OAKLAND HARBOR IMPROVEMENTS.

The greatest engineering work now being done on this coast by the Government is the improvement of Oakland harbor. We gave a short time since a report of progress on the work. The method of placing the rock, which we then described, is still being carried on. The training walls are fast assuming respectable proportions, and it will not now be very long before the whole tide flow of the harbor will be confined between the walls. The inner end of the north wall has been faced up, and both barges are now being daily unloaded on the north wall. The rock seems exceptionally good in character, though, for the price at which the contract is taken, it is difficult to see where much money is to be made. Dredging is going on constantly, and, though the dredger seems to be in a chronic state of break-down, it does good work, when at work. At present the material is carried out on barges and dumped in the bay. We hear, however, that arrangements are being made to deposit some of it on the adjacent shore. For this the contractor receives a higher price. The point where it is to be deposited will be on the C. P. R. R. Co.'s land, back of the freight slips.

The Government engineers have now in prospect another part of the work on this harbor improvement, which is an important one, and bids have been invited from contractors to do the work. The work to be done consists in the excavation of the flats of the tidal basin lying east of Fifteenth avenue, in Brooklyn, between low water line and the line of the marsh which forms the shore line, and in putting the excavated material *ashore*.

Here now is a chance for some enterprising persons. They can have 75 days, from the date of award of contract, to build a machine which will dredge and deliver the material ashore. Inventors of dredging appliances can here have an opportunity of proving the superiority of their devices. As most of the land near by belongs to the Oakland Water Front company, it is probable they will have no objection to having the material put ashore where it will improve their land. This remains to be seen, however.

The part excavated is to be taken out at least to one ft. below low water, and not deeper than 3 ft. below low water. It is supposed that the contractor can make arrangements for deposit with parties who wish to have land raised. The flats are shown by survey to extend to a height of 4 or 5 ft. above low water, sloping gently to the basin. Borings made show the material for the first 4 or 5 ft. in depth to be soft mud, which extends in places to much greater depth. In other places, the mud below is firmer, and has sand mixed with it. Bidders may choose their own place for excavation outside of the line of marsh, subject to approval and under the conditions that the area excavated shall be reasonably compact in shape and outline, having a width of not less than 500 ft., and provided it shall be made to connect with the existing low-water basin by a channel 200 ft. wide, having about 3 ft. in depth at low water.

This work, it is supposed, will be followed by more of the same character, as appropriations become available. The amount to be applied under this contract will be what remains of funds now available after existing contracts shall be fulfilled. It will probably not be less than $80,000, and may be as much as $100,000. No particular method of excavation is required in the specifications, and the intention is to give the contractor the fullest latitude in his operations, if this shall result in cheapening the cost of the work. The measurement of material will be in place as it now lies.

The deposit on shore will be subject to such regulation in the way of berms or levees as shall, in the judgment of the engineers, be sufficient to prevent the material being returned to the basin. The place of deposit must, however, be approved. The points of marsh land that make out from the two shores below Sixteenth avenue are not admissible as places of deposit. The rate of excavation required is not less than 30,000 cubic yards per month. It may be as much in excess as the contractor may choose to excavate.

Bonds to the extent of $30,000 will be required at the signing of the contract from two sureties, each qualifying in this amount.

The work will be supervised by an inspector, whose decision on any controverted points, when confirmed by the engineers, shall be final, and binding on all parties. Payments will be made monthly by checks on Assistant Treasurer United States to the amount of 90% of the work done, 10% being retained until the completion and acceptance of the work.

When this work is completed it will leave a large tidal basin at the upper end of the harbor, where many vessels can lie securely in the winter months. It is not safe for them to lie in the open bay, and Mission bay, once a favorite place, is now shut off by the bridge, the piling and the filling in. Coasters have, therefore, to go to Antioch or Oakland. The new basin will doubtless be a very useful one.—*Scientific Press.*

TASTE AND ODOR OF MINERALS.

In their action upon the senses a few minerals possess *taste* and others under some circumstances give off *odor*. Taste belongs only to soluble minerals. The different kinds of taste adopted for reference are as follows:

1. *Astringent;* the taste of vitriol.
2. *Sweetish astringent;* taste of alum.
3. *Saline;* taste of common salt.
4. *Alkaline;* taste of soda.
5. *Cooling;* taste of saltpeter.
6. *Bitter;* taste of epsom salts.
7. *Sour;* taste of sulphuric acid.

Excepting a few gaseous and soluble species, minerals in the dry unchanged state do not give off odor. By friction, moistening with the breath, and the elimination of some volatile ingredient by heat of acids, odors are sometimes obtained which are thus designated.

1. *Alliaceous,* the odor of garlic. Friction of arsenical iron elicits this odor; it may also be obtained from arsenical compounds, by means of heat.

2. *Horse radish odor,* the odor of decaying horse-radish. This odor is strongly perceived when the ores of selenium are heated.

3. *Sulphureous,* friction elicits this odor from pyrite and heat from many sulphides.

4. *Bituminous,* the odor of bitumen.

5. *Fetid,* the odor of sulphuretted hydrogen or rotten eggs. It is elicited by friction from some varieties of quartz and limestone.

6. *Argillaceous,* the odor of moistened clay. It is obtained from serpentine and some allied minerals, after moistening them with the breath; others, as pyrargillite, afford it when heated.

The feel is a character which is occasionally of some importance; it is said to be *smooth* (sepiolite), *greasy* (talc), *harsh* or *meager*, etc. Some minerals, in consequence of their hygroscopic character, *adhere to the tongue*, when brought in contact with it.

MILL SITES.—Section 2 of the act of Congress approved January 22, 1880, entitled "an act to amend sections 2,324 and 2,325 of the Revised Statutes of the United States concerning mineral lands" does not apply to mill sites located separately or in connection with lode claims. No annual expenditures are required to maintain possessory title. This statement is made in reply to a "Nevada reader of the Salt Lake *Tribune*," and the reply is as given by the Acting Commissioner of the General Land Office to the correspondent of that journal.

A PHILADELPHIA man who has found a bed of remarkably fine clay on his property in the suburbs, is undecided whether to start a brickyard or a French candy shop.

INDUSTRIAL.

There has been no time since the exactions of the late war when good workmen were in such demand throughout the country as at present, and the business outlook in almost every branch of industry is most encouraging. The large present demand for shop outfits furnishes good evidence of the general prosperity of our manufacturing interests. Orders in that line during the past year have been received from almost every quarter of the globe. Mexico, Russia, and even England have recognized the fact that our mechanics excel in machine tool work by sending orders for the same.

WOOD WORKING MACHINERY is in special demand, and some of the manufacturers of that class of machinery are "crowded and overwhelmed with orders."

THE FAIRBANK'S SCALE WORKS of St. Johnsbury, Vt., are said to be melting 30 tons of iron per day, and are still far behind their orders. Since 1880 came in they have averaged over one railroad track scale for each working day.

COPPER PRODUCTS.—The close of the year 1880 showed that the copper mines of Lake Superior, since their commencement, have produced 300,000 tons of ingot copper, valued at over $140,000,000.

EXPORTS.—During the past five years the excess of exports in the United States over imports, has aggregated $900,000,000. Our imports from foreign countries have fallen in five years from $1,450,000,000 to $1,425,000,000, while our exports to Great Britain increased from $340,000,000 five years ago to $455,000,000 last year.

THE MISSISSIPPI RIVER TRADE.—The geographical position of New Orleans is beginning to assert itself. It is now the second port of export in the country. Some idea of the growth of the grain movement from St. Louis to the seaboard at New Orleans in barges, may be gained from the fact that from January 1st to October 16th, of last year, the shipments were 13,914,000 bushels, as against 6,164,838 bushels for the correspounding period of the previous year. For April the total exports of New Orleans exceeded $11,000,000, the exports of Boston for that month being about $6,000,000. The Nashville *American* thinks that the entire Mississippi valley will eventually pour its immense trade into New Orleans.

ENGLISH AND AMERICAN RAILWAY CARS.—English papers are beginning to speak more generally in favor of the American system of railroad car building, and well they may! To say nothing of the superiority of the general arrangement of our cars, it is well known that, as a general thing, the English railway carriage, when thrown from the rails, usually goes all to pieces, photographs of such wrecks showing that they commonly consist of a confused pile of panels and doors, with broken ironwork and shattered framing. A good American car, honestly built, can be thrown against a solid obstruction at a speed of 25 miles an hour without breaking up; and if it were not that the passengers are thrown about and brought in contact with seat backs and the hanging work on the ceiling and sides, an accident of this kind would rarely be attended with exceptionally serious consequences, whatever the speed. English companies are also adopting the American method of supporting long passenger cars on "bogie trucks."

A HEROIC REMEDY FOR BALDNESS.—In cases of confirmed baldness the new remedy proposed is to remove the scalp, bit by bit, and substitute, by skin grafting, pieces of healthy scalp, taken from the heads of young persons. The success which has hitherto attended operations of this nature in cases of scalp wounds, gives a promising outlook for this new mode of curing baldness; and perhaps the day is not far distant when the shining pates of our venerable fathers will bloom with the flowing locks of youth.