man of serene temper, and amiable disposition; he had a practical, all-round knowledge of the styles of working up photographic portraits, and was successful at securing likeness. He made it a condition of his services, that he should be free to take a week's absence whenever he found the eternal round of finishing portraits burdensome, and would then refresh his spirit by landscape painting and sketching, and communing face to face with nature. The artistic merit of his work has been generally acknowledged, and we deplore the premature extinction of his powers. *Requiescat in pace.—Autotype Notes.*

PHOTOGRAPHIC CLUB.—At the next meeting of this Club, on Wednesday, April 18th, 1883, the subject for discussion will be on "Packing and Unpacking Gelatine Plates when on a Tour."

To Correspondents.

*** We cannot undertake to return rejected communications.

NEW SUBSCRIBER.—There is not any work on this special branch of the subject, but you will find the necessary data in any treatise on optics.

LOVER OF ART.—Full particulars on page 241 of our volume for 1882 (No. 1235). Mr. Fletcher makes so many kinds of furnace that we cannot quite follow your question. Write to him. His address is Museum Street, Warrington.

PETER MANISTY.—1. The gelatine is certain to be very much deteriorated if the heat is kept up during so long a period, and no means are known by which the original qualities can be restored. Spoiled gelatine hardened by means of chrome alum is in no sense a substitute for the original undeteriorated material. 2. Not unless much more bromide is used.

A. SCOTT.—1. The function of the sulphuric acid is two-fold, as it not only hardens the cotton fibres, but also unites with some of the water contained in the nitric acid, thus increasing its effective strength. 2. It is expensive at present, and the advantages resulting from its use do not seem to be considerable.

RUSSELL STEELE.—No doubt Mr. J. J. Atkinson, 37, Manchester Street, Liverpool, can obtain it for you; if not, write to us again.

C. J. H.—We will try to ascertain.

M. T. C.—It is so purely a matter for personal consideration that it is extremely difficult to give useful advice; still, as a very considerable majority of photographers work according to the second method, we would advise you to make yourself thoroughly familiar with it in the first place.

THOMAS BRADERMAN.—1. Add a moderate excess of dilute hydrochloric acid, and collect the precipitated chloride of silver on a filter. Wash well, and dry. 2. It will be necessary to use quite twice as much ammonia. 3. Mercuric chloride or corrosive sublimate. 4. Doubtless one glass has been lost, and the instrument is consequently valueless. 5. About half its weight of sulphur. 6. Use thin glue. 7. It can hardly be regarded as a true solution.

J. JONES.—There is no objection, excepting that they rust somewhat rapidly. It is, however, advantageous to varnish them with a bituminous varnish, such as Brunswick black, and the dry film is far less liable to crack off if india rubber is added, or by mixing the black varnish with about one-third of its bulk of a thin solution of india-rubber in benzol. For work away from home, we should recommend light paper or ebonite dishes, such as can now be obtained from any photographic material dealer.

PYRO (Derby).—1. You should not only coat your plates with a thicker film of emulsion, but also make the emulsion itself richer in silver bromide. 2. Probably it is due to the actual passage of light through the shutter of the slide. To test the opacity, you should put a plate in the slide, lay some opaque object, as a coin, on the outside; after which, expose to sunlight for five or six minutes. 3. The proportion of glycerine should not exceed one-sixth of the weight of the gelatine. 4. Fine lamp-black, such as is sold under the name of "vegetable black."

ZINCO.—No success can be attained in this direction, unless the tones of the photograph are translated into some kind of a grain or stipple, and there are several ways of doing this; but unless you tell us exactly in which direction you are working, it will be impossible for us to suggest any one method as being the most suitable.

PYRO (Londonderry).—We have sometimes noticed the tint to be a little greenish, but found the intensified negative none the worse.

DAVID MC.——.—The sample must have been unusually impure; silver nitrate should give no precipitate when added to the solution.

AMATEUR.—Rub the sliding parts with blacklead; grease would swell the wood, and quite spoil the apparatus.

LEVERSON.—1. Sensitize with a 5 per cent. solution of potassium bichromate. 2. The addition of ammonia will do no harm. 3. Dilute with twice its volume of methylated spirit.

THE EVERY-DAY FORMULARY.

THE GELATINO-BROMIDE PROCESS.

Emulsion.—A—Nit. silver 100 grains, dist. water 2 oz. B—Bromide potassium 85 grains, Nelson's No. 1 gelatine 20 grains, dist. water 1½ oz., a one per cent. mixture of hydrochloric acid and water 50 minims. C—Iodide potassium 8 grains, dist. water ½ oz. D—Hard gelatine 120 grains, water several oz. When the gelatine is thoroughly soaked, let all possible water be poured off D. A and B are now heated to about 120° Fahr., after which B is gradually added to A with constant agitation; C is then added. Heat in water bath for half an hour, and stir in D. After washing add ¾ oz. alcohol.

Pyro. Developer.—No. 1—Strong liq. ammonia 1¾ oz., bromide potassium 240 grains, water 80 oz. No. 2—Pyro. 30 grains, water 10 oz. In case of an ordinary exposure mix equal vol.

Iron Developer.—Potassium oxalate sol. (1 and 4) 80 parts, ferrous sulphate sol. (1 and 4) 20 parts, dist. water 20 parts. To each 4 oz. of the mixed developer add from 5 to 30 drops ten per cent. sol. potassium bromide, and 30 drops sol. sodium hyposulphite (1 and 200).

Substratum or Preliminary Preparation.—Soluble silicate of soda 1 part, white of egg 5 parts, water 60 parts. Beat to froth and filter.

Fixing.—Sat. sol. of sod. hypo. 1 pint, sat. sol. of alum 2 pints, mixed.

Cowell's Clearing Solution.—Alum 1 part, citric acid 2 parts, water 10 parts. Edwards makes this sherry coloured with perchloride iron.

Eder's Method of Intensification.—The negative is whitened by soaking in sat. sol. of mercuric chloride, and after thorough rinsing immersed in potass. cyan. 10 parts, potass. iod. 5 parts, mercuric chloride 5 parts, water 2,000 parts. As film becomes dark brown, the actinic opacity is increased; but prolonged action causes brown tint to become lighter, until at last the negative is no denser than at first.

Fol's Backing Sheets.—A chromographic paste is prepared with gelatine 1 part, water 2 parts, glycerine 1 part, and a very small addition of Indian ink. Strong paper or shirting is coated, and the sheets are laid, face downward, on waxed glass to set. Press to back of glass plate.

THE WET COLLODION PROCESS.

The Nitrate Bath.—Water 14 oz., nit. silver 1 oz., nitric acid 1 drop. Before using coat a small plate, and immerse it for 20 minutes.

Cleaning Preparation for New Plates.—Alcohol 4 oz., Jeweller's rouge ¼-oz., liquid ammonia ½-oz.

Film-removing Pickle for Old Plates.—Water 1 pint, sulphuric acid 4 fluid oz., bichromate potassium 4 oz.

Substratum.—Whites of 2 eggs well beaten, 6 pints of water, and 1 dr. liq. ammon.

Negative Collodion for Iron Development.—Alcohol 1 pint, pyroxyline of suitable quality 250 grains, shake well and add ether 2 pints. *Iodize this by mixing with* one-third of its volume of alcohol ½ pint, iod. ammon. 80 grains, iod. cadm. 80 grains, brom. ammon. 40 grains.

Normal Iron Developer.—Water 10 oz., proto-sulphate iron ½ oz., glacial acetic acid ½ oz., alcohol ¾ oz. The amount of proto-sulphate iron may be diminished to ¼ oz. when full contrasts are desired, or increased to 1 oz. when contrasts are unduly marked. With new bath quantity of alcohol may be reduced to ¼ oz.; but when bath is old more is wanted.

Intensifying Solution.—Water 6 oz., citric acid 75 grains, pyro. 30 grains. When used, add a few drops of the silver bath to each ounce.

Lead Intensification.—After neg. washing, immerse in dist. water 100 parts, red pruss. potash 6 parts, and nit. lead 4 parts. When it is yellowish white wash and immerse in liquid sulphide ammon. 1 part, water 4 parts.

Fixing Solution.—1. Potass. cyanide 200 grains, water 10 oz. 2. Sat. sol. of sod. hypo.

Varnish.—Shellac 2 oz., sandarac 2 oz., Canada balsam 1 dr., oil of lavender 1 oz., alcohol 16 oz.

PRINTING PROCESSES.

Albumen Mixture for Paper.—White of egg 18 oz., 500 grs. ammon. chlor. in 2 oz. of water. Beat to a froth, stand, and filter.

Sensitizing Solution.—Nit. silver 50 grs., water 1 oz., sod. carb. ½ gr.

Acetate Toning Bath.—Chl. gold 1 gr., acet. soda 20 grs., water 8 oz.

Lime do.—Chl. gold 1 gr., whiting 30 grs., boiling water 8 oz., sat. sol. chl. lime 1 drop. Filter cold.

Bicarbonate do.—Chl. gold 1 gr., bicarb. soda 3 grs., water 8 oz.

Fixing Bath.—Sodium hypo. 4 oz., water 1 pint, liq. ammon. 30 drops.

Reducer for Deep Prints.—Cyan. potass. 5 grs., liq. ammon. 5 drops, water 1 pint.

Encaustic Paste.—Best white wax 1 oz., oil of turpentine 5 oz.

Sensitizing Bath for Carbon Tissue.—Bichromate potash 1¼ oz., water 30 oz., ammonia 1 dr., methylated spirit 4 oz.

Enamel Collodion.—Tough pyroxyline 120 grs., methylated alcohol 10 oz., ether 10 oz., castor oil 20 drops.

Mountant.—1. Fresh solution of best white gum. 2. Fresh starch.

Collotypic Substratum.—Soluble glass 3 parts, white of egg 7 parts, water 10 parts.

Collotypic Sensitive Coating.—Bichromate potash ½ oz., gelatine 2½ oz., water 22 oz.

Collotypic Etching Fluid.—Glycerine 150 parts, ammonia 50 parts, saltpetre 5 parts, water 25 parts.

Printing on Fabric.—Remove all dressing from fabric by boiling in water containing a little potash, dry, and albumenize with ammonium chloride 2 grammes, water 250 cubic cents., and the white of 2 eggs, all being well beaten together. A 70-grain silver bath is used, and the remaining operations are as for paper.

Cyanotype Printing.—Water 1 oz., red prussiate of potash (ferricyanide) 1 dr., ammonio citrate of iron 1 dr. Prepare and preserve in the dark. Float the paper and dry. Fixation by mere soaking in water.

VARIOUS.

Luckardt's Retouching Varnish.—Alcohol 300 parts, sandarac 50 parts, camphor 5 parts, castor oil 10 parts, Venice turpentine 5 parts.

Matt Varnish.—Sandarac 18 parts, mastic 4 parts, ether 200 parts, benzole 80 to 100 parts.

Encaustic Paste.—Best white wax, in shreds, 1 oz., turpentine 5 oz.; dissolve in gentle heat, and apply cold with piece of flannel.

FERROTYPES.

Collodion.—Ammonium iodide 35 grains, cadmium iodide 25 grains, cadmium bromide 20 grains, pyroxyline 70 grains, alcohol 5 oz., ether 5 oz.

Bath.—Silver nitrate 1 oz., water 10 oz., nitric acid 1 drop.

Developer.—Ferrous sulphate 1 oz., glac. acetic acid 1 oz., water 16 oz.

Fixing and Varnish.—Same as wet collodion process.