

ing, the *cerolein* (presuming such to exist) only is destroyed; by the violent attack and heat of the chromic acid, the myricin is split up into acids, palmitic and cerotic. In brief experiments, I have found that air-bleached wax dissolves in alcohol to pretty nearly the same extent as when crude, while the chemically whitened body is far more soluble than before, which, if correct, points to a great increase in the quantity of acid, and decrease in myricin. My assistant is now performing the operation of chemical decolourising. Observe the deep green colour, and great heat, sufficient, as you see, to boil alcohol. After the lecture, I will show you the small cake of wax, not entirely blanched, but much whiter than before.

To bleach bees-wax atmospherically, requires time and fair weather. The melted wax is allowed to trickle through a slit pipe over a drum revolving in water. This divides it into ribbons, which are rescued from the water by a rake, and spread on long canvas sheets—about forty feet by three feet. Here they sojourn during the fine summer days, being discreetly tossed and turned, and sprinkled judiciously with water, till the colour is discharged from the outer film. Again melted and divellated, it undergoes another exposure, and yet, perhaps, another, according to its nature, till of the yellowish white peculiar to itself. It is then run into cakes and stored for use. We may as well follow it to the end, and see how it is made into candles. A very favourite method in olden days was to apply the wax, made plastic in hot water, to the wick with the hand, by kneading and manipulation, reducing it to proper form. But this was a lengthy process, and the water was difficult to expel, producing spluttering. The candles were also dipped, like tallow-lights; but this method would only answer in short cases, and the generality of wax lights are passing long. Moulding, somehow, will not answer with wax; the candles refuse to leave the moulds, or crack while doing so. So now they are "poured." Round this wooden hoop you will notice a number of strings, to each of which, by means of a little wax, my assistant will join a wick. The hoop is now hung over a cauldron of melted wax, "and, be very careful, I pray you," says an old manualist, "of the temperature, lest, all too hot, the wax refuse to adhere to the wick; or, too chill, hardens before the whole length be run." Dipping a ladleful from the cauldron, the operator revolves the hoop with one hand, while he pours the fluid material over the wicks with the other. After three or four revolutions, that hoop is laid aside, and another taken in hand. On this frame, the candle is arranged *in crescendo*, showing the increment gained after each pouring. At a certain period, the candles are reversed, as the tendency is naturally to thicken at the lower extremity. Being now of tolerably even diameter, though unsightly, they are plucked from the strings, and laid in a row of about six upon a marble slab, sprinkled with water. The maker then proceeds to roll them under a board, upon which he throws all his weight, and by this, the still plastic substance is rendered of a smooth and even surface. With knife and gauge, the candles are cut to the required length, and their tops trimmed with a piece of wood. Hand labour, you see, throughout, and requiring much skill and experience. A well-made wax candle should show rings like a tree, where the different layers have been superfused.

(To be continued.)

Correspondence.

ROYAL CORNWALL POLYTECHNIC SOCIETY.

DEAR SIR,—I beg to remind your readers that Tuesday, September 4th, is the last day for receiving exhibits at the hall of the above Society. All articles must be addressed to the secretary. I do not think it is generally known that cases sent by goods train from London take about three clear days in transit; so to avoid disappointment, care must be taken to send off in good time, as in former years I have seen cases arrive too late for exhibition, and great disappointment has been caused thereby, for cases by passenger or van train take about twenty-four hours for delivery. Van train rate is about twenty-five per cent less than parcels rate by ordinary passenger trains. I think this year, for small exhibitors, who sometimes only send one or two small frames, the parcels post might be utilised with advantage, taking care to have the frames packed in strong light boxes.

If forwarded in this way, a letter of advice must be sent to the secretary with the return postage enclosed, or at the close of the exhibition all exhibits will be returned in the ordinary way—by passenger train. I shall be most happy to forward prize lists and forms of entry, on application, to intending exhibitors.—I remain, sir, yours very truly,

WILLIAM BROOKES.

Laurel Villa, Wray Park, Reigate, Surrey.

PERMANENT SILVER PRINTING. — HYDROKINONE.

SIR,—With reference to the collodio-chloride of silver process of printing, perhaps the following fact will be of interest to your readers.

There is in this house a photograph printed by that process by Mr. George Bruce, of Duns, more than twelve years ago. The photograph has, during the whole of this period, hung in an ordinary frame with sunk mount upon an exceedingly damp wall, and though the mount is covered with spots and yellow marks, the photograph is as fresh as the day it was taken. On the same wall there used to hang two ordinary albumenized prints, but some years ago the latter had to be removed, so much had they faded.

Other plates by Mr. Bruce, some of them now of considerable age, are still without traces of decay, although they have not been protected in any special way. Does it not seem that for some reason or other collodion is a better medium than is albumen for holding the silver salts?

To turn to another subject. I have been making some experiments with hydrokinone development. In my experience, plates developed with hydrokinone and soda carbonate require only about two-thirds of the exposure necessary with pyro development. On the other hand, if ammonia be used instead of soda, the hydrokinone becomes less effective than pyro, and necessitates a longer exposure. During the last two or three days I have been developing a large number of negatives, some of which were considerably over- and others under-exposed. I found a very useful plan was to commence development with hydrokinone and soda, which, if the negative was under-exposed (that is to say, under-exposed for pyro), brought out the negative with full details. On the other hand, if the negative had been exposed too long, the hydrokinone was immediately washed off, and strongly restrained pyro substituted. By this means a large number of negatives, which would otherwise have been failures, were very successfully developed. A very remarkable fact is that, with the hydrokinone, it seems almost impossible to produce fog, however much carbonate of soda be added; and no restrainer whatever is required. I have also tried a compound developer containing both pyro and hydrokinone with some success, and intend to push my investigations further in this direction. The hydrokinone developer I employed was—

Hydrokinone	...	...	...	2 grains
Sat. sol. carb. soda	...	...	...	5 minims
Water	...	...	...	1 ounce

Yours faithfully,  
Duns, N.B.

A. A. CAMPBELL SWINTON.

PERMANENT SILVER PRINTS.

DEAR SIR,—I can bear testimony, such as it is, as to the permanence of collodio-chloride prints. Three pictures in an album I have, and which has not had a new print inserted for eight years at least, were printed by this process, and do not show any signs of fading, although of that delicate warm purple which most photographers regard as the most fleeting of tone. Although but an amateur, I am preparing to take up the process, and have taken your advice to write to Mr. Bruce for one or two specimens. It is very good of him, I think, to place his experience at the disposal of photographers.—Yours faithfully,  
D. GORDON SMITH.