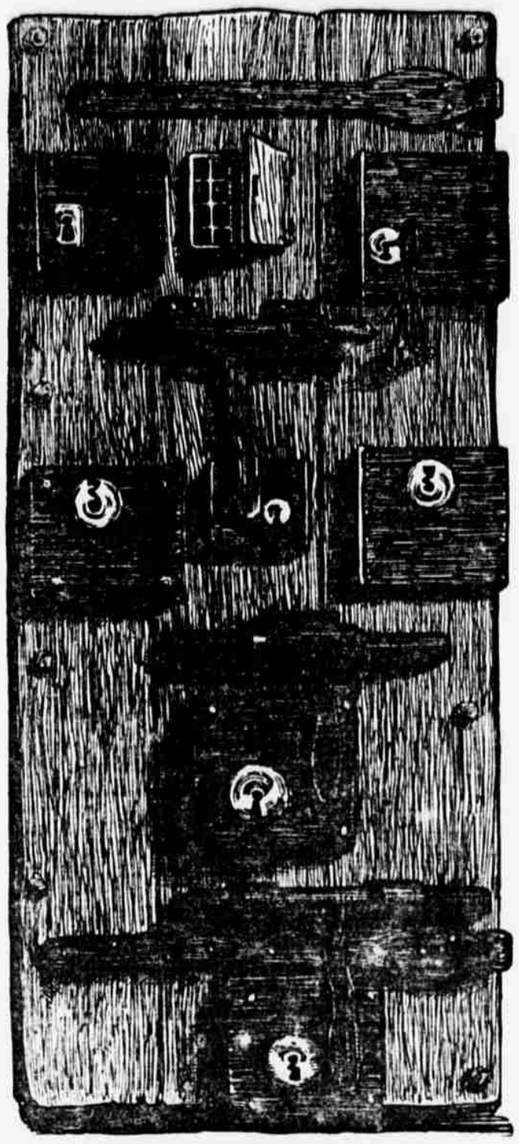
THE OPEN DOOR

as applied to Reference Works



Reference works are the Doors to Knowledge.

They're built variously—mostly wrong.

The wrongly-built reference work is the one you've often turned to, and searched through, and pored over in order to find where a fugitive fact had been stored away—or in order to find that you couldn't find it—because it wasn't there.

We'll take an every-day instance:

Suppose your head had been aching pretty regularly—you have an idea the over-use of your eyes has something to do with it—and you want to find out about it (we are serious, for one's reference work *ought* to contain the *sum* of *all* knowledge—whether it's an ache or the war in the Transvaal).

You've heard of astigmatism—perhaps *your* eyes are "not mates" any longer—grown so unconsciously. It's common.

Your Reference Work, your "Door of Knowledge," is before you, but where are you going to turn to find want you want? If it's one of the old-style works (which includes all of them except "The Century"), it's not unlike the picture here. You unlock it with patience, many keys—a map. In other words you will read thro' many pages about anatomy, optics, etc. One has to *learn* where to look for a thing that ought to be somewhere else, and the harder it is find the more likely that it's not there at all—for works of reference seem to have been built mostly on the plan of "The fewer the facts, the larger the locks!"

But if it's THE CENTURY DICTIONARY AND CYCLOPEDIA AND ATLAS, you don't hesitate—you turn right to the word itself—and find under its own head all there's need to know about it.

Here's another; for the Business Man
The word "point"—

Don't try to find a long treatise on Brokerage—or trade—or imports, etc., in The Century (they're all treated, of course, but treated skeleton-wise—for quickness—each member, or rather term, is sorted into its own place)—

So,

You turn right to "Point" and find—

"A unit of fluctuation of price per share or other standard of reference on the exchanges, etc. In stock transactions in the United States a point is $1 (or in Great Britain £1); in coffee and cotton it is the hundredth part of a cent, and in oil, grain, pork, one cent.—etc. * * * * ".

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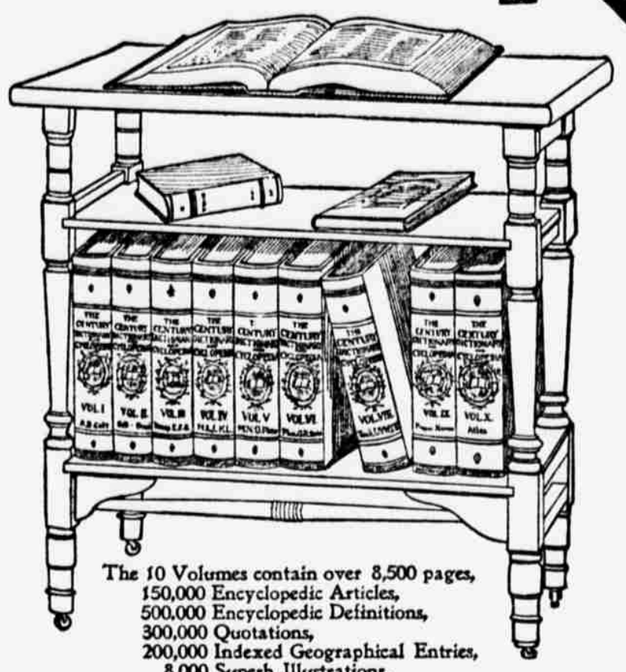

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WORK IN THE MINING CAMPS

THE COPPER RANGE RAILWAY IS NEARING COMPLETION.

When It Is Opened the Mines Can Get the Needed Heavy Machinery Into the District—A New District Located in Colorado—Booming the Black Hills.

HOUGHTON, Mich., Nov. 18.—The falls of the Ontonagon River, one of the largest streams coming into Lake Superior, are to be harnessed and the power used by the owners, the Victoria Copper Mining Company, which was organized a year ago to reopen the old Forest and Victoria mines. The Victoria people are meeting with great encouragement in their underground work, having opened a fine lode or stamp rock, supposed to be the Evergreen amygdaloid, which has been worked profitably by the National Adventure and Mass mines to the eastward. They have also found many masses of copper, some nearly a ton in weight and of virgin metal. Some of the power from the falls will be used to operate an electric line from the Duluth, South Shore and Atlantic Railway to the mine, the track being built in such manner that it will easily carry any load sustained upon the roadbed of any ordinary railline. Additional power can readily be disposed of to manufacturing enterprises.

The scarcity of labor continues, though an improvement in this particular is likely to come very soon, as deep snow will necessarily put a stop to much surface work about the mines, while the completion of the Copper Range Railway will release upward of 2,000 men now engaged in building that line. The Copper Range people are using every effort to finish the road early next month. The completion of the line will give rail communication to the Trimountain, Copper Range, Elm River and other mines now compelled to haul machinery and supplies on horribly cut-up country roads, something like 125 tote teams being engaged at present in hauling supplies from Houghton to mines on the South Range. With the opening of the railroad the mines will begin to get in heavy machinery, which could not be handled before.

The Champion Copper Company is the latest comer in this district, and as the days of boom for copper shares are past the conclusion is inevitable that the new company is formed to make money solely by mining. The Champion Company is composed of New York and Boston capitalists. The company recorded a deed here, this week, for 240 acres of land, adjoining the Ste. Marie's Canal Company adjoining the Trimountain mine, the consideration being $240,000. The people interested in the Copper Range and Trimountain mines are confident that both will make large mines.

CALIFORNIA.

LOS ANGELES, Nov. 11.—Oil has been discovered on the Miner ranch, not far from Keeley, in Alameda county.

The mining districts around Keeler and Independence, Inyo county, are beginning to attract a good deal of attention. Near Keeler the copper prospects are looking well. The Washington mine, near Hornitos, Mariposa county, is to be reopened. The mine has a record of $1,500,000. The workings are 1,100 feet deep.

Oil has been discovered and several locations made on the islands in Mono Lake, Mono county.

The Standard Con. G. M. Co., at Bodie, has declared a dividend of 10 cents per share.

Gold is rumored in Randsburg, Kern county. Los Angeles capitalists are trying to buy the Yellow Aster mine. Their agent, ex-Senator S. W. Dorsey, has been examining the property.

The Pearce & Harker hydraulic mine near Nevada Hill, Nevada county, has been equipped with a restraining dam and is ready to begin operations this winter. Spanish mine, near Washington, has been closed down. For years the mine has been worked by means of an open cut and made a profit on rock that returned 7 cents a ton. The cost of mining and milling was 60 cents a ton. Now the cut has become so deep that the property cannot be worked to profit and the rock will not pay to haul through a shaft.

A thousand gold brick, the result of a nine-days run from tailings by the cyanide process, has just been shipped from the Good Hope mine, in Riverside county. Not long ago the people of all the western part of Riverside county were condemned by miners as being comparatively worthless, but the successful working of the cyanide process has changed all this.

The Colorado River below Needles, on both the California and the Arizona sides, is alive with prospectors. Through all that region there are now at least ten times as many as there were before. The coming winter is likely to see some productive mines put in operation.

The Encinitas copper mine, San Diego county, is showing up well with development. A shaft in the east tunnel has developed a ledge rich in lead, silver sulphate, oxide of copper and copper glance.

Frederick G. King of Boston and C. D. Galvin, a local mining man, have taken an option on the Bell mine in Star Gulch, Shasta county, for six months. The bond is for $100,000. The bonders will put in machinery for developing the mine and a tramway to the Keswick smelter, where the ore will be worked.

The Mount Shasta mine now employes thirty men. Since the present owners took hold of it a year ago it has yielded $95,000. Previous to that time it had been several times abandoned and had yielded, all told, only $12,000.

In Tuolumne county there has been a general resumption of work in the mines.

NEVADA.

VIRGINIA CITY, Nov. 11.—The Commonwealth Zinc Company has declared a dividend of $10,000.

The Vulcan Company has purchased the Fagin mining interests in Santa Fé district, Esmeralda county, including the Parrot group, lying five miles east of Lunning. It consists of the Kearsarge, Parrot, Dewey and several other claims. The Parrot shows a body of ore sixty feet wide which can be traced 700 feet. Shipments of ore to the smelter have shown a value of 10 per cent. copper, two ounces of silver and $1.80 in gold a ton.

MEXICO.

GUAYMAS, Nov. 11.—A company has been incorporated in California to work the Zubiate mines, near Torres, State of Sonora.

A good deal of excitement has been caused in Magdalena district, Sonora, by the discovery of gold near Pinito. A hundred claims have already been denounced.

The San Juan mine, in Lower California, has been sold to Dr. Frank of Guaymas for $120,000.

COLORADO.

DENVER, Nov. 15.—James Blake, a prospector who discovered mineral at Saw Pit, in San Miguel county, a number of years ago, making that a successful mining camp, has struck a new district on Dry Creek, near Placerville, with rich ore. Some of the assays show 35 per cent. copper and 122 ounces silver to the ton. The ore body appears to be solid and continuous, in some places sixty feet in width. Several claims have been taken up and work has been started in driving tunnels to prove the strength of the new discovery.

The Iowa mine, at Silverton, upon which over $200,000 has been expended in improvements, will begin pay ng dividends of one cent per share next December.

Many inquiries has been made regarding the zinc deposits of the Mineral Point district on the line between Ouray and San Juan counties. Quite a large district centering about Mineral Point has been explored in recent years for large ore bodies. The excessive cost of transportation, the high elevation, short seasons and expensive operations resulted in discouraging many companies that endeavored to develop mines there. The Yellow Jacket has a fissure vein showing silver, lead and zinc for a distance of 300 feet along a tunnel. Two other development holes were started and shipments made in 1893, resulting in a showing of lead and a low amount of silver but no zinc. Two subsequent shipments showed zinc so strong that the smelter would not accept it. The indications are now that with the zinc values saved the ore could be mined with modern management at a good profit, and there is a very large tonnage opened up ready for shipment. In the other prospects similar conditions were found, but no effort has been made of late years to demonstrate their paying qualities.

Recently 1,250 tons of ore carrying zinc were shipped from Leadville to Antwerp, via Galveston. Further shipments will shortly follow, the promoters of this business having purchased a car load of ore sacks for this purpose.

Deeper mining in the downtown district of Leadville shows an increasing flow of water and more pumps have been ordered to overcome this new difficulty.

The Cache Creek placers at Granite have been closed for the winter. During the summer season, the placers payed a profit of between $5,000 and $10,000 a month.

With the exception of the Colonel Sellers, all the mines about Ouray have closed because, the operators say, they can not mine at a profit and pay the smelter charges exacted. A pyritic smelter now in contemplation may solve the problem for that camp.

The new owners of the Gunnell at Black Hawk have made a shipment of gold retorts, representating the October output, which gives a value of $19,500. The retorts were made up of samples of ore deposits found in different places on the property.

The Isabella Company of Cripple Creek has has purchased a controlling interest in the property of the Orphan Gold Company, representing a present cash value of $125,000.

ALASKA.

SEATTLE, Wash., Nov. 13.—The Cape Nome fever has spread all over Alaska, and good diggings that are paying the best wages and mines that are giving the greatest promise, will be abandoned for the gold beaches of Cape Nome. There has been nothing like the present excitement since the first discovery of gold on the Klondike. If all go who are now contemplating the trip, it will be impossible to find vessels enough to carry them. In many districts overland expeditions will be undertaken this winter with dog teams, using the frozen surface of the Yukon as the most direct highway and the easiest to get over.

WASHINGTON.

SEATTLE, Nov. 13.—On the first of this month the Palmer Mountain tunnel was in 2,416 feet, with a vertical depth of 1,200 feet, in this distance having crosscut fifteen veins, which were sampled and found to give an average of $28 gold. These veins are of varying width from three to thirty-five feet.

The Black Bear Mine, in this district, which was among the first important discoveries, after being in litigation for several years, is now free and the new Canadian owners are putting the mine and mill in shape for active operation.

The owners of Republic mine in Republic district have determined to erect a 200-ton mill for the treatment of the ores under a new process by which they expect to save 95 per cent. The big strike of rich ore on the 600-level makes it possible to supply a plant of this magnitude and also keep the old plant in operation.

In the Standard mine in Methow district a fine body of ore has been struck in the shaft at a depth of 40 feet, the assays showing $78 to $169 gold.

Surveyors in the employ of the Great Northern Railroad are engaged in running lines from Index to Galena, along the north fork of Skokomish River. This is for a branch line to connect Troublesome district with the Great Northern. It will also give Silver Creek a much-needed outlet. A number of new shipping mines will be added to the rapidly increasing list when this branch is completed. The distance is fifteen miles.

BRITISH COLUMBIA.

SEATTLE, Wash., Nov. 13.—From Kamaloops to Cariboo mining district there is a macadam road of good grade for a distance of 200 miles, over which the old-fashioned stages have been making tri-weekly trips for twenty years past, coining money for the stage company. The company recently concluded to place automobiles on the road, making it the longest automobile route in America. The company is now having these wagons constructed at Victoria and anticipate inaugurating the new system early in the spring. The new machines will have a capacity of twelve men and 1,000 pounds of freight, and will be able to make ten or twelve miles an hour over the Cariboo road.

During the past week the daily average shipments of the mines of Rossland were 870 tons, or 6,090 tons for the week. This is the largest record the camp has made. Of this amount the War Eagle produces 2,550 tons and the Le Roi, 2,336.

SOUTH DAKOTA.

DEADWOOD, Nov. 16.—The American Mining Company, which is backed by millions, has commenced running a tunnel at the base of Ragged Top, on the quartzite level, which is to be nearly a mile in length when completed. For several years the Ragged Top mining district has produced very rich silicious gold ore, the general average being $100 a ton. Mining experts believe that the lower quartzite level is covered with a blanket of ore from 20 to 50 feet thick, richer than any ore in the adjoining mining districts. The long tunnel will have two compartments and it will be the longest tunnel in the Black Hills. It will penetrate a great many veins and ore shoots, and by the time it is finished it will have blocked out sufficient ore to warrant the erection of the largest ore reduction works in the country. The American Company will spend $3,000,000 during the next year, and, in return, expect to have the largest and most productive mine in the Black Hills. The company has laid out a town, known as American City, and the Burlington Railway Company is building a road to it.

Another venture of this company is to bring into use the power of Spearfish River, a short distance from the opening of the proposed tunnel. A turbine is being put in which will utilize sufficient power from the stream to generate electricity to furnish electric power for all of the cities and mining camps in the northern Black Hills. It will reduce the price of treating ore at the reduction works.

MONTANA.

BUTTE, Mont., Nov. 14.—L. H. Moffat is in the city exhibiting sapphires recently cut from his mines on Rock Creek. He is negotiating with New York capitalists for the sale of his mines.

The long pending sale of the Hope mine at Basin has been closed by the payment of $45,000 to Eugene Wilson, receiver of the First National Bank at Helena. The new company is known as the Basin Gold Copper Company.

Duncan McDonald of Selish has just returned from a trip across the range into the St. Joe country, and confirms the report that there has been a rich gold strike made there. The ore is very rich and there seems to be a lot of it.

UTAH.

SALT LAKE, Nov. 13.—Two rich strikes have just been made at the Centennial Eureka, Tintic, the first being in the 700-foot level and the second in what is known as the "surface tunnel." In the latter ore showing $144 in gold an 136 ounces in silver has been found. This property was recently purchased by Boston capitalists for $2,100,000 on a basis of $70 a share.

The week on the mining exchanges closed with the sale of 292,775 shares that brought $44,785.24.

The week in the ore and bullion markets closed with settlements amounting to $286,500, as compared with $256,800 for the preceding week.

The receipts at the gold-sampling rooms of the Consolidated Kansas City Smelting & Refining Company during the week amounted to 3,400 pounds of gold dust.

ARIZONA.

TUCSON, Nov. 10.—On the 400-foot level of the Tennessee mine a big body of native silver ore has been struck. The old ore body is still intact and with the big ore grade will make the mine one of the best in northern Hualapai district.

Messrs. J. R. Chapman and L. B. Hawkins of Los Angeles, Cal., have taken an option on the Bullard mine for $30,000, also on the Montezuma copper mines for $75,000.

Wells H. Bates, representing Eastern capital, has located a tract of gold-bearing gravel eight miles in length and one and a half miles in width along Bill Williams Fork, lying below the Planet mine. It is supposed to be the first step in an undertaking which has for its object the damming of the stream at the head of the Striped Cañon and working the gravel deposits on a large scale.

Men left Williams the first of last week in all kinds of conveyances for the new platinum and aluminum strike in Cataract Cañon. It is said that Henry Sellers and the Owens Brothers have had these locations for several years, but assayer after assayer has fooled them on reports. Samples were finally sent to an analytical chemist in Los Angeles, who made a return of $328 platinum and 28 per cent aluminum. The mineral is found in a clay deposit. One vein is reported to be 50 feet wide, and shows up at different places for several miles.

THE LAKE REGION IRON MINES.

DULUTH, Minn., Nov. 17.—Two of the largest pumping plants ever put into iron mines are now to be installed at the Penobscot mine, Mesaba range, and the Loreto, Menominee range. The Penobscot pump will be capable of raising 5,000 gallons of water 200 feet every minute.

New shafts are being sunk at a number of mines on all ranges, but the most important enterprises of the kind are at Pioneer mine, Vermilion range, owned by the Carnegie Company, and Negaunee mine, Marquette range, owned by the American Steel and Wire.

Old Brotherton, a high silicon mine of the Marquette range, has been leased by the American Steel and Wire and will be opened at once. It has been idle for fifteen years or more. The company has closed the Cuff mine after shipments of 20,000 tons. This is an unrivalled record for a mine that was a deserted prospect with a shaft full of water ninety days ago. The ore is so good that the company will employ 200 or more men this winter in development.

More than 3,500 miners are now employed by the three companies operating at Ishpeming, Marquette range, and this number will be worked all winter.

Some exploration is being done now in a district north of the west end of the Mesaba, in the hope of finding a new ore region, which is probably the westward continuation of the Vermilion. Iron was first found there ten years ago, but it was neglected.

MISSOURI-KANSAS.

JOPLIN, Mo., Nov. 17.—The zinc ore market is badly demoralized, and within the past two weeks zinc ore has declined $11 a ton. The Missouri and Kansas Zinc Miners' Association, which has made the prices of ore for the past ten months, had fixed the price of high grade ore at $43 a ton, and sought to maintain that price for the rest of the year, but when smelter dropped to $35 a ton the association reduced it a price to $40. The smelters refused to pay over $35, and then the prices dropped to $34 and $32. The effect of the cuts in ore prices has been felt in every line of business and steps have been taken by the mine owners and business men generally to build large zinc smelters of sufficient capacity to handle the entire output of the district, and rolling mills to manufacture the spelter into sheet zinc. A $5,000,000 cooperative stock company is proposed, and the funds will be raised almost entirely among the mine owners. The smelters and mills are to be built as soon as possible.

Foreign smelters are embracing the present opportunity to buy zinc ore at low prices, and a large amount of high-grade ore is soon to be exported.

Mining.

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OUR SHIPPING INTERESTS.

THE DOCUMENTED TONNAGE THE LARGEST SINCE 1865.

Steam Tonnage, for the First Time, Exceeds That of All Other Craft—Increase in Seagoing Tonnage, Yet We Carry Less Than 9 Per Cent. of Our Trade.

WASHINGTON, Nov. 19.—The annual report of Mr. Chamberlain, the Commissioner of Navigation, shows that American shipping industries shared in the general prosperity of the country during the past fiscal year. The returns disclose more satisfactory conditions than those of any former year in the Bureau's history. The total documented tonnage on June 30, 1899, comprised 22,728 vessels of 4,894,238 gross tons, which is our largest since 1865. The tonnage operating under our coasting laws, 21,397 vessels of 4,015,992 gross tons, is the largest in our history and greater than the coasting tonnage of any other nation. Our steam tonnage, 2,476,011 tons, for the first time exceeds the tonnage of all other craft. In the rest of the world steam tonnage eleven years ago exceeded sail tonnage. Our tonnage registered for foreign trade remains small, and last year American vessels carried a fraction less than 9 per cent. of our exports and imports, the smallest percentage in our history.

Based on Bureau Veritas returns, the world's seagoing sail tonnage in the past quarter of a century has decreased from 14,185,836 tons to 8,693,769 tons, a decrease of 40 per cent. The decrease in the United States has been at the average rate. The world's seagoing steam tonnage in the same period has increased from 4,328,193 tons to 18,887,132 tons, or 336 per cent. The phenomenal increases have been: Norway's over 1400 per cent. and Germany's nearly 700 per cent. The increase of the United States has been only 68 per cent. and the increase of American steam tonnage registered for foreign trade on the Atlantic and Gulf coasts has been only 38 per cent. The development of Alaska within the past few years has caused a rapid increase in Pacific coast tonnage. Within the past twenty years the United States in seagoing steam tonnage has dropped from the second place, next to Great Britain, to the fourth position, below Germany and France, and, if steamships in foreign trade alone are considered, below Norway and Spain and only slightly ahead of Japan.

The report reviews briefly the legislation of other nations in behalf of their merchant shipping, showing that last year European nations and Japan expended over $26,000,000 to promote it in various forms, while the United States spent only $608,211. On their steamship lines to China and Japan foreign nations expended about $5,000,000, while for the same purpose the United States expended less than $449,000. The establishment of two or more fast American steamship lines on the Pacific coast to connect with Asia will furnish the capitals of western Europe with closer mail and passenger connections by from three to five days than is now possible by the heavily subsidized British, German and French steamship lines through the Suez Canal.

The argument that American shipping in the foreign trade is handicapped by tariff duties is met by reference to progressive legislation, beginning in 1872, by which for the last five years all materials for the construction of American vessels in the foreign trade and all supplies for such vessels have been exempt from duties. Tonnage taxes, which are imposed equally on foreign and American vessels, are the only form of Federal taxation on American shipping. The proposition to repeal tonnage taxes would, therefore, in effect be equivalent to a bounty of about $750,000 annually to foreign shipping and would relieve American shipping of only $80,000 of taxes annually.

The report then takes up the five methods which have recently been suggested for the promotion of the American merchant marine. It is pointed out that discriminating duties on cargoes in foreign vessels or on the tonnage of foreign vessels are an impracticable remedy on account of the provisions in our treaties with nearly all the nations of the world, prescribing equal treatment for foreign and American vessels in the matter of duties and charges. The same objection also applies to the proposition to grant bounties on exports in American vessels, as by the terms of our principal treaties we are obliged to grant the same bounties on exports in foreign vessels as in American vessels. The proposition to grant American registry to foreign-built vessels in the foreign trade is not regarded as feasible in view of the unanimous rejection of that proposition four years ago by the Senate Committee on Commerce, and on account of the fact that American shipowners and shipbuilders are united in opposition to that measure. It is also pointed out that, regardless of the merits or demerits of the proposition, its adoption would probably disappoint its advocates, in view of the fact that the cost of operating vessels under the American flag is conceded y much greater than the cost of operating foreign vessels.

The adoption of the free-ship policy by Great Britain has not contributed in any way to her maritime development, as vessels for many years have been built more cheaply in Great Britain than elsewhere, and, in point of fact, vessels built outside of Great Britain are seldom registered under the British flag, with occasional exceptions in the colonies. The proposition to develop the merchant marine through ocean mail subsidies is only a partial solution of the question. While the need of at least two fast mail steamship lines to Asia and one to South America is indisputable, the establishment of such lines would not suffice to put our navigation and shipbuilding on a satisfactory basis.

The report in the main is devoted to a consideration of Senate Bill 55-0, reported by Senator Frye at the last session as a substitute for the bills introduced by Senator Hanna and Representative Payne. It is pointed out that the maximum expenditure under that bill for any one year is fixed at $9,000,000, from which, however, should be deducted $1,500,000, the present cost of carrying on ocean mails under American vessels, which will continue whatever the fate of the bill may be. The actual maximum annual expenditure proposed by the bill is thus, in effect, fixed at $7,500,000. Assuming that all our vessels registered for foreign trade were fully occupied throughout the year, which at the present time the new expenditure under the bill would be, in round numbers, $3,000,000. Before the maximum is reached the capacity of our shipyards must be increased many times and the tonnage under our flag engaged in the foreign trade must be multiplied several fold. This increase in the capacity of our shipyards and in our tonnage in foreign trade will show ability on our part to compete on more nearly even terms with foreign nations. The pro rata reductions in compensation provided in the Senate amendment of $9,000,000 is reached will thus coincide with the lessened need of Government assistance. During the decade ending 1898 our shipyards produced only 215,000 gross tons of ocean steamships, while, in the same period, German yards produced 500,000 gross tons and British yards 3,000,000 gross tons.

The report recommends moderate increases in our tonnage taxes, equalizing them with those imposed at the principal European ports; favors the passage of bills applying the laws of the United States relating to commerce, navigation and merchant seamen to Hawaii and Porto Rico, thus bringing those islands under the coasting laws of the United States. It is recommended that vessels owned by Cubans be placed by law on an equality with vessels belonging to the most favored nation. Under an existing statute, it has been necessary to impose a tonnage tax of $1 per gross ton—practically prohibitory—upon such vessels, and this injustice both to ourselves and the Cubans can be remedied only by legislation.

Tiffany & Co.

Holiday Announcement

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ORDNANCE FOR THE ARMY.

$23,796,786 EXPENDED IN THE FISCAL YEAR ENDED JUNE 30.

266 Guns Completed for Seacoast Defences—Successful Tests of Thorite, the New Explosive—Many Soldiers in the Philippines Throw Away Their Bayonets.

WASHINGTON, Nov. 19.—In his annual report Brig.-Gen. A. D. Buffington, Chief of Ordnance of the Army, says that during the fiscal year ended June 30, 1899, $23,796,786 were expended in ordnance work. Eighty-eight 8-inch rifles, 110 10-inch rifles and 68 12-inch rifles were completed for the seacoast defences. Twelve dynamite field guns of 2.5-inch calibre were sent to Manila. The test of one of the guns shows that it has a range of 1,946 yards at an elevation of 30 degrees. The projectile contains 4.5 pounds bursting charge of explosive gelatine. The projectiles rarely failed to explode on striking land or water. A hole about two feet deep and four feet across is made by the explosion. A single horse can draw the gun and the ammunition is carried on pack animals.

Thorite, the new explosive, is commended. All the tests of thorite have not been made, but those that have been carried out were very satisfactory, and were designed to show that the mixture could not be exploded by friction or by shock and impact. The last tests were made by mechanical means and by firings made from cannon of various calibres, some of the firings being against plates. In the experiments against plates the shells penetrating were recovered without material deterioration. Tests were also made to show the insensibility of this substance to heat and its strength, as shown by the fragmentation tests of projectiles. Gen. Buffington says that as regards stability but little can be said at present, but a quantity of the mixture in storage for some time in an ordinary shed at the proving grounds, during which it absorbed considerable moisture, showed no deterioration. The subsequent drying of the substances in heated that its qualities when damp had not been impaired. In view of the results obtained in the tests of thorite the Ordnance Board, under whose supervision the tests have been made, reports that it is of the opinion that it is superior to any other material for filling shells so far tested and is suitable for adoption in service, at least pending the development of any better material for this purpose. It appears, however, to secure a good detonating fuse.

Attention is called by Gen. Buffington to the loss of bayonets and bayonet scabbards by troops in the Philippines. On that subject he says: "Fully one-half the bayonets of the company would be thrown away as an impediment in rapid advance and in many cases they were reported as an inconvenient, getting so much in the way when men were lying down, that they were abandoned in large numbers when the troops moved forward and never recovered. A great many are reported as torn from the person in passing through the brush. The less loss in respect to the knife bayonet of the magazine gun is perhaps explained by its greater usefulness, both as a knife and as a substitute for an intrenching tool. It seems evident that a bayonet in itself is not of sufficient value to be carried by the soldier when this involves an extra piece to be carried in an inconvenient manner hanging to the belt, and it is thought that, if used at all, it should be carried in the scabbard with the ranged and carried on the rifle itself. This was successfully accomplished, with practically no increase in weight, in the atest model of the Springfield rifle, very few of which, however, were made and put into service on account of the change to a magazine gun."

In order to overcome one of the principal objections to the Springfield rifle, a smokeless powder cartridge was developed for this arm. About seven million of these cartridges were procured. Reports came from the Philippines that many casualties had resulted from the use of this powder, but these were proved to be untrue, as only three rifles out of 14,000 are known to have been really injured and no serious casualties occurred from the use of the Springfield rifle.

When all the field artillery now being manufactured has been completed, the army will have seventy pieces each of 5-inch guns and 7-inch howitzers. There will be also five mortars of 7-inch calibre.

The Puritan at Annapolis.

ANNAPOLIS, Md., Nov. 19.—The monitor Puritan, for use of the naval cadets in ordnance practice, arrived at the Naval Academy to-day in charge of Commander Ingersoll and in tow of the tug Standish.