

PHOTOZINCOTYPES.

In Moll's *Notizen*, Herr J. Husnik writes as follows on photozincotypes with a sensitive asphalt solution :

We have at last reached the point of a more intimate knowledge of asphalt, and have thereby obtained a correct explanation of many of its properties hitherto kept secret.* It appears that by treating this substance with ether certain less sensitive components are removed, so that a residue "insoluble in ether" is left, which possesses in a considerably higher degree that sensitiveness to light so much desired in order to render the asphalt process practically useful. The way in which asphalt manifests its sensitiveness to light consists in becoming insoluble, or difficult of solution in its usual solvents, after exposure. Thus, a zinc plate, coated with an asphalt solution, which has been exposed for some time under a linear negative, may be developed by spirit of turpentine, so that all the whites dissolve while the lighted parts remain undissolved. And if after fully developing, the zinc plate be washed first with spirit and then with water, and now allowed to become perfectly dry, the operation of etching may at once be begun ; but, as such a plate had formerly to be exposed for hours in the sun, and for days—in winter even for weeks—in the shade, in order to get a good picture which could be developed with turpentine, it was not possible to turn the process to practical account. Gillot, Yves, and Barret, and other firms in Paris have, however, employed the asphalt process for years, but the secret of the greater sensitiveness of their solution was never known.

In Switzerland and America also one often heard of the asphalt process being employed for zincography, and, as already mentioned, the veil has now been torn from the secret. We know at last that progress in this process is to be sought in the direction of elimination from the solution of the insensitive particles.

Such a sensitive solution can, when requisite, be diluted with a little anhydrous benzole (not benzine, in which asphalt is insoluble). Benzole which contains a little water cannot be used either, as in drying it would cause the asphalt solution to wrinkle up and would not furnish an equal surface.

The solution must be kept perfectly free from dust. Before being coated the zinc plate should be carefully dusted, and any excess of the coating solution should be poured off into another vessel, and not back into the stock bottle until it has stood to settle for a couple of days, after which the upper part may be poured back. When the film has become dry it may be slightly warmed and then exposed under a clear line negative—preferably in the sun, as then only half an hour of an exposure is required. The plate is now laid in a bath containing oil of turpentine, and when the image has become visible the denser portions may be gone over with a small soft pencil, so that they may be developed at the same time as the light.

When the shadows appear sufficiently clear, remove the plate and coat it with alcohol or place it in a bath containing alcohol, and when the oil of turpentine has been partially washed out, place it under a jet of water falling from a certain height, so that the water may come in contact with the whites and remove any oil of turpentine that might still be adhering to them.

The development is an operation requiring great care and rapidity of work, which can only be learned by practice. The plate, being well developed, is next warmed, and when it has cooled again the next stage is the etching. Should the shadows, however, not be deep enough, they should be gone over with a pencil dipped in the oil of turpentine, and when that has been allowed to act for a short time the whole plate should again be washed in the above mentioned turpentine bath, and the procedure with the alcohol bath and the water tap repeated. This plan gives sharp pictures, and may be used with advantage for much reduced reproductions of woodcuts.

HOW THE FRENCHMAN LIVES.

The French laborer probably gets more for his wages than any other. His food is cheaper and more nourishing. His bouillon is the liquid essence of beef at a penny per bowl. His bread at the restaurant is thrown in without any charge, and is the best bread in the world. His hot coffee and milk is peddled about the streets in the morning at a sou per cup. It is coffee, not slops. His half bottle of claret is thrown in at a meal costing twelve cents. For a few cents he may enjoy an evening's amusement at one of the many minor theatres, with his coffee free. Sixpence pays for a nicely cushioned seat at the theatre. No gallery gods, no peanuts, pipe, smoke, drunkenness, yelling, or howling. The Jardin des Plantes, the vast galleries and

museums of Louvre, Hotel Cluny, palace of the Luxembourg and Versailles, are free for him to enter. Art and science hold out to him their choicest treasures at a small cost, or no cost at all. French economy and frugality do not mean that constant retrenchment and self denial which would deprive life of everything which makes it worth living for. Economy in France, more than in any other country, means a utilization of what America throws away, but it does not mean a pinching process of reducing life to a barren existence of work and bread and water.

Miscellaneous.

THE UTILIZATION OF SAW-DUST.—The saw-dust, which has become such a nuisance at Minneapolis and along the river below that growing city, offers a promising field of enterprise for whoever will utilize it. Several applications have already been made of it, and now arrangements are being made by a French manufacturing chemist for the establishment, at Minneapolis, of a laboratory to make from the saw-dust an acid, now imported from France, and largely used by dyers, chemists and druggists. It is to be hoped that the enterprise will be successful.

TESTIMONY OF THE ROCKS.—From a small erratic block, wholly unlike the rock of Mount Washington, found on the summit of that mountain recently, Prof. C. H. Hitchcock infers that the glacial ice was deeper in that region than has hitherto been supposed. The boulder resembles the rocks of Cherry mountains ; and if it was carried to Mount Washington by ice as Prof. Hitchcock believes, Mount Washington must have been totally submerged by the ice sheet at some time during the glacial epoch.

A FIRE TELL TALE.—A plan has been recently contrived by M. G. Dupré, in which the contacts of the automatic key for ringing an alarm bell are kept apart by a piece of suet or tallow, which on melting by the heat allows them to come together through the operation of a small weight attached to the uppermost contact bar. The idea is so simple and the apparatus must be so cheap that it will doubtless be largely patronized for public buildings, banks, etc., and even for private mansions.

M. LEON VIDAL describes his selenium photometer before the Photographic Society of France the other day. It is on the principle of Bell's photophone, a galvanometer indicating the exposure required in a direct and trustworthy manner. A battery, giving a feeble but constant current, a selenium receptor, and a galvanometer, are all the apparatus needed.

THE COMMERCIAL TRAVELLER'S SCHOOLS
AT PINNER.

Our illustrations comprise, first the railway front of the main building the institution, the foundation of which was laid in 1853, and the schools were finished and opened in 1855, the Prince Consort being then present. The cost was about £25,000, besides grounds which the London and North Western Railway Company parted with £2000, it being now considered worth four times that amount. Our second engraving represent part of the George Moore Memorial Buildings, which were erected when it was found necessary to enlarge the institution.

Just before this time Mr. James Hughes, a partner in the firm of Moore, Crampton, Copestake and Co., had engaged to preside at the annual dinner (in 1876), and the appeal which he made in anticipation of that festival was so successful that the large sum of £17,000 was raised. Shortly before the anniversary Mr. Moore's mournful death occurred and it was then decided by the Board of Management that the additions they were about to make to the institutions should bear the name of "The George Moore Memorial Buildings." These new buildings and additions comprise an infirmary and two floors as distinct as though they were separate buildings, besides a large laundry and a fine swimming bath. New dormitories occupy the whole of the front of the main building ; but the principal feature is the centre gable of the infirmary which contains a bust of Mr. Moore, surrounded by a floral border, beneath which is a panel and *bas relief*, representing Mr. Moore distributing prizes to the children, the whole being in Della Robbia ware, and set in black marble moulded frame with panels right and left containing the arms of Mr. Moore and the institution, and the fauna and flora of the neighbourhood.

* Dr. Kayser's examination of the properties of asphalt.