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DRYING PLATES WITH ALCOHOL.

THE summer may now be regarded as almost over. The leaves are already falling fast from the trees, and though we may now and again have a day or two of warm, or even of hot weather, we are already beginning to feel the dampness of the atmosphere that characterises our country at most seasons, and more particularly at the approach of autumn. Its effects are not to be passed over in our dark-rooms and laboratories, for they are visible on every hand. Especially is this so with regard to our gelatine plates, and the patience of the photographer is often sorely tried when he notes how long they take in drying. The amateur photographer has perhaps been taking advantage of the decline of the warm weather to try a new emulsion, or to prepare for himself a fresh batch of plates; but in spite of all precautions he may take, dust is settling on them before they are dry. The professional, may be, is looking askance at a negative from which prints are wanted in a hurry, but which takes an unconscionable long time in drying; what with this and the cloudy weather, he may well be pardoned if his impatience vents itself in a growl at things generally, and gelatine in particular. It is just about this time that alcohol comes most prominently into notice, and is frequently brought into requisition for the purpose of hastening the desiccation of the film, and its use is worthy of more than a passing mention, for many of our readers may be asking, "What is its action on the film, and what standard of purity is needed?"

Alcohol, as our readers are aware, has a strong affinity for water, and will mix with it in any proportions; absolute alcohol, if the vessel containing it be left open, will even absorb moisture from the atmosphere, so that perfect freedom from water, in the first place, is not to be attained without some trouble, nor is it necessary for the purpose in hand. There are, roughly speaking, three qualities of spirit to be obtained in the market. There is the pure spirit sold as absolute alcohol, and containing from 90 per cent. of alcohol upwards; then there is the methylated spirit sold by the wholesale chemists; and finally the methylated spirit sold by oilmen at something like sixpence a pint. This last article may be ignored altogether as containing too many impurities to render it fit for photographic use. The second article is a fairly good one, and is good enough for most photographic operations. The pure article is at first cost too expensive for ordinary use, but as it may be worked up again and again with comparatively little loss, the careful worker may not find it is so expensive a reagent as would at first be supposed. The first thing to be done is to ascertain whether the strength of the article is sufficient for the purpose required, for it is not advisable to use spirit containing much water, as by so doing the purpose for which it is used is only half accomplished, and a tackiness is evident in the film for some time after it first has the appearance of being

dry. One of the best means of testing the strength of alcohol is by means of sulphate of copper. If a little of this substance be placed in a porcelain dish, and heated over a Bunsen or spirit lamp, the water of crystallisation is gradually driven off till a perfectly white powder remains. This white powder has such a strong affinity for water, that when it is brought into contact with that liquid, great heat and a hissing sound is produced, the sulphate of copper regaining its original blue colour. If some of the alcohol to be tested is placed in a test-tube, and shaken up with a little of this dehydrated sulphate of copper, the powder will turn blue if the alcohol contains more than a very small percentage of water. On the other hand, if the alcohol is nearly pure, the powder retains its white appearance. Another test, but one far more delicate than is required for the purpose, is to take a test-tube and mix alcohol with a little benzine, or benzole, as it used to be called. A very small quantity of water present turns the fluids milky, only a very faint trace of water being present if a clear mixture is formed. If much water appears to be present, take some powdered carbonate of potash, from which all water has been driven off by heat, and shake it with the spirit; the water and the salt will form a thick or pasty fluid, which will sink to the bottom of the vessel, and the almost pure alcohol above may be poured off. This furnishes a very ready method of obtaining strong spirit, and may be applied to alcohol that has already been used for drying plates, and that has grown too weak for the purpose required of it. This method was discovered as far back as the thirteenth century by Raimond Lully, the celebrated alchemist, and spirit so rectified possesses a specific gravity of 0.815, containing 93 or 94 per cent. of alcohol.

When a batch of newly-prepared plates are required in a hurry, we find the best method of procedure to be as follows. We take a good-sized dipping-bath of glass or porcelain, the former being preferred on account of its greater capacity in proportion to the size of plate, furnished with a dipper of the same material, wood or ebonite dippers being undesirable. After the plates have been coated and allowed to set, they are taken and lowered one by one into the alcohol, where they are permitted to remain for about two minutes. They are then taken out, and stood up on one corner, that corner resting on blotting-paper. If a large number are hurriedly required, two or more baths may be used, and the drying proceeds very expeditiously. If the spirit is strong, they are dry and may be stored away two minutes after lifting them out of the bath. If plates have been put in a drying cupboard and are already half dry, they should not be treated in this manner, as they will only be spoiled, the one part of the plate developing more rapidly than the other. After a time the alcohol becomes weakened, but it may be brought back to the requisite strength by the carbonate of potassium method already mentioned, or by distillation. And this