

having been interrupted frequently by conflicting claims; but it has made rapid progress during the past year, and it is hoped that the commission may lay their finished map before the public before very long. Meanwhile the "occupation maps" answer nearly every practical purpose.

The entire number of applications for oyster lots filed since June, 1881, is 604; and the whole number of acres granted to the applicants has been, thus far, 45,668 acres, to which should be added the 33,988 acres previously designated by town committees, making the aggregate acreage of submarine farm-lands 79,656 acres, of which 16,202 acres are under actual cultivation. There is also a large area of good ground not yet designated. A considerable portion of what has already been taken up is held for speculation, but the cultivated area is steadily increasing, and might do so with greater rapidity were it not for the present law withholding oyster grounds from non-residents. The price is fixed at \$1.10 an acre, which of course is merely nominal, and intended to cover the costs. The State has actually received only a little more than \$50,000 from what has thus far been sold. But the taxes, concerning which there has hitherto been such dispute, are now paid without complaint, and this year amount to \$7,890, paid by 423 tax payers, of whom 93 own 10 acres apiece, or less than that, 33 own from 11 to 25 acres apiece, 152 own from 26 to 100 acres each, and 145 own each from 105 acres upward, some of the farms being of large size, including from 5,000 to 15,000 acres each. There are ten per cent more oyster growers than there were a year ago; and the fleet of oyster steamers has increased from forty last year to forty-nine this year. The depth of water overlying the oyster grounds varies from ten feet to seventy feet, and much of it could not be cultivated, were it not for the aid of steam power.

WHITE BRONZE.

In our issue of November 14, in the opening paragraph describing this industry it was stated as having been developed during the past two years. We should have said ten years. The industry has now been in successful operation for a decade, and is rapidly growing.

The Canadian Pacific Railway.

The recent completion of the Canadian Pacific Railway, after fourteen years' hard work, marks another chapter in the remarkable engineering history for which America has become famous. Surveys for the road began in 1870, and a vast amount of information respecting the transcontinental route was collected. These were not completed until 1878, when ten million dollars had been expended. The route thus laid out was considerably north of the present line, and opened up a larger area of prairie country. With the accession of Sir John MacDonal to power, the shorter route, crossing the mountains at Kicking Horse Pass, was decided upon. The road was at first a government undertaking, and by the end of 1880 there had been constructed 432 miles of track between Winnipeg and Lake Superior, 213 miles up the Frazer River in British Columbia, and some other smaller portions. The management however, did not prove entirely satisfactory, and in 1881 the enterprise was placed in the hands of the present corporation, which received the magnificent donative of 710 miles of completed road and attached property, \$25,000,000 in cash, 25,000,000 acres of land, exemption from taxation and customs on the materials for construction, besides other privileges, and gave in return a pledge to construct, equip, and operate a transcontinental line north of Lake Superior within ten years. A marked jealousy of American capital and fear of American control was manifested in the very beginning of the enterprise, and it was stipulated in the first charter that for six years shares could only be transferred with the consent of the government. Under the new corporation, however, a large amount of the work was done by American contractors, and Mr. W. C. Van Horne, a resident of Milwaukee, was made their general manager. The crossing of the Selkirk range, the second of the mountain barriers, considered the most remarkable engineering work on the line, was accomplished by an American, Major Rogers.

Under this new impetus, the work progressed with unprecedented rapidity. Forty thousand men at one time were employed along the line, and half that number were almost continuously at work. For days together, the average advance would amount to three and three-quarter miles, and between Winnipeg and the Rocky Mountains an average of over two and a half miles was maintained. Old lines were purchased and incorporated into the system. A new line was constructed between Montreal and Toronto, and the communication between Winnipeg and the sea completed by the establishment of a line of steamers on the Great Lakes. On other parts of the line, the work was progressing scarcely less rapidly. In British Columbia, Chinese laborers were pushing eastward, and in Ontario, the wild country on the northern shore of Lake Superior was being pene-

trated by dint of hard and persistent labor. In May last, the different sections east of the mountains were connected, and a continuous track extended from Quebec to the foot-hills of the Rockies—a grand stretch of twenty-five hundred miles. But a gigantic undertaking in itself still remained before the two oceans were again connected. Three distinct mountain ranges had still to be crossed—the Rocky Mountains proper, the Selkirk range, and the Gold Range. Between the Rockies and the Selkirk the great Columbia River had to be spanned, and again between the Selkirk and Gold range, when its volume was greatly augmented. But all these difficulties and barriers were finally surmounted, and on the 6th of November the last connection was made at the Sushwap Lakes, on the Pacific division. A completed track of 3,100 miles, or about one-eighth of the circumference of the globe, stretches from Quebec to Fort Moody, while 1,500 miles of tributary track adds power to the system.

The road has cost a quarter of a billion of dollars. In 1884, the government made a loan of twenty-two millions of dollars, and the last Parliament advanced eleven millions more, taking land at two dollars an acre in payment. For some years a large revenue will be derived from the sale of land and town sites, but the road cannot probably pay expenses for a long time to come. It penetrates a country which is not only uninhabited for hundreds of miles, but which was absolutely unknown until invaded by the engineer and his gangs of laborers. It must create its own business by building up communities along the line, and opening up the unoccupied prairies to shepherd and farmer. In Ottawa the road passes through a country whose chief commodity is the picturesque, but further west the Red River country gives promise of large industries and permanent development. Already the metropolis of this new interior, Winnipeg, contains 30,000 people, and emulates the growth of St. Paul and Minneapolis. In the mountains the arrival of the railroad will bring new life to the mining industries, and the farmers will find a constantly growing market for their products. It is possible that the route may serve England as a means of communication with her Indian empire. The admission of British Columbia into the Canadian Union has already given it a political importance.

PHOTOGRAPHIC NOTES.

Large Exhibition of Photographs.—Over seven hundred miscellaneous photographs of a great variety of subjects formed the first annual exhibition of the Society of Amateur Photographers of this city, held on the 17th and 18th inst. at the Sloane Building, Broadway and 32d Street; such a large number demonstrating very forcibly the popular interest taken in photography by those who pursue it as an amusement, and as a help in art studies.

Upon the walls were hung beautiful specimens of artistic photographs, comprising landscapes, composition subjects, and marine views. Many excellent instantaneous photographs were noticeable for their perfectness in detail and the excellent skill which must have been used by the maker in the development of the negatives.

Photographs of buildings, animals in various attitudes, portraits, natural objects, such as flowers, microphotographs, of lightning, of steamer life, enlargements from small pictures, interiors, studies in posing, steamers in motion, stereoscopic photographs, window transparencies, lantern slides, and marine architecture simply indicated the wonderful scope and variety of subjects which were covered and the advance which has been made in recent years.

There were twenty-three classes, divided as follows: Landscapes without figures, landscapes with figures, marine (surf), marine (including vessels), architecture, interiors, portraits (not taken under skylight), groups (not taken under skylight), cloud effect, flowers, animals, still life, street views, composition subjects such as expectation and halt, rustic bridge, enlargements, stereoscopic transparencies, lantern slides, photomicrographs, platinotype, and an entire collection.

Diplomas were awarded in each class, and many of the pictures thus favored were noticeable more for their artistic points than any special technical skill. A view of group of children under some trees, entitled "Listening to the Birds," was extremely natural, the expression of the different faces being very apropos to the subject. A composition subject called "Halt!" was of a young lady perched on a bicycle, held upright by the usual bicycle frame, partly concealed in the grass.

A collection of twenty views of architecture, cloud effects, steamers and sailing vessels in motion, street views, and landscapes, all made by a member only eighteen years of age, were remarkably well done, attracting, as they deserved to, considerable attention.

A series of historical views, showing the old arm chairs used by General Grant, the interior of the room in which he died, and the accompanying simple decorations and accessories about the same, the road over which he took his last ride, the spot where he stopped,

and the view he obtained looking off from the mountain, were especially interesting as making a complete photographic record of his last days.

Some photographs of Egyptian boats scenes, and old olive trees lent variety to the exhibit, and were finely executed.

The lantern slides were exhibited by the Society's lantern in the evening, and formed an interesting part of the exhibition. The opening night was largely attended by many ladies and gentlemen, and the general sentiment expressed was one of surprise that so many artistic pictures could be shown.

The first exhibition was therefore acknowledged to be quite successful and meritorious; it will doubtless lead to others of still greater merit and usefulness, all of which will tend to elevate the standard of amateur photography.

Toning Baths.—Mr. Frederick A. Jackson, who displayed specimens of fine printing at the N. Y. Amateur Society's exhibition, gives us the following as his method of toning: The solution should be kept one day before use, and before being immersed, the prints should be washed for twenty minutes in five changes of water.

ACETATE BATH.

Chloride of gold.....	3 grs.
Acetate of soda.....	70 grs.
Bicarbonate soda.....	12 grs.
Water.....	16 oz.

To obtain the best results it is necessary that the bath be decidedly alkaline; and to insure good working it is advised to have at hand (especially if it is a new bath) a bottle containing a saturated solution of bicarbonate of soda. Taking a single print, immerse it in the bath, and note how it works—it is likely to be slow; if unsatisfactory, add three drops of the soda solution, then three more, and so on until it is observed that the toning commences, which should cease in ten or fifteen minutes. If a longer time is required, it would indicate that the bath was not sufficiently alkaline.

Having determined by experiment the proper condition of the bath, successive prints—a few at a time—are toned in batches with certainty of success.

The bath will keep and can be used repeatedly, it only being necessary to strengthen with chloride of gold as it becomes weakened.

In toning, it is necessary to carry it along until the prints acquire a rich purple tint, and this must not be judged by their appearance in the solution, but only when viewed by transmitted light. A properly toned print should show the purple tint, rich and warm, clear through the paper.

After toning, the prints should be washed for ten minutes in three or four changes of water, and then fixed in a hypo solution—one to twelve—with a little ammonia added, for twenty minutes.

For brilliant black and white, brown, and purple tones, the following bath is preferred:

CHLORIDE OF LIME TONING BATH.

Place in a graduate:

Chloride of gold.....	2 grs.
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And add:

Precipitated chalk.....	20 grs.
Saturated solution chloride of lime.....	2 drops.
Boiling water.....	16 oz.

It may be used as soon as cool, but better results are obtained after 10 to 24 hours. In 48 hours its activity is greatly lessened.

The prints are washed in two waters, and removed from the third direct to the toning bath.

Brown Tone.—Keep the print in the bath until it assumes by transmitted light a crimson lake color. Two trials may be necessary before the exact tint can be obtained; when it has been reached, the print should be placed in clear water and rinsed thoroughly.

Purple to Black.—Continue the toning until by transmitted light the print presents a decidedly purple color—the finer, lighter portions will then attain a delicate lilac.

Should this tint appear before the shadows assume the darker purple, the print is toned, and should be carried no further.

The shorter the prints are kept in clear water before toning, the better, as with the lime bath they do not bleach much; it is therefore not necessary to print so deep as to thicken the shadows.

If the paper is taken from the printing frame too soon, and is underprinted, clear and cold prints will be obtained resembling an engraving, by adding to the above bath:

Bichloride of platina, 1/2 a grain, made neutral with carbonate of soda—for each grain of gold.

The prints thus toned will not be in the least affected or reduced by the fixing bath.

At the London Inventions Exhibition, gold medals were awarded to the Mason & Hamlin Organ and Piano Co. and to Messrs. Steinway & Sons, for the general excellence of their instrument, and for several inventions of merit. A silver medal was given to Mr. George Gemunder for musical instruments of the violin class and for the best imitations of the old masters; and a bronze medal to the Smith American Organ Company.