

### COL. JOHN JACOB ASTOR'S NOVEL STEAMSHIP CHAIR.

Many people in crossing the ocean have experienced inconvenience by reason of the fact that the chairs in the saloon and card-rooms are rigidly screwed to the floor. The chairs are secured at such a distance from the tables that they will accommodate persons of very ample proportions, and, therefore, when a comparatively thin person occupies a chair, he finds it necessary to sit merely on the edge, for should he endeavor to lean back in the chair, he finds himself too far from the table.

While recently returning from Europe, Col. John Jacob Astor conceived of a very simple and practical scheme whereby the chairs may be firmly held in place at any desired distance from the tables or may be easily released and moved about. Col. Astor's scheme involves the use of a vacuum cup beneath the chair and so mounted that it may be pressed into engagement with the deck or floor to hold the chair by suction, or the vacuum may be broken, the cup lifted, and the chair released.

If the chair is on a deck or hardwood floor or on rubber tiling, the vacuum will hold indefinitely, while if used on a carpet it will probably be necessary to depress the cup and raise it again occasionally to form a new vacuum. This device will undoubtedly add greatly to the comfort of the traveling public, as chairs may then be quickly and securely fastened at the desired distance from the table to accommodate either fleshy or thin persons. Col. Astor intends to present this invention to the public, as has been his custom with all his recent inventions.

### Gold Dredging in Alaska.

BY GEORGE E. WALSH.

The continued exploitation of new gold fields by the big gold dredges in different parts of the world has given to this industry many new points of economy which the companies are taking advantage of. The great districts where the gold dredges have been in most successful operation are Australia, California, and Alaska. In both of the former places the wholesale dredging of the ground by the mammoth "gold ships" has caused some trouble with the official authorities, and the question of restoring the dredged fields to something like their former condition has been adjudicated in the courts.

In Australia the work of reclaiming the dredged ground has been accomplished by advance stripping of the surface soil, so that this can be separated from the coarse sand and silt from below. The surface soil is first stripped and deposited in separate places before the gravel is touched; and then after the dredging is completed, the surface soil is replaced, so that the land can be used for other purposes. In California, where the gold ships threatened to interfere with the flow of the rivers, the dredging companies have been compelled by the State authorities to restore the dredged land in certain districts, so that the normal water flow will not be interrupted.

No such trouble, however, is found in Alaska, where gold dredging has been carried on extensively in the past year or two. Alaska is more suited to this form of gold mining than any other country, and great stretches of river soil await the companies with dredges. When the first big gold dredge was shipped to Alaska in sections and then assembled there, it was looked upon as a very uncertain investment. Owing to the short open season when the dredges could be operated, and the great cost of getting the dredges into the distant mining regions, it was not looked upon with favor by capitalists.

Subsequent events and experience have changed all of this. In the first place, the enormous area of gold land suitable for bucket dredging makes it possible for the gold ships to operate indefinitely without being transported to new regions. In fact, the field is almost inexhaustible. Consequently, the investments in the big dredges cannot prove other than very profitable, even if for the first year or two they could make little. But even with the comparatively short open season when the ground is not frozen hard, the gold ships have proved extremely profitable, and the fleet up there has steadily increased from year to year.

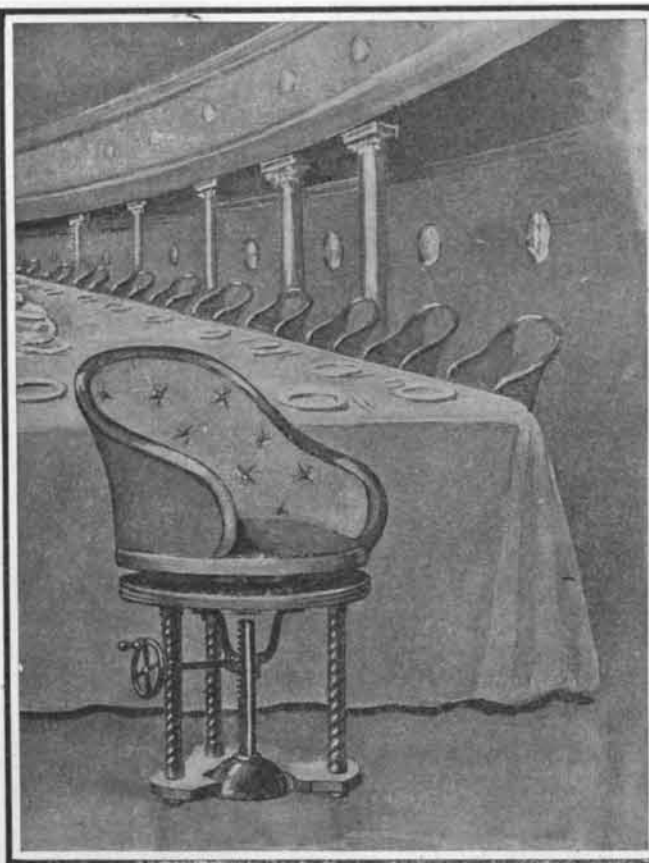
In California, where the gold dredges can be operated the year around, the dirt yields on an average only 15 cents per cubic yard, and yet with this low yield the work is very profitable. On the other hand, the placer fields of Nome run from \$1 to \$20 per cubic yard, which accounts for the fact that the dredges make more money in their short summer season than the California dredges can do in twelve months of the year. A five-foot bucket dredge can wash as much gravel as 3,000 men can do by hand, and consequently it can secure a profit on dirt so low in grade that hand-washing is utterly impossible.

There are more than a dozen gold dredges now in operation in the Nome district, and every one of

these is earning big profits. The Guggenheims of New York have been operating three dredges for several years, and several new ones are now in the course of construction. The Nome Gold Dredge and Power Company, composed chiefly of New York capitalists and engineers, has installed several more dredges in the Nome district. This concern owns or controls nearly 2,000 acres of placer ground, which on a low estimate yields about \$3.50 of gold per cubic yard.

It costs about \$120,000 to get one of these dredges up in Alaska and ready for operation in the placer district, but such a dredge will yield a net return of nearly \$600,000 per year. Such enormous returns on the investment certainly justify the installation of new dredges. A dozen such dredges now in operation in Alaska yield annually several million dollars' worth of gold, and most of this is reclaimed from districts that the hand operating companies overlook. The craze for new districts that yield enormous returns continues to attract the average miner, and he passes over unnoticed the placer mines that prove rich harvests to the dredge companies. There is no interference by State authorities with dredging in Alaska, and no thought or consideration of restoring the surface after operations enters into the calculations of the companies.

The character of most of the gravel in the Nome district makes it ideal for either dredging or hydraulicking. It is almost entirely free of large bowlders, clay substances, and roots which might obstruct the operations of the dredge or sluicing apparatus. The



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placer lands lie for the most part in valleys between sloping hills. This land is covered with snow early in the fall, and thus prevents hard freezing. As a result, dredging operations can begin as early as the first half of June and continue fully four months, or for about 120 days. This makes a season's work, and then the dredges have to stop operations for the long winter. It seems like a very short season for mining operations, but owing to the character of the soil and the gold yield, it proves very profitable.

Before an investment is made in a gold dredge of this character, the placer land is first carefully investigated and the probable gold output estimated. Thus, before the first dredge was shipped to Alaska, upward of a hundred shafts were sunk to depths ranging from 10 to 15 feet, and the lowest yields of gold were found to be \$3.50 per cubic yard, while in the river beds the gold often ran as high as 15 cents per pan, or over \$20 per cubic yard.

Except at the foothills, the dredge companies around Nome have never yet struck bedrock, and the lowest shaft put down was 15 feet in depth. Further sinking was prevented by the shafts filling with water, but from every indication the bedrock is at least 25 to 30 feet below the surface. This bedrock is composed of mica schist and slate. In all the dredging operations of these placer mines, the values increase more steadily at bedrock than at higher points; and even from 6 to 18 inches into the bedrock the returns are large. The whole character of the land is ideal for dredging, and there is plenty of water for as many dredges as could possibly be used.

The fact is, the coming of the big gold dredges in Alaska and their successful operation, with unlimited

possibilities for work for many years to come, has marked a new era in mining for the precious metal in this far northern country. It is the beginning of the end of aimless, unscientific gold mining. The great finds of gold where prospectors can pick up gold in quantities are no longer so common as a few years ago. The field has been pretty nearly investigated, and the character of the mining must change to suit new conditions. This means that the influx of fortune hunters will gradually cease, and mining will fall into the hands of companies, who are willing to get their returns gradually through improved, though somewhat expensive, methods of work. A great many owners of ordinary placer claims are today renting out their land to gold-dredging companies, and others are organizing for the purpose of installing their own dredges. Taking the returns for a period of five or ten years, the profits of a gold dredge company are infinitely higher than another which depends entirely upon making rich finds and then gathering the surface gold for quick returns. Gold dredging in Alaska is thus an infant but lusty industry, and its growth in the next few years must be phenomenal and steady.

### Has the Earth's Climate Changed in Historic Times?

The explorations in Central Asia have laid bare the ruins of once flourishing cities. M. Boutquin, in the French journal *Ciel et Terre*, proves, by historical evidence and modern scientific discoveries, that the abandonment of these regions by the human race was brought about by causes entirely unrelated to such supposed meteorological changes as a general cooling of climates or a progressive desiccation of the globe. In Europe, for example, a sensitive lowering of the temperature and decrease in the precipitation of rain and snow would have caused a well-marked and continuous recession of glaciers, but no such recession is shown by the records of more than two thousand years. Heim has proved that, although the glaciers of the Alps receded during the latter half of the nineteenth century, they are now far more extensive than they were in the Middle Ages.

Polybius, in the second century B. C., described the rich gold and silver mines of the Tyrol. These mines yielded abundantly until the middle of the sixteenth century, after which date their productiveness rapidly diminished because the mouths of shafts became covered with ice. A shaft sunk at this epoch was covered in 1570 by a glacier 65 feet thick. Resistance to the invasion of the ice soon became impossible. In the eighteenth century the glacier was more than 300 feet high, and in 1875 it had attained a height of 460 feet.

For many years it was asserted that the east coast of Greenland had formerly enjoyed a mild climate, which favored the growth of vegetation and gave rise to the name Greenland. The historical researches of Rink and Von Maurer, however, have proved that the decay of the posts established by the Norwegians in olden times was caused by the introduction of a contagious disease and by the adoption, by the Norwegian government, of an unwise economic policy, which provoked hostile attacks by the Eskimos. Equally erroneous statements have been made in regard to Iceland.

In the British Isles, the cultivation of wheat formerly extended much farther north than it does at present, simply because it was then, in the absence of foreign competition, more profitable than it is now. Yet it has been very difficult to gain acceptance for this elementary truth; the popular belief in a change of season or climate for a long time prevailed over all evidence.

In Belgium and other countries, also, agriculture has been radically transformed by the operation of economic laws, improved methods of culture, and a more intelligent choice of crops. In the Middle Ages and until the fifteenth century the vine was cultivated in Bavaria and in other parts of Germany from which it has now almost entirely disappeared, but its disappearance is not due to climatic changes. The wine produced in these districts was generally of inferior quality and, with the growing refinement of taste, it was gradually supplanted by foreign wines and good native beer.

The culture of the vine has practically disappeared from Belgium for similar reasons. Two Belgian abbeys still possess vineyards and make wine for sacramental use. In France, it has been proved that the vintage season has not shifted appreciably since the fourteenth century. It has likewise been demonstrated that, contrary to the popular belief, the olive was never cultivated in Switzerland except to a very small extent in gardens, and that no change has occurred in Swiss agricultural products in general.—Cosmos.