and the tributary sewers connected with the blocks of buildings along the boulevard. You hear, occasionally, a sharp, quick report, like midsummer thunder. It is the noise of carriages in the street above as they pass these breathing-holes.

You see, coming down to meet you, a nondescript aquatic monster, wallowing and splashing in this mephitic element, as if it were born there and knew no other. It is one of the boats for clearing the channel. I do not know whether to say boat or car, however; the amphibious creature may claim both names. It has wheels fitting the iron rails which border the cuvette over which it runs, and is furnished behind with a water-gate filling the moat and producing a pressure of water behind the car which forces the whole machine forward, stirring up and carrying on the mire and sediment of the sewer; thus making the foul waters of this under-realm the instrument of its health and cleanliness. It is a strange picture—the group of staring visitors, their faces bright in the lamp-light which streams across the path of the anomalous thing, which moves on with a kind of sulky efficiency through the troubled and bubbling waters, like an awkward Saurian born of the slime and prime.

The walls of most of the sewers are of Roman cement, or Vassy's patent, though of late there has been a great deal of use made of Beton's invention. The vast arches of the subterranean works of the Exposition Building are of Beton.

An enormous system of underground improvements is now going on in Paris. I am afraid to keep you in these damp places long enough to describe them in full. All the foundations of Paris are to be honey-combed by these superb galleries, all connected with each other, and all converging at the Place de la Concorde. From that historic neighborhood—which preaches forever its silent sermon to the kings of the earth—a vast, general conductor conveys to the Seine all the leakage and filth of the imperial city. As far as the fortifications the work is under-ground; from the city walls to the river is an open cut.

The sewers of Paris, if stretched out in a straight line, would extend 200,000 yards. When finished according to the present plan, they will reach 400 miles. So perfect is the organization of the service that it comprises only about 200 workmen in ordinary seasons.

We emerge into the upper air again by the church of the Madeleine, and the memory of the dark world we have left fades in the cheerful light and hurry of the boulevard. — *Northern Lights.*

THE BEST GRAPES FOR WINE.

The *Alta* gives the following information as the result of a conversation with an experienced grape-grower:

Wine-growers have been anxious to ascertain which grapes are best suited to make wine in California, and heretofore there has been no agreement among them. Most of them, as a matter of prudence, planted the Mission grape; and others, who could afford to take risks, were too busy with other matters, and many were not sufficiently well versed in the business to feel confidence in their experiments. We have lately had opportunity to converse with Schram, an intelligent wine-grower of Napa Valley, who has communicated his experience to us in conversation, and we state them in this paragraph:

His vineyards are situated in the mountain, 500 feet above the level of the creek, 25 miles by the road from Napa City, on the western side of the valley, the exposure to the east and southeast. One vineyard is on a slope too steep for the plow; another is nearly level. The soil is red gravelly clay, with as much moisture as grapes need. In other localities different results might be obtained.

The Mission vine, though a great bearer, lacks flavor, and does not deserve to be made the main stock of the vineyards. Though an excellent bearer and a hardy vine, there are other varieties which are equal to it in those respects and superior to it in other points not less important. The quantity of wine that the Mission grape will pro-

duce to the acre depends partly upon the age of the vines, the soil, the season, the style of pruning and cultivation; but the average yield of good vineyards six years old is nearly 1,000 gallons to the acre. The German, or Golden Chasselas, bears as well as the Mission, and the berry is excellent either for white wine or for the table. Schram thinks it the best of all the wine grapes and superior to the Zenfenthal, which is its equal in hardiness, productiveness, and makes a red wine, thought by some persons to be the best. The latter grape is said by some persons to be the same as the Black St. Peters, Black Nice and Purple Damascus. The Black Malvoisie, or Pinaud, bears as much as the Mission, and is excellent for wine. The Burger, called also the Alva or Butcher, also equals the Mission in yield, and makes a splendid light white wine. The Black Burgundy, or Merlau, the Running Burgundy, and the White Green produce each about twenty per cent. less than the Mission, and all are excellent both for the table and for wine. The Chasselas Fontainebleau yields thirty per cent. less than the Mission, but the berry is very fine both for wine and for the table. The Riessling, Black Cabernet, the Traminer, Gray Burgundy and the White Rhenish Muscatella yield forty per cent. less than the Mission, but are very fine for wine and the table. Schram prefers the last named grape to the Muscat of Alexandria for the market, because it is a better bearer, the muskiness of flavor is equally strong, and the grape is far better suited for making wine, either alone or mixed with other varieties; but the wine will not thrive in places where there is any fog. The Chasselas Fontainebleau ripens two or three weeks before the Mission grape, and all the others named above with the Mission.

For light wines, then, in Schram's experience, the best grapes are the Golden Chasselas, the Burger, the White Rhenish Muscatella, the Riessling, the Chasselas Fontainebleau and the White Green; and for red wine, the Zenfenthal, the Black Malvoisie, the Black Burgundy, the Running Burgundy, Black Cabernet and the Traminer. The Teinturier (French for dyer) thrives as well here as in France. It produces a juice so strong in its dark red color that a few grapes are enough to color a barrel. The berry is worthless for any purpose save coloring the wine of other grapes. White Nice (called also the White Lisbon,) White St. Peter's, White Tokay, Black Hamburg, Rose of Peru and Flaming Tokay bear well and are good for the table, but cannot be recommended for wine. The Catawba and Isabella, when pruned long and trained up carefully on arbor or trellis-work, bear well, and their grapes are sweeter and have more of their peculiar flavor than in the Eastern States. They suffer under short pruning, and should not be planted with other vines, for if trained long they shade the others and injure them. The Black Morocco, the Napoleon and Muscat of Alexandria are fine table grapes, but do not set or ripen well. Schram plants his vines in rows seven feet apart and three and a half feet apart in the rows.

THE CENTRAL PACIFIC RAILROAD IN WINTER.

The Virginia *Trepass* has the annexed in regard to the progress of this company and its winter experience near the Summit.

The railroad people are making excellent progress. Tunnels are working on toward the sunrise, and the great shelves in the rocky sides of the mountains are lengthening out as fast as sturdy hands and nitro glycerine can break the way. The company has kept close vigil through the snow line the past winter; and what seemed a calamitous season will yet prove to have been a happy one for the railroad company, and in that respect an advantage to the people of this coast. The advantage derived by the railroad company from the severity of the past winter is in this: The men along the line have been able to watch the course of the wind currents; where the heaviest drifts of snow lodge; what direction they come from; what is the particular conformation of the mountain; turning it to that particular point; whether the current is the same in several storms, so as to furnish a guide for erecting protections to the track. All these things have been carefully watched through the principal and five considerable storms of the past winter.

It is found on and about the summit of the Sierra Nevada, as elsewhere, that the ordinary currents and the snow drifts have their special, well-beaten course, from which they deviate but little. Except by drifts the track of the railroad has never been seriously obstructed. Where lying on level ground, with no mountain peaks to turn drifts upon it, enough snow never falls between trains to hinder the cars on regular time. Wherever it was possible, in following ridges, the track has been made to have a southern exposure; and in that situation, with trains passing every six hours, no amount of snow-fall would make an impediment. Where the track lies along the mountain's slope, a plow with one mold-board, similar to that employed on farms, will, with a good steam force behind, throw the snow so as to land many yards away.

Nothing in the nature of the country through which it passes assumes the shape and dimensions of serious hindrance to the completion of the Central Pacific Railroad. Where southern exposures, with side-hill plows are sufficient, the road will be kept open by such cause and means; where open cuts are the receptacle of flying snow-banks, they will be cheaply roofed in; where on a long sweep of level ground the snow is lodged by the winds which turn it from the mountain peaks, a side wall will be put up where that will answer, to break the current; where it will not, a trestlework open wall on each side of the track will support a plain roof; and finally, the splendid tunnels now going in will carry the track through a large portion of the distance known superficially as within the "snow line."

THE SUMMIT TUNNEL.—The Pacific Railroad people, says the *Sacramento Bee*, are making wonderful progress on the summit tunnel. Some persons—even engineers—calculated that this great work would require three or four years for its completion; and so it would in other countries, or if it were under the control of laggards, but here, and in the hands of go-ahead Californians, tunnel time is annihilated. The tunnel is 1,660 feet long. It was begun in September last, at four points—on the east and on the west ends, and two other faces were created by a shaft in the center. Thus there are four faces, with three set of hands to each, or twelve sets of all. Each set works eight hours, and the work goes on night and day; and now, on the first, in the present month, of all these 1,660 feet, there were but 681 feet remaining to be cut! The progress last week was sixty feet, and at this rate the tunnel will be completed by the middle of August next. By measurement, on the 1st instant, there were but 346 feet in the east heading, making, as before stated, 681 feet in all to cut. And so in the space of eleven months from the period of its commencement will this tunnel be finished.

A MUSTACHE DIVISION IN THE CHURCH.—An Albany correspondent tells of an amusing church trouble among the Methodists there.

There has been quite a breeze stirred up here in the religious world. The Methodists have been greatly exercised on the mustache question. Several weak brethren have had their stomachs seriously disturbed by partaking of the sacramental wine in which their horrible brothers have moistened an offending mustache, and to get rid of the bile thus resulting, they fulminated a fierce tract against the unholiness and sinfulness of beards in general and mustaches in particular, and distributed it in all the pews. Hence a war in the church at first, and then in the newspapers. Some of the brethren took the ground that as all the Apostles wore beards who could raise them, and that as our Savior wore both the beard and mustache when he instituted the Lord's Supper, it could not be so very sinful. The warfare, however, still goes on, and will probably result in a further division of the churches, in which we shall have churches with whiskers and churches without. Trouble has arisen in one of the Presbyterian churches growing out of the jealousy between the rich and the poorer members, the result of which has been a secession of some members and the raising of \$20,000 by the remainder to pay off the church debt, thus showing that spunk will sometimes accomplish more good than can be obtained by a better cause.

PRESERVATION OF THE FORESTS OF MICHIGAN.—The subject of preserving the magnificent forests of Michigan is engaging the serious attention of the Legislature of that State. Its forest-wealth once greater than that of any other State, is tributary to so many lumber markets that it is rapidly disappearing. Such vast tracts have been stripped that, in the opinion of scientists, climatic changes injurious to vegetation have been induced. Crops have been deteriorating for many years, and it is plausibly argued that this is owing to despoilation of the wood-lands. The increased severity of the winters, by which fruit trees have been killed, and the diminution of fertilizing rains are also attributed to this cause. European experience is said to confirm the idea that the destruction of forests tends to sterility, while a restoration of them renews the fruitfulness of the earth. From the clearing of so large a section of timbered lands the cultivated districts have been more exposed to the blighting winds. The loss to the wheat crop in one winter from this cause was estimated at \$5,000,000. Three-fourths of the natural yield had in some instances been sacrificed. It is proposed to mitigate the evil by exempting forests from taxation, and by legislation which will remove the necessity for large uses of timber in fences.

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