

water is seeped up by the earth. That which gets to the open canals on the broad streets in the rear of the city is lifted by a couple of old-fashioned paddle pumps, or rather swept by them, over the levees of two navigation canals that lead up into the rear of the city from Lake Pontchartrain. The pumps are inadequate for the relief of the city, and the gutters and canals drain only overflow waters. The rest remains in them stagnant until it dries up. It is a tremendous stride from these conditions to what promises to be the finest drainage and sewerage system in the world. The sewerage plans are not yet completed. Expensive tests and experiments are under way. It is expected that the work will be started early next year.

PORTRAITURE BY FLASH LIGHT

The professional photographer has always considered that nature discriminated against him in the distribution of the light which is so essential to him in his business. The season of the year when he is the most rushed with orders is in the winter time, and this is the time when his working day is necessarily very short. Four hours a day is the limit which is available for good work for his purposes, and any attempt to use the studio any longer than this is only done at a sacrifice of quality.

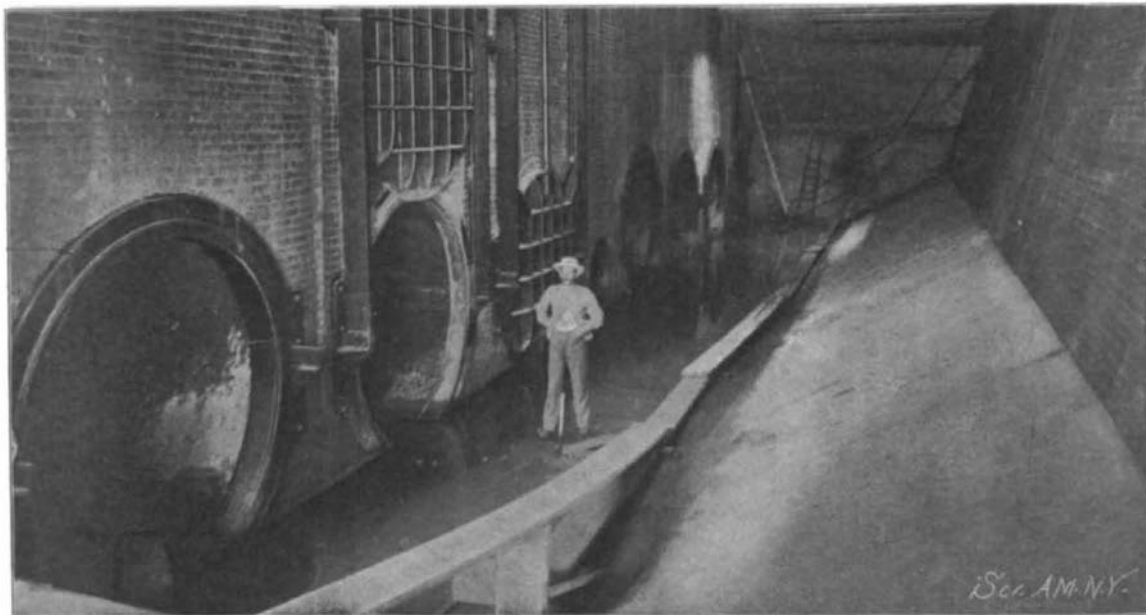
For a great many years it has been thought that the flash light powders would prove a means of extending his working day, but in consequence of the dirt and smoke resulting from the powder in burning the use of the light has been limited. The pictures made in this way are also generally harsh in contrasts. Then again, on account of the smoke, it would be necessary to open all of the windows and doors of the operating room after each exposure, and this, of course, greatly hampered the photographer in the progress of his work and at the same time made the room unfit for occupancy in cold weather.

A means of making use of the flash powder with safety and comfort has been devised by H. B. Shaeffer, of Altoona, Pa., and his system, which is shown in the accompanying cut, is now being introduced into a number of studios for use instead of the skylight. The flash light permits portraiture to be carried on in a ground-floor gallery, which is a luxury not often to be indulged in by the photographer located in the business section of a large city, on account of the value of the ground, and this is considered a great advantage in seeking custom. The greatest merit of this device, however, is the one of prolonging the photographer's day almost indefinitely, for he can take pictures as long and as late as he can get persons to come and sit in front of his camera.

Another notable feature to be considered is the use of such a device in child portraiture. There are some children who are so nervous and restless as to defy the skill of the photographer and the lens maker to get a clear, sharp picture under the skylight, for although the exposure necessary under these conditions is but a second or two, this period is longer than a restless child can be kept

absolutely quiet. A flash-light exposure occupies but the two-hundredth part of a second, which is a little too quick for any youngster.

Mr. Shaeffer's invention consists of a collapsible box, made of a fireproof material, which entirely incloses the flash. On the face toward the sitter, the material is of light weight to permit of the passage



Sub-Surface Suction Pipes at End of One Section of Canal.
THE NEW DRAINAGE AND SEWERAGE SYSTEM OF NEW ORLEANS.

of the light; and in addition to the flashing apparatus, there is also contained in the box a half a dozen incandescent lamps, which alone are sufficient to properly light the model who is being posed before the lens. This enables the operator to see just exactly the effect he will get on the sensitive plate with the flash, and all being in readiness, a squeeze of a bulb in his hands opens the shutter of the camera, and at the same time elevates the flash powder into contact with an alcohol flame, causing the flash. The release of the bulb closes the shutter, thus completing the exposure.

The smoke which arises from the discharge is held captive in the cabinet, but it is disposed of by the operator, who, by a few turns of a wheel drives it out by the revolving fan into the open air through a tube leading to a convenient window. An electric fan can be substituted for the hand-propeller. There is absolutely no smoke or odor, and the room is at once ready for the next exposure. The pictures taken by

Novel Condenser in an Australian Electric Plant.

In a paper read before the Société des Ingenieurs Civils, M. Fouché describes a novel form of condenser which is used by a plant in the Kalgoorlie district of West Australia. In this region water is so scarce that it is paid for at the almost incredible rate of \$5 per cubic

meter (39.4 inches), and it is necessary to economize it to the utmost degree. The present arrangement is quite successful in saving practically all of the water of condensation, and it is thus used almost indefinitely. The Kalgoorlie mines, whose annual gold production reaches sixteen millions a year, have been heretofore provided with a number of large engines, but these were generally of the non-condensing type and worked under very unfavorable conditions. Consequently a light and power company was formed in order to furnish energy to the mines at less cost. The first plant of this kind has three vertical compound engines which give a total of 4,500 horse power. The condenser is provided with 27 ventilating fans which

send two million cubic yards of air against the surfaces of condensation. These surfaces are composed of corrugated sheet steel, and the plates are assembled in pairs to form a corrugated flat chamber. The condenser is built up of a series of such hollow plates, which are joined to two conduits, one for the entrance of steam and the other for the water-discharge. The condensation is thus carried out under the best conditions. It is found that the plates do not deteriorate if they are protected from the weather, and the apparatus is easily kept in order. Owing to the hot climate the ventilators had to be made especially large and a great quantity of air be forced against the plates. The steam comes from the engines by a 24-inch pipe and passes first into nine oil-separators, then into the condenser, from which the water is taken by three pumps. An elaborate system of filters is used to render the water fit for use again in the boilers. Even the small amount of water coming from the separators is used, this being passed first through a charcoal filter, then through a sponge-filter. The condenser water, which is nearly pure, is also passed through a charcoal filter. In this way none of the water is wasted. The energy required for the 27 ventilators and 10 pumps is estimated at 120 horse power.

A new screw propeller, for which various advantages are claimed, has been brought out in England, and its merits were discussed at the meeting of the International Congress at Glasgow. Mr. Mumford said that he had experimented for twenty years with screw propellers of various pitches, but had never found one to give higher efficiency than a true screw. Also, that in pro-

PELLER designing, no reliance whatever could be placed upon theory alone; the only course was to obtain better knowledge by actual practical tests; so far as he could see, there was not much hope of improving upon the screws now in use. These opinions are quite in line with those expressed to the writer many years ago by Capt. John Ericsson.



A CONVENIENT FLASH-LIGHT APPARATUS FOR PORTRAITURE.

this process are very soft and harmonious in their lights and shades, equal in appearance to those obtained by daylight.

Oil turpentine is an excellent medium for restoring the gloss to patent leather shoes, and satchels rubbed with it are made to look like new.