

PHOTOGRAPHIC NOTES.

Copying Oil Paintings.—The photographing of an oil painting is perhaps one of the most difficult and unsatisfactory things a photographer, be he amateur or professional, has to contend with, particularly if the painting be old and varnished. We find some practical suggestions on this subject in the *British Journal of Photography*, wherein it is advised to have the canvas removed from the frame, and the surface of the painting well cleaned by taking a sponge dipped in clean rain water, and rubbing it over gently, then to quickly dry the surface by wiping with a soft linen cloth.

If the picture is varnished, a very small quantity of pure soap should be put on the sponge, but this should not be done if there are any cracks visible in the surface. Every particle of soap must then be wiped off and the surface dried. It is then a good plan to gently rub the surface with a soft rag smeared with nut oil, and then to remove all that possibly can be, with a clean dry cloth.

An oil painting is usually painted in such a scale of colors that, even in a good light, it is slow to act upon the film; and in an ordinary studio, unprovided with special dark screens to place before the painting, it would be found that much of the light would have to be shut off to prevent the studio itself becoming so bright as to be inevitably reflected by the surface of the picture, and, in consequence, repeated in the negative. This may happen to such an extent that the reflection overpowers the picture itself, and as a matter of fact it is generally the case with the unpracticed that in their copies there is more reflection than picture. It is only through the uneven surface of the varnish distorting and breaking up the reflection that the latter is not seen in its entirety, showing at a glance what it is, instead of the photographer believing it to be an inevitable foginess attendant upon such work.

A little consideration will show the reasonableness of our remarks. Let a mirror be placed over the surface of the painting, and in the same plane; then all objects seen in the mirror will also be reflected by the painting, though less brightly, and without definition. A photographer standing by the side of his camera during exposure, lens cap in hand, would inevitably cause a foggy mark where his face and hands were reflected. A white pocket handkerchief exhibited would be fatal.

The best plan is to place the painting so that the light strikes it rather obliquely; this reduces the accidental reflections to a minimum. Be it remembered that cleaning a picture, as we recommend, though conducing to excellence of results, adds to difficulties in other directions, and leads to very trying experiences with reflections. The haze-producing scum is gone, but reflection haze may take its place. Oblique lighting, as we recommend, will be obtained by placing the picture well in advance of a good portion of the skylight, when the remainder may be screened, which will considerably reduce the amount of light entering the room, and lessen the intensity of any possible reflections in consequence. But these must be reduced to a minimum. The dark cloth should be thrown over the front of camera and stand; dark screens, curtains, or other movable "properties," must be made to close round a part of the camera in front of the picture, so as to give dark and, consequently, non-injurious reflections only, and shut off all others. All light-colored objects must be removed out of the sphere of the reflecting power of the canvas, and any window or light that may possibly lurk unscreened in front of it must be covered over, and, indeed, no light, skylight or otherwise, side or top light, allowed to be uncovered when it is more than a few feet in advance of the picture placed for copying.

If all these precautions are well taken, a negative that will have a satisfactory appearance all the while during development will be secured; but if too much reflection prevail from the surface of the painting, the negative will have an eminently unsatisfactory and foggy aspect as soon as the details begin to appear. Should such a contingency occur, fresh exertions must be made to remove bright reflections, and, if necessary, the painting brought forward so as to receive still less light and enable still more of the skylight to be covered over.

The only other difficulty of importance will be the obtaining equality of illumination. A small studio will never permit of a large painting being equally illuminated, so that it will be useless to attempt it. Otherwise, if our hints be well attended to, the copying of an oil painting will be robbed of any real difficulty; though we may say he will be an expeditious worker who obtains a satisfactory negative, and is free of the presence of the painting within an hour or an hour and a half of the time it first enters his premises.

THE factory of Messrs. C. E. Jones & Bro., electricians and manufacturers of electrical supplies, at Cincinnati, Ohio, was burned on December 13, but the firm have lost no time since then in their efforts to put things again in working shape, in which they have been materially aided by the fact that they were carrying stock outside their factory, which was not injured.

The Sibley College Lectures at Cornell University.

In our this week's SUPPLEMENT we present the first of a series of reports of lectures delivered during the current year, at Cornell University, by the "Sibley College Non-resident Lecturers." These lectures are delivered at intervals of two or three weeks, before the assembled associations of civil and mechanical (including electrical) engineers and architects studying in the various professional courses given in the several departments. The lecturers are gentlemen who have attained a distinguished position in the profession, and who have consented to give to the students who are so fortunate as to be able to study at Cornell the fruits of their professional experience. These lecturers, selected by the Director, Professor Thurston, include the most successful and noted men among the civil, mechanical, and electrical engineers of the country. The lectures will be carefully reported and will be published in our columns, from time to time, as received. They may not always appear in their order of delivery or with regularity; but, as each is independent of every other, and as all are given at dates selected simply with reference to the business engagements of the lecturers, and are without any relation of sequence, the order of publication is a matter of no importance.

The first of these lectures appearing in our pages is by Dr. R. W. Raymond, the distinguished founder and past president of the Institute of Mining Engineers, and formerly Commissioner of Mining Statistics of the United States. Its subject is novel and attractive, and it fittingly leads the series. The lecture is one of the most interesting of the orator's always interesting productions, and although, in part, previously given to an audience, has never before appeared in the public prints. The succeeding lectures are usually more purely technical and practical, and include the discussion of important problems in engineering, the treatment of great subjects now demanding the attention of the practitioner, and the consideration of the vitally important matter connected with the relations of the engineer to his men, of the profession to the working classes, and of capital to labor. As may be believed, when the character of the lecturers is considered, they will, in all cases, be likely to prove as important as interesting. The subjects are such as most interest the profession, and they are treated by the men from whom the profession most desire to hear, by the leading authorities upon the matters presented.

Proposed National Laboratory for Inventors.

The injustice that has been done the inventors of the country, from providing an insufficient Patent Office force, while the revenues of this department have been so great that there is now a large accumulated surplus, has been frequently referred to in these columns. In commenting upon this subject, the *National Republican*, of Washington, proposes, as some compensation to that general class of citizens who have contributed to swell this surplus, that Congress shall establish, at the national capital, what would be an extensive laboratory and museum, in which motive power, shafting, and all appliances necessary for the running of machinery shall be furnished free of cost, and inventors or owners of patents invited to set up and exhibit working models therein, making thereof what it conceives would be the greatest mechanical school on the globe. Our contemporary states that it intends to keep this subject before Congress and the people, and argues as follows:

"Instead of expending the gross amount of receipts in the maintenance of the Patent Office, increasing its facilities and advantages, and making it a better guide and more potential stimulant to invention, a large balance of receipts, in excess of expenditures, has been annually deposited in the Treasury. Thus, the Government has assumed the right to put a tax or penalty on invention, and make this branch of the public service tributary to the support of departments which yield no income. Departments which bring in no returns at all are supported with a degree of liberality entirely unknown in the management of the Patent Office. Because this office was intended to be self-supporting—an agency managed by the Government in the interest of inventors and the general public—Congress has acted on the theory that it ought to be made a source of profit, and has, therefore, failed to expend the money taken from inventors in promoting the great interest for which the office was established. This is as unjust as it would be to impose excessive postage, and get a surplus from the Post Office Department to support the army. Nor is its injustice its worst characteristic. It is a fatal policy to tax the inventive genius of the country, to make it pay penalties, and this is precisely what Congress has been doing for a good many years.

"Invention is not a misdemeanor, inventors are not criminals, and it is high time to reverse this policy—to expend the money that has accrued and that may hereafter accrue on a grand and comprehensive enterprise for the encouragement of invention and for the education of the people in the scientific and mechanical progress already achieved. Let the fees of the Patent Office remain as now fixed by law, and let all the constantly increasing income be utilized for the stimu-

lation of thought, the suggestion of new paths of progress, the possibilities that one man's triumph suggests to the mind of another, so that our great temple of invention may enter upon a broader field of usefulness, and become what it ought to be—the great mechanical educator, not only of the United States, but of all the nations of the world."

There has hardly been sufficient opportunity, thus far, to judge of the disposition of the present Congress toward the patentees and inventors of the country, but it is to be hoped that this, its first session, will not close without such additional appropriations being made for carrying on the Patent Office business as the experience of the past year has shown to be urgently demanded, in order to enable careful attention to be given to all applications, and at the same time to closely keep up the current work, which has for so long a period been in such backward state.

The Exploration of Thibet.

Col. Prejevalsky, the well-known Russian traveler, has just completed his fourth expedition into the almost unknown region lying between Siberia and China. After two years' exploration, he has returned to Europe, bringing a large accession to our meager knowledge of Mongolia, Thibet, and Chinese Turkestan. The most important result of his journey has been the discovery of the upper waters of the two great rivers of China, the Hoang-ho and the Yang-tze-Kiang. The Chinese made an attempt before the Christian era, and again in the last century, to explore the sources of these rivers, but in both cases they were unsuccessful, owing to the fierce mountain tribes which defend the interior of Thibet from the intrusion of strangers. Prejevalsky and his party of fourteen gained their knowledge at the cost of two severe battles; but, while forced to inflict injury on the savages, escaped serious harm themselves.

At an elevation of nearly 14,000 feet above the sea, the explorer found several modest streams whose union forms the Hoang-ho or Yellow River. To the southward of this spot, about 67 miles, he found the Yang-tze-Kiang, a muddy, rapid stream, which at this point has a width of 300 feet and a considerable depth. The party spent several weeks in this region, which is supposed never to have been seen by whitemen before. His journey carried him across the great Gobi desert. Although noted for its terrible cold in winter, its almost tropical heat in summer, a scarcity of water, and a general barrenness, the Mongols occupy all portions of it, raising their flocks on the poorest possible provender, and themselves subsisting with great difficulty. The elevated plateau of Northern Thibet, its lakes and mountain passes, were explored with care.

The party were again defeated by the Chinese in their attempt to reach Lhassa, the Rome of Buddhism, and were forced to complete their journey by way of Eastern Thibet and Turkestan to the Russian territories in Central Asia. The explorers state that gold is plentiful in Northern Thibet. Near the sources of the Hoang-ho, natives were found washing gold sands; and though they dug only one or two feet below the surface, they possessed whole handfuls of gold in lumps as big as a pea. With more careful working, the region is probably capable of producing a yield as large, if not greater, than the California placers in the early days of the gold fever.

The Asiatics are reported to be heartily discontented with the oppressive rule of China, and to long for the milder despotism of the Tzars. They are represented by the explorers as inviting the intervention of Russia, and agreeing that, if a leader be furnished them, they will revolt, and place themselves under the imperial domination. The rest of Europe has no means of judging how strong this invitation was made, but the impression prevails that the Russian thirst for Asiatic conquest has more to do with these various expeditions than the disinterested love of science.

Do Amateur Mechanics Make Skillful Workmen?

A machinist in the *Mechanical Engineer* thinks they do not. He says a failing common to all amateurs or non-professional workers is too great haste. It matters not whether they are amateur machinists, or carvers, or painters, or amateurs in any handicraft, the same weakness affects them all. The amateur wishes to see how his work will look when it is done, and he slights the preliminary process and hastens toward the final one, with the result of making a botch of the business in hand. The work shows to the practical eye that it has been done hastily (carelessly is a better word), and it is inferior for that reason. The amateur himself sees it, and after a time, after the first joy of completion is over, he hates the sight of his hurried job, and very often destroys it out of hand. The better way would have been to stifle all impulses to get the work finished before it was fairly entered upon, and go through the processes which all work must go through before it can be properly completed. If I were asked what were the most necessary qualifications for a successful amateur, I would say patience and perseverance. Rarely do amateurs make good workmen, and it is most frequently for want of these virtues.