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Jory Rene Cayey

THE

LIVERPOOL

PHOTOGRAPHIC JOURNAL.

CONDUCTED BY SOME

MEMBERS OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY.

VOL. I.—1854.

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LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 1.—JANUARY 14, 1854.

ADDRESS.

The Liverpool Photographic Society, in putting forth a Journal of their own, rest their claims to public support upon the widely extending interest in the several branches of Photographic art—the daily progress that is being made by the practical members of their own Society, and other Photographers elsewhere. The admirers of the art naturally desire to have more particulars, and the practical operators more full and precise records of the suggestions, experiments, and successes in various parts of the world, than can possibly be afforded by a newspaper devoted to general information. The *London Photographic Journal*, though furnished with the Proceedings of the Liverpool Society from the commencement, has not been able to find room for them; a part only of the May Meeting being given in the September number. The Glasgow Photographers obtain their information of our Proceedings through the medium of American newspapers!

An exhibition of Photographs has been proposed to take place during the visit of the British Association to Liverpool. In conjunction with this, the Liverpool Photographic Society have offered premiums for the best specimens of the art produced by their own members. A premium has also been offered by the British Association for the best Photograph of the Moon—for which it is expected our resident Photographers will compete. The award of the premium offered by our Society will be influenced, if not decided, by the opinions of the British Association; but it is desirable that public taste should be brought to bear upon it; and to cultivate the true appreciation of the beauties of the Photographic art—the qualities most valuable, most to be admired—the Society propose this publication, in which not only all the Papers read at the meeting will be published, but the discussions upon them, in the course of which individual observations and suggestions occur of the highest importance, though they may not be appreciated at the moment in consequence of some other matter being the absorbing point of interest.

The Liverpool Society have therefore deemed it expedient to have a Journal of their own, commencing with the report of the first meeting in the new year. But that the records preserved may be complete, a *resumê* will be given of what has already been done by the Society, with such Papers as may be considered interesting of those which have been read at previous meetings. The Proceedings of the London Society, and of independent operators at home and abroad will be given, with everything that can be obtained to furnish our readers with a complete account of the state and progress of the art in all its various branches.

Various forms of camera adapted to Photographic operations, have been exhibited by Mr. Mackinlay, Mr. Wood, Mr. Atkinson, and others, members of the Society, of which full descriptions will be given. A set of rooms have been engaged for reading and operating, and furnished with many of the works—continental and English—esteemed the best authorities on the several branches of Photography, and a Camera of the best description, with screens, baths, and every requisite for the practice of the art.

Valuable contributions have been made to this Society. Through Dr. Edwards, Mr. Sanford has presented a number of very large Photographs. Mr. G. R. Berry has presented some specimens of Photolithography and Photographic engraving on steel. Mr. Macklinlay, Mr. Forrest, and Mr. McInnes, have been devoting their attention very successfully to making the means of the Collodion process portable; and the latter gentleman has developed a method of removing the Collodion film from the glass without injury to the Photograph; in some instances even improving the appearance. Mr. G. R. Berry has perfected a paper process, in which he can print a beautiful colour by gas light; of which the members of the Society will have a full opportunity of judging, through the liberality of another member, Mr. John Morecroft, who has sent a number of negatives taken with wonderful success and judgment, by Buckle's process on paper, of which impressions are to be printed by Mr. G. R. Berry, for the purpose of distribution to the Society—two prints to each member. Mr. G. R. Berry gratuitously contributes his labour in printing these exquisite Photographs for the Society, in which the members will receive the full value of their subscription.

Mr. Bell has produced some very minute Daguerreotypes for the stereoscope. Mr. Frank Howard has been endeavouring to persuade us to confine our attention to facts, without attempting to compete with the Fine Arts; and has also assisted to put us in possession of those principles of *chiar-oscuro*, which have been, and are recognised as essential in works of the Fine Arts, in case we should reject his advice as to the limitation of efforts to truth and scientific illustration.

Dr. Edwards has exemplified the use of Photography, in preserving fac-simile representations of rare specimens of natural history, by his Collodion Photographs of the *torpedo nobiliana* recently caught on these shores; and by various microscopic details, preserved on collodion, with the assistance of Mr. Barker, and exhibited with unquestionable accuracy.

Another instance of its utility has been shewn in the interesting series of Photographic reports of the progress of the Crystal Palace, erecting at Sydenham, which Mr. Archer, the Liverpool agent of the Crystal Palace Company, has displayed before the Society on two occasions. Every week, Mr. Delamotte takes a Photograph of various parts of the works, which are then printed and sent to the Directors of the Company, as reports of the progress, in which no mistake, falsification, or cooking can occur, or be practised.

The architects are aware of the value of Photography for these and similar purposes; and the Liverpool Architectural and Archæological Society has invited a member of our Society to read a Paper on the practice of the art as applicable to their wants.

The authorities of the British Museum are applying Photography to preserving and distributing records of the treasures in their charge. The curator of the Derby Museum may do the same.

It has also been suggested by one of our members, that Photography should be applied in assistance of Physiognomy and Ethnology, by preserving records of the natives of the various countries with which we have commercial intercourse, and who are daily visiting this port in such numbers and variety as to afford the most favourable opportunities for such contributions to science. But it will not be necessary to multiply the instances of the value of Photography in the present address—they will occur in almost every page of the Journal, which it will be the endeavour of the managers to make in every way worthy of public support.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The Eleventh Meeting of the First Session of the Society was held in the Lecture Theatre of the Royal Institution, Colquitt Street, on Tuesday evening, the 3rd instant. Mr. Corey presided, and the attendance was, as usual, numerous.

Mr. Mackinlay (joint Secretary with Mr. Forrest,) announced two donations to the Society—one "positive" and the other "negative." Mr. Sanford, of London, had presented to the Society a beautiful collection of positive pictures, which were on view; and the other presentation, which might be called negative, was by Mr. Atkinson, of Manchester-street, who had declined to make any charge for the use of the camera at the rooms in Lord-street.

Mr. G. R. Berry *read a Paper entitled "Common Sense applied to Photography —The Laws of the Science."*

It has been a great bane to Photography, that the startling and fascinating results obtained by all who have practised any of the processes have so bewildered the operator, that instead of steadily plodding on to investigate the laws by which these novel results have been governed, they have assigned properties and powers to different re-agents they employ, which they do not really possess, and as a consequence, after a few successful results, failure ensues, and the process they once admired is declared to be unmanageable and worthless. And so on they go; now obtaining for a season results so good and so uniform, that in the fulness of their hearts they begin to exult over their less fortunate brethren, and declare all their failures are over and gone, and the glorious summer of their success has arrived, and that ere long they will accomplish feats that shall make the very camera wink his eye. Alas, in a few short weeks, or even days, their stock of chemicals, &c., that produced these marvellous results becomes exhausted. This does not at first discomfit the Photographer; for he is not one of those who, working by the rule of thumb, dissolves a little of this in some of that, and then stirs it into some of the other thing; on the contrary, he has accurately weighed and measured all his ingredients, and can compound the same again with the greatest certainty; and so he is sure to do again what he has before accomplished. The new supply is prepared, but by some unlucky chance all goes wrong, and the unfortunate man finds that he has all his trouble over again, without having any distinct idea why he has failed.

Let us this evening examine the few simple laws upon which the whole success of Photographic processes depend, discarding for awhile those nice little technicalities which, while they shew that the individual who uses them is well read in the literature of the science, by no means demonstrate that he is a successful practitioner, or qualified to be a Mentor to his brethren.

What are then the essentials of a Photographic process, premising always that it is a silver process?

1st. There is the vehicle or basis to support the sensitive surface, as paper, collodion, &c.

2nd. The sensitive surface itself, and its preparation.

3rd. The exposure to light.

4th. The development of the latent image.

5th. The fixing the image obtained.

Granting the first proposition, as to paper, &c.; we come to the 2nd, the sensitive coating and its application.

On examination, the following conditions will be found necessary:—The primary application should preferably be a combination of one of the haloid bodies, iodine, chlorine, bromine, with the alkaline or earthy metals, such as potassium, sodium, barium, calcium, &c.; which compounds shall at all events be soluble in water for paper processes, and also in spirit for collodion; and that the paper or collodion, when thus imbued, shall receive an insoluble deposit of a silver compound when subjected to the second application, as the silver bath, &c.; for the want of this qualification the fluoride compound of silver is not to be depended on. Another condition is, that there shall be an excess of a soluble silver salt present on the surface, without which the requisite sensibility to light could not be obtained.

Thus, then, we require an insoluble compound of silver, in a state of minute division, equally spread over the surface of the paper, collodion, &c., with also a notable quantity of a soluble silver salt, preferably the nitrate, also equally distributed.

There is one other condition to be fulfilled before we can obtain a satisfactory result, and that is, that the sensitive surface shall at all events not be alkaline, but rather verge to acidity; for we find that when we apply a developing agent, as a proto-iron-salt, gallic or pyrogallic acid, to an acid sensitive surface in the absence of actinic influence, no effect is produced; but if we previously expose the surface in the camera, or otherwise, to this action, a blackening is produced on those portions thus exposed by the action of the developer; but if we apply the reducing agent to a sensitive surface, in the slightest degree alkaline, the whole becomes blackened without the intervention of light.

You have most of you read the account of the discussion in the London Society upon the nitrate of silver bath in the collodion process. One says the bath must be slightly acid; another working with a neutral bath; another being content with homœopathic doses of acid; anon, the worthy secretary, working in the morning, with a slightly acid bath, finds each successive plate he dips to be superior to its predecessor, until at length the time of exposure in the camera becomes almost fabulously short, and then, alas, total eclipse, the next plate blackens all over. Let us add a few of our own misfortunes to the list: the calotypist washes his iodized paper sedulously, or else he never knows what results he may obtain. Many of us have tried the bromide process, (by which I purpose to print the Photographs to be presented to each member of our Society,) and have failed. I also have failed in the process, but that failure gave me the clue to the cause of all the failures I have recapitulated, and it is this, the contamination of the commercial iodides and bromides with an alkaline carbonate. Let us draw a parallel of a calotype paper and a collodion plate, both sensitive to receive an impression.

Calotype.	Collodion.
The paper is iodized and floated on water; all the nitrate of potash and carbonate are washed away, and the paper imbued with pure iodide of silver remains. This paper is rendered sensitive by the addition of a wash of nitrate of silver.	Contains— Iodide potassium, „ silver; dipped in nitrate bath, becomes iodide of silver, the nitrate of potash dissolving out of the film into the bath with the alkaline, carbonate, etc.

The calotypist is safe. All his papers are almost identically the same in sensibility, and there is no alkalinity to accumulate in his solution. Not so the collodion artist,—every plate he dips diminishes the acid re-action of his bath, and at length the solution is unable to resist the reducing action of the developing fluid, and the results are spoiled.

It is not sufficient that we add iodine or bromine, as the case may be, to the impure salt; the carbonate cannot be neutralized thus, but hydriodic or hydrobromic acids are necessary for this end; but, as these are both expensive and unstable, I have used muriatic acid with perfect success; and now my bromide paper gives me pure white, the paper keeps for days instead of hours, and the intensity of shadow can be produced to any desired extent; and if our collodion makers will turn their attention to the purity of the salts they employ, they will find the action of their baths constant, and their results more uniform. One word more,—the developing agent. If we listen to the conversation of Photographers, or read the results of their experiments, we are led to suppose developing agents are without number, so numerous are the formulæ; but the plain state of the case reduces them to very few, proving that we can add many things to proto salts of iron, to pyrogallic and gallic acids, without actually destroying their reducing power. Let us seek then, not so much novelty in our processes, but rather let us so elaborate those we already practice, that the glorious uncertainty of Photography may no more be heard of in our midst.

At the conclusion of his Paper, Mr. Berry stated, that whilst recently in London he called at Mr. Highley's, in Fleet-street, where he obtained a specimen of Photo-lithography, and another of Photography on steel, which he begged leave to present to the Society, as he believed there were no other specimens in Liverpool. He also exhibited two portraits printed on albumenized paper, and said he believed opinion was divided as to the superiority of that process over others.

The President presented the thanks of the Society to Mr. Berry for his interesting exhibition, which, he said, displayed a large amount of mechanical learning and research. Every one of them had gone astray on some wild-goose chase; and, therefore, they must all feel much obliged to Mr. Berry for the practical lesson he had favoured them with.

Mr. Wood exhibited and explained to the Society the construction of a new camera for taking views or portraits for the stereoscope on one piece of glass. The great advantage of having the two pictures on one piece of glass was, that it obviated the trouble experienced in fitting when they were on separate glasses; the pictures were also developed at the same time, and they were sure of getting them developed equally, and more likely to obtain perfect pictures.

Mr. Forrest stated, that Mr. McInnes, a very ingenious member of the Society, had lately made a stereoscope, in which he used yellow glass. The sensitive plate occupied the position of the ground glass, which was dispensed with altogether. There was a cap of yellow glass, and the focussing was done on the sensitive glass .Of course iodine, without bromine, was used.

Mr. Wood stated that what Mr. Forrest described might be adapted to the camera he exhibited.

The President presented the thanks of the Society to Mr. Wood, for bringing before them his excellent camera.

Mr. Berry then described a modification of the double-plate process, by means of which the plate may be kept sensitive for hours, and impressions may be taken either direct or reversed, so that the negative collodion film may be removed from the glass plate to paper, and yet shall, when used for printing, produce positives, having the details as to position correct. It is impossible to make the process intelligible without diagrams, but we are authorized to state that Mr. Berry will be happy to exhibit the double plate to any members of the Society.

The President then read an extract from a letter addressed by Mr. F. Horne, of London, to Mr. Frank Howard, on the subject of restoring old collodion. Mr. Horne stated that "after collodio-iodide has been kept some little time it becomes red from free iodine, which destroys the sensibility. Different plans have been recommended to restore it, but without success. Mr. Crookes, however, has at last hit upon the right plan, and that is, to put into the bottle containing the red collodio-iodide a thin piece or two of pure silver foil, which effectually combines with the free iodine." Mr. Horne added, that " he had that morning been working with two lots, and found them all he desired."

Mr. Firth said, that those who had by them stocks of old collodion had better try it again, for some prepared in June, when tried in August, he could make nothing of, although upon trying it again a week ago, he found it as good collodion as ever he had in his life.

Mr. Bell said he could vouch for the same thing.

Mr. T. C. Archer then delivered a lecture on "The New Crystal Palace at Sydenham," illustrated and explained by means of diagrams and photographic views taken during the progress of the works at Sydenham, by Mr. P. H. Delamotte.

Mr. Archer commenced his lecture with an allusion to the Great Exhibition of 1851. When it was concluded, he said, all felt regret that the building in which they had experienced such feelings of admiration and intellectual elevation, was so soon to be thrown down, and, like the Exhibition itself, numbered among the things of the past:—"But England's word had been pledged, and England's honour triumphed. The fiat for the destruction of the Crystal Palace was confirmed, and it was in the market, available to the highest bidder. The present company then started into existence, and came with the bold proposition to buy the entire fabric: their offer was accepted, and the Palace of Glass, like the enchanted palace of Aladdin, disappeared from the scene of its primitive glories, to shine again on a distant site. That site is admirably adapted to the objects for which the palace is intended; it is at a convenient distance from the smoke and turmoil of the metropolis; situated on one of the most picturesque spots in the county of Kent—celebrated as the garden of England. Nearly four hundred acres of park land were most advantageously purchased; two hundred of which were marked out for the grounds of the palace, the remainder has been sold to private speculators, under most stringent specifications, and at a profit so great, that the land retained has cost an almost nominal sum." The New Crystal Palace is accessible from all points of London by railway, and stands in a commanding position on the crest of a hill. Mr. Archer then explained the improvements which would be made in the architectural features of the building. There would be three transepts, the centre one with an arched roof of 120 feet diameter, and nearly double the size of the old one, which would be placed at one end, with a new one to correspond at the other. Arched recesses were introduced at the end of these transepts, 24 feet deep; that of the centre transept 194 feet high, and 120 feet wide; those of the side transepts 150 feet high, and 72 feet wide. The improvement in the interior is also very great, the nave being arched, and increased 44 feet in height. Mr. Archer proceeded to describe the terraced gardens, which are to be of the most beautiful description, the extraordinary hydraulic works, and the grandeur of the fountains, which are to be five times as extensive as those at Versailles. There will be every kind of ornamental device known in works of this sort, and all carried out on the most splendid scale. While the grounds become more elaborately dressed as they approach the building, the fountains become more numerous, varied, and wonderful as they recede from it. Supplied from great reservoirs placed on the summit of huge towers, 256 feet high, at either end of the building, the waters will first be seen as cascades tumbling through the arches of the first terrace on the right and left of the grand central archway. As they descend, instead of passing beneath, they will appear to bound over the archways of the lowest terrace, so that visitors may walk under them, as at Niagara. On each side of the principal approach they will hurry along in roaring cataracts or rapids, filling innumerable tazza-shaped fountains in their way, and at last terminating far down in the park in two large basins, each 380 feet broad, in the centre of which will be formed pyramidal fountains of about 180 jets each, the largest throwing water to the height of 230 feet—dancing fountains around these, four in number, rising 130 feet—and outside of them again, 16 others going 90 feet high. There is nothing of the kind in the world at all approaching in magnificence the displ a yof waterworks contemplated by the plans at this point. The two basins and connecting lobes on either side of the main approach will be from end to end 2,000 feet long; and when this is shown, the full power of a supply of 2,000 gallons per second will be put into requisition. Sir Joseph Paxton says that his two great Pyramid Fountains will play twice as long as the "Grandes Eaux" at Versailles. For ordinary occasions the display will not extend so far down, but will terminate at the foot of the terraced garden in a splendid fountain, with an immense basin which is now in process of formation, and round the edge of which it is intended that the water should flow continuously, in a gigantic bell-shape. The lecturer then detailed the magnificence and extent of the project for illustrating Ethnology and Zoology, Botany, and Geology; and alluded to the liberal contributions of raw products from Liverpool. Nearly a thousand specimens had been collected, and were ready to be sent off. He believed they would be enabled to exhibit one of the finest collections of wood ever brought together, for which they were indebted to Mr. Bryde, of Liverpool, and to Messrs. Holme, Slater, and Crook, of Birkenhead. They had also received a very beautiful collection of Materia Medica, from Messrs. Evans and Son, of this town. Messrs. Littledale and Co. contributed a fine collection of wools, teas, cottons, and specimens of every other description of produce dealt in by that extensive house. Articles of drysaltery, dyes, and things of that sort, were contributed by Messrs. Spence and Co., Messrs. Speer, Saunders, and Co., and others; oils by Mr. Matthews; tanning materials by Messrs. J. C. Hadwen, jun. and Co.; tobacco by Mr. Samuelson; and fruits by Messrs. M'Andrew, Pilcher, and Co. After explaining what was proposed to be done in the departments of the fine arts and sculpture, of which there will be an unrivalled collection, and the nature of the architectural illustrations, Mr. Archer concluded by expressing a hope that he had shown, that the brilliant prospect of profit to the projectors, was not the only motive which had called the new Crystal Palace into existence, but that science, art, and every other quality of human intelligence were likely to receive an impetus, such as never before had been given them.

The Photographic views by Mr. Delamotte, with which the lecture was illustrated, were forty in number, and included views, not only of the progress of the building from week to week, but copies of the various specimens of Egyptian, Greek, and Roman sculpture, in course of preparation.

Mr. Forrest proposed the thanks of the Society to Mr. Archer for his interesting lecture, which were carried by acclamation.

The President then announced that this Society had now taken up such an important position, that the Council had determined they should have a Journal of their own, in which to record their transactions. Several copies would be transmitted to other Societies, by which they would become more generally known. He also stated, that persons joining the Society before the commencement of the second session in March, would be received without the payment of an entrance fee (which would afterwards be required) and be entitled to two copies of Mr. Morecroft's valuable pictures.

At the close of this meeting, the Chairman announced that next year, in consequence of the expenses of keeping the Society's rooms supplied with proper appliances, and the consolidation of the Society, an entrance fee of five shillings, as originally proposed, will be required. The members will obtain the full value of their subscription in the photographs presented to them.

We hope to be able to furnish due notices of the Exhibition of Photographs, proposed to take place in Liverpool, during the visit of the British Association for the Advancement of Science, and which we have reason to believe may be honoured by a visit from her Majesty, as it is understood that the same period of time will be selected for the opening of St. George's Hall, an honour it is expected Her Majesty will confer upon Liverpool, and the present mayor, J. Buck Lloyd, Esq., who has been the chairman of the Courts of Law Committee.

Résumé of the operations of the LIVERPOOL PHOTOGRAPHIC SOCIETY, *from the commencement.*

THIS Society was founded on Tuesday, the 22nd of March, 1853, at a meeting called together by advertisement, and at which Mr. J. A. PICTON was called to the chair. Mr. SAMUEL HOLME, then Mayor of Liverpool, was elected President; and the Vice-Presidents, Treasurer, joint-Secretaries, and Council, as appear on the second page, were also appointed. The laws of the Society were established: the days of meeting determined the first Tuesday in every month; and the general course of proceedings declared accordingly.

The Second Meeting took place on the 5th of April, at which there was a great accession of members proposed and seconded, and after some Photographic intelligence, Mr. G. R. BERRY read a Paper upon *Collodion Negatives*, in which he advocated the use of gallic acid in the silver bath.

The Third Meeting of the Society took place on the 3rd of May, at which, after the election of members, Mr. MACKINLAY exhibited a folding camera and box, suitable for taking views in open country, and read a Paper describing it.

Mr. KNOTT read a Paper—"*Practical Notes on Glass Positives.*" Dr. EDWARDS and Mr. W. BARKER exhibited some microscopical collodion specimens, and gave explanatory remarks on the mode of taking microscopical objects, and the adaptation of the camera to that purpose, the arrangement of which was also shewn.

The Council of the Society having secured a set of rooms for reading and operating in, a *soireé* was given on the 19th of May, to open them to the members.

The Fourth Sessional Meeting was held on the 2nd of June, when Mr. FRANK HOWARD read a Paper upon "*Photography in connexion with the Fine Arts,*" which led to an animated discussion on the part of the practical members, Mr. FIRTH and Mr. BURGESS, Mr. NEWLANDS and Mr. COREY. Mr. C. BELL exhibited and described "*A Plan for taking Stereoscopic Views in the open country.*" Mr. CHADBURN exhibited some beautiful Photographic views in Venice.

At the Fifth Meeting, on the 5th of July, Mr. G. R. BERRY read a Paper "*On the use of double Glass Plates, and the entire substitution of Bromine for Iodine in the Collodion process.*" Mr. J. A. FORREST exhibited three proofs of Mr. Niepce's new system of Photographic engraving, forwarded by Mr. J. MURRAY, the English correspondent of the French Journal *La Lumiere*, who hoped soon to be able to forward specimens of Photographic Lithography.

Mr. FORREST also exhibited a camera slide frame, the inside of which was made of glass, with the view to prevent the sensitive plate being affected by the absorption of the chemicals into the wood.

Mr. T. A. HUMPHRIES exhibited one of Mr. Mayall's Crayon Photographs, and the chairman mentioned a suggestion by Mr. FRANK HOWARD, that the art of Photography should be applied in assistance of the sciences of Physiognomy and Ethnology, by taking Photographs of individuals of the various foreigners who visited this port; and Mr. MACKINLAY exhibited some specimens of Photographic printing without nitrate of silver, by which ladies may be enabled to produce copies of lace, crochet work, &c., in the most pleasing shades and colours, without danger of staining their fingers. He then described the modes of operation, and the chemicals used for the production of the various tints.

Conversazioni at the Society's rooms, were fixed for Wednesday evenings in each week, to promote discussion on Photographic matters.

The Sixth Sessional Meeting was held on the 2nd of August. Mr. WOOD, of the establishment of Abraham and Co., of Liverpool, exhibited a very complete "Portable apparatus for taking views in open country."

Mr. BURGESS exhibited an American Camera, with Knight's and other improvements, and described some modifications he had personally found useful. Mr. FRANK HOWARD read a Paper on the "*Artistic distribution of light and shade.*"

At the Seventh Meeting, 2nd of September, Mr. FOARD read a Paper "*Notes on the Daguerreotype,*" followed by a discussion on the relative merits of the Daguerreotype and the Collodion process. After which, Mr. J. A. P. McBRIDE read a Paper on "*Photography in connexion with the Fine Arts,*" on which some discussion also took place. Mr. G. R. BERRY described a method he had found successful in strengthening negatives to print from; and Mr. J. A. FORREST described the method adopted at Glasgow to convert positives into negatives.

On the 4th of October the Eighth Meeting was held. Mr. G. R. BERRY read "*A Digest of Mr. Fox Talbot's Patents.*" Mr. ATKINSON exhibited a Stereoscope Camera. Mr. J. A. FORREST exhibited and described a folding Camera for taking views in the open air by the collodion process, in a very portable form;

and Mr. Keith exhibited specimens of positives taken on coloured glass by the collodion process.

Mr. Burgess exhibited a Camera, sent by Mr. Wilkinson, invented at Paris, to carry two lenses, so as to take the two views for the stereoscope at one time and on the same plate. It was called a quintoscope.

On the 24th of October the Society was invited to inspect the Photographic reports of the progress of the Crystal Palace, now erecting in Sydenham. Mr. T. C. Archer, the agent for the Sydenham Crystal Palace Company, had kindly consented to exhibit these Photographs, taken by Mr. Delamotte, amounting in number to nearly fifty, at the rooms of the Photographic Society, in Lord-street. On this occasion, Mr. Atkinson exhibited some large Photographs of Egyptian architecture, and scenes taken on albumenised paper.

The Ninth Sessional Meeting was held on the 1st of November, and was principally devoted to the consideration of the paper processes in Photography.

Mr. John Morecroft exhibited a great number of negatives, taken with nearly uniform success by Buckle's process, and positives printed from them for the stereoscope as arranged by Professor Wheatstone. From these negatives a selection has been made, of which Mr. G. R. Berry has kindly offered to print positives, of which each member of this Society will be entitled to two. They are eight inches by seven, and of the most exquisite beauty—combining sharpness with ærial perspective to an extent very rarely seen.

Mr. Keith described the calotype process, in which he had been very successful.

Mr. G. R. Berry then described a course of proceeding with paper, which he had just discovered, of much more simple character than any hitherto described; which was perfectly effective, both for taking photographs by the camera and for printing; and the latter might be done by gas-light even better than by day-light.—[It will be seen by the report of the January meeting, which appears at full length in this Journal, that Mr. G. R. Berry has modified his *formulæ* in a very slight degree. By this process will be printed the positives from Mr. John Morecroft's negatives, for presentation to the members.]

At this meeting, Dr. Edwards exhibited some beautiful Photographs, taken on collodion, of a rare species of electric torpedo, the *Torpedo nobiliana*, recently caught at the mouth of the Dee. They were positive and negative, and of back and front of the fish.

Mr. Mackinlay exhibited some specimens of views taken by the collodion process, in which he had secured the greatest intensity in the blacks, in combination with the full development of the half tones, by the use of vegetable naptha. He also described some advantages he had obtained in printing by a wash of sea-water over the paper to commence with. Another first wash, composed of tartrate of antimony, salt, or sal ammoniac and water, he had found remarkably good.

He had also discovered that a weak negative, by printing through blue glass, would produce very effective positives.

He had also observed, that pictures taken very rapidly by the camera, required to be subjected a long time in the developing solution; but that a much shorter time was required for developing when the action of the camera was slower.

Mr. J. A. Forrest mentioned that Mr. McInnes had devoted a great deal of time to perfecting a portable apparatus for taking collodion negatives, and had also discovered a means of removing the collodion film—upon which a Photograph had been taken—from the glass, so as to obviate the necessity of carrying so many plates of glass—of which the weight and liability to breakage formed the principal objection or difficulty in making the collodion process convenient for carrying about.

Mr. Firth said that he had been successful in taking Photographs on collodion floated on waxed paper, which would obviate the necessity of carrying more than one plate of glass, or the removal of the film from the glass, which he thought would be very hazardous to the Photograph.

Mr. Burgess said he had taken Photographs on collodion floated on gutta percha, which he had no doubt would supersede either paper or glass.

The Tenth Meeting took place on the 6th of December, when the chairman congratulated the Society upon the great accession to their numbers—their register shewing one hundred and thirty-five members. The next session would commence on the 18th of March, when he had no doubt the Society would be still more increased, as each member enrolled in the interim would be entitled to the prints from Mr. John Morecroft's Photographs.

Mr. Mackinlay exhibited a large folding camera, constructed for the paper process, in which considerable improvements had been effected upon the first that he had exhibited on the 3rd of May.

A discussion then followed upon the relative advantages of the collodion and paper processes, in which Mr. Forrest, Mr. Burgess, Mr. Mackinlay, and Mr. Chadburn took part.

Mr. Frank Howard mentioned the difficulty which existed in procuring suitable paper for any of the paper processes, except that of Mr. Berry, and expressed his opinion that the Photographers in general were disposed to look too much for sharpness; and he exhibited a drawing to shew the defects of too much hardness or distinctness in the individual objects.

On the 15th of December the members were invited to inspect some very large Photographs, taken on albumenised paper by Mr. Sanford, which were brought down from London, and exhibited by Dr. Edwards, who, on behalf of Mr. Sanford, presented a set of prints from them to the Society.

The Eleventh Meeting forms the principal subject of this number of the Journal, and is reported at length.

PROCEEDINGS OF THE LONDON PHOTOGRAPHIC SOCIETY.

Seventh Ordinary Meeting, Thursday, December 1st, 1853; Charles Vignolles, Esq., C.E., in the chair.

The Minutes of the last Meeting were read and confirmed.

The names of the members elected since the 3rd of November were read over, and their Election confirmed.

A list of the Presents received by the Society since the last meeting was read, and the thanks of the Society voted to the donors thereof.

[Among them were especially noticeable a series of Photographs of very large size from M. Auer, of Vienna, and a beautiful series from M. Mayer, of Paris.]

The following Papers were read:—

1. Mr. Wenham, "*On the Production of Enlarged Positives from Small Negatives.*"
2. Mr. Shadbolt, on the same subject.
3. Mr. W. Crookes, "*On the Restoration of Old Collodion.*"
4. Mr. Montefiore Levi, exhibited and described an Instrument for rapidly opening and closing the Lens.

In the discussions which ensued, the Chairman, Messrs. Fenton, Foster, Hennah, Hunt, and the authors of the papers took the principal part. The thanks of the Society were separately voted to the authors of the communications.

The Chairman announced that the Council had made arrangements to open the Exhibition of Photographs, at the Gallery of British Artists, in Suffolk-street, on the 4th of January, 1854. The members of the Society were invited to contribute pictures promptly, and to afford their aid in securing the support of the public to the undertaking.

The Meeting was then adjourned until the 5th of January, 1854.

We append the Circular issued relative to the Exhibition:—

The Council will open a Photographic Exhibition on the 4th of January, at the Rooms of the Society of British Artists, Suffolk-street, Pall Mall.

The Exhibition will be open to all the world.

Negative Photographs on paper and glass; Positive Photographs on paper and glass, untouched or coloured; Dagüerreotypes, plain and colonred; and Stereoscopic Pictures, will be admitted for exhibition.

Coloured Photographs will be admitted only when accompanied by a pure and untouched copy of the same Picture.

Positive Pictures, printed from "touched" or painted Negatives, must be described accordingly.

Every Picture sent in must be accompanied by the name and address of the Photographer or Exhibitor, by a description of the subject, and a statement of the method by which it has been produced.

It is recommended that all Pictures should be protected by glass, and for the sake of economising space, that the margin of all mounted Photographs should be kept within moderate bounds.

Exhibitors desirous of selling their Pictures are requested to send with each Picture a statement of its price.

Photographic works intended for exhibition will be received at the Rooms, in Suffolk-street, from the 19th to the 26th of December.

Exhibitors and Members of the Society will have the privilege of free admission; members will also have the right to introduce one friend without payment.

The price of admission to the gallery will be one shilling. Catalogues sixpence.

The Exhibition will be opened by a Soirée on the evening of January 3rd.

By order of the Council,

Roger Fenton, Hon. Sec.

The Exhibition was arranged in the rooms of the Society of British Artists, Suffolk-street, and on the morning of the 3rd of this month, was honoured by a visit from Her Majesty and H. R. H. Prince Albert, who, we understand, are practical Photographers. They expressed themselves so much pleased, as to desire to possess some of the specimens displayed. We hope in our next number to give a criticism of the display, and perhaps to give some hints for our own Exhibition.

Mr. William Crookes, "*On the Restoration of Old Collodion.*"

(Mr. Crookes' method of recovering Collodion having been mentioned at the last meeting of our Society, we give the paper as read at the London Society's Meeting, on the 1st of December, and the discussion that took place thereon, extracted from *the Journal of the Photographic Society.)*

I am not aware that any really good and simple plan has yet been published for restoring old and coloured collodion to its original condition. Several methods have been proposed, but except perhaps in the hands of a skilful manipulator, they are very liable to fail: certainly when tried by myself they have generally fallen far short of their object. The plan which I now propose is to remove the free iodine from the collodion by means of a piece of pure silver. For two ounces of liquid I should recommend a sheet of stout silver foil about two inches long and half an inch broad. It will require to remain in contact with the collodion for about two days, or even longer if the latter be very dark coloured; and in this case it will sometimes be found advantageous to clean the surface of the silver as it becomes protected with a coating of iodide, by means of cyanide of potassium or hyposulphite of soda.

When thus renovated the collodion will be found as sensitive and good as it was originally; indeed I have not been able to perceive any difference between a sample freshly prepared and some that was upwards of six months old, although, before being decolorized, the latter was so slow as to be nearly useless.

If a bottle of new collodion be kept with a piece of silver foil constantly in it, it will remain colourless to the last drop. At first sight it might appear that the entire removal of the free iodine from the collodion would tend to impair the thickness of the film of iodide of silver; but in practice it will be found that the quantity removed is so trifling, compared with that remaining in solution, that the absence of it is not noticed. Should it, however, at any time be thought advisable, it can be re-iodized by the plan originally adopted

The greatest care must of course be taken that the silver be pure and contain no copper. I have given the preference to silver foil, as it will allow of being taken out and cleaned, if necessary. In other respects, thin silver leaf, or that finely divided silver which is precipitated by sulphate of iron from a solution of the nitrate, will answer the purpose; indeed they are rather better, as, owing to the much greater extent of surface exposed, the decolorization is effected in a far less time.

Mr. Shadbolt remarked that there was no doubt as to the fact of the decolorization of collodion by the addition of silver, and that the collodion might thus be restored to a useful condition; but at the same time it was to be observed that scarcely any of the more sensitive collodions were prepared with silver; although the addition of this substance caused a greater density of the negative, it rendered collodion less sensitive. The point in question, however, one of great importance to practitioners of photography, was not whether the collodion could be again made as sensitive as at first, but whether it could be made serviceable at all, instead of being rejected as useless.

Mr. Hunt said, that the fact mentioned by the last speaker, of the more sensitive collodions containing no silver, did not bear upon the mode of decolorizing proposed by Mr. Crookes. When the pure silver is placed in collodion containing free iodine, the latter acts upon the former, producing iodide of silver upon its surface; thus we merely remove the iodine which has been previously liberated by the decomposition of iodide of potassium. If there were free potash in the collodion the addition of silver would be objectionable, as the latter only removes iodine, and the more of this is removed the more free potash then would be in the bath.

Mr. Hennah could not agree with Mr. Hunt as to the formation of iodide of silver setting free potash in the collodion. He had very considerable experience in the use of collodion, and did not think free potash was ever produced. The union of the iodine with the silver would produce iodide of silver, which would affect the collodion scarcely or not at all. At the same time, he thought the careful removal of the silver was not all that was required to render the collodion as sensitive as at first. He had found that the addition of two or three drops of tincture of iodine revived the sensitiveness of the collodion and made it work tolerably. He believed that Mr. Hunt was mistaken in supposing that free potassium would exist after the action of pure silver;

and in answer to a question from that gentleman, said he thought it possible that the potash became combined with organic acid produced. In allusion to the varying liability of different collodions to change, Mr. Hennah said that he had from practice arrived at the conclusion that the simpler the composition of the iodizing solution the better would the collodion be. The iodide of potassium alone made the best collodion; if it did not work quite clearly and well, a little tincture of iodine brought it right.

With regard to the nitrate bath, the characters of which were discussed at length at the last meeting, since he was not present then, he now took the opportunity of mentioning that he fully concurred with the assertion, that any collodion would work well if the bath was saturated with acetate of silver. A considerable quantity of crystals of acetate of silver should always be kept in the bath; this salt is tolerably soluble in water, and if the solution is returned every night into a bottle containing these crystals, the bath will be kept charged without much alteration of intensity. But the collodionized plate must be kept face downwards in dipping it in the bath, or it will not be possible to print from it without varnishing. He had pointed out the injurious effect of ammonia and the advantage of the use of the acetate of silver twelve months ago.

Mr. Fenton said, that in consequence of the discussion to which reference had just been made, he had received many communications, some of assent, some of dissent. He added, that several gentlemen had promised to make the subjects of the nitrate bath, and of the methods of iodizing collodion, matters of special and careful investigation, so as to arrive at some final conclusion.

Mr. Shadbolt, in returning to the immediate subject of discussion, remarked that the discoloration of collodion probably arose from the absorption of oxygen by the alcohol, resulting in the production of acetic acid, which would decompose the iodide of potassium and liberate a portion of the iodine. He did not suppose that the whole of the iodine in the iodide of potassium was set free. When silver is added in order to decolorize, iodide of silver is formed, which is dissolved in the remaining iodide of potassium.

Mr. Hunt concurred with the Secretary in the necessity of further investigation into the subject; he begged leave to direct attention for a moment to the most rapid process as yet known, viz., the instantaneous process of Mr. Talbot, by which he had obtained a perfect impression, by the light of an electric spark, of a printed bill fixed upon a wheel, revolving 200 times in a minute in front of the lens. M. Talbot had further endeavoured to get an impression of the course of a rifle-ball, which moved with still greater velocity than the bill just referred to, but of this he had only succeeded in getting a trace. These experiments illustrate the high degree of sensitiveness Mr. Talbot obtained by his process. That gentleman combines the use of the syrup of iodide of iron, proposed by Dr. Woods, of Parsonstown, with that of the protosulphate of iron, to which attention was first directed by himself (Mr. Hunt). The syrup of iodide of iron is placed in a quantity of alcohol, and in a few days acquires a peculiar vinous odour, resembling that of the 'oil of wine' or 'oil of æther' of the older chemists. When it has arrived at this point it gives a very sensitive quality. The surface used is the albuminous; white of egg spread upon glass; the albumen imbued with this solution is submitted to the bath of nitrate of silver and then exposed in the camera.

It appeared, therefore, that among the changes taking place in collodion, might be some resulting from the peculiar actions of the iodine upon the alcohol. We are imperfectly acquainted with the nature of collodion—guncotton dissolved in æther, with the addition of a little alcohol; when iodide of potassium is added, most of the same elements are present, as in the compound employed by Mr. Talbot.

Several specimens of collodion had been given to him (Mr. Hunt) by Mr. De la Rue for examination, that gentleman having been using collodion lately for the purpose of manufacturing an irridescent paper. In these specimens Mr. Hunt had found the collodions made from linen or cotton far more liable to change than those prepared from filtering paper.

Mr. Shadbolt observed, that in a specimen of collodion made from filtering paper, sent to him to try, there was one great defect. The parts unacted on by light were of such an opaque white that the negatives could scarcely be printed from until varnished. Among other speculative experiments on the characters of collodion, he had tried burning the film after it was stripped off a glass plate, and only in one instance was it explosive in this condition, in that instance, the most sensitive collodion, namely Mr. Thomas's, was as explosive as guncotton; but all the rest burned like pieces of paper.

Mr. Hennah stated, that he had found the collodion almost, if not quite, as explosive after use as before, in nearly every case, that is, whenever the collodion worked well.

THE UNION OF THE LEARNED SOCIETIES.

An endeavour to amalgamate the Learned Societies of Liverpool has been making for some time. Delegates have been appointed by most of the Societies, and Meetings have taken place, but, as yet, nothing has been decided. A paragraph has been inserted in several of the local papers, which advocates the measure. We give it as it stands, having no room in the present number to comment upon it:—

"A learned society is neither more nor less than a mutual instruction community, into which new members are admitted with certain formalities. Whether the whole tree of knowledge be selected, or only some goodly branch from which to pluck the fruit, every one is supposed to be of respectable acquirements in the first instance, and to occupy a respectable position in society. The knowledge of former years is thus pleasantly kept up, the researches of modern scholars are made known at the earliest opportunity, and the latest discoveries in science and art are brought forward with experiments and illustrations. The theory is, that each man is a teacher and a learner in turn—and there are few indeed who have not some favourite department of knowledge in which they have wandered farther than their companions; but in practice, a few, say twelve or twenty, are the instructors, and the remainder are the learners. But if only one or two are the teachers, and all the others the taught, it is merely a class with a plurality of professors or masters; or if persons be brought to lecture, either on the spot or from a distance, it may be a learning society, but cannot be called learned. It is essential that there be a fair foundation of knowledge to begin with, and that the instruction be mutual.

"In a small village, the principal inhabitants can be summoned by the bellman, and two or three rural placards are at any time sufficient to collect a public meeting; but in a large town, where offices and residences are distinct, or where domestic hearths are scattered many miles apart, it is difficult to procure a numerous attendance at an evening meeting. This is known to the conductors of all our learned societies, and is a strong argument in favour of more frequent and copious printing of their transactions. If the average attendance amounted to forty-five or fifty, which it does not, this represents but a small fraction of a society, allowing one-third of the individuals to consist of visitors. In a society of 300, thirty members are but one in ten; in one of 150, they are one in five; and in one of 400, they would be but one in thirteen. Without printing, therefore, the advantages of the society are confined to a minority which is many times exceeded by the majority; and as men dislike such a fact, a society of this kind can never rise above a certain low limit. But with transactions worthy of printing and fully printed, the absent members lose little or nothing; and such a society is capable of almost infinite expansion. The expense of this can never be borne by a small society, unless on the *ex*clusive principle of charging an unreasonably large annual subscription; but the plan is sure to defeat itself in the end. The correct plan evidently is to try the *in*clusive plan—a broad basis of members and of intellectual workers; so that session by session the fruits from all the gleaners may be laid in a single sheaf on the table of each of the members."

The Architectural and Archæological Society held their eighth sessional meeting on Wednesday last, the President, Mr. C. Varelst in the chair. The evening was principally occupied by Mr. Duncan's description of the drawings and places of the reservoirs and means of supply connected with the Rivington Pike Water Works, which were very much admired for engineering skill and judicious management. Mr. C. Varelst, at great length, gave judgment on the student's designs for a church in the Palladium style. Some German designs for decorations of walls and ceilings were exhibited, but the discussion upon them, after a few remarks from Mr. H. P. Horner, Mr. J.A. Picton, Mr. Frank Howard, and the President, was postponed. Mr. Barry's paper, "Notes on Neighbouring Churches," was also reserved.

Mr. Ruskin in the third volume of his "Hours of Venice," made some contradictory remarks upon Photography; and suggested that the engravers would be very soon greatly benefitted by the copying entailed in the art of engraving, being superseded by Photography. With or without the idea of co-operating to this end, which he considers emancipation from "slavery," though as we conceive only to substitute starvation. Mr. Ruskin, we hear, is about to repair to Venice, to make Photographs of *Tintorette* pictures. Whatever we may think of his theories, Mr. Ruskin will thus, if successful, furnish a valuable contribution to the History of Painting.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 2.—FEBRUARY 11, 1854.

We have the gratification of recording that our first efforts have been greeted with a kindly welcome from all parts of the Kingdom of Great Britain, and a friendly hand has also been extended to us from Ireland. In addition to the report of the last meeting of the Liverpool Photographic Society, we are able to redeem our promise of giving an extensive notice of the London Photographic Exhibition, which is of such a character as we hope will stimulate our local photographers to great exertions on behalf of the exhibition proposed to take place here in the autumn.

It will be seen by our advertising columns that Dundee will, in point of time, take precedence of us, as the Committee of Management—which includes Lord Kinnaird, Sir David Brewster, and all the leading people of the neighbourhood—have resolved to open in the middle of March next, and continue the exhibition into the middle of April: the proceeds, after the payment of expenses, to be handed over to the Dundee Royal Infirmary. They invite and solicit the loan of specimens from the members of the Liverpool Photographic Society and elsewhere, and they have our good wishes in the course they are adopting. At Plymouth there has been a great gathering of the Devon and Cornwall Photographic Society. Everything concurs to rouse the energies of the members of the Liverpool Photographic Society, to enable them to hold a prominent position in the art when they will be subjected to the criticism of the British Association. The weather has not been favourable for photographers of the moon, but some few experiments, we hear, have been made with tolerable success.

We give in this number Mr. G. R. Berry's two papers on the use of bromine, which he has consolidated into one, and carefully revised, forming one of the most valuable contributions to the chemistry of photography that has been made for a long time. Mr. Mackinlay's Portable Camera, with explanatory diagrams, will also be found sufficiently useful to justify our giving it a place thus early in our Journal.. To obviate any objection as to our being too scientific, we also give the commencement of a simple account of the process of photography up to the placing of the collodion plate in the camera. This will be continued through the developing and fixing in a succeeding number. We also contemplate making our Journal in part an illustrated one, for such subscribers and purchasers as may choose to pay the additional price, by printing as many copies as may be ordered of a photograph each month, including which, the price of these illustrated copies of the Journal will be One Shilling. To carry out this object, we invite operators to send, for the inspection of the managers of this Journal, addressed to the Editor, at the Office, No. 16, Canning-place, Custom-house, Liverpool, any negatives which they may be willing to allow to be printed for the purpose. Such as shall be deemed by the managers of the Journal sufficiently good, will be printed with the greatest care, giving all due honour to the original photographers. It is considered that in this way photographs may be interchanged among the operators with much gratification to themselves, and great advantage to the art. As we hope, with the assistance of our friends at a distance, to make this the Provincial Journal of Photographic Art, no pains will be spared on the part of the managers to make it worthy of such distinction; and one of them will set the example of providing a negative to furnish the illustrations for the next number, which will commence the second session of the Liverpool Photographic Society.

Economics in Photography.
NO. I.

Silver.—It is recommended in most manuals to soak the paper positives in distilled water, before fixing in the hyposulphite bath. We may go a step further, and (where the Photographs are large,) save a considerable portion of the silver used, by the following process. Save the water in which the proofs have been washed, and after putting in a few drops of nitric acid, to neutralize any ammonia in excess, pour in a solution of common salt; stir well together, and allow the white precipitate of chloride of silver to subside; the water may then be poured away, and the chloride washed out into a basin, or other small vessel, and put aside. This process being followed continually, the quantity of chloride of silver collected will soon become very considerable, and when in sufficient quantity to render a reduction to the metallic state advisable, that operation may be performed, and metallic silver of almost absolute purity is produced, which may be dissolved in nitric acid and converted once more into nitrate of silver.

The method of reduction and conversion into nitrate will be described in the next number of the Journal. Diogenes.

Technology.—The absence of a compendious Glossary of the Technicalities used in Photographic works has been so much felt by amateurs, and especially by those who have just commenced their noviciate in this fascinating study, that we have decided upon devoting at least one column monthly—more, should space permit—to supply this desideratum. This work has been entrusted to one of the members of the Society who will, where necessary, be assisted by the experience and opinions of others; and no pains will be spared to make it worthy of the attention of all It will not be a mere dry dictionary, but will be interspersed with numerous remarks, hints, and cautions of the utmost service to beginners, and perhaps not unwelcome to more advanced practitioners. We propose to divide it into four sections:—

First.—Of Terms as applied to Processes. These will be arranged as nearly as possible in the order of their discovery, without regard to alphabetical arrangement. The minutiæ of each process will not be entered into, as that would be unnecessary; but merely the general distinctive marks, and the discoverers' names, will be given.

Second.—Of Technical Terms as applied to Apparatus.

Third.—As applied to Manipulation.

Fourth.—As applied to the Chemicals employed.

Each of the three last sections will be separately alphabetically arranged.

For the benefit of those who have the opportunity of reading French works on photography, but who find neither their own knowledge nor their dictionaries any assistance in elucidating the new nomenclature introduced by recent discoveries, the French terms will, wherever practicable, be introduced after the English, and printed in *Italics*, to catch the eye more readily.

In the chemical section—besides the English and French names—every name each substance is usually known by will be given; together with a general indication of its uses in photography, and in all instances where there is any risk attending the use of a chemical, whether from being poisonous in itself or in its combinations, these points will be noticed.

Accordingly we will present a portion of the first section in our next sheet.

Devon and Cornwall Photographic Society.—A very interesting meeting—the first meeting—of this Society took place in St. George's Hall, Stonehouse, at which a great number of specimens of the various styles of Photography and Daguerreotype, with Stereoscopes, Microscopes, and Photographic apparatus, were exhibited, and some Photographs taken in the presence of the company by artificial light. The meeting was attended by all the most distinguished people in the neighbourhood, and gave great satisfaction to all who were able to be present. We intended giving a full report of the proceedings, but an extra pressure of matter compels us to be brief. Capt. R. E. Scott, the President of the Society, concluded the evening with a very admirable speech on Photography.

Photographs of the Moon.—We understand that Dr. Edwards and Mr. J. A. Forrest are engaged with Mr. Hartnupp, at the Royal Observatory, in attempting to obtain Photographs of the Moon. In connexion with this subject, we may refer such of our readers as take any interest in it to an article in the *Dublin University Magazine* of this month, on "The Lunar World and its Wonders," of which, if our space would have admitted, we intended giving a short abstract. At present we can only say that it fixes 500 as the highest power that can be applied with advantage in obtaining Photographs of the Moon,—any higher power tending to distortion of form or indistinctness of detail.

LIVERPOOL PHOTOGRAPHIC SOCIETY,

TUESDAY, FEB. 7TH 1854.

Mr. Corey presided; and it was announced that there had been an accession of eight new members to the Society. On the request of the President,

Mr. Forrest (the Secretary) read the following letter, which had been forwarded to Mr. Samuel Holme, the President of the Society:—

Sir, *Dundee, 6th Feb.*, 1854.

I send you the list of the Committee of Management for opening a Photographic Exhibition here in the middle of March next; and they hope that, as a member of the Liverpool Photographic Society, you will aid in inducing gentlemen to contribute pictures.

Allow me to ask the favour of your sending me the names of any gentlemen to whom you would recommend me to apply. Notice will be sent when the pictures will be received in Liverpool for transmission to Dundee.

I am, Sir, your obedient servant,
John Sturrock.

Mr. Forrest said that he perceived the Committee of Management included the names of Sir David Brewster, Sir John Ogilvy, Bart., the Right Hon. Lord Kinnaird, and several other gentlemen of note.

The Chairman (Mr. Corey), who had received a similar communication), certainly thought that this call should be responded to, and that some of their enterprising members should obtain good specimens, and send them to the meeting at Dundee, if it was only for the sake of upholding the reputation which this Society had acquired. Therefore, if any gentleman would send specimens to Mr. Forrest, for the purpose of being forwarded, they would confer an obligation on the Society. Mr. Corey then urged upon the members the importance of each of them striving to obtain perfection in some particular branch of the art, instead of wandering from one to another. Mr. Mackinlay, for instance, was devoting his attention to large pictures; and let each confine himself principally to one branch and strive to excel.

Mr. Forrest alluded to the peculiar beauty of a collection of 250 negative pictures taken on the continent by Mr. Carr, who, upon application, had very kindly promised to furnish the Society, in the course of the present month, with the process by means of which he took the pictures, and also with a few specimens. By way of encouragement to amateurs, Mr. Forrest mentioned that the whole of Mr. Carr's pictures had been taken with a 20s. lens and a slight box, procured after he had reached the continent.

Letters, requesting copies of the rules of the Society, had been received from parties about to organize similar institutions in Glasgow and Yarmouth. A letter received from Mr. Hele, of Plymouth, (which will be found in another column, together with an answer to it,) and one from the Rev. Francis Lockey, of Swainswick, Bath, requesting to be enrolled a member, although a stranger to the Society, were also read.

The Chairman said it had been announced in their circular that the council were prepared to produce the report of the year's proceedings; but on further consideration, the council conceived they were not justified in rendering an account of their stewardship until the expiration of the year. If the report was produced at present, there would still remain a month unaccounted for. The report was, therefore, purposely withheld until the next meeting. He then called on Mr. Mercer, who read a Paper on "*Gutta Percha*," of which we are able this month to give only the commencement:—

The well-known properties of Gutta Percha render it valuable for such a variety of most dissimilar purposes, that though ten years have hardly elapsed since its introduction into this country, there is now not a department of experimental science in which it is not used, and from which it has not removed a great source of annoyance by superseding much of the brittle and expensive apparatus before indispensable, or in rendering operations feasible, which had long been looked upon as impracticable.

Its most characteristic property of softening with heat and recovering its rigidity again on cooling; its resistance of the most concentrated alkalies, and many acids; its non-conducting properties; its lightness, combined with remarkable strength, tenacity, and durability; the grossamer fineness of the texture to which it can be drawn; all in their place, invest it with an incalculable and daily increasing value.

In practical Chemistry and Photography it is superior to glass, earthenware, and metal, in many operations; in surgery it takes the place of the well-known oil-silk, and old-fashioned splints; and in electrical science, who shall estimate its value, or set a limit to the results likely to arise from its applicability to the exterior of the marvellous wonders of telegraphic communication to every portion of the globe.

It is generally said that Gutta Percha was first imported into this country by Dr. Montgomery, from Sincapore, and is the produce of the Isonandra

Gutta, a tree belonging to the Nat. order Sapotaceæ. The wood of this tree is peculiarly soft, fibrous, and spongy, pale coloured, and traversed by longitudinal receptacles or reservoirs, filled with the gum, forming ebony black lines. It is not suitable for building purposes. The tree bears a fruit which yields concrete oil, used by the Malay natives for food.

Gutta Percha, as imported into England, is the *juice* of the tree, which quickly coagulates on exposure to the air. The produce from each tree did not average more than 20 or 30 lbs., and to collect this small quantity, large trees, perhaps of 50 or 100 years' growth, were felled, barked, and left dry and useless. Large forests would thus soon have been cleared, had not steps been taken for the tapping of the trees, whereby an inexhaustible supply may now be depended upon.

Though different in many of their properties, there is great similarity in the composition of Caoutchouc and Gutta Percha.

Gutta Percha being composed of—(Dr. Maclaglan)

Carbon	86.36
Hydrogen	12.15
Oxygen (probably from the air)	1.49
	100

Caoutchouc—(Dr. Faraday)

Carbon	87.2
Hydrogen	12.8
	100

[The remaining portion of this valuable paper will be given next month.]

A vote of thanks having been passed to Mr. Mercer for his interesting paper, the Chairman called attention to the remarkable Photographic specimens which had been passed round the room. Those which were so beautifully framed and mounted were the production of Mr. Keith, of Castle-street, and were some of the finest specimens he had ever seen. He held one in his hand—a very beautiful one—which he was told had been taken by gas-light, at the Collegiate Institution; the light used was a very strong one, being emitted from nearly 20 burners.

Dr. Edwards exhibited a portable folding camera, which was peculiar in its adaptation for shortening the foreground, and enabling the Photographer to take in the spire of a church at a very near distance.

In answer to the inquiry from a member, Dr. Edwards said that chloroform and juniper made an excellent varnish. Mr. Keith said he had always found ordinary pale lacca to answer admirably.

Mr. Corey then addressed the meeting, with regard to ourselves, in the following words:—

The most patient of all men, the pious Job, hath said, "Oh, that mine adversary had written a book!" and certainly not until a man commits himself to paper can you judge of the metal he is made of. Now, I most earnestly entreat not to be judged by the matter that is before me, for I will in a few words explain how I was induced to so rash a proceeding as to think of trying to amuse, with what all, or the major part of you, already know. When the few members who had the hardihood to set on foot the *Liverpool Photographic Journal*, saw their first number appear, they were, of course, nervously alive to the criticism that would be passed upon it. To their great relief, the only dissentient voice ventured to utter, that it was too learned, too abstruse, and did not sufficiently address itself to the tyros in the science; that the student could find nothing to assist him in making progress in the art. This was true: we supposed there were so many treatises extant, so many pamphlets continually issuing from the press, that no such Horn-book or Primer could be needed, the object being only for such as were proficients to communicate fresh discoveries in an art that teems already with wonders, and in which results are perpetually occurring that almost exhaust the human mind of all its astonishment and admiration.

However, the deficiency was in some sort admitted; and, determined to please all classes, a series of papers, purposely intended for beginners, was decided on. These, by being freed as much as possible from all technicalities, would be better suited to ladies, who are now frequently honouring us with, not merely their attention, but with their experiments; for what our Gracious Sovereign patronizes is sure to be fashionable, and she, I am told, has become a votary of the art. The first of these papers having been entrusted to me, I propose to read it to you, for your judgment and approval.

Mr. Corey then read the Paper, which will be found in its proper place in the Journal, under the head of "Familiar Instruction."

After the Paper was read, some few observations were made upon it, and Mr. Bell, the Treasurer, being then in the chair, a vote of thanks was passed to Mr. Corey for his constant and regular attendance at the meetings of the Society during their first session. Votes of thanks were also accorded to the Treasurer and Secretaries, and the first session was brought to a satisfactory close.

The Exhibition of Photographs and Daguerreotypes, by the London Photographic Society.

We are enabled to give an original critique on the Exhibition of Photographs, in London, by one of our own members, who has very recently visited it.

The number of Photographs, of all kinds, from the Daguerreotype to Collodion, Wax-paper, Albumen, &c., nearly reaches one thousand specimens. These fill the large room of the gallery in Suffolk-street, as well as two small rooms at the south end. The centre of the large room is occupied by a number of stereoscopes of both kinds—the common form, and that of Mr. Wheatstone; specimens of exceedingly minute copies of prints and papers, with microscope to view them, sent by Mr. A. Rosling; Daguerreotypes and Calotypes, by Mr. Mayall; Photographs by Mr. A. Rosling; a Negative Photograph by Mr. Sanford, taken on the 19th December, 1851; Etchings, by George Cruikshanks and Bartholomew, on glass, covered with Collodion and Gutta Percha, and printed by P. W. Fry, also on the 19th December, 1851; the first Protonitrate Positive upon glass, by Dr. Diamond; three Stereoscopic Pictures, taken from the actual head of Henry Grey, Duke of Suffolk (the father of Lady Jane Grey), who was beheaded in 1554; in which No. 2 shews the incision made by the first cut of the axe, the executioner having failed in severing the head at that blow, and requiring a second stroke for that purpose: the head has been preserved in a tanned state by the antiseptic properties of the vault in which it was deposited, at the Church of the Trinity, Minories, near the Tower of London. There are Collodion Positives, by Mr. J. Rippingham. Five Portraits, collodion positives, by C. Rich; nine Stereoscopic Collodion Positives, by Stewart; a view of the *Solent*, from Osborne, Isle of Wight, on Collodion, by Dr. Becker, shewing the natural impression of Clouds; a Daguerreotype of a Snow Scene, by R. Lowe; a series of Photographs, to illustrate the various tints acquired by a shorter or longer exposure in the old hyposulphite of soda bath, by T. R. Williams, and some Prints from Steel Plates, which have been etched by the bitumen process of M. Niepce, by Bisson, exhibited by Mr. Solomon.

These are arranged on screens and stands. From end to end, the walls are covered with Photographs, indiscriminately mingled, rather with a view to the general effect of the exhibition, than to scientific classification, or experimental comparison of the various methods employed. The most striking example on entering the room is a very large Calotype, from a negative on iodized paper, by E. Baldus, a view of the Amphitheatre at Nismes. It is about three feet six inches long, perfect in perspective, rather reddish in tone, but very minute in detail, and altogether a very favourable example of the power to produce representations on a large scale by Photography. It is probably enlarged from a smaller view, taken by means of the camera, but the catalogue does not give us any information on the subject. There are three or four large copies of busts, two of them life-size, by Counsellor Auer, exhibited by the Photographic Society, which are also very favourable instances of the capabilities of Photography to produce works of large size; though we cannot think that the subjects in the last mentioned examples are such as to do justice to the peculiar advantages afforded by the Photographic art. Counsellor Auer's are from negatives on wax-paper, the tints very solid and even in quality, too much so indeed to afford the brilliancy that is required for such large work. The painters find as they increase their work in size they are obliged to open the texture of their execution, or the shadows will become heavy, and the middle tints vapid or dirty, as they may be light or dark.

There are a number of copies of engravings of various degrees of merit, by P. Delessert and Mr. Aguado, some from negatives on wax-paper, some from collodion, others from the talbotype, which in these instances appear to have been the most successful. There is a beautiful copy of a crayon drawing, by G. Richmond, printed from a negative or collodion, by C. T. Thompson; Mr. James Contencin has also been successful in applying the same process to the same purpose, but we cannot speak so favourably of his copies of pictures. Sir Thomas M. Wilson has been more successful in his calotype and talbotype copies of pictures by McIan. There is a very good copy, by Bisson Brothers, of the Hundred Guilder print, from one of Rembrandt's etchings, so called, because a single impression of the original was sold for that sum; but by what process the copy is produced is not mentioned. Mr. F. Bedford exhibits some copies of the lithographic prints, from Roberts's Sketches in the Holy Land; but, except as trial of skill, these cannot be considered an advisable proceeding in photography. Copies of rare or valuable engravings, such as the Hundred Guilder print and the Annunciation to the Shepherds, by Bisson, on collodion, also from Rembrandt, are very legitimate exercises for the art; but not such works as are existing on stones or plates, and capable of being produced in a direct way as perfectly by another process. The substitution should be for the labour or skill in copying on to the stone or plate, not for the impression of that stone or plate, where the labour of placing it there has been undergone. The object of the Photograph from the original drawing, as in Mr. C. T. Thompson's beautiful reproduction of Mr. Richmond's head, is to avert the risk of error in copying, by the lithographic draughtsman or the engravers. If they have been successful, the Photographic copy of their work will not be superior to the original; if they have made any error, or failed in any part, the Photographic copy will not remedy or remove them. On the other hand, in this exhibition, there are some beautiful specimens of *Photo*-Lithography of Architecture, by Mr. Lesecq, from wax paper negatives, and of the stained glass windows in Cologne Cathedral, by Marable, on the same method; and of Photographic engravings upon steel, of objects of natural history, from collodion negatives, by Bisson Brothers, which are exquisite in detail and completeness, and obviating the possibility of mistake or error, form the most legitimate and most valuable exercise of Photographic art.

Mr. Fox Talbot exhibits some beautiful specimens of engravings on steel plates, by the influence of sunshine on a preparation of chromium and subsequent etching by chloride of platinum.

The Rev. W. J. Kingsley and Counsellor Auer exhibit some admirable examples of the application of Photography to the microscope, from negatives or wax paper; and we think we saw some reproductions of similar microscopic objects by the Photo-Chalcographic process, than which nothing could be a more fitting application of Photographic art, as human eyes and human hands can scarcely be minute enough, and certainly cannot be adequately remunerated for the work, if they have the power to prepare it. In one instance the Rev. W. J. Kingsley has been very successful in obtaining Photographs of microscopic objects, by artificial light, on wax paper negatives.

Mr. C. T. Thompson aud Mr. F. Bedford have applied the collodion process very satisfactorily, in general, to still life, articles of furniture, plate, and *vertu*, which are never worth wasting the time and talents of an artist upon to produce the accuracy that usually constitutes their chief value.

The Count de Montizon has devoted his operations in the collodion process to the equally legitimate and valuable, though far more difficult, task of fixing indisputable representations of living objects of natural history, at the Zoological Gardens, Regent's Park, London. The back grounds sometimes interfere with these otherwise admirable specimens of Photography, as the handmaid to science and the embodyment of truth.

Some of the Photographic reports of the engineering constructions in Russia, by Mr. C. Vignoles, taken by Mr. Roger Fenton, and of the progress of the Crystal Palace, at Sydenham, taken by Mr. C. Delamotte, exhibit another highly valuable application of Photographic art as preserving an indisputable record of facts.

Mr. William Crookes—to whom the art is indebted for a very effectual process on waxed paper, and the means of restoring deteriorated collodion, referred to in our last number—exhibits the results of some experiments on light by means of Photography, which may be of great importance. He first gives a drawing of the solar spectrum; then the effect produced by throwing the spectrum on a sensitive surface of iodide of silver, and developing.

The action is due only to the indigo, violet, and invisible rays; no effect taking place where the red, orange, yellow, green, or blue rays fall.

3. The effect produced on bromide of silver under the same circumstances.

The action is here due to the upper three-fourths of the green, together with the blue indigo, violet, and invisible rays: no action being produced by the red, orange, yellow, or lower part of the green.

4 and 5. Photographs of the solar spectrum after having submitted it to the absorbing action of sulphate of quinine.

The only rays which this substance allows to pass are those below the violet, limiting the Photographic action, in the case of iodide of silver, to a narrow band about the centre of the indigo; and in the case of bromide of silver to the upper portion of the green, the blue, and indigo rays.

These results deserve the serious consideration of the scientific Photographer, as they appear to involve a partial action of light that may account for many of the failures we find in the most successful operations, and some means may be discovered whereby the action of the light may be made more uniform; for until that is done, it will be hopeless to make the practice of Photography so universal as it deserves to be.

Mr. W. Crookes' Photographic copies of the phenomena of polarised light in crystals of nitrate of potassa, and of calcareous spar, though interesting, do not appear to bear so directly on the progress of Photography, though the difference of effect on iodide of silver producing the normal figure, and on bromide of silver producing an abnormal figure, may suggest a hint to our scientifically inquisitive readers.

The applications of Photography to portraiture and to landscape and architecture, as might be expected, are very numerous. Mr. Roger Fenton takes the lead in point of quantity aud variety of subject, and mauy of the specimens are of very high quality. But the large Photographs of the cloisters of St. Trophimus, at Artes, and other architectural views by M. Baldus, must be admitted to surpass him; and in the instance of Burnham Beeches, Sir W. Newton has been more successful. Mr. Henuah's portraits are the best in the exhibition, excepting a frame of exquisite productions—portraits and groups—from collodion negatives, by the Ladies Neville. The Hon. H. Kerr also takes a distinguished position with a view of the High-street, Guildford, and three other views in Surrey, from Talbotype negatives, which are first-rate. Viscount Vigier exhibits a number of large views in the Pyrenees, many of them of high character; but our space will not allow of special comment in this number of our Jourual, either on these or numberless beautiful examples by Mr. Rosliug, Mr. Owen, Mr. Sedgefield, Dr. Diamond, and the other distinguished Photographers who have contributed to make this exhibition so attractive and interesting. We should warn our readers that it will close at the end of the month, as the galleries will be required for other purposes.

A new weekly paper has just been started in Paris, principally devoted to Photography, under the title of *Le Propagateur*, which apparently proposes to become the censor of the Parisian Photographers, as the promiuent feature in it is a crusade against what it considers the abuses among them.

M. Duboscq has introduced a modification of the refracting stereoscope, which he calls the Cosmoramic Stereoscope. It greatly enlarges the views, and is said to be very advantageous to the general effect.

The Liverpool Architectural and Archæological Society.—This Society held its tenth Meeting of this session on Wednesday last, at the Royal Institution, Colquitt Street, when the subjects brought before it were Brickmaking and a Railway to assist in working the Docks; neither of them very well suited for reports in our journal.

Mr. G. R. Berry, "*On the Use of Bromine*," *read before the Liverpool Photographic Society.*

I have condensed the substance of two papers I read before the Society during the past year, and I take this opportunity to correct and remodel my former matter, in accordance with my subsequent experience in working these processes, to the present day.

No. 1. The entire substitution of bromides for iodides in the collodion process.

At the time I read this paper, I stated that I employed bromide of ammonium, four grains to an ounce of collodiou, as the sensitive agent; but, in a few days afterwards, I found that bromide of calcium was so much more soluble in alcohol than the ammouiacal compound, that I at once adopted it, and have continued to use it ever since, and, in my hands, it has given better, and by far more certain, results than any other collodion I have employed.

The formula I now use is as follows:—

Preparation of the bromide of calcium: Take bromine, 390 grains, by weight, and pour iuto 10 ozs. of distilled water, then take iron filings, clean and bright, 160 grains, and add them gradually to the mixture of bromine and water, stirring diligently with a glass rod all the time. When the operation is completed, the solution, which has been of a deep red, becomes almost colourless or light green: then add to this solution, which is bromide of iron, 200 grains of pure quick lime, previously slaked by pouring water over it, and allowing it to fall to powder. Stir in the lime for some minutes and allow the mixture to repose for a half-hour, then again agitate and pour the whole upon a filter, and when the clear colourless solution ceases to drop, pour distilled water on the mass of oxide of iron and lime remaining in the filter, to wash away the adhering bromide of calcium. Collect all the filtered liquors together, and evaporate them to dryness, in a porcelain, silver, or platinum capsule: immediately on cooling, break up the dry bromide in pieces, and preserve in a well-stoppered bottle.

To prepare the collodion, take from six to eight ounces of æther, put in a ten-ounce bottle and dissolve 50 grains of the bromide of calcium in 1 oz. alcohol, *i.e.* rectified spirit, *s.g.* 826, and fill up the bottle with this aud such additional spirit as may be necessary; then add good gun cotton, until the collodion be of the thickness to suit the practice of the operator, (I myself prefer a thick tenaceous collodion,) shake well together, and allow to repose a few hours, then pour off the clear collodion for use.

The silver bath must be of the strength 60 grains to 1 oz. water; the time of coating varies, from temperature, &c., from two to ten minutes; the film formed is white and opaque, its actiou in the camera is very rapid, and the image may be developed with sulphate or nitrate of iron, or pyrogallic acid. I have in practice found this collodion perfectly constant in its sensitiveness and results, it receives impressions from foliage and (may I coin the term) non-actinic colours much better than the iodized collodion, and will keep any length of time in light or darkness withont change or deterioration.

2. Bromide process applied to paper.

Take pure bromide of potassium 15 grains, distilled water 1 oz. fluid, dissolve, then drop in three or four drops of pure muriatic acid, or until the liberated bromine gives the solution a sherry colour. Label this solntion, No. 1.

Take pure nitrate of silver 50 grains, distilled water 1 oz., test the solution with litmus paper; if the blue colour is not reddened, drop one drop of nitric acid into the solution, stirring well together, and, if necessary, add more acid, until the litmus paper is feebly reddened. Label this solution, No. 2.

Preparation of the paper. Having previously selected the paper and affixed a mark to the wrong side, pour some solution, No. 1, on the centre of a levelled glass plate, and place a piece of paper, face downwards, on it; then, with the fingers, smooth the back of the paper and press out the air bubbles, so that the solution shall have so spread on the glass that the paper shall be wetted all over; let the paper imbibe until it cease to curl up, then remove it and pin it by one angle to a shelf, &c., to dry; proceed in like manner until as many sheets are prepared as may be required.

To render the paper sensitive you have merely to repeat the preceding operation and observe the same rules; bnt, of course, substituting solution No. 2 on the glass plate for No. 1, and also performing the process in a darkened room; pin the papers up to dry in the dark, when dry place them together in a portfolio for use. The paper thus rendered sensitive may be prepared at night, employed either in the camera for negatives, or in the pressure-frame for positives, during the snceeding day, and may be developed that evening or following morning.

To shew the rapidity of this paper, I have exposed it under one of Mr. Morecroft's strongest negatives to a northern sky, on a sunshiny day in Jannary, for two seconds, and the impression, when developed, was over done; in fact, I believe it as sensitive as the calotype process.

Development of the image.

1st. If used as a printing paper, make a salurated solution of gallic acid, in cold water, and add about a drachm of spirit to 2 oz. of this solution. Take a clean sheet of glass rather larger than the proof, wet it with cleau water, and lay the proof, back downwards, upon it; then pour a small quantity of the gallic acid solution upon its face, and spread it equally all over by means of a glass rod: the quantity thns applied will be sufficient to completely develop the picture, and it is thus easy to develop any number of proofs at one time.

When sufficiently developed, fix by immersion in a solution of hyposulphite of soda, 1 oz. to 20 ozs. water, for ten minutes,—(bromide of silver is mnch more soluble in hypo. than the iodide or chloride)—float on water several times changed, and the proof is finished. The tone thus produced is pure black and white, warmer tones may be prodnced by the addition of common salt to the bromide solution.

To develop negatives follow precisely the methods indicated in "Mannals of the Calotype Process," that is, a small quantity of aceto nitrate of silver, added to the gallic acid solution.

I shall be happy in future numbers to give any additional explanations yonr subscribers may reqnire.

Familiar Instruction.

No. I.

Rarely does such nnequivocal success attend the first literary efforts of any scientific body, as that which has crowned the enterprise of the promoters of the *Liverpool Photographic Journal*, for incontestible evidence will be given, in other parts of this nnmber, that its reputation has spread to the remotest parts of the kingdom, correspondents having sprung up at either extremity of the empire.

To keep pace with a celebrity thus widely spreading, and to promote the furtherance of an art whose ultimate uses and tendency even its most enthnsiastic admirers hardly dare to contemplate—whose practice is so generally attempted, even from the court to the cottage—it has been deemed advisable to devote a portion of it to the elementary instruction of this truly fascinating art; so that though the original purpose of this serial is to communicate, with that brotherly interest which true knowledge ever engenders, the progressive improvements that each more experienced practitioner may develope in the course of his study, yet there are very many most anxious to penetrate the arcana, to whom the present is a sealed book, from lack of knowledge of the elements of the science. To such it is proposed to address a few lines from time to time, so that in the interval that elapses between the appearance of each number of the periodical, they can make themselves masters of the leading principles of the art, till at last they will be fully competent to judge of the whole of the matter set before them.

We propose to consider the separate materials required for the production of photographic representations, the different changes and effects produced by their combination, the action of light upon surfaces previously prepared to receive the delineation, the method of developing, the nascent pictures so obtained, but not at first perceptible, and the means of securing the fleeting image, unless protected from the too powerful influence of the wondrous agent that called them forth—the glorious sun, whose effulgent beams impart life and light to man, field, and flower.

Necessarily, the first subject for our notice is the coating required, whether upon glass or paper, to produce the medium for generating the chemical changes. For a long period, albumen, or the white of eggs, was considered to be the only glairy or tenacious element capable of being evenly and thinly spread, so as to produce a perfectly firm, yet transparent or invisible surface, and so effective is this, that to the present day it is constantly—nay, I might almost add, uniformly—made use of for paper pictures, such as our neighbours the French are found to excel in. But about seven years ago the world was taken by surprise, by hearing that deadly agents had been discovered out of such harmless material as cotton, whose effect was to exceed that of gunpowder, both in explosive and missive composition. By-and-bye we find, with that compensating kindness of our good mother Nature, that though this subtle and dangerous compound could inflict wounds, it could also heal them, for we have it then figuring as dissolved in æther, and called collodion, and used for causing the incised edges of wounds to adhere together; so that if it could kill it could also cure. But its crowning application was at last discovered to be for the elucidation of the very beautiful representation, all that strikes the eye as harmonious or agreeable, or to fix the images of those natural wonders, either too far distant or too rare for the general observer.

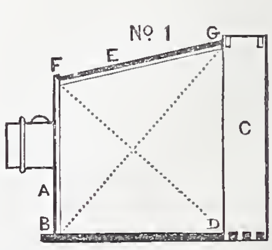
The preparation of the gun cotton, from which the collodion is made, is too dangerous and too uncertain for the student to attempt, still its method of preparation may as well be considered. 6oz. by weight of strong sulphuric acid is poured upon 4 oz. saltpetre in a mortar in the open air, into this 3 drs. of finely-carded cotten are then pressed, and kept constantly in agitation, so that every part of it becomes thoroughly imbued with the acids, for the space of three minutes; it is taken out and plunged into a large vessel of clean water, where it is to be well washed, and the water continually changed, until every trace of acid is removed from it; or it may be placed in a Wedgewood funnel, and held under a tap for some time, until the same effect is obtained: the cotton is then wrung out, carefully separated, and dried by a very gentle heat, for it is so highly explosive, that too much heat will cause it to take fire as readily as gunpowder—nay, at a far less temperature. When dried it is put into perfectly pure æther, in such proportion as would make it when dissolved, which it does readily, of the consistence of thin mucilage, and then becomes simple collodion, to be afterwards rendered energetic by the addition of salts of iodine or bromine, or of both combined as may be determined. For the more frequent or general use, the iodine of potassium is generally selected; a few grains of this are placed in a phial containing a small quantity of good spirit of wine, and shaken up thoroughly, the salt is very sparingly soluble, and the next day the clear or supernatant liquid is poured off, leaving the excess of salt at the bottom, for the purpose of exciting a farther supply as it may be required. The clear liquid so decanted is to be added to the collodion, in the proportion of one drachm to the ounce, and is ready for use, if it be intended for taking landscapes, buildings, or inanimate objects, but for portraits or any other representation of the "human form divine," the time requisite for producing the picture would be too great for mortal patience, besides sacrificing the fleeting expression which so lights up an intelligent countenance. It is obvious that in order to secure this, some more expeditious ingredient must be made choice of, and the many salts of bromine, such as calcium, ammonium, and potassium, have severally been selected; the latter, as being more easily attainable, has been most frequently used; in that case, about the same quantity as the iodide of the same salt is used, as much being superadded as the collodion will take up: but as all, or nearly all, crystalizable salts are very sparingly dissolved in any spirituous liquid, it has been found far better to go at once to the pure bromine, as the best and simplest exciting influence. To this end an infinitesimal quantity, say 1 drop to 1 oz. or 1½ oz. of the iodized collodion, has been found sufficient, thus reducing the sitting from a severe trial of five minutes to a passing glance of a second; some fortunate operators of this Society having thus reduced their process to an almost absolute certainty, and even in the gloomiest weather.

We have now obtained the dormant principle upon whose coating, by a subsequent exciting influence, the subject is to be produced, and have only to choose the most available material on which the magic semblance is to be produced. In the first place, as a means of repeating the picture, glass certainly takes the lead, but equally available for other purposes have proved waxed paper, gutta percha, boxwood, stone, and even steel, as specimens in the possession of the Society can fully testify.

Having selected material most suited for the purpose, the which, for the continuance of the present elementary treatise, we will suppose to be glass, we will proceed to render it susceptible of the image, as reflected through the lens of the camera. The known sensitive quality of the salts of silver to the action of light has presented this metal as the means of producing photographic images, since the days of Sir Isaac Newton. To this we naturally turn, and repeated experiments have shown, that though under modified circumstances the strength may vary, yet 30 grains of the nitrate of silver to the ounce of distilled water will be found the requisite strength. This is placed in a deep cell of glass, gutta percha, or stoneware, in a darkened room, or with the rays shut out by a yellow curtain, or amber-coloured glass; for be it observed that it is only the blue rays, or those in close affinity to it, that have action on the combined preparation. The glass is to be thoroughly washed first in alkalized water, to remove any grease stains, then rinsed thoroughly, and occasionally afterwards in acidulated water; where the plates have been used before, to be again rinsed, and afterwards to be well wiped with a perfectly clean cloth, and rubbed lastly with a silk handkerchief. It is then to be carefully poized between the finger and thumb, as nearly at a level as can be guessed, and the collodion, which had been made some days, and left at rest to settle, is poured upon the plate, enough just to cover equally to the remotest corners, and when evenly floated, the excess is to be returned from one corner by tilting up into the bottle, passing the lip of the bottle backwards and forwards to secure all that would otherwise fall back upon the plate, and render its edge rough; and moreover, the glass is now to be held perfectly horizontal, so as to let the lines that formed in draining the plate settle into an equable surface, and to cause a partial drying of the æther, then slipped with an undeviating and steady motion into the bath containing the solution of silver; great care must be taken that it does not rest in its motion into the bath, as the place in the picture where the halt occurred will be marked with a black line. For taking portraits it should remain in a vertical position in the silver bath from half a minute until two minutes, varying according to the strength of the bath, or the intensity of the light to which it is to be afterwards subjected, or until the greasy striated lines disappear into a perfectly smooth surface. It is then to be lifted several times up and down, so as to wash off any stains or impurity, that will before long float in the bath, and at last to be drawn out with a sidelong motion, so as to drain off as much as possible in its transit the solution of the silver, and then placed in the plate side of the camera, and it is now ready for taking the impression that is determined upon.

Description of Mr. Mackinlay's *form of Photographic Camera, as exhibited before the Liverpool Photographic Society, May 3rd,* 1853.

This portable Folding Camera, combines in no ordinary degree the four great requisites of such an instrument—viz., rigidity, lightness, compactness when closed, and extreme rapidity of erection. When erected it appears as below—



A. The front carrying the lens, hinged to the bottom at B, so as fall inwards.

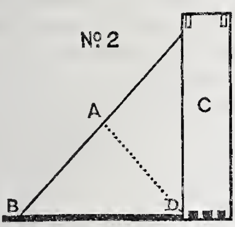
B D. The bottom, clamped to prevent warping, should be made so as to form a lid to C.

C. The back of the camera, hinged to bottom at D.

The rest of the box is made of leather, or "Reversible India Rubber Cloth," according to fancy, only bearing this in mind, that where the cloth is used, diagonal braces must be employed, connecting respectively the points F D, B G, the dotted lines between these points also showing the folds assumed by the cloth or leather on closing the camera. The camera is distended by the strut E, which fits into an eye at F, and a horizontal groove at G.

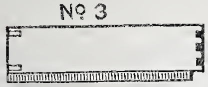
To close the instrument, unscrew the lens from its plate, remove the strut, and press in the front, when it will appear thus—

Nº 2



Then press the leather inwards at the line A D, Fig. 2, and the back falls into its place, as below.

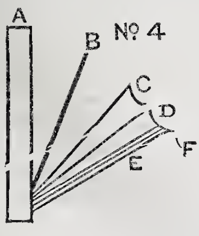
Nº 3



It may be made much longer, in proportion to its height and width, than in the sketches here given, if a long-focussed lens, with a small field, be employed. The front *must* be at least one inch narrower than the internal width of the back. Its height should be about four-fifths of that of the back; at the same time, care must be taken, in constructing a short camera for a portrait lens, that the distance F G when open shall *exceed* the distance between these points when closed. The thickness of the camera need not exceed from an inch and three-quarters for small, to three inches for the largest size.

A highly convenient compound frame is represented underneath—

Nº 4



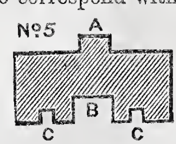
It is capable of taking any number of pictures on paper, without going into a dark room. The outside frame, A, has a sheet of patent plate glass, one-eighth of an inch thick, fastened within a quarter of an inch of the front, against which to press the paper; B is the ground glass, also patent plate, which fits close up against the clear glass, and is hinged to it by a strip of cloth at the bottom. This ground glass serves both for focussing and for pressing the paper against the clear glass front, thereby ensuring the paper being in correct focus. E is the back of the frame, hinged at bottom; it has a strip of wood along each side, to press the ground glass tight up when closed: these strips also form a recess for containing the two pockets, C and D—the former for containing the exposed sheets, and the latter the unexposed. F is a flap which falls over the mouths of the pockets, to exclude light.

If found more convenient, only one pocket may be made, using a strip of card as a distinction between the exposed and unexposed sheets. A hood with one or two sleeves, according to fancy or the size of the camera, enables the operator to change his papers with the utmost facility.

To operate, open the back focus on B, turn down the flap F, and let B fall back on the portfolio; have the prepared paper placed face to the back, so that when brought up and turned over the edge of the ground glass, the prepared side will be to the front, and what was formerly at the top will now be at the bottom; shut the glass and close the back, and your paper is ready for exposure; its removal back to the pocket is similarly effected to its eduction.

No dark slide is required in this frame, and where the camera will be required for paper only, much space will be saved by making this frame a little stronger, and using it as the camera back, instead of having it removable. To those who would be afraid of crushing the paper in transferring, the following suggestion for a cheap and strong double dark frame, may not be unwelcome. Fig. 5 is a section (full size) of one of the sides of this frame, three of which sides are to be of this form, and the top to have slits to correspond with the grooves—

Nº5



A. The rabbet, fitting into groove in camera as usual, *must* be in the centre, as shown.

A. Groove wide enough to admit two sheets of thin patent plate glass, with three ply of paper between. Centre of groove to be opposite centre of B.

C C. Grooves for dark slides.

The two plates should be hinged at top with thick black velvet, the prepared paper—separated by a sheet of black paper—to be placed back to back between them, and the whole slid into the groove B. A separate focussing frame is, of course, in this case required.

The compound frame, however, after a little practice, will be found much the more convenient, and if proper care be taken, the risk of crushing is no greater than in shifting from an ordinary frame in a dark room.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

SIR,

As a subscriber to your very useful and eagerly looked for periodical, I have ventured on requesting (either privately or through its medium,) from some one of your Photographic friends, more practically acquainted with chemical knowledge than myself, a solution of the following queries:—

Positive paper sensitived with a strong solution of nitrare of silver, (120 gr. to the ounce, according to Delamotte's valuable works, page 55,) is directed by many Photographers to be washed three or four minutes, in water, subsequent to exposure in the printing frame, and prior to its immersion in the hypo. bath, for the purpose of fixing. Why not plunge the picture immediately into the solution of hypo. sulph. of soda, as that part of the undecomposed nitrate of silver, which is thus washed off the paper, would then assist in saturating the bath with hyposulph. of silver, an ingredient absolutely necessary to the giving a good dark tone to the finished picture? And again,—the picture having been toned down to the operator's fancy, why wash it for ten minutes, or longer, in a perfectly clean and clear solution of hypo. of soda, seeing that hyposulph. of silver is very soluble in water, and consequently would, in the after ablutions, be as easily washed ont as the pure hypo. sulphite of soda, a chemical equally injurious to the safe and lengthened preservation of the photograph as the former? To give an example of its being directed to be done, I would mention, as one, the truly practical little work of Mr. Hockin, just published.

As the season is fast advancing for the calotypist. I must beg information also on the following point. The negative paper being iodized by the double iodide, is directed to be floated on clean water for four hours, by which time all the useless iodide of potass, and other soluble salts, is supposed to have been washed out; could any injury be done by the paper being floated an indefinite length of time, provided it was not thereby rendered too soft and weak, thus leaving the photographer an opportunity of leaving his home for the purpose of taking a picture at a distance?

One other query, I fear an unanswerable one, and then I have done. Does the Patent Law restrict the amateur's taking collodion portraits of his friends, and subsequently printing them on paper, of course, gratuitously?

I have been induced to ask the above questions, believing that a correct rationale of each chemical decomposition is of the greatest importance to the successful manipulation of the Photographic Art,

I am, Sir,

Yours very truly,

HENRY H. HELE,

5, Nottingham-place, Tavistock-road,

Plymouth.

January 29th, 1854.

[Query No. 1.—*Vide* "Economics of Photography," at page 14 of this number of the Journal.

2. It is necessary to finish fixing the photograph in fresh hyposulphite solution, as the hyposulphite of silver formed is not soluble in water *in the absence* of hyposulphite of soda, &c. It is indispensably necessary to the preservation of a proof, that every vestige of the sulphur salts be removed.

3. The definite period of four hours soaking is placed for an indefinite one, to denote the absolute necessity of removing all the alkaline salts left in the paper, and that the coating of iodide of silver on the surface of the paper shall be perfectly pure.

The last query is beyond our province, but from the tenor of the patentee's letter published some time ago in the *Times* newspaper, we should suppose, while you abstain from taking portraits for gain, you are not trespassing upon his rights. It formed the subject of discussion at the Liverpool Photographic Society, on the evening that Mr. G. R. Berry read his Digest of Mr. Fox Talbot's Patents, when this conclusion was generally arrived at by the members, including one gentleman learned in the law.]

To the Editor of the Liverpool Photographic Journal.

Sir,

I am desirous of calling the attention of the Members of our Society to a new method of taking Collodion Negatives on paper, which I have found to answer remarkably well, and which is a great convenience to parties wishing to take views, &c. on a journey, as it dispenses with the incumbrance of a number of glass plates.

The way I prepare my paper is as follows, viz:—Have a plate of glass ready the size of your plate-frame, and also a piece of paper cut about an eighth of an inch less all round. Then take the glass and coat it with Collodion in the same way as if you were going to take a view or portrait. Before the Collodion sets, take the paper and lay it on the Collodion side of the plate, taking care that no air bubbles remain underneath the paper; however, should any remain, take a piece of ivory or bone, and carefully press them out; when this is done again coat the whole with Collodion, and proceed in the same way as you would do in the ordinary Collodion manipulation. After you have taken the view or portrait, should the picture not be strong enough, strengthen it with Chloride of Gold and Sulphide of Ammonium, then loosen the edge of the Collodion and carefully take the paper off the glass, and iron it between blotting paper: it can be waxed if necessary.

One great advantage of this process is the length of time the plate retains its sensibility. I prepared a plate for the purpose of taking a cast, but before I did so, I was accidentally called away, and left my plate in the plate-frame until the next morning, and for curiosity sake tried it, and found it answered the same as if it had not long been prepared; however, I can confidently state that it will last four or five hours without losing the least sensitiveness, which every one knows is the great desideratum in the Collodion process over the Calotype.

I also beg leave to mention a mode I use to restore old Collodion that has gone bad by keeping, and make it more sensitive than it was before, viz: take as much Collodion as you want to use at a time, and shake a few clean iron filings up with it until the free iodine combines with the iron and forms Iodide of Iron, which you are aware makes the Collodion much more sensitive.

I am, Gentlemen,

Your obedient servant,

Falkner Street. EDWARD J. PEDDER.

To the Editor of the Liverpool Photographic Journal.

Sir,

As the retarding influence of the visual or yellow rays, in proportion as they are associated with the actinic, on most Photographic surfaces has been clearly proved, and as a similar effect has been observed when lenses of a yet rawish or greenish tint is used, allow me through your columns to suggest, as a means of obviating this interference, the employment of coloured lenses, or the intervention, immediately in front of the camera lense, of a blue-coloured plate of glass, whereby the yellow rays would be interrupted, and the actinic transmitted, thereby giving the whole effect of the latter, whereas if combined the effect would only be the difference in which they are associated, exerting as they do a neutralising influence on each other.

Good service, it is conceived, may be afforded to Photography by experiments with coloured glasses by such as have it in their power, especially from the tendency shown of the natural tints being rendered on some preparations by their use. The experiments of Professor Stokes with sulphate of quinine solution also seem to strengthen this probability. J. B.

Montrose, 6th Feb., 1854.

PHOTOGRAPHY AND THE FINE ARTS.

THE CAMERA AND PERSPECTIVE.

We have received the following letter, which purports to vindicate the camera from the charges of distortion by the curved surface of the lens, and of inaccurate perspective. The first point would deserve a more minute consideration, and illustration with diagrams. For general purposes, there can be no doubt the curvature, by proper management, may be kept within limits that render the effects perfectly immaterial:—

To the Editor of the Liverpool Photographic Journal.

Sir,

The poor camera has been sadly maligned at different meetings of our Society, but I will only deal with two of these accusations.

The first is the culvilinear distortion in some pictures exhibited before the Society, being taken as a ground for proving the mathematical inaccuracy of camera pictures. Now, this is not fair. Suppose I were to see a negro with a humped back, I am not for that reason justified in saying that all of his race are adorned with the distinctive mark of Punch. So with lenses—the culvilinear distortion is not a necessary adjunct to a photographic picture; it only appears where the lens is badly ground, the diaphragm wrongly placed, or the aperture too large, or when the legitimate field of the lens is exceeded, just as very tall people, who have outgrown their width and strength, are sure to stoop. In well-ground single lenses, whether simple or achromatic, this distortion can be entirely removed by using a diaphragm with an aperture from half an inch, not exceeding three quarters, diameter, according as the focus is short or long, and placing it at such a distance from the lens as to cut off nearly all the field that is not required.

In double achromatic lenses, this spherical aberration is wholly removed by proper "matching"—*i.e.* slight errors in one lens are corrected by counter-errors in the other; and it is according to the nice balancing of these two that the lens has a sharp flat field or otherwise. A *good* double lens ought to throw a disc of more than its focus in diameter, without the slightest visible distortion. On arguing this point with a friend, he said, "Depend upon it that the curvature is there, though you do not see it." Well, what if it is, who would take the trouble to make such a microscopic and micrometric examination as that; since it is not visible with the most minute scrutiny that the unaided eye can exert, it may be virtually considered absent.

The second accusation was not made publicly in the meeting, but came from one of the members in course of conversation, it was this, "That Mr. Herdman's perspective was essentially a camera one." Now, that is too bad; I would not give a *cent* for a camera that could not do it a deal better. From hearing this remark, I paid special attention to some of Mr. Herdman's pictures in the exhibition this season. Now, not being an artist I cannot criticise them as paintings, but as a person possessed of the usual number of eyes, and the power of using them, and moreover being pretty thoroughly acquainted with the locality of one, at least, of his subjects, I will sift it to the bottom in my own way. Well, take the view of Edinburgh. "This painting includes 170 degrees." What of?—Assurance. The idea of calling *that* a view of Edinburgh! Now, what does this *view* teach the uninitiated public?

1st. Either that the sun shines from the north, or that the old town is to the north of the new one.

2nd. That Dugald Stuart's monument is a tall, narrow structure, for all the world like a dozen *long sixes* stuck into a cheese, with a "braid bannet" on as a roof. It is, in reality, a very handsome, well-proportioned building.

3. That Sir Walter Scott's monument is a short, squat, dumpy thing, about twice the width of its base in height, and that it is opposite the *Register* office.

4th. That St. Giles's spire is squatter than the Emperor of Russia's crown.

5th. That the Castle Rock is twice as high as it is in diameter at base.

6th. That there is a large building with "crow steps" on the gables, close up against the bridewell.

7th, and worst. That the general appearance of Edinburgh is a jumble of buildings thrown together without order or symmetry.

Now, by what earthly rules—of common sense, perspective, or anything else—are a heterogenous group of misplaced, distorted buildings, to be called a view of a place? Had he entitled it, "A Fancy Piece, suggested by a *five minutes'* look at Edinburgh," he would have been right, and could not have been found fault with, as every one has a right to paint what he likes; only, as the whole value of a view is in its truth to nature, *not* in its beauty as a painting exclusively, I hope we shall see no more paintings exhibited without the acknowledgement of their being cooked to the taste of the artist.

Of all these blunders, not one *could* be committed by the camera. Compare one of Ross and Thompson's views of Edinburgh. What a different appearance that city makes there—no distortion of buildings, everything in its right place, and you feel that it is so; and moreover that you have nearly as good an idea of the place as if you had been there, which you never can have with an *artistic (?)* painting, from the well-known propensity of artists to paint everything as seen through a Claude Lorraine glass, and try to improve nature.

It must not be fancied that I have any ill-will against Mr. Herdman. I know nothing of him except through his paintings; all I want is to direct attention to the fact, that artistic license is running so wild, that the press ought to take a magisterial charge of those who evidently cannot take care of themselves.

I remain, Sir, yours truly,

A COSMOPOLITE.

[The second accusation referred to by our correspondent, "that Mr. Herdman's perspective was essentially a camera one," is a mistake that could only have been made by a person very imperfectly acquainted with perspective or misled by the term *curvilinear*, misused by Mr. Herdman as applied to his hallucination. The fact is, that true perspective is a camera one, that is to say, it is the art of representing objects as seen with *one eye*, and from one fixed point of view, and with reference to that representation being on a flat surface, which is precisely the condition of an ordinary photographic camera. Our correspondent's "usual number of eyes" would not help him to judge of the accuracy of the perspective in a picture which, strictly speaking, *must* be a representation of objects as they never are, and never can be seen, but under conditions of which the camera produces the most perfect and the most indisputable fulfilment, so long as the extent of the field is limited, as our correspondent has mentioned, to that portion of the range that is not perceptibly affected by the curvature of the surface.

This Journal is scarcely the place to occupy with a discussion of perspective, but we may allow space to say that perspective proceeds upon the principle of reducing the appearances of objects to that which they would assume if looked at, or rather if they could be seen, by one eye directed to one particular spot. But while the single eye is directed to that single spot, all around becomes comparatively dim, as it diverges from what is, and is called in perspective, the centre point, or point of sight. But, in a view, these parts or objects must be made more distinct than they ever can be to a human eye placed as we have described. On the other hand, if the eye is allowed to range in ever so small a degree, to say nothing of "170 degrees of a circle," it forms for itself a new point of sight wherever it stops, and the aspect of the different objects, and parts of objects, will vary with every move.

If any of our readers will place themselves immediately opposite a long row of buildings, and look first at the centre and then at the two ends, they will find that as they turn their heads to the right, the buildings will diminish from top and bottom towards a point on a level with their eye on the right, and conversely on the left, so that the tops of the buildings, which appeared flat or horizontal in front of them, will appear to descend to the right and left like this—

But this will not convey the impression of a straight row of building. It will appear to be erected on a plan like this—

There are three points of sight, and as many blunders. But if the eye, instead of jumping from the centre to the ends of the street, is allowed to stop at every yard, and take a new view of the same straight row of buildings, we shall have a fresh angle at every stop, and instead of the simple form given above, we shall have a polygon of as many sides as pauses have been made in the eye's traverse from the centre to the end of the street. Now, if to this we add that from the moment the eye is turned from the exact centre of the building opposite, the lines begin to decline on either side, as the view is directed to that side, we may have some such form as this to represent a flat surface of equal heights—

in which no one part, except a mathematical line, which is defined to have "*no breadth or thickness*," at all represents a flat surface opposite to us. When this is carried out to its inevitable conclusion, a fresh view taken at every mathematical line, the polygon becomes a curve, which is the foundation of Mr. Herdman's misapplied term "curvilinear perspective."

But, if the eye be fixed on one point horizontally opposite the spectator, the lines of the top and bottom of the building will be seen indistinctly, but definitely, as straight and horizontal lines,

which we know them to be, and which will convey an impression of the fact, and of that knowledge, to every other eye. To do this is the office of perspective, which is not a science, but a systematically-arranged art, little more at present than a series of well-devised empirical rules, for producing an effect which experience has shown to be indispensable in a picture: both for the necessary concentration of interest, and for the purpose of making art more true than nature. We are told that "facts are stranger than fiction." We might almost say "more untrue," as a celebrated politician said he could trust anything but "facts," and certainly this is the case as regards fine arts, for there is nothing more delusive or less satisfactory than nature or "facts" in a general way. Our correspondent is quite in error in supposing the attempt to improve nature to be the vice of the day among artists, or that a Claude Lorraine glass, which is supposed to diffuse the atmosphere of sunshine, would distort forms. He is right, however, for the reasons we have given above, in contending that Ross and Thomson's photograph of Edinburgh is more accurate than the unfortunate attempt of Mr. Herdman. No one regrets more than we do the hallucination which interferes with the proper exercise of Mr. Herdman's abilities; and the misfortune is the greater, that the heresy is not *new*, nor the solution original. It has perplexed the pseudo-scientific artist for the last hundred years, and now only receives encouragement from the epidemic of the times, the moral "pestilence that walketh in darkness" almost everywhere at the present day, the love of novelty, which, rejecting the light of the experience of ages, prefers groping by the light of nature and original genius. It may be very natural—it is, at least, the idea of a natural.—Ed. L. P. J.]

Peculiar Development of a Collodion Photograph Under the Light.—Mr. William McCraw, of Princes Street, Edinburgh, in a letter to the *London Photographic Journal*, invites the attention of practical Photographers, to a peculiar effect produced on Photographs taken on collodion which are submitted to the light as soon as the image begins to appear. He says that "the light appears to prevent the developing of the parts that have been already affected by the light in the camera, and to blacken the other parts that should otherwise have remained clear and transparent: the result being a positive picture precisely as if it had been printed from a negative, consequently it requires no printing, but simply to be backed with white." He further remarks that "those parts which first appear, before it is taken to the light, such as the face and hands of a portrait, seem to be bleached again by the action of the light." No answer is given to this letter in the Journal of the Photographic Society of London: so we draw the attention of our provincial Photographers to the circumstance, that they may investigate it and furnish any comment that may suggest itself to them. There appear to be so many differences arising in the application of identically the same processes, even the same materials, by different operators, that we shall be prepared for much difference of opinion both as to the facts and the mode of accounting for them; but, in the present state of the art, it appears to us most desirable that the experiences of every individual operator, where some novelty is involved, should be brought before public opinion, and we hope to hear from some correspondents, some comments upon the phenomenon that Mr. McCraw describes.

In the course of the critique on the exhibition of Photography in London, at the galleries of the Society of British Artists, the word Photo-Chalco-Graphic occurs to describe engraving on steel by Photography. It is an Anglicised French term, from *Photo-Chalco-Graphique*, but not strictly correct. At the time when engravings were always made upon copper plates, Chalcography was used to describe the process, being derived from two Greek words, meaning to write on *brass*. The same mode of operation being adopted, the same term was applied, when the engraving or writing was on steel, when *Chalybeography* would have been a more correct word. Perhaps it may not be too late to substitute the correct term, Photo-Chalybeography, as the chemical effect is applicable to steel, *Chalybs* alone; and precision in language leads to precision in ideas.

From the pressure of important matter and advertisements, we have been obliged this month to add four pages to our Journal; which, together with the sudden illness of our Reporter, has delayed our publication from Saturday till Monday, and prevented our giving the report of the meeting of the Liverpool Photographic Society at so great a length as we intended. Mr. Mercer's paper on the uses of Gutta Percha we have been obliged to postpone to admit matter more closely connected with Photography.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 3.—MARCH 11, 1854.

With this number we commence a new session of the Liverpool Photographic Society, and we appear before our readers with a new face, but we trust with no other change, except the improvement that may naturally be expected from our advancing year and increased experience. It was hinted to us, that some inconvenience had resulted from our great family likeness to our elder brother, "*The Journal of the Photographic Society;*" we have therefore adopted a new head-dress of archæological type and different form, whereby our identity and individuality will be unquestionable. We also commence the session with another novelty—the addition of Photographic illustration—for those who are willing to pay the necessarily increased price, one shilling the number. We are again compelled, by press of important matter, to give the extra four pages, which will probably become our standard proportion, until we grow larger still by the nutriment of public support, which it will be our constant endeavour to deserve. We give in this number the annual reports of the two Photographic Societies of Liverpool and London, both of which are in a flourishing condition; and that in our own town, not behind the metropolitan. The first meeting of the new session was very crowded; numerous additions to the list of members were made; a profusion of Photographs exhibited; and a most spirited commencement of the second year, gave good augury of the increasing energy of the Society; for the report of which we refer our readers to another page.

Our "Familiar Instructions" have given rise to some queries, which will be found in our Correspondence, and we hoped to have been able to give, in reference to them, a notice of some very interesting remarks by Mr. Maxwell Lyte and Dr. Diamond on the preparation of collodion, in *Notes and Queries*, Feb. 18, 1854, but our space will not admit of justice to the subject, which appears to be involved in much doubt, and we are compelled to reserve it until another opportunity. In the meantime, we recommend the notes to the attention of our practical readers. Dr. Diamond is of opinion that the ammoniated mixtures ought to be rejected, although they occasionally produce great rapidity of action, because he thinks the "blackening and fogging," of which so much has been said, is "one of the results of ammonia." Mr. Maxwell Lyte, on the other hand, "contrary to what many operators find the case, finds that the potassium gives the most rapid results," and he has never found the "nitrate of ammonia, in company with other salts, stain even an unvarnished negative." There are other points of interest in the notes, but this will show the difficulty in deciding *ex cathedrâ* the precise component parts and exact quantities requisite to form a rapid collodion. The materials themselves vary in quality and strength occasionally, and it is possible that the state of the atmosphere may render one combination more effective at one time than at another, and *vice versâ*. Our "Familiar Instruction" is intended to supply to the unprofessional operators such information, divested as much as possible of scientific technicality, as will enable them to understand and apply the methods employed in the several processes, and thus gradually to introduce them within the magic circle of the Photographic Art, where they will, in proportion to their attention and practice, progress towards the higher mysteries of extreme rapidity, or certainty of operation, until they may be qualified to extend the bounds of Photography by scientific acquirement and practical experience. Mr. G. R. Berry, Apothecaries' Hall, will receive Photographic specimens for transmission to the Exhibition at Dundee.

Economics in Photography.
No. II.

We have been unavoidably compelled to postpone this paper.

GLOSSARY OF TECHNICAL TERMS USED IN PHOTOGRAPHY.

I.—As applied to Processes.

Arranged as nearly as possible in Chronological order.

PHOTOGRAPH. A term formerly applied to the pictures produced by the action of light on chloride or nitrate of silver only, now a generic term for all light-drawn pictures.

PHOTOGRAPHIC. A specific term used in Mr. Talbot's patent, to denote a camera picture produced with lights and shades, as in nature, by one process.

PHOTOGENIC. Produced by light. This term is used indiscriminately with Photographic.

HELIOTYPE. / HELIOGRAPH. } Formerly applied to the Daguerreotype, now used as generic terms equivalent to Photograph.

DAGUERREOTYPE. The process by which Photographs—with lights and shades, as in nature—are produced on prepared silver plates, by the action of light through the camera. Discovered by Messrs. Daguerre and Niepce. Also applied to the pictures so produced.

CALOTYPE. / TALBOTYPE. } Mr. Fox Talbot's process, in which iodide of silver and gallic acid are the substances used to prepare the paper for the camera. Pictures so produced have their lights and shades reversed. Mr. Talbot applied the first term to the process, on account of the extreme beauty of the results, and, notwithstanding that the latter term was at first very much used, out of compliment to the discoverer, the former is now more generally employed.

FLUOROTYPE. A process, by Mr. Hunt, in which the fluoride and bromide of silver are used instead of the iodide, as in the Calotype.

FERROTYPE. / ENERGIATYPE. } Another camera process, by Mr. Hunt, in which salts of silver and iron are employed. He called it Energiatype, from an opinion he entertained, that the action was not caused by light but by an independent principle, to which he gave the name of Energia; he has since, however, changed it to Ferrotype. This also gives the lights and shades reversed.

CHROMOTYPE. A series of three processes in which bichromate of potash is used—either alone, as in M. Ponton's; in combination with one or more metals, as in Mr. Hunt's; or with iodine and starch, as in M. Edmund Becquerel's process. All these are too slow for the camera.

CHRYSOTYPE. A camera process, by Sir John Herschell, in which salts of iron and gold are employed. The results of this process are very beautiful, but until gold becomes a great deal cheaper, it may be considered practically valueless, on the score of expense.

CYANOTYPE. Another process, by Sir John Herschell, in which salts of iron or mercury are used, along with either the ferrocyanide or the ferridcyanide of potassium.

ANNUAL MEETING OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY.

The Annual Meeting of this Society took place at their Rooms in Lord-street at four o'clock on Tuesday, the 7th of March, Mr. C. Bell in the Chair.

Mr. J. A. Forrest moved an amendment of Law 9, due notice having been given, as required by law 16:—

1st. That a Corresponding Secretary be elected, with right to sit in the Council.

2nd. That the Council be enlarged to whatever number the meeting may think fit.

Mr. G. R. Berry seconded the motion, which was carried.

Mr. J. A. Forrest then proposed the following list of officers:

President.
Right Hon. the Earl of Sefton.

Vice-Presidents.
James Newlands, Esq. | William Lassell, Esq.
R. B. Preston, Esq.

Treasurer.
Christopher Bell, Esq.

Joint-Secretaries.
J. A. Forrest, Esq. | G. R. Berry, Esq.

Corresponding Secretary.
Chas. Corey, Esq.

Honorary Corresponding Member.
T. Mackinlay, Esq.

Council.

MEMBERS.

C. H. Chadburn, Esq.	J. Morecroft, Esq.
J. McInnes, Esq.	J. Carr, Esq.
J. B. Edwards, Esq., Ph.D.	J. Stevens, Esq.

ASSOCIATES.

Frank Howard, Esq. | J. A. P. McBride, Esq.

Dr. Edwards begged to anticipate this motion by another, which he considered a necessary preliminary,—that the Earl of Sefton be elected an hon. member. Mr. Frank Howard seconded this, which was carried, and Mr. J. A. Forrest's motion being then taken into consideration, was seconded by Mr. F. Howard, and carried.

The annual report was then read as follows:

Annual Report.

The Officers and Council of the Liverpool Photographic Society, in rendering up their trust, have to congratulate the members on the steady and continuous increase of the numerical force of their body, which now amounts to 155; and numbers of candidates are only waiting till the commencement of the new session to offer themselves for election.

The Society was founded on the 22nd of March last, at a large meeting, Mr. J. A.

PICTON in the chair, when the following rules* were determined on, and the then Mayor of Liverpool, Mr. SAMUEL HOLME, elected President; Mr. J. A. PICTON, Mr. NEWLANDS, Vice-Presidents; Mr. BELL, Treasurer; and Mr. J. A. FORREST and Mr. MACKINLAY, Joint Secretaries; Mr. F. FRITH, Mr. G. R. BERRY, and Mr. C. H. CHADBURN, Members; Mr. W. BENNETT, and Mr. FRANK HOWARD, Associates; were elected to form the Council.

A series of monthly meetings have taken place, at which valuable papers have been read, valuable suggestions as to new or improved processes made, interesting discussions have been held thereon, and new forms of camera, both for single Photographic and Stereoscopic purposes, have been exhibited, together with a large and varied series of specimens of Photography of all kinds, from the Daguerreotype to Collodion, waxed, iodised, bromised and albumenised paper—many the finest examples of those produced in various parts of the continent and in London—but what will be most interesting and honourable to the Society, many specimens of all kinds by their own members, some of which will bear comparison with the most perfect ever produced in any part of the world.

The papers read before the Society have been as follows:

April 5th, "*On Collodion Negatives,*" by Mr. G. R. BERRY.

May 3rd, "*Practical Notes on Glass Positives,*" by Mr. KNOTT.

June 7th, "*Photography in connection with the Fine Arts,*" by Mr. FRANK HOWARD.

July 5th, "*On the use of Double Glass Plates and the entire substitution of Bromine for Iodine in the Collodion process,*" by Mr. G. R. BERRY.

August 2d, "*Artistic Distribution of Light and Shade,*" by Mr. FRANK HOWARD.

September 6th, "*Notes on the Daguerreotype,*" by Mr. FOARD.

"*Photography in connection with the Fine Arts,*" by Mr. J. A. P. M'BRIDE.

October 4th, "*A Digest of Mr. Fox Talbot's Patents,*" by Mr. G. R. BERRY.

January 3rd, "*Common Sense applied to Photography,*" by Mr. G. R. BERRY.

"*On the Construction of the Crystal Palace at Sydenham,*" illustrated by the Photographs taken by P. H. Delamotte, during the progress of the works, by Mr. T. C. ARCHER, the Agent of the Company.

February 7th, "*Scientific uses of Gutta Percha,*" by Mr. NATHAN MERCER.

The meetings of November and December were devoted to discussions on the paper processes, and on the relative advantages of the paper and collodion processes.

At the May meeting, Dr. Edwards exhibited an adaptation of the Camera to microscopic purposes. Mr. Mackinlay and Mr. J. A. Forrest have exhibited folding cameras adapted for the use of paper and collodion. Mr. Wood has exhibited a comprehensive apparatus adapted for the complete operation with collodion in the open air; and a small camera for taking Stereoscopic-Photographs on the same plate of glass. Mr. Christopher Bell exhibited an ingenious portable apparatus for Stereoscopic-Photography in the open air, with which he had been very successful. A French invention, for taking both views at the same moment, in the same camera, by a proper arrangement of two lenses, was exhibited by Mr. Atkinson, who has also exhibited a sliding camera of large size, capable of being reduced into a small compass.

A number of specimens of Photography have been presented to the Society, which will soon possess a valuable portfolio of the productions of its own members and other distinguished Photographers.

The following list comprises the donations up to the present time:

From Mr. Sanford, London, 17 views, viz.:—St. Paul's Cathedral; the Tower of London; St. Peter's Church, in the Tower; Westminster Abbey; Lambeth Palace; Charter House (two views); Hungerford Suspension Bridge; Richmond Bridge; Canterbury Cathedral; Willesden Church; Walmer Castle; Penshurst; Penshurst Railway Station; Sydney Oak, Penshurst; King's College, Cambridge; a Landscape.

From Mr. F. Horne, two Portraits on albumenized paper.

From Mr. Berry, a Specimen of Photo-lithography, and one of Photo-chalybeography.

From Mr. Hele, of Plymouth, a View of the Viaduct of the South Devon Railway, and a View of a Cottage at Buckland, Devon.

From Mr. Carr:—St. Peter's, Rome; Palace of the Vatican; Castle of St. Angelo; Exterior of Colosseum; Interior of ditto; West View of Roman Forum; Arch of Constantine, (three views); Temple of Mars Ultor, Tivoli; Citadel of Volterra, (Tuscany.)

The discussions at the monthly meetings of the Society having frequently assumed a highly interesting character, and extended to so great a length as to preclude the possibility of their being fully reported in the public papers, certain members of the Society have established a publication of their own, under the name of the *Liverpool Photographic Journal,* of which the two first numbers have appeared,

* These appear on the pages of our Journal, and therefore are not reprinted here.

and may be taken as a fair specimen of what it is intended to be, but various improvements will appear in the third and succeeding numbers. It will report in full the proceedings of the meetings of the Liverpool Photographic Society, and print *in extenso* the valuable papers that have been read before the Society. It will give the proceedings of the London Society, and all the information relative to Photography in the provinces that can be obtained. The first and second numbers have been very favourably received in London, Bath, Bristol, Manchester, Birmingham, Plymouth, Newcastle, and other parts of England, and also in Scotland and Ireland; and it is hoped it will meet with support from the members of this Society, as it cannot fail to be of the greatest advantage both to the whole body and to the separate individuals who may be interested in the progress of the art of Photography.

The members will each receive two prints, from exquisite negatives, taken by Mr. J. Morecroft, who has most liberally allowed the use of them; and the expense of printing will be saved to the Society by the liberal exertions of another member, to whom the Society is already in other ways greatly indebted, Mr. G. R. Berry.

Reading and operating rooms, in Lord-street, have been kept open during the greater part of the year, and a Camera provided, of which Mr. Atkinson has liberally contributed the use without charge.

Books on Photography have been lent to the reading room by various members. Specimens have been exhibited, and weekly converzatione held there on the Wednesday evenings, though not so numerously attended as could be desired, except during the summer months, and on the occasions of the exhibition of Mr. P. H. Delamotte's Photographic reports of the progress of the Crystal Palace at Sydenham, by Mr. T. C. Archer, the agent of the Crystal Palace Company; and the exhibition of some large Photographs, positive and negative, by Mr. Sanford, brought from London by Dr. Edwards.

The Council of the Society have proposed that an exhibition of Photographs should take place in Liverpool during the autumn of this year, and they have offered a premium for the best specimen produced by any of their own members. The award of this premium they propose to leave, in a great measure, to members of the British Association, which will hold its next meeting in Liverpool in September, and in placing the honour of the Liverpool Photographic Society in the hands of the members, the Council trust that it will be responded to by every exertion on their part to vindicate a distinguished position for the Photographic art of Liverpool.

INCOME AND EXPENDITURE.

The Income of the Society has been derived from 117 members, who have paid their subscriptions			£61 8 6
Eight subscribers to the operating room			4 4 0
			£65 12 6
The Expenses have been—			
Preliminary expenses and Soirées	£ 3 11 10		
Three-quarter year's rent of rooms in Lord-street	18 15 0		
Rent of Lecture-room, Royal Institution	11 4 0		
Furniture	4 13 6		
Gas and fittings	2 15 11		
Housekeeper and coals	13 11 6		
Printing, Stationery, Advertising, and sending out Notices of Meetings	15 0 10		
Collector's Commission	0 5 0		
			69 17 6
Balance due to Treasurer			£ 4 5 1

N.B.—There are forty members who have been proposed and admitted, whose subscriptions are yet due, and there are still some outstanding liabilities for the year ended, which amounts will not again occur in an annual expenditure, having been consequent upon the opening of the Society's rooms in Lord-street, and their alteration to serve Photographic purposes.

Mr. COREY moved the adoption of the Report, which was seconded by Mr. J. A. FORREST, and carried.

It was then moved by Dr. EDWARDS, and seconded by Mr. ALEXANDER COOK, "That this meeting recognizes, with gratification, the successful operation of the *Liverpool Photographic Journal*, and recommends the Council to consult with its proprietors on the subject of its adoption by the Society."

A vote of thanks was then carried, by acclamation, to Mr. Bell, for his conduct in the chair; moved by Mr. COREY and seconded by Mr. F. HOWARD.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

THE first meeting of the second session was held at the Royal Institution, Colquitt-street, on Tuesday evening, Mr. FRANK HOWARD occupying the chair.

There was a very numerous attendance of members, the room in which the proceedings were conducted being inconveniently crowded.

Mr. JAMES ALEXANDER FORREST, the Senior Secretary, called attention to a number of Photographs taken by one of their members, Mr.

CARR, who had agreed, through him, to dispose of them to the Society, and at the same time present the Society with twelve, which he had selected for their portfolio. Having handed round the twelve specimens for inspection, he further observed that any member wishing to possess a copy might have it on application. They had been taken by the albumen process on glass.

The SECRETARY next proposed seventeen gentlemen as members of the Society.

The SECRETARY read the proceedings of the annual meeting, held that afternoon in the rooms of the Society, a report of which will be found in another column. The accounts, he said, showed a balance due to the Treasurer, of £4 5s. 1d. There were, however, forty members who had been recently elected, whose subscriptions were now due; but there were still some outstanding liabilities for the year ended, which would not again occur in the annual expenditure, being consequent on the opening of the rooms in Lord-street, and their alteration for Photographic purposes.

The CHAIRMAN congratulated them at this the first meeting of the new session, on the position of the Society. Their Treasurer was not alarmed at the state of the finances, though he was liberally in advance of the amount in the Society's books. He was aware, as possibly they all were, that the commencement of a Society was necessarily more expensive than its annual progress would be, as it became stronger and better able to bear the demands upon it; in fact they diminished as the Society proceeded. There was much before them that evening, and he would refrain from addressing them at length on the advantages resulting from the establishment of the Society. The number of members, they had heard, was 155, and that seventeen had since been proposed; and though of these 155 only 117 had paid up their subscriptions, they had every reason to believe that this was merely the result of accident or thoughtlessness. The condition of the room at that moment (crowded) was a satisfactory and hopeful sign of future prosperity. The Society was as well supported as any in Liverpool. Inasmuch as Photography was diffusing itself in all channels, it seemed to be attracting attention in all quarters, and they had every reason to believe that the Society would maintain the position it had assumed. He called upon the operative members to use their exertions to make the best figure they could at the exhibition proposed to be held. In conclusion he drew attention to a large Photograph, by Mr. Lee, of Mr. Bishop, teacher of drawing at the Collegiate Institution—a beautiful specimen; and what was of far more importance to the scientific world, a Photograph of the moon, which had been taken last (Monday) night. He would presently call on Dr. Edwards to explain the peculiar process by which it was obtained. It would be remembered that the British Association offered a premium for the best Photograph of the moon. Unfortunately she would not always show her face when the Photographer was ready to take her portrait: frequently, when everything was prepared, she covered her face with a veil. This had been fatal nearly in every case this month. Though the nights had been very fair, they had had few opportunities for successful operation. He congratulated Dr. Edwards in being assisted by Mr. Hartnup, of the Liverpool Observatory, and also on their being so successful last evening. The number of Photographs they had before them would preclude the necessity of his showing some specimens, which he would reserve for another occasion. They were executed by Mr. Hele, of Plymouth, who, as they had heard, had presented some to the Society. He had found him an earnest little Photographer, and he and his able assistant were doing all that could be done in a magnificent climate. He had no doubt they would hear of Mr. Hele again, with specimens even more worthy of their acceptance than those he had already produced. Mr. Forrest had a camera to exhibit, the invention of Mr. McInnes, who had reduced it to an exceedingly portable shape, and who was now ready to explain its construction in public, as he had been kind enough to explain to him (the Chairman) in private.

Mr. FORREST: The apparatus being merely experimental, is in a rough state; and in consequence it was with considerable reluctance that Mr. McInnes brought it before them.

Mr. PORTER wished to explain that the glass picture alluded to by the Chairman on the previous evening, was taken, not at the Collegiate Institution, as had been stated, but by Mr. Lee, at his own house.

Mr. FORREST proceeded to explain Mr. McInnes's camera, which he said was a most ingenious little thing, but this description we must reserve till another opportunity.

The SECRETARY (Mr. Forrest), next laid before the Society a number of Photographs by Mr. Fenton, Secretary of the London Society, which had been kindly exhibited by their espected member, Mr Foard; and also a number of Photographs by Mr. Pedder, a member of their own Society.

At the request of the Chairman, Dr. Edwards explained the process adopted in obtaining the Photograph of the moon. There was extreme difficulty in taking it. He believed it took Professor Bond, of Cambridge, U.S., a great amount of labour to obtain a satisfactory result; and although his instruments were of larger magnifying power than those at the Liverpool Observatory, he spoiled 100 or 200 Daguerreotype plates before he obtained a good result, and he had only a few at all worth preserving. He hoped, that although already tolerably successful, they would be enabled, with the beautiful mechanical motion which the Liverpool Observatory telescope had, to obtain still better results, which would bear magnifying. He was, however, satisfied with this as the first they had done.

Mr. Forrest: Great difficulty is always experienced to get the moon when not on the meridian. While the plates are exposed the moon is moving, and it is almost impossible to get an exact representation.

Mr. Porter: Is there no attempt to get a motion corresponding with that of the moon?

Dr. Edwards: Yes, the ascending motion, but not the descending motion; and that was to be lamented.

Mr. Hartnup: That is not required when the moon is on the meridian. We have no other motion than clock motion; and there is great difficulty in giving a motion to a clock of such a nature as to follow the moon, except she is on the meridian, in consequence of the change of atmospheric refraction, as the moon approaches the horizon.

Dr. Edwards hoped shortly to have better results to lay before the Society.

A Member: What length of time were the plates exposed?

Dr. Edwards: About a minute and a half. It was not a clear night, and we observed a decided difference in the amount of light as soon as the moon began to decline; and shortly afterwards the motion was so great that it was impossible to obtain an accurate image. It is the most difficult thing in the world to take a portrait when the lady will not sit quietly; and in such a case, if the picture is spoiled, it is no fault of ours (laughter).

The Chairman asked whether Dr. Edwards used rapid Collodion?

Dr. Edwards: Not very rapid. It contained five grains of iodide of potassium in the ounce, which we found sufficient, our object particularly being to get a good negative. On another evening, by commencing operations a little earlier, we shall be able to succeed better, by taking it rather before than after the meridian.

Dr. Edwards then read the following Paper on "*The Chemistry of Silver.*"

The first photographic impressions of natural objects were obtained by means of a solution of silver dissolved in nitric acid; and in the numerous and varied processes now employed this metal and its salts are still depended upon almost entirely for Photographic results. It is, therefore, important and interesting to examine most carefully the properties of this metal and its compounds with other elements, with a view to the elucidation of these processes.

Silver is found native in the metallic state, but most frequently in combination with sulphur; also associated with lead, copper, antimony, and mercury, and sometimes with chlorine, iodine, and bromine. As chloride of silver, it has been found in sea water, various seaweeds, and in coal.

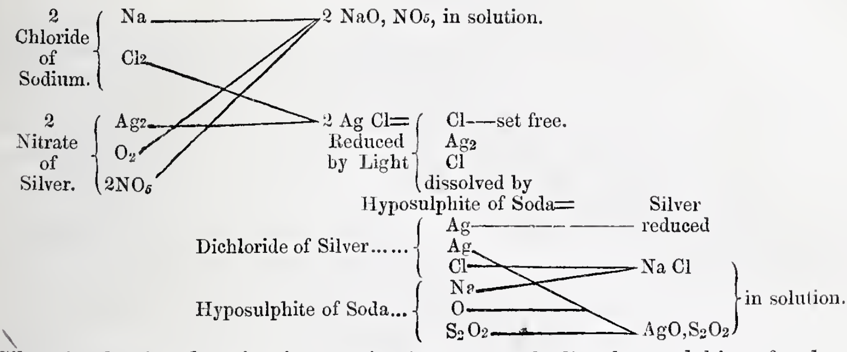
From the native impurities it is freed either by amalgamation or cupellation. The first process consists of dissolving the metal in mercury, with which it readily amalgamates, leaving behind the baser metals: thus separated, it is freed from the mercury by distillation. The process of cupellation depends upon its ready combination with lead, which acts upon it as a flux, and removes it in the melted state from many impurities when heated in a basin of bone ash, which is very porous, the lead becomes oxidised, and the litharge formed melts and runs into the basin, leaving a button of pure silver.

Silver is distinguished as a "noble metal" in virtue of its stable and valuable properties. It is harder than gold, and hence has been used as an alloy for coinage. It is the whitest of all metals, and fuzes only at a very high temperature, when exposed for some time. At a white heat, it loses only one per cent. per hour, and it does not oxidize in the air at a lower temperature than its boiling point. Its malleability is such that leaves have been obtained only $\frac{10}{1000}$ of in. in thickness, and one grain has been drawn into a wire 400 feet long. Like iron, it can be welded at a high temperature, and its properties combine to render it in the metallic state one of the most useful of known metals.

When placed between the poles of a powerful galvanic battery it burns with a brilliant green light, volatizing and passing into the state of oxide. Of all the other metals, however, it is the most easily reduced to the metallic state.

In combination with *chlorine*, it is found native in a grey translucent mass called "Horn Silver." The same compound is produced when a solution of nitrate of silver is mixed with hydrochloric acid, or common salt. It falls as a curdy white precipitate, which is insoluble in nitric acid, even when boiling, but freely soluble in ammonia, chloride of ammonium, and hyposulphite of soda, forming double salts with these alkalies; also in strong hydrochloric acid, and slightly in nitrate of silver. It is readily reduced by copper, and has therefore been recommended in plate powders, and similar compositions, for obtaining a re-deposit of silver on plated articles. When moist and exposed to the light, it is blackened and decomposed, being converted into dichloride of silver, from which ammonia or hyposulphite of soda extract chloride of silver, leaving metallic silver deposited, the dissolved chloride being then converted into hyposulphite of silver, and chloride of the alkali.

This may be represented in the form of a diagram thus, and is an illustration of what takes places when salted paper, excited by the silver bath, is exposed to light, and fixed with hyposulphite of soda, as in the printing process:—



Silver is also found native in combination with *iodine*, and is prepared by adding iodide of potassium to nitrate of silver; it is a yellow powder, decomposed by chlorine, dissolved by chlorides of the alkalies, hyposulphite of soda, cyanide of potassium, and slightly by nitrate of silver. Hence collodion or paper surfaces thus precipitated are partly re-dissolved in the silver bath, unless it is first saturated with the iodide, and finally cleared by the fixing solutions.

It is reduced by zinc and iron, also by light (but not readily), in the dry state, turning brown; when moist, especially in the presence of organic matter and nitrate of silver, it is very sensitive to the action of light. The unreduced salt is decomposed and dissolved by the fixing solutions by a similar decomposition to that of the chloride just described.

Bromide of Silver is also found in the native state, and may be similarly prepared to the iodide. It is a yellowish powder when dry, more sensitive to the light than the iodide, less so than the chloride, passing to a grey colour, being partially reduced. It is speedily reduced by metallic zinc, and is, like other salts of silver, most sensitive to light in the presence of nitrate or organic matter. It is decomposed by chlorine, and dissolved by soda, chlorides of the alkalies, hyposulphite of soda, cyanide of potassium, and very slightly by nitrate of silver. Reduced by iron in the collodion process, and by gallic acid with paper, it produces very rapid results.

Silver is also found native to a great extent as *sulphuret*, or "silver glance." Free sulphur and alkaline sulphurets produce this salt as a brownish black powder, and so great an affinity has the metal for silver, that even in the polished state it rapidly becomes tarnished in the air, when sulphur is present, a superficial film of sulphuret being formed. It is readily reduced by heat to metallic silver, sulphur being oxidized and given off as sulphurous acid gas. It is also dissolved by nitric acid. Salts of silver may readily be recovered from old solutions by precipitation by an alkaline sulphuret, roasting and dissolving in nitric acid, which will restore it to nitrate of silver; this should be evaporated to dryness, the free acid expelled, and the salt dissolved in distilled water.

When nitrate of silver is added freely to hyposulphite of soda, black brown flakes of sulphuret of silver are produced; and the same occur as brown stains, when unwashed or partially washed prints are put into a strong fixing solution—this is obviated by careful washing.

Cyanide of silver is a salt much resembling the chloride, when fresh precipitated; it is however soluable in nitric acid, and *insoluble* in ammonia. It dissolves freely in cyanide of potassium, and forms an excellent solution for electro-plating; when a small portion of bisulphurct of carbon is added to this mixture the silver is deposited perfectly bright upon a polished surface.

The oxide of silver may be precipitated from the nitrate by caustic alkali. It is a brown powder, slightly soluble in water and in solution of the nitrate, giving to each an alkaline re-action to test paper.

It is freely soluble in oxygen acids, forming neutral salts, also in ammonia, hyposulphite of soda, and cyanide of potassium. Its organic salts are reduced by simply heating with carbonaceous matter and by light.

The oxide itself is reduced by a red heat, by light, by phosphorous and sulphurous acids, and by zinc, cadmium, copper, tin, and hydrogen gas. Its reduction is gradual, a lower oxide, Ag_2O, being formed, which is converted by hydrochloric acid into Ag_2 Cl. the black dychloride already noticed.

When oxide of silver is thrown down from an acid nitrate and digested in strong ammonia, combination takes place, and the dangerously explosive compound known as "*fulminating silver*," is produced.

The salts and double salts of protoxide of silver are very numerous, only those of immediate interest, therefore, can be referred to here.

Nitrate of silver:—Oxide of silver dissolves readily in nitric acid, forming a neutral salt, from which all the less soluble salts can be prepared; it crystallizes in anhydrous prismatic crystals, soluble in their own weight of cold, and half their weight of boiling water: hard water causes a precipitation of chloride of silver. This salt is apt to be contaminated with copper and lead from the native alloys, and is sometimes adulterated with nitrate of potash. It is sensitive to light only when in contact with organic matter, but is readily reduced by many re-agents.

When an excess of ammonia is added to nitrate of silver, the oxide at first precipitated is re-dissolved, forming a double salt, the "*ammonio-nitrate of silver*;" this salt, in contact with organic matter, is very sensitive to light, and easily reduced by heat. This is the basis of marking ink, without preparation, which, on the characters written being exposed to heat or the sun's rays, becomes speedily black, from precipitation of metallic silver.

Whether the Photographic applications of the silver salts were known and appreciated in ancient Egypt is not yet revealed to us, but it is an interesting fact that a recent examination of the hieroglyphics upon a mummy-cloth of great age, by Mr. Herepath, proves that the use of nitrate of silver as a marking ink for linen fabrics was known and practised by that wonderful people at a remote period. The marking ink principally now in use consists of a solution of nitrate of silver with a mordant of carbonate of soda. During the re-action, carbonate of the oxide of silver is precipitated, which, on exposure to light, becomes, by a true Photographic process, reduced to the metallic state.

Carbonate of Silver, precipitated from the nitrate by a carbonated alkali is a yellow powder, readily reduced by heat to the metallic state. When moist, it is easily acted upon by light, and is freely soluble in hyposulphite of soda, and cyanide of potassium, forming double hyposulphite or cyanide of silver with the alkali.

When characters are written upon paper with a plain solution of nitrate of silver, they are at first colourless; but if exposed over the vapour arising from phosphorus in the air, they are speedily reduced to a brown-black stain of metallic silver.

This result is occasioned by the conversion of phosphorus acid PO_3 into phosphoric acid PO_5, at the expense of the oxygen contained in the silver salt.

Acetate of oxide of silver is obtained in small white crystals, very slightly soluble in water, by adding acetate of potash to nitrate of silver. So little soluble is this salt that it has been used as a test for the presence of silver. It is, however, more soluble in solution of nitrate of silver, although less so than some suppose; and it has been strongly recommended as an addition to the nitrate bath, for collodion pictures, and by the addition of glacial acetic acid to the bath for paper the same salt is produced. Being exceedingly sensitive to light, it increases the sensitiveness of the bath sensibly; but it has failed in some cases to prevent the peculiar blackening of the picture after developing, for which effect it was put forward as a remedy.

The sulphate of silver is a sparingly soluble salt of silver, formed in minute white crystals. When sulphate of potash is added to nitrate of silver, it is soluble in hyposulphite of soda, and is formed to some extent in an old fixing bath of that salt.

The *hyposulphite of silver* is a slightly soluble and intensely sweet salt, readily forming double salts with soda and potash; it is formed when moderately-diluted solutions of nitrate of silver and an alkaline hyposulphite are added together, and also by decomposition, as already shown, of the dichloride, dinoxide, carbonate, and other insoluble salts of silver, which dissolve in the hypo, and form the double salt. The presence of this salt is valued for giving a rich tone and variety of tint to paper positives.

The *reduction of metallic silver* from its salts is effected by a variety of means, and for various purposes, and is the special object of the Photographer. The general theory of the processes being thus expressed :—

Salts of Silver, as Iodide, Bromide, Chloride, &c. are partly reduced by light=	=Further reduced and structure changed by Developing Agents, as Mercury, Gallic Acid, Pyrogallic Acid, Sulphate of Iron, Nitrate of Iron, Boracic Acid, Formic Acid, &c. &c.=	=The remaining Salts of Silver are Dissolved in the Fixing Bath of Ammonia, Cyanide of Potassium, or Hyposulphite of Soda.

This may be taken as a type of the general decomposition, and the salts may be varied to a great extent. Silver is reduced from the nitrate by metallic copper, in a white crystalline condition, by tin, lead, and zinc, as a black powder; by metallic mercury, which, when suspended in solution of the nitrate, is covered with beautiful arborescent crystals, of an amalgam with the silver, known as the "silver tree;" and in the Daguerreotype, the same compound forms the lights in the picture, contrasting with the dark polish of pure silver. Its reduction by electrolysis in the battery, by light, heat, and organic bodies, especially acids, has been already alluded to. The most beautiful deposit of silver is that in the bright specular condition, in which it is employed in mirror globes and other ornaments: this is very readily obtained by adding a solution of grape sugar, honey, or essential oils, to a boiling solution of ammonio-nitrate of silver, formed by adding sufficient ammonia to a nitrate of silver solution 5 grains to the ounce, to re-dissolve the precipitate first formed; on boiling, the silver is thrown down upon the inner surface of the vessel as a brilliant mirror. Retorts and flasks thus lined, possess the advantage of a silver vessel at a moderate expense.

In conclusion, Dr. Edwards urged the obvious advantages arising from the study of chemistry, to those engaged in an art depending upon the fulfilment of the laws of that important science.

The paper was practically illustrated by a number of interesting chemical experiments, and the skill with which they were made by Dr. Edwards elicited frequent expressions of admiration. On concluding he was warmly applauded.

The Chairman was sure that the hearty applause which marked the conclusion of Dr. Edwards's able paper, justified him in tendering to that gentleman their thanks for his interesting lecture—doubly interesting to those practising Photography, and anxious to learn all those minute distinctions which Dr. Edwards had so clearly explained. He would now call upon Mr. Foard to give some observations on the glass and paper processes.

Mr. J. F. Foard said his observations would be very brief, being merely explanatory of the practice adopted by himself in obtaining results from paper pictures, and of the mode he usually adopted to obtain a negative picture. The means he had employed were so simple, and the results satisfactory, as might be seen from his specimens, as well as from those by Mr. Fenton, that for the purpose of amateurs he thought they were much more simple than the other modes; while they would enable the operator to multiply copies, and carry on the work of Photography without any additional cost to themselves. And if by this means they obtained a few good prints, they would be able to dispose of them, and to pay all their expenses, which was more satisfactory than confining their operations to glass pictures, which, for instance, could not be transferred to an album. Half the time expended over glass positives would enable them to obtain glass negatives; they would then have a satisfactory result at the end of the year, with the further advantage, no doubt, that many prints would sell for good round sums, and cover the cost of their manipulations. At different times he had had a number of propositions for printing negative pictures—some suggesting the use of bromide of potassium, and others of the ammonio-nitrate, similar to that recommended by Dr. Taylor, as well as many others which it would be needless to mention. For the preparation of the paper, there would be merely required a simple solution of salt, and a simple solution of nitrate of silver. Simplicity was always the grand object to look at, the results being equal; and in this instance the very simplest means were quite as efficacious as the more complicated. The use of mere nitrate of silver, with proper appliances for printing, was quite sufficient to obtain good positive results. As an instance, he referred to the pictures before the meeting, some of which were printed with mere nitrate of silver, and others with a mere solution of salt prior to the silver. All the practitioner had to do was to float his paper (which could be purchased ready prepared at the chemists') with a solution of salt, forty or fifty grains to the ounce, for about five minutes, then to let it dry, and then to float it in a solution of nitrate of silver of not more than fifty grains to the ounce. His mode of obtaining negative glass pictures would be to proceed as for positives, substituting for the proto-sulphate of iron a developing solution of pyrogallic acid, the same as recommended by Mr. Horne, in his pamphlet. By this means they would obtain a good negative, and could print it off with little more trouble than in printing one positive picture, while the result was so far better, that instead of one copy he might have a hundred. The quantities of pyrogallic acid required to develop a negative picture were given in two or three books. Mr. Horne gave them in his "Guide to Photography," a work published for a shilling.* That would completely answer the purpose. He (Mr. Foard) generally used it a little stronger in working his pictures, perhaps twice as strong. He should be happy to furnish the receipts to any one who might wish to possess them; but he would not occupy time by stating them now, especially as he was anxious to advert to the wax process, which was very simple, after all the fuss made about it in books, and the recommendations to persons not to practice it. It offered many advantages over the collodion, not the least of which was, that wax-paper might be kept for a month without great injury to the result. Mr. Fenton assured him that some of the paper on which the wax-paper negatives of scenes in Russia were taken, were prepared in London before he set out; and that there was no marked difference in the results in the paper prepared in that manner, and that prepared just before required for use. This was a great advantage, as the collodion could not be used except when wet; and as it was liable to be shaken up in moving rapidly about, in which case the picture became liable to spots. All the best negative pictures were obtained either by the albumen or wax-paper process. Paper might be purchased as well waxed as it could be done by oneself; and it had only then to be prepared by being saturated in two solutions, as described by Mr. Fenton, in Mr. Horne's book, where the formulæ were set out which were sufficient for the purpose. Very little difficulty would be found in this process which he recommended to the attention of amateurs.

The Chairman said he was in hopes that Mr. Foard would have read the formulæ, which would not have occupied much time.

Mr. Foard: I would rather forward to each member of the Society my own practice, by which means they will be able to retain it much better than if I were to state it verbally.

Mr. Corey suggested that Mr. Foard should kindly furnish the information to the forthcoming *Liverpool Photographic Journal.*

Mr. Foard said he should be happy to do so.*

The Chairman admitted the success of Mr. Fenton in the exhibition in London; his Photographs were better than the generality of those produced, though many beautiful works were shown. He confessed that it struck him that the wax-paper specimens were superior to those by the albumen process, especially where the same scene was taken by the same hand, though he was quite aware that this was not an infallible test, as an accident might happen to one and not to another. It was generally thought that wax-paper was more troublesome; but, if Mr. Foard had found it easier, it was placing a satisfactory result in their hands.

Mr. Forrest mentioned, for the encouragement of those gentlemen who wished to make progress in the use of wax-paper, that a short time ago he was presented with a photograph, by Mr. Sedgfield, of a church at Salisbury, where every letter of the inscriptions on the tomb-stones, including the doggrel poetry, could be easily read. It was so very minute, yet distinct, that he felt confident it must have been executed by the collodion process; but his colleague (Mr. Mackinlay) differed with him, being of opinion that it was on wax-paper. He wrote to London, to Mr. Hogg, who replied that it was wax-paper.

The Chairman inquired whether Mr. Foard could point out which of the scenes from Russia

* This is a *lapsus linguæ*. The price of Mr. Horne's Manual is 2s., in boards 2s. 6d.—Ed. L. P. J.

* We regret that we did not receive Mr. Foard's *formulæ* until too late for insertion in this number. They shall appear in our next.

had been executed on the wax-paper prepared in London.

Mr. Foard could not pretend to say which were the particular pictures; but he repeated that the majority of them were taken on paper prepared in London. There was another remarkable thing connected with these views—their excessive sharpness—a success which had been denied to wax-paper Photographs. In relation to this he might mention that when in London, a week or two ago, he attended a meeting of the Graphic Club, at which some pictures, by Sir W. Newton, were exhibited, that gave rise to a discussion, as to whether they were by wax-paper or collodion process. Mr. Fenton was called in, and he could not decide by which process they were taken.

Mr. Mackinlay: How long does it require the wax-paper to be in the Camera with a 12-inch focus.

Mr. Foard: It is much longer than collodion. Those by Mr. Fenton, which were taken in winter, occupied about half-an-hour; but he has taken them in a few minutes. Three or four minutes, I think, are sufficient for an ordinary camera in an ordinary summer light.

Mr. Mackinlay observed that, until that evening, he thought the *Backwater Tower, Raglan Castle*, was by the collodion process: it was wax-paper.

The Chairman said the question of sharpness, alluded to by Mr. Foard, involved two considerations, one of which seemed very much to be overlooked. There was not only a sharpness of outline, which they sometimes obtained to a perilous extent; but there was a sharpness of gradation of tint between the objects before and a little behind which was equally essential. This had been accomplished with great success in one Photograph exhibited that evening.

Votes of thanks having been accorded by acclamation to Dr. Edwards, for his Paper; to Mr. McInnes, for the exhibition of his Camera; to M. Pedder and Mr. Carr, for sending their pictures; and to Mr. Foard, for his observations, and affording the members a similar gratification, the meeting adjourned.

PROCEEDINGS OF THE LONDON PHOTOGRAPHIC SOCIETY.

Anniversary Meeting, Thursday, February 2nd, 1854; the President in the Chair.

The Minutes of the last meeting were read and confirmed.—The names of the Members elected since the last Meeting were read over, and the elections confirmed. The Secretary then read the Report of the Council.

"The Photographic Society having completed its first year's existence, its Members are now united in a General Meeting to consider its present position and future prospects.

That its position at the present time may be described as satisfactory, the Members of the Society will be prepared to expect, and the Council, while aware that their work is yet only begun, believe that during the past year they have made at least a successful beginning.

Its monthly Meetings, formed by the union of men of science and of practical skill, recruited from classes widely separated in the social scale, but all anxious to learn and willing to teach, have never failed either in the interest they have excited or the numbers by which they have been attended. The number of our Members have been continually on the increase, and now, deducting a few names of persons which have been either placed by error upon the List, or the addresses of whom cannot be ascertained, it amounts to 370. The amount of money received by the Treasurer, to Dec. 21st, for Entrance Fees, Life Compositions and Annual Subscriptions, is £645 : 9s. Nor is it only by the general public that our Society has been welcomed.

The highest personages in the realm have shown their appreciation of the efforts which we are making for the advancement of Photographic knowledge, by giving us the sanction of their name and position, and still more by the evident interest which they manifest in the present rapid progress of the art.

Our Society, numerous in itself, contains, however, but a small portion of those who throughout the United Kingdom sympathise with us in the object of our study.

Stimulated by our example, Photographers in other places are forming associations, in which they can compare their methods of working and the excellence of their results, and this is no small fruit from our past year's labour.

Generally the first obstacle which a new Society like ours has to encounter in London, is the difficulty of obtaining a place in which to hold its Meetings. Through the kindness of the Council of the Society of Arts this obstacle has in our case been temporarily put aside, and how great a one it is may be judged by the fact, that though considerable exertion has been made by a Committee of the Council, specially appointed, no place sufficiently well adapted for the purposes of the Society has yet been met with in a suitable situation.

We cannot, however, abuse the hospitality afforded to us by the Society of Arts, and doubtless the immediate attention of the Council for the ensuing year will be drawn to the subject of providing a proper locality for the Society's Meetings. In the meantime the respite which has been thus afforded us has enabled us to husband our resources, and apply them to the attainment of other most important objects.

At the first formation of the Society it was stated that one of its aims would be to spread as widely as possible the information which its Members laid before it.

Strictly speaking, all that could be required of the body entrusted with the direction of the Society's affairs, was that to each Member, and to Members only, should be sent copies of the Society's Transactions. But the publicity thus given would have been of too limited a nature to have been of much benefit in spreading a knowledge of the principles of our Art.

It was certain that by the establishment of a Journal, containing the reports of its meetings and furnished at a moderate price to non-members, the Society would put itself in communication with a much wider circle of persons.

The attempt was therefore made. Of the first number 2000 copies were printed, of which, while a large quanity were given away, a sufficient proportion was sold to enable us to fortell the success of the experiment.

Of the merits of our Journal as a Photographic publication, the Councll of course can express no opinion.

The character which it has generally obtained, however, may be gathered from the fact, that its circulation has so far increased, that in order to supply the probable demand, we are now printing 4000 copies of each number.

An undertaking of this character cannot have been carried on without incurring considerable expense at its first commencement.

From the accounts, which include the editing as well as the other expenses of the Journal, it will be seen that the loss to the Society, up to the end of the year 1853, was only £35 8s. 7d., giving ground for the hope that during the ensuing year it may be, if not a support, at least no burden to the finances of the Society.

The general expenses, up to the same date, have amounted to £146 11s. 2d.

If to these be added the cost of copies of the Journal distributed among the Members, amounting to £56 13s., and the loss of £35 8s. 7d. upon the publication of the Journal, the total expenses will amount to £238 12s., leaving in money the sum of £194 12s., in stock and available assets the sum of £112 5s. or altogether, £406 17s.*

During the course of the Summer Session, it was desired by the Council to open an Exhibition of Photographs, and attempts were made to carry that desire into effect. The impossibility, however, of finding at that season of the year a gallery of sufficient size, compelled them for the time to abandon the attempt.

In announcing this failure at the last meeting before the recess, a pledge was given that every effort should be made to provide a Winter Exhibition, in which the present condition and the progress of the art might be fairly represented.

For this purpose, in November last, the Gallery of the Society of British Artists, in Suffolk Street, was engaged for the months of January and February, and through the exertions of the Council, and the zealous assistance of many individual members of the Society, an Exhibition has been opened which will assist greatly in extending the knowledge of the art, and diffusing a taste for its productions.

Not confined to the specimens sent by the members of our own Society, but welcoming works of merits from whatever source contributed, and owing much of its attractiveness to the kind assistance of our friends upon the other side of the Channel, it may be said to represent accurately the degree of perfection to which the Photographic art has at the present time attained.

As to its results in a financial point of view, it is of course impossible to give anything like a correct estimate.

Should it, however, continue to receive from the public the same interest which has hitherto been manifested, it will at least take away nothing from the funds of the Society."

Resolved unanimously,—That the Report be adopted, printed, and circulated among the Members.

Messrs. Rippingham and Mackinlay were appointed Auditors.

An alteration, made by the Council, in Law 6, removing the bar to re-election of the President, was confirmed.

Sir Charles Eastlake then temporarily left the Chair, which was occupied by Sir W. J. Newton, V.P.

Sir Charles Eastlake was unanimously elected President for the ensuing year.

Resolved unanimously,—That the clause of Law 6, disqualifying the retiring Vice-President and retiring Members of Council, be abolished.

* The accounts not having yet been audited, will be published next month.

A motion was made by Mr. Rippingham, and seconded by Mr. Hennah, that all persons practising Photography professionally with a view to profit, and all dealers in Photographic apparatus and materials, be disqualified from holding office in the Council of the Photographic Society.

After considerable discussion, this motion passed by show of hands.

Mr. Foster said that it would be impossible to define distinctly the disqualification in question, without excluding all persons who had ever sold a Photographic picture.

Mr. Fenton, the Secretary, said that if this law was made, he should feel compelled to resign the office of Secretary.

Another lengthened discussion then arose, which terminated in a division being called for, when Mr. Rippingham's motion was lost.

The retiring Vice-President and retiring Members of Council, were then unanimously re-elected for the ensuing year.

The thanks of the Society were voted to the President, Vice-Presidents, and other officers of the Society, for their services during the past year.

The thanks of the Society were voted to the Society of Arts, for their liberality in allowing to the Photographic Society the use of their Meeting room during the past year.

The Meeting was adjourned.

Photographic Society of London.—The second Soireé, held on Tuesday Evening, February 14th, was very brilliantly attended. —The Gallery is now open in the evening to the working classes, at an admission fee of 3d.

On the Scientific Applications of Gutta Percha: a Paper read before the Liverpool Photographic Society, February 7, 1854.—By N. Mercer.

(Concluded from page 16.*)*

Gutta Percha is insoluble in water or alcohol—by ether it is softened in the cold and dissolved in heat, but thrown down again by alcohol. In coal-naphtha, turpentine, bisulphide of carbon and chloroform, it is perfectly soluble, but the fixed oils have no action upon it. By boiling water it is temporarily softened without acquiring any of that permanent stickiness peculiar to caoutchouc; exposed to a temperature of 248° it melts, and on cooling remains in a semi-fluid adhesive state, partially decomposed in fact; and when set on fire in the open air burns very readily with a dense smoke. Subjected to destructive distillation, it furnishes a volatile oil similar to caoutchoucine.

There are few of our most corrosive or potent chemicals which have any effect upon gutta percha in the cold. It is perfectly alkali-proof, the most concentrated solutions of caustic potassa or soda leaving it uninjured.

Of all the acids employed in pharmacy, photography, or the arts, concentrated sulphuric and nitric acids alone affect it injuriously. It is even impervious to the corrosive effects of fluoric acid, and the action of iodine, bromine, and nitrate of silver, is also resisted by it. These are some, though not all, of the chemical properties which render gutta percha so valuable, and when combined in the same substance, with a peculiar facility of being moulded into any form or shape, is it to be wondered at, that it has superseded glass and metal vessels in many operations, and that in the hands of the scientific experimentalist its applications are as numerous as they are important.

Mr. Mercer here described the various chemical purposes for which it had been applied: such as pumps, pump buckets, ladles, syphons, tubing, acid troughs, bottles, carboys, funnels, &c.; and then proceeded to speak of its photographic applications. In photography, gutta percha has been employed in the collodion, and for making almost, if not all, the apparatus necessary for practising it.

The addition of Gutta Percha to the collodion was recommended by Mr. Fry, of London, and has been termed "a valuable discovery, the sensibility of the plates appearing to be materially increased by its addition." This statement, however, requires verification.

For making cameras Gutta Percha is not at all well adapted; for when exposed, as cameras frequently are, to great changes of temperature, (unless made very thick, and of old Gutta Percha,) they are very liable to warp, break the joints, and thus admit light, and otherwise inconvenience the operator.

For the dipping bath, Gutta Percha answers admirably; and the Photographers of Liverpool are before those of London, or any other town, in the form of the dipping bath which has been employed. All the London ones have both the back and front made parallel, while here, for a long time, we have had the front curved, which is a great advantage; for not only is less solution used, but the front of the plate cannot come in contact with the bath.

For out-door work, or for travelling Photographers, these baths are invaluable; and, as you are well aware, they have been by several persons so attached to the camera, (Archer's or Newtou's cameras are very good examples,) that the plate may be dipped into the nitrate bath, the view taken, and then immersed in the developing solution, without being removed from the camera, or in the least exposed to the light. Au improvement has been made in the support of the bath, which reuders it much more portable for carriage—the legs sliding in grooves, from which they may be removed at pleasure. The washing trays are very simple : they are made either by joining slips of Gutta Percha together, or what is better, by mouldiug them out of one piece. For dippers Gutta Percha is not so handy as glass ; but there are circumstances uuder which they will be preferable. Gutta Percha bottles are very convenient for carrying Photographic chemicals, none of which have any action upon it.

These are the principal Photographic purposes to which it has been applied ; but there are several others, though of minor importauce ; and we doubt not there are few Photographers who have not found its peculiar properties—more especially that of softening with heat, so as to be moulded into auy form or shape, and then on cooling, attaining all the hardness and firmness of wood, without its rigidity—of great value in forming ou the spur of the momeut little pieces of apparatus, which, to make in any other material would be both expensive and troublesome. But it is to out-door Photographers, to tourists, and foreign travellers, that Gutta Percha is of the most service. Its lightness, portability, little liability to breakage, ease and simplicity of repairing in case of accident—all combined reuder it invaluable.

Mr. Mercer then brought before the meeting the electrical and galvanic applications of Gutta Percha, and exhibited specimens of the various descriptions of apparatus into which it had been manufactured ; drawing special attentiou to the importauce and practical utility of its adaptation to the covering of telegraphic wires for submarine communication. He explained the manner in which the copper wires were covered, aud shewed a specimen of the first telegraphic cable successfully laid down between Dover and Calais, aud which, with several others, was still in active operatiou.

Application of Photography by Her Majesty.—It is stated that Her Majesty has recently put Photography to a valuable use, in desiring to have Photographs taken of the Esquimaux family, who were presented to her at Windsor Castle.

Familiar Instruction.

NO. II.

Before proceeding to describe the developing of the Photograph we hope to elicit, we will bestow a few words on the Camera, the needful arrangements of sitting, choice of lights, and disposal of adjuncts necessary to form an artistic picture. Should the object selected for representation be a landscape, architectural structure, or piece of statuary, or a monument, a single lens, of achromatic adjustment and of long focus will be sufficient, as time will then be no matter of importance ; but for the human figure it is so necessary to condeuse all the light, and coucentrate all the optical rays reflected from the object, that a double combination becomes necessary, that is to say, an achromatic lens at either end of the tube. The time of sitting then becomes most materially shortened, and the image is considerably brightened thereby. Where the choice of light exists, the north should by all means be determined upon, for though the aspect opposite to the south is immeasurably brighter and more active, yet it is so subject to change by every passing cloud, that no prospect of certainty of exposure can be hoped for ; the time necessary to produce any outliue at one momeut, will, on the passing of that cloud, suffice to burn up the picture, or by what is called solarizing, ruu it into a white or black blot. For this purpose professional practitioners, who are called on to act at any moment, and with hardly any amouut of light at times, fix their rooms iu such elevated positions, that, haviug abundance of light, they are able to shut out the redundancy at either side that may be desirable. Following this hint, the amateur should if possible place his sitter in au opeu doorway, lookiug towards the north, as before said ; the light will thus be confined to those parts which are to be represeuted, and the figure thereby thrown up iuto bolder and more striking relief. This is far better than the open air, as then the light is too much thrown upon the top of the head, while the eyebrows, nose, and other prominent parts of the face have under them deep and disfiguring shadows. The background should not be figured, nor of divers colours, as the eye of the spectator is diverted from the principal object, viz., the sitter ; but a blanket pinned evenly up, or what is better, sheets of brown paper pasted smoothly upon canvass ; extraneous objects, such as vases, bouquets of flowers, or groups of apparatus, are equally objectionable ; a table to rest the arm ou, or an arm-chair, so that the sitter may be placed in au easy unconstrained attitude, is all that is requisite. The time of day that is best for accomplishing a successful Photograph has been so variously stated by all who have been accustomed to work at particular hours, that no correct data can be given; and indeed the various preparations now in use are so easily acted upon that a very broad latitude may be given, and any time from sunrise to sunset may be depended upon. The sitter then placed, and the camera fixed on some firm stand, as nearly on a level as possible with the face of the person to be represented, the focus is to be accurately adjusted to its sharpest definition, as nearly as possible on the centre of the ground glass at the back of the camera, a square of black velvet or cloth being thrown over both camera and operator, in order to enable him to see the focus properly arranged. The plate, previously coated by immersing in the silver bath, and placed in the dark slide of the camera, is to be brought from the preparing room—and that no stray rays of light may penetrate any accidental chink in its sides or joints, it had better be wrapped up, or carried under the coat—the cap is then to be put upon the outer extremity of the lens tube, and the ground glass at the back carefully drawn from its groove, so that the camera may not be pushed out of its place, and the image thereby thrown into a corner of the plate; the dark slide is to be put into its place; if this can be done under the dark cloth or velvet still remaining on the camera, so much the better, as in raising the shutter, the next step, much light that will eventually disfigure will struggle through the opening in which the shutter passes. With a cautionary word to the sitter, that he may know when to keep still, the cap of the lens is removed, and the act of imprinting the image is commenced.

The time requisite depends on many conflicting circumstances, but may be fairly stated to average half a minute; some collodions are, however, so highly sensitive that the act of taking off and replacing the cap is far too long a time, and it has been questioned whether a mechanical contrivance to act with a spring may not be used. We have a record that the print of a newspaper whirling round upon a cylinder, and lighted only by the electric spark, literally as quick as lightning, has been copied, and M. Claudet has been able to trace the course of a rifle bullet similarly reflected across the surface of a plate; however, these are mere matters of experiment, and such infinite rapidity cannot be desirable, unless to catch the perpetually varying expression of an infant's face. With the quickest collodion it is extremely difficult to decide upon the happy moment, for hardly can you think "now I will remove the cap," ere the joyous smile, the enquiring glance, or the affectionate greeting is gone, to be succeeded by the restless love of change, or the too ready cry.

Many parental anticipations, which have been thus painfully defeated, might be successful by the use of the collodion prepared with the Iodide and Bromide of Ammonium, as in the last number of this Journal, for a certain amount of rapidity is insured by it, many pictures having been taken by Mr. Berry, where the figures have been secured upon plate while actually walking.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—Allow me to return you many thanks for your prompt and interesting letter on Photography.

I again take the liberty of referring to another difficulty in the collodion process, which, should you not be able to remove, will call the attention of practical Photographers through your next Journal.

With many I have not only been often annoyed, but lost good pictures, when I have developed with pyrogallic acid. The film on the glass seems to become rotten immediately, and upon water being poured on, or applied otherwise, it goes off in flakes and patches. On the other hand, in developing with the proto-sulphate of iron, the picture will stand any ordinary amount of washing and handling.

I should feel much obliged if you, or any of your correspondents, can inform me whether any mode exists that, while enjoying the benefit of using pyrogallic acid for developing, its tendency to rot the film of collodion can be obviated.

Your attention will, among others, oblige,

Yours sincerely,

304, *Gallowgate-st.*, HUGH HENDERSON.
Glasgow, 4th Mar., 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—I am much obliged for your favour of the 4th ult., enclosing the first number of the *Liverpool Photographic*, in which I am much interested. I obtained the second number at Horne and Co.'s, but I would suggest the expediency of appointing an agent among the large publishing firms in Paternoster-row. Simpkin and Marshall have some hundreds of small publications, some as low as one half-penny per number; it is easy for those residing in London to obtain them of Horne, but the booksellers will not send them, it being out of their trade, so that it would be next to impossible for parties residing in the country to obtain it. Another plan would be to stamp some numbers,* and forward it direct from your office on receiving a Post-office order for six or twelve months in advance.

ECONOMICS IN PHOTOGRAPHY.

Paper proofs may be immersed without washing in hypo in which a little chloride of sodium has been dissolved, this enriches the hypo and saves the silver. The water in which the proofs are washed after the

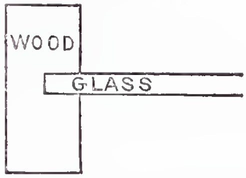
* Measures are being taken to carry out this suggestion.—Ed.

hypo should be saved, if the prints are large or in quantity, and some large pieces of sheet zinc kept at the bottom of the vessel, which will precipitate the silver in a metallic state. The silver may easily be extracted in the same measure from the saturated hypo bath.

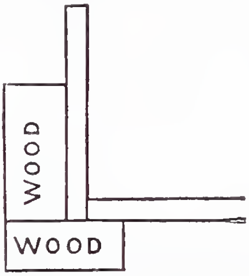
MR. BERRY'S PROCESS.

I have tried it, according to his instructions, with two or three different papers. I find that Canson's greedily absorbs the chloride and bromide, and becomes of a beautiful but unequal blue. I believe the best plan, both for preparing and exciting, is to use a shallow glass dish, with sufficient liquid to float the paper well. I find this gives a much more regular coating of bromide of silver.

I make the glass trays I use in a very simple manner: the bottom is of 16-oz. sheet-glass, the side of mahogany, of this cross-section—



It is put together with a very strong solution of shell lac in naphtha, nailed at the corners, and afterwards varnished with three or four coats of strong shell lac and naphtha varnished. This tray is very cheap and light, and the two sides may be used for different solutions. I have made some other trays of the following section, which answer well, but are rather more complicated.



I have a bath for the nitrate of silver in the collodion, which answers remarkably well. I have had it in use for two years. I will forward you a sketch of it, if likely to interest any of your members.

In Familiar Instruction, I notice a small error: it is stated that iodide of potassium is very sparingly soluble in spirit of wine. Now, the latter will dissolve a very large quantity, if *time* be allowed. I have some so charged with the double iodide of potassium and silver that it remains a solid mass of silky crystals at a temperature of 60 Ft. Again, it speaks of the iodide of potassium being slow, and requiring five minutes. I have not had much experience in the bromides, but I have taken good portraits with the above double iodides in from three to six seconds, with a slow half-plate compound lens.

Trusting you will not consider these remarks querulous, but as merely noticing those points which might mislead beginners, believe me, yours sincerely,

MONTAGUE MARRIOTT.

Montpelier-square, London,
1st March, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir,

Could you, or any of your numerous correspondents, kindly inform me of a good form for making a *rapid* collodion, and one that gives me good blacks and whites? I have tried to make one from your "Familiar Instructions" (in Journal No. 2), but the quantities given are so very indefinite that I could make nothing of it. I will take the opportunity of remarking that I think nothing could help a beginner more than your "Familiar Instructions," and at the same time nothing would puzzle one more than not giving the *exact* quantities.

The portion I refer to immediately, is the part where you say, "a little iodide of potassium is dissolved in a small quantity of spirit of wine," (or something to that effect,) and I do not doubt that if you were to make a note in your next Journal, and give the exact quantities, it would be a help to many.

Trusting I shall be excused for making the above remarks,

I am, Sir, yours truly,

Cheltenham,
March 5, 1854. F. A. JEFFREY.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 4.—APRIL 8, 1854.

The uses of Photography are gradually extending, or rather, the art is gradually being introduced to the useful applications for which it is so peculiarly fitted. A record of the facts bearing upon the war, in which we are unhappily involved, will probably be preserved through the medium of the Photographic art. It is stated that cameras are to be introduced into our ships for the purpose of taking views of the headlands, castles, and fortifications, coast-lines, and other dispositions of objects, which may be of sufficient importance to deserve minute representation. The French and English generals, it is said, will also take out with them experienced Photographers for similar purposes. The most striking result, however, that we may hope for in this movement, will be the probable improvement in the apparatus and manipulation. It may be very interesting to see a fortress as it appeared before the cannonade, and the state of ruin to which it was reduced by the operations of war; but we apprehend that the peace-loving votaries of science and art will be most gratified with the advancement of Photography itself—with the improvement in the forms of cameras, and in the mode of operation. Already, it is said, a contrivance has been perfected for slinging the camera on board of ship—like the compass—dependent from an universal joint; and some means have been discovered of effectually excluding the light from the sensitive collodion or paper. Mr. Roger Fenton announces that he has succeeded in obtaining instantaneous views with clouds and moving water, through a single lens; but, whether he has adopted any new method of manipulation, or any new chemicals, we do not learn. M. Duppa appears to have a method of making paper transparent, which may be applicable to negatives, in preference to the usual method of waxing.

The Photographic exhibition at Dundee comprises many of the finest specimens, or duplicates, of the various styles of Photography exhibited in London. It will afford our northern friends an admirable exposition of the present state of the art. The catalogue is wisely prefaced by a short notice of the technical names. Edinburgh has also an exhibition, containing about 300 specimens. Glasgow Photographic Society sounded a note of preparation on the 8th, in which Mr. R. Hunt took part. An exhibition has been open there for some time also. Liverpool Photographers must begin to stir themselves. The weather has been, and continues, propitious for the general practice of the art; and we hear that some very successful Photographs have been taken of the moon.

A valuable paper on the wax-paper process was recently read before the Leeds Philosophical Society. With regard to the paper for Photographic purposes, it has been suggested that the London Photographic Society (perhaps the Photographic Societies in general conjunction,) should offer a premium for the best that can be made—first defining the qualities required, and the defects to be avoided. A similar suggestion has been made with relation to obtaining the best collodion. Some of our correspondents who have enquired of us on these points are referred to the valuable contributions in our pages, as well as to the reported discussion of the most successful practical men of the Liverpool Photographic Society. They will easily perceive how difficult it would be for us to decide such an important point. Doubtless, every day will throw light upon it.

Economics in Photography.

NO. II.

Reduction of chloride of silver.—Various have been the methods proposed for this purpose, such as boiling the chloride in a strong solution of potash, to which sugar is added; the product is or should be metallic silver. Other methods are, to reduce the chloride by the introduction of pieces of lead, tin, copper, &c., preferably iron or zinc, into the mass of moist chloride, with a small quantity of sulphuric or muriatic acids. The reduction of silver commences and is accelerated by the application of a gentle heat; but in inexperienced hands these methods invariably fail, and even the chemist finds it very difficult to effect the total reduction of chloride of silver, so that the whole shall be soluble in nitric acid; and even if this be accomplished, another and greater difficulty remains: this is to effect the complete separation of the copper, zinc, iron, &c. used in excess, for minute fragments invariably become detached from the larger pieces of metal and become disseminated throughout the pulverulent metallic silver. So that, however carefully we may wash out the chlorides of these metals, produced in the process, we are sure, on converting the silver into nitrate, to find it contaminated with the metal used for its reduction; and as the presence of the most minute traces of foreign metals, especially copper and iron, are highly detrimental to Photographic success, when introduced into the nitrate of silver bath, it is imperative that pure silver only should be used.

The most certain way to obtain the pure metal is as follows:—Dry the chloride of silver, and mix it with twice its weight of dry carbonate of potash, or soda, or both; put it altogether into a hessian crucible, and place it in a furnace or a good common fire to which coke has been added, and the heat increased by the action of a pair of bellows; by this means bring the crucible gradually to a bright red, increasing by degrees to a white heat, at which it may be kept for some little time, varying of course with the quantity operated on from five minutes to half an hour or more; allow the crucible to cool, then break it, and a button of metallic silver will be found on the bottom, if the reduction be complete, and globules of metal will be found diffused through the fused saline mass if the heat shall have been insufficient.

The silver having been freed from all adhering foreign matter, may be placed in a small evaporating dish; pour over it rather more than an equal weight of strong nitric acid, previously diluted with twice its bulk of water; the silver will gradually dissolve. When dissolved. evaporate the solution to dryness; re-dissolve the dry mass in a small quantity of hot distilled water, and place on one side that crystals may form: the crystals are to be separated from the mother liquor and dried; evaporate the mother liquor and again place on one side that a second crop of crystals may be obtained, and by proceeding in this way the whole may be crystalized fit for use. Diogenes.

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section I.—*Concluded.*

XYLOGRAPHY. The collodion process.

CATALISOTYPE. A camera process in which iodide of iron is used with nitrate of silver. Discovered by Dr. Wood.

ANTHOTYPE. A series of processes in which the expressed juices of flowers are employed as the sensitive agents. They are bleached by light. Results not permanent.

ALBUMEN PROCESS. In which white of eggs forms the film on the glass.

ARCHEROTYPE. The process by which *Xylographic* or collodion pictures are produced on glass. Discovered by Mr. Archer.

VERREOTYPE. Comprises the processes by which Photographs are produced on glass.

AMPHITYPE. A Photograph which is positive by reflected light, and negative by transmitted light; such as collodion positives and the results of Mr. Talbot's instantaneous albumen process.

HYALOTYPE. A number of Photographic Magic Lantern slides were exhibited in the Crystal Palace of 1851, in the United States department, under this name.

WAX PAPER PROCESS. In this process the paper is waxed, previous to iodizing. Discovered by Mr. Le Gray.

HELIOCHROMES. A name given by Mr. Niépce to the Photographs he has recently produced in natural colours.

HILLOTYPE. A process not yet published, by which the inventor, Mr. Hill, of New York, says that he has produced a great number of views from Nature, in their proper hues.

PHOTOLITHOGRAPHY. A process by which a Photograph is taken on a stone, and chemically rendered capable of being printed at an ordinary lithographic press.

PHOTOCHALCOGRAPHY, or, more properly, PHOTOCHALYBEOGRAPHY. } Photographic engraving on steel.

POSITIVE. A Photograph in which the lights and shades are correct. Positives are of two kinds:—*Transmissive*, as the transparent stereoscopic slides; and *Reflective*, as paper positives, Daguerreotypes, and collodion positives; the last mentioned, viz. collodion pictures, however, when looked through, appear negative also.

NEGATIVE. A Photograph in which the lights in Nature are represented by shades, and vice versa. Used as a matrix, from which to obtain positives.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

Γhe second meeting of the second session vas held at the Royal Institution, Colquitt-street, on Tuesday evening, April 4th, 1854, Mr. Corey occupying the chair.

The Chairman opened the proceedings by lirecting attention to an article in *The Times* of the previous Saturday, under the head of ' The Preparations for War," which he said vould serve to convince them of the progress heir art was making, and the important funcions it was likely to perform to the community it large. He then read the following paragraph:—

"Although the experiments recently made y Capt. Scott on the surveying expedition to he Baltic, in taking photographic pictures of astles, forts, coast lines, and headlands, were omewhat deficient in finish, they are neverheless considered highly successful for the bject in view. Some of them were executed nstantaneously from the deck of a vessel going t the rate of 10 and even 11 knots per hour; hough for the delicate manipulation which the rocess requires, he had nothing better than a leeping berth at his command. Captain Scott xhibited his pictures at the last meeting of he council of the Photographic Society, where hey excited much interest. Some Sappers re now undergoing a course of training by Mr. Thurston Thompson, with a view to the use of Photography, as already announced, in the perations of the army in the East. We are lso informed that several new cameras are eing constructed for the more convenient pplication of this ingenious and beautiful art o war purposes, both by sea and land. It is roposed that the ship cameras should be susended, like the compass, on a universal joint, vith a pendulum attached, and that those for he field should run on wheels, with a strut to nsure steadiness. The mechanical difficulties n excluding light from the collodion paper ised in the process have also been overcome. On shipboard a camera is focused from the rough of the sea, as is the custom in gunnery ractice."

It was little contemplated he believed, when his process was first set on foot by the origiators of the art, that it would be devoted to uch a warlike purpose; it was however a ery great comfort that all the objects they arried out were not necessarily connected vith the scenes of war. He then proceeded o state that he had received a letter from heir friend Mr. Newlands, who unfortunately vas unable to occupy his place as chairman, which he filled with so much credit to them all. It appeared from the letter that the art had been brought to bear in the reproduction of old pictures upon wood and zinc, which could of course afterwards be engraved. He had occasion at a former meeting to call attention to some that had been done on steel; but it was not likely that that process would be practised to any great extent. He did not see why this method of reproduction and engraving, which bore an analogy to anastatic printing, should not become one of the most important branches of their art. As another instance of the progress they were making, he found a notice of what he had just been reading to them from *The Times* in the French paper *La Lumiere*. The following is the article alluded to:—

"La Photographie et la Guerre.—Il est intéressant d' observer les développements de tout art nouveau et de suivre les directions inattendues qu'il prend. La photographie, par exemple, a été considérée d'abord comme une curiosité scientifique; puis elle a progressé de jour en jour, jusqu'à ce qu'elle soit devenue un instrument qui, dans la main de tous, prête son concours aux arts et à la civilisation. Elle paraît être destinée maintenant à aider aux opérations de la guerre. On annonce que le gouvernement anglais va attacher des photographes aux expéditions de terre et de mer envoyées en Orient. On comprend l'importance d'une pareille décision, et les résultats obtenus dépasseront trés-certainement de beaucoup les espérances de l'autorité. Il est inutile d'indiquer les nombreuses applications qui peuvent être faites de la photographie en pareille circonstance. Une dépêche, accompagnée de vues photographiques, donnera des renseignements bien plus précis qu'un simple document écrit, si volumineux et si détaillé qu'il puisse être. On peut, avec un objectif, reproduire instantanément des promontoires, des côtes, des forts, des dispositions des flottes, des atmées, des positions militaires, et si le stéréoscope peut être employé, rien ne saurait être comparé aux résultats qu'on obtiendra.

"Le procédé au collodion semble devoir être le plus convenable pour ce genre de reproductions, et si les avantages de la poudre-coton n'ont pas été reconnus suffisants pour en fairé, en l'appliquant aux armes à feu, un moyen de guerre, elle pourra, du moins, dans la nouvelle application que la chimie en a faite, en la dissolvant dans l'ether, servir puissamment aux opérations militaires.

"La Société photographique de Londres,

avec laquelle le gouvernement s'est mis en relations, ne manquera pas de lui indiquer des artistes capables de seconder ses intentions."

"On dit que lord Raglan se propose d'avoir avec lui, en Orient, un photographe expérimenté. La Société des arts a pris, à ce sujet, des renseignements auprès de la Société photographique, et nous croyons que cette idée appartient au prince Albert. Tous ceux qui savent l'importance qu'ont dans une campagne les informations exactes n'ont pas besoin qu'on leur explique la valeur qu'auraient des dessins photographiques sur divers sujets."

"Nous apprenons de source certaine qu'un photographe de Paris a été désigné pour faire partie de l'expédition d'Orient, et qu'il sera mis à la disposition de M. le maréchal Saint-Arnaud."

He would now call their attention to some beautiful Photographs before them, some of which they had seen before, and many others of a similar description; and he had also the honour of having entrusted to him the introduction of M. Kastner, a gentleman then present, who had shown very remarkable talent in the execution of Photographic pictures upon ivory. It was the province of this Society to foster and promote talent wherever they met with it, and as this was talent of a very extraordinary character, they should lend their best assistance to further his views. M. Kastner did not come here as an adventurer, merely seeking money, but he wished to promote science by opening a gallery here. If required to give instruction he would be happy to do so; and he wished to develop the art by producing pictures of a more superior character. He would also be happy to give gentlemen his views in private.

Some of M. Kastner's pictures were handed round. We believe that the process of taking pictures on ivory was discovered by Dr. Frank, of London.

The names of several new members were proposed by Mr. BERRY, the Secretary—amongst them that of Dr. Dickinson, the President of the Literary and Philosophical Society.

The CHAIRMAN said he must call the attention of the meeting to a very important fact. The season was now getting fully on; they were pledged to the public to execute something, and to stand in an honourable and elevated position at the time of the visit of the British Association to this town; and it therefore behoved every man to be up and stirring. He had had placed in his hand a catalogue from Dundee, where, even so early in the season they had produced five hundred and thirty-eight pictures, some of them of very first-rate character. In the preface to the catalogue there were the following remarks:—

"The admirer of Nature and of Art may be fascinated by the beauty of the landscape, or of the human figure, or of the works of man, and try to carry away a vivid and lasting recollection of the object which so enraptured him; but his memory fails to retain the scene which was delineated for a time with the truth of nature upon the retina of his eye.

"The object of the Photographer is to remedy the deficiency of memory, and so to paint and seize the passing scenes as to make their beauties undying.

"The optical glasses of the Camera Obscura may be likened to the crystalline lens of the eye; and the paper or plate exposed within the Camera to the retina. The image falls upon the retina, but disappears. By the chemical process the image falling upon the prepared plate or paper in the focus of the Camera can be fixed, and retained, and reproduced, so as to endure for ages."

He (the Chairman) rather thought that they might say that it was the anatomical knowledge of the construction of the eye that gave the first idea of the camera obscura. There were pictures described in the catalogue as "wax paper," "collodion," "calotype," "talbotype," "albumen," "albumen on glass," "iodized paper," &c. "The pictures No. 79 to 84 illustrate photo-lithography, by which it is to be understood that the picture is first delineated, by the agency of light, on a lithographic stone, and afterwards copies are printed off by the ordinary lithographic process." The Chairman then proceeded to say, that, since they last met, some of their members must have experienced failures in the experiments they have made, which failures they ought to communicate to the Society, because they met together for the improvement and advancement of the science, and it was only by exchanging ideas that they could expect to make any progress.

Mr. BELL (the Treasurer) said he should be sorry indeed to show all his failures, especially after trying Mr. Berry's process.

Mr. BURGESS said that if he heard of the failures he should also like to hear of the causes. Might he ask if any gentlemen had tried the last formula for gun cotton, given by Mr. Hadow in the last number of the *London Photographic Journal.*

The CHAIRMAN said if Mr. Burgess had

tried experiments himself, perhaps he would favour them with the results.

Mr. Burgess replied that before he did so he should like to hear the experience of other gentlemen who might have succeeded better than he had.

Mr. Berry then read the following paper on "*The Chemistry of Iodine and Bromine applicable to Photography.*"

It is not intended in this paper to enter into the chemical history of these bodies, but merely to detail the properties and preparation of those Iodides and Bromides most likely to be advantageous to our art. I had hoped to have given the details of an extended series of experiments on the solubility of these different bodies, from my own observation, in alcohol and ether; but I have been unable to devote the necessary time, owing to circumstances beyond my control. I will, therefore, as it were, point out the most promising for future research, with the few facts I have been enabled to collect.

Iodine has been used alone in Collodion with some degree of success. Bromine has also been used as a means of rendering more rapid an Iodide of Potassium Collodion, but from its volatility, I really must give my strong conviction that when the Collodion film on the plate shall be dry enough for immersion in the bath, the Bromine remaining must be rather homœopathic in quantity, and the effect on the plate must be something like that of the mysterious passes of the mesmerist. There are, however, combinations of Iodine and Bromine certainly worthy of a trial, and here let me point out the very important difference between chemical combinations and mere mixtures of chemicals. It is difficult to give such a definition of the results of chemical action as shall apply in all cases, but for our particular purpose, I think the following will be sufficient, thus :—The production of forms of matter possessed of properties entirely distinct from those of their component parts—for example, take Bromine, a heavy reddish brown fluid, very volatile, and possessed of a most insufferable odour ; then take Potassium, a metal, lighter than water, and whose affinity for oxygen is so great that it takes fire on being placed on water. This inflammable metal on being chemically combined with Bromine, yields these white crystals without odour, without colour, without any metallic aspect, and without combustibility; in fact, can anything be more unlike than Bromide of Potassium and its elements. This then is chemical combination,—now for an instance of simple mixture or solution.

These green crystals are Sulphate of Iron: we are accustomed to dissolve these in water, to form our developing solutions ; this is a case of solution, not combination, for if we evaporate the water, we obtain green crystals of Sulphate of Iron unchanged. I will now give a list of those Iodides and Bromides which, being more or less soluble in spirit and ether, may possibly become useful as Photographic preparations.

1st.—Bromides of Iodine, or Iodides of Bromine, for it is difficult to say which is the electro-negative element. There is one, used I think by M. Claudet, as a sensitive agent for the Daguerreotype, which is worthy of a trial as the sensitive for Collodion ; it is three equivalents, that is 234 parts by weight of Bromine, and one equivalent, or 126 parts by weight of Iodine ; the Iodine may be mixed with a small quantity of spirit, say, twice the bulk of the Bromine and Iodine employed, and the Bromine then poured in at short intervals ; it is well to do this in the open air, to avoid the pungent vapour of Bromine evolved : by this means, a liquid is obtained resembling the original Bromine, and a few drops to each ounce of plain Collodion might be made for trial.

Potassium, Bromide, and Iodide are familiar to us all, so that I need not discuss them.

Sodium, Bromide, and Iodide,—their properties are very similar to the Potassium salts, the Bromide is certainly more soluble in spirit.

Calcium, both Iodide and Bromide, are very soluble in spirit. I have always found the Bromide yield a very quick and stable Collodion, and rarely use anything else. I have no doubt the Iodide would be found useful to those who prefer an Iodized Collodion.

Barium, Iodide, and Bromide are both soluble in spirit, and yielded me a very sensitive Collodion—these are quite worthy of trial.

Magnesium—the Bromide only is soluble in spirit.

Iron—the Iodide, in spirit, gives a very rapid Collodion with other Iodides or Bromides ; but I fear the Iron salt left in the bath would soon destroy its sensitiveness.

Zinc—the Iodide and Bromide have both been tried, but I know not with what success.

Tin—this metal forms double Iodides with Potassium, Calcium, &c., and well deserves a trial ; it is possible it may form a most rapid Collodion.

Cadmium—the Bromide has been used with success.

Gold—the Ter-Bromide formed by the action of Bromine and water on powdered gold or gold leaf is soluble in water. I obtained an instantaneous Collodion with it, and shall try more experiments.

In conclusion. The Iodides and Bromides of Potassium, Sodium, Calcium, Barium, Magnesium, may be prepared in a precisely similar manner to the process of making Bromide of Calcium, described by me in my paper upon Bromine, in No. 2 of the Journal. And the Iodides and Bromides of Zinc, Tin, Cadmium, also of Cobalt and Nickel, are prepared in the same way as Iodide or Bromide of Iron. I would throw out the suggestion, that, possibly colours may be produced by using the Iodides and Bromides of some of the metals before mentioned, either alone or in combination with the Iodides, &c., of the alkalies or earths. Trusting that I may have suggested ideas that may be followed up with advantage, by those members who may have more time for the research than I possess, I leave the subject in the hands of the Society. I shall be happy to give any further information to any one requiring it.

The Chairman said the tendency of papers such as that they had just heard, and that Dr. Edwards favoured them with at the last meeting, was to place the Society in a very exalted position. They were no longer like men groping in the dark, in pursuit of that of which they knew little, and using chemicals with which they were comparatively unacquainted. The gentlemen to whose papers he alluded had shown them how certain results arose, and also where errors might be avoided. Of course, though they had received the suggestions of Mr. Berry with profound attention, they would be glad to hear the experience of gentlemen who might have tried experiments with the formula that gentleman proposed. He begged to thank Mr. Berry for his very luminous paper.

Dr. Edwards said that, at the request of the Chairman, he had made a few experiments with free bromine and collodion, and his experience did not altogether bear out Mr. Berry's conclusions. He certainly thought that the addition of weak bromine, when properly added to the collodion, improved the results. A strong impression, he was aware, existed on Mr. Berry's mind, and with considerable reason, that bromine was so exceedingly volatile, even in ordinary temperatures, that there would seem to be very little chance of so small a quantity as would be used being retained by the collodion film. To prove whether that was the case or no, he added some bromine, in that preparation which was previously dissolved in spirit, to plain collodion, having no other salt present, and tried that film repeatedly, and found that with an ordinary 30-grain silver bath, he got, for at least a succession of 30 days, distinct films of bromide of silver produced. The quantity was certainly very small, and failed to give anything like a distinct impression, but still sufficient to prove to his mind that under these circumstances the collodion did retain a portion of the bromine. He was aware that certain experiments had been made which led to the conclusion that bromine precipitated the iodine from the collodion, converting it into a muddy mixture; but he thought that arose either from the bromine being added in too strong a state to the collodion, by which insoluble matter was formed, or probably a small quantity of water was put in with the bromine, for it was frequently the case that the bottles of bromine contained a stratum of water over the surface, in order to prevent the bromine from evaporating. The only way to preserve bromine was to be very careful in getting it out of the vessel which contained it. He found as a uniform result in his experience, that when collodion was made with five grains of iodide of potassium dissolved in two drachms of spirit, and one drop of bromine was dissolved in another drachm of spirit, if the iodide of potassium was mixed with collodion, and allowed thoroughly to mix first, the addition of the bromine to the collodion made a perfectly bright and yellow coloured solution; and this collodion appeared to him to be less likely to change than any others. It was a very excellent working collodion; it was more rapid in its results, and in many respects appeared to be an improvement upon the mere iodide of potassium. It contained, as they observed, five grains of iodide of potassium, one drop of free bromine, one drachm of spirit, and five drachms of collodion, to the ounce.

The Chairman asked was not that a large proportion of spirit?

Dr. Edwards: It was a very desirable proportion; where the collodion had a good body in it, that amount of spirit was a very excellent proportion. He must say a little in favour of the presence of bromine, of which he could speak in the highest terms. It required strong baths, at least sixty grains to the ounce, and in the winter season these baths required to be in a warm room, in order to work satisfactorily; the results with him had been certainly unexceptionable, but he had found a very large portion of amateurs who had tried that collodion and failed, and it certainly was not quite as straightforward to get pictures from it as from the other collodion. He was not speaking from his own experience, but from the experience of scores of persons, to whom he had recommended it as a good and quick collodion, and who had never been able to make anything of it. He recommended those who had recently begun the collodion process not to be impatient to use the new formulæ. A person working steadily with one collodion would meet with more success than if he ran about from one formula to another. If he continued to take up every fresh idea in collodion, previous to having been perfectly initiated into the processes, he would find that his experience in bad pictures would last much longer than necessary. He, therefore advised amateur Photographers rather to purchase their collodion than make it. It might be said they could make it a great deal cheaper than they could buy it. Granted. But how many of their pietures did they succeed with? If they got good pictures it would be an extremely cheap process; but if, on the contrary, their productions were failures, they would have no reason to congratulate themselves on its economy. He now wished to ask Mr. Berry a question with regard to the iodide of iron. He must say that, in his experiments with it, he was not satisfied with the result; either as to quickness, or in regard to the collodion generally. He had never been able to depend upon iodide of iron, and he knew several persons who had been disappointed with it, although they had taken care to have the other substances in a proper state He had found that it very soon got to and destroyed the collodion, and he had abandoned its use altogether.

The Chairman inquired whether, before Mr. Berry commenced his reply, any other member wished to make an observation.

Mr. Burgess said he had tried the experiments mentioned by Mr. Edwards, and he found that the results were nearly as that gentleman had stated. He suggested the desirability of producing a picture with the different descriptions of collodion, in order that they might be enabled to judge of the relative merits of the productions, and he was understood to undertake their execution and exhibition at a future meeting.

Mr. Keith said that he was the first to recommend, at the July meeting, the use of free bromine; he had since used it almost constantly, and found it worked better than simple iodized collodion. The cloudiness complained of was, perhaps, caused by the precipitation of the iodide of silver, but he had always found it clear, at any rate in a day or two. In regard to the iodide of iron, he did last summer produce instantaneous pictures with it, but he had not been able to repeat them with success.

Mr. Berry, in rising to reply, said he had to thank the meeting most cordially for the kind manner in which they had accepted his paper. With regard to the use of free bromine, they had heard from both Dr. Edwards and Mr. Keith that there really was a different action produced by its use, and of course they must take it for granted that it was so. At the same time it appeared strange to him, that an agent so volatile as free bromine, by being poured backwards and forwards on a plate did not diminish every time; it could not be identically the same as when the plate was first coated out of the same bottle. As to bromine precipitating the collodion and making it muddy, he never found it do so; but he had found with some collodions, that even the addition of a very strong alcohol would precipitate the gun cotton, and it required water to make it soluble again. As respected the iodide of iron, although he certainly had obtained the results which Mr. Maconochie had described, he did not think it worth the trouble of following up. He had sent some of it to a gentleman near Lancaster, and at the same time told him that he expected he would obtain pictures in the fraction of a second; but he (Mr. Berry) had not found it much quicker than double iodide and bromide of ammonium. He had received a letter from the gentleman, stating that he found it to be very much quicker than anything he had ever tried before; but if he worked with it more than half an hour the collodion was spoiled, and of course retarded the action very much; so that it was clear it could not be worked long with any degree of safety.

Dr. Edwards thought Mr. Berry, in his paper, had proposed, either on collodion or paper, hydrochloric acid as a sort of corrective against any free carbonate, without alkaline reaction, and also as a means of preserving the bath. He thought it quite possible that bromine might be there in sufficient quantity to prevent that, and preserve the state of the bath, by producing salts of bromine in the bath, and in that ease it might have an indirect effect, by its presence as free bromnie, by its being there as a corrective of alkaline reaction. He did not think for a moment that it was in the volatile state of free bromine. He thought all these substances entered into something like chemical union. They reacted with solid salts, and, just as if in pure solution, it would be impossible to get them back in precisely the same state, or the cotton in precisely the same state, as they were previously. He thought that there was not merely an union of them, but that some organic compound was formed. Hence, he thought, arose the superior sensitiveness of gun cotton film to paper and some other substances.

Mr. Berry said that his idea quite coincided with that of Dr. Edwards, with regard to the action of materials put into collodion. It would be a rich mine of discovery, to ascertain what compounds are actually formed by the reaction of the different chemicals employed after the collodion had been prepared for a considerable time.

Dr. Edwards directed attention to some Photographs of the moon which lay upon the table. The mechanical difficulties had been overcome, and they had reason to hope that the result of their labours would be successful. The best images already obtained had been converted into negatives; but those now exhibited were sufficient to show the meeting the extraordinary minutiæ obtained.

Mr. Bell said he had been requested to present, for the inspection of the Society, a series of 33 views taken on wax-paper, by a friend of Mr. Carr. He thought they would all agree they were very beautiful indeed.*

The proceedings were brought to a close by the exhibition of one of Wheatstone's stereoscopic cameras, by Mr. Morecroft, to whom the thanks of the Society were tendered, on the motion of Mr. Frank Howard.

We should add that Mr. Jones, who had undertaken to read a paper on "*Light and Shade,*" was not present, and consequently the meeting was disappointed in that respect.

Stereoscopic Views of the Moon.—We have just seen a stereoscopic view of the moon, produced and printed from collodion negatives, by members of the Liverpool Photographic Society. The effect is perfect, and the various craters, mountains, &c. stand out in bold relief. This may lead to some new ideas, as to the causes of the stereoscopie effect.

* The pictures were handed round and were much admired.

PROCEEDINGS OF THE LONDON PHOTOGRAPHIC SOCIETY.

Eighth Ordinary Meeting, March 2nd, 1854. Sir W. J. Newton, V.P., in the Chair.

The Minutes of the last Meetiug were read and confirmed.

Mr. Sparling explained a new form of "folding Stereoscope," for large and small pictures.

Mr. Rippingham exhibited and explained a new form of Stereoscope made to suit every kind of sight.

The attention of the Society was called by the Secretary to some Photographs exhibited by Mr. Duppa. In these the paper of the positive print was rendered transparent, by a process not divulged, aud theu coloured at the back. This colouring showing through the trausparent paper produced a very perfect imitation of au oil paiuting.

Mr. Edward Ash Hadow read a paper on "*The Quality and Proportions of the Materials required in the Collodion Process.* 1, *Simple Collodion,*" in which he remarked upon some peculiar properties of Gun Cotton, prepared by passing successively fresh portions of cotton through the same mixture of the strongest nitric and sulphuric acids, until the whole of the acids are exhausted. The first portions will be highly and perfectly explosive, the others gradually less so, uutil the portion last immersed will scarcely explode at all, but will leave distinct traces of charcoal or soot when burned. When treated with æther containing a little alcohol, the first or strongest Gun Cotton remains quite untouched, while the latter, or weaker portions, dissolve with the greatest ease, without leaving a trace behind. But although he obtained at least five different varieties of soluble Gun Cottou, he was not able to detect any variation in their Photographic properties. With regard to fluidity, tenacity, and transparency, his experience suggested that the acid mixture should be used warm: for which reason greater success attends the use of nitrate of potash and sulphuric acid than that of mixed acids, as the former, wheu mixed, produce the required temperature, and must be used warm, because it becomes solid as it cools. This mixture is chiefly defective from the want of fluidity, in consequence of which the cotton is less perfectly acted upon; for which he suggests a remedy by iucreasing the amount of sulphuric acid, at the same time adding a little water. A mixture of five parts dried uitre, with ten sulphuric acid, by weight, together with one water, produces a much better collodion wool than the ordinary mixture of one nitre with one-and-a-half sulphuric acid. The nitre is to be dried before weighing, in order that the quantities of the ingredients may be precisely defined, and the Cotton requires to be washed with greater care than when the mixed acids are used, on account of the difficulty of removing the bi-sulphate of potash which adheres to the fibres, and acts as an acid, and also causes the collodion to appear opalescent when held up to the light.

As to the solvent for the Gun Cotton, he found, after various experiments, three of alcohol to five of æther decidedly the best: giving without the least difficulty a beautifully uniform and highly sensitive film; at the same time prefectly tough, and easily removable from the glass, if required. The advantage obtained by Mr. Hadow's proposed method, was the thorough incorporation of the iodide of silver with the collodion, and in this state it possesses the utmost sensitiveness. He observed, in conclusion, on the necessity for the purity of the æther. As sold in the shops, it almost always contains alcohol, and frequently water, which produced minute cracks in the collodion when drying. The æther should not have been kept long, as it acquires a property of decomposing iodides, and by setting free the iodine giving the collodion a brown colour. Æther thus affected can only be deprived of this property by rectification with caustic potash.

Mr. Shadbolt corroborated Mr. Hadow's observations, which corresponded with his own experience, so far as it went. He agreed with Mr. Hadow also in objecting to the use of Swedish filtering paper, instead of Cotton, as he had found it less certain in action, and generally it produced more opacity; creating the necessity for a longer exposure of the positive in printing, to a much greater extent than *a priori* might have been imagined. He had spent much time in experimenting on collodion, and had discovered a material, not mentioned in Mr. Hadow's paper, which he had found highly advantageous as an ingredient in collodion; as soon as he had settled the proportions he would bring it before the Society.

Mr. G. Montefiore Levi read a description of a frame invented by M. Lenoir of Liège, which allowed the operator to take from ten to fifteen views on waxed or dry paper, without opening the dark slide; consequently without requiring the use of any dark room for the change of papers. It consists of the ordinary negative frame, with glass front; the shutter of which may either be an interior cardboard, to be drawn up by a ribbon, or the ordinary shutter. A pressure board is pushed forward or drawn back by a screw, and above the whole, there is a reservoir the size of the papers, which are attached to pieces of cardboard and drawn up by ribbons, like the slides in a puppet show.

The meeting then adjourned till Thursday the 6th of this month.

Familiar Instruction.

No. III.

As it appears that this paper is to be regarded as an authority for the needful formula, instead of giving merely an insight as it were into the respective stages of manipulation, and therefore imparting the rudiments only of the science; it behoves us to be more succinct in our directions, and, in order to satisfy the numerous applicants that it has called forth, to enter more into the minutiæ instead of generalizing the information. We may also now say, that, when formerly speaking of the method of making the collodion, we by no means gave the form there set down as the best, having expressly stated that it would be better for every beginner to purchase his material ready prepared, and gave that as the mere *rationale* of its most simple form of preparation; for every practitioner of any proficiency will tell you that the very method he found most effective at one time will require great modification the next time he sets about preparing his chemicals. As an instance, the writer has hitherto been in the habit of working with a collodion, prepared with iodide of potassium and a minute proportion of Bromide of the same salts, with very satisfactory results; but on making some fresh collodion after the same form as usual, it was found necessary to add some iodide of silver to render it sufficiently energetic, though the bath was of the same strength as heretofore.

We now proceed to develope the image after exposure in the camera. Removing the plate slide enveloped in the black velvet or cloth, that still no extraneous light may penetrate, we return to the darkened room, and taking the plate crosswise between the finger and thumb, pour quickly from one corner, slightly inclining the plate that it may spread evenly and readily over its whole surface the developing solution that we have determined upon making use of, for they are of very various kinds, those containing the salts of iron, being however most in general use. At first pyrogallic acid was cousidered to be the only developing medium, and the quantity used was as under :

Pyrogallic Acid	3 grs.
Glacial Acetic Acid	1 dm.
Water	1 oz.

To this, at the time of using, a few drops of the same solution as the silver bath were added. Subsequently, Mr. Horue, with equally satisfactory results, reduced the quantity to one grain to the ounce—no slight boon to the unsuccessful operator, considering the expeusive nature of the article. More recently it was still further diluted, and a small quantity of the salts of iron was added ; and some enterprising practitioners fiuding the presence of iron all that was necessary, now content themselves with that alone. Dr. Diamond's rather cumbrous process of dissolving 600 grains of nitrate of barytes in warm water and adding the protosulphate of iron, thus producing a protonitrate of iron, has been much recommended. A modification of this, communicated to us by a very talented operator here, has produced some admirable pictures ; but its great liability to attract oxygen from the atmosphere, and to be thereby spoiled, renders it inexpedient for the learner. Nearly the same effect may be produced by dissolving the sulphate of iron, and adding a few drops of nitric acid ; indeed many will assert the sulphate of iron alone will suffice. If the picture is to be elicited quickly, about ten grains to the ounce of water may be used ; but as the too sudden development sacrifices much of the details, producing only mere patches of black and white, it is better to reduce it to about six grains, taking care to filter it when made, and indeed every day that it is in use afterwards. About one drachm of spirit of wine to every two ounces will make it flow more equally over the plate. Having poured it as before described, watch the gradual appearance, and so soon as the outline is to be fully made out, cast off the solution and plunge the plate into a basin of clear water, to wash away what remains of the iron, and from thence slide quickly into a flat dish containing a solution of hyposulphite of soda, about three ounces to the pint ; in this it must remaiu, now no longer liable to injury from the actiou of diffused light, until all trace of the unacted-on iodide of silver, in the state of cream-coloured coating, is dissolved away, and the picture stands out in all the glory of a good positive Photograph, or (until repeated trials have ensured success,) a failure only is revealed. We will suppose the former agreeable result; the plate is then to be very carefully washed by cautiously pouring about one quart of water from the edges over the face of the picture, as any trace of the hypo-sulphite of soda being left thereon would infallibly destroy the picture in time. The superabundant coating of iodide of silver may be much more quickly, and sometimes more successfully removed by washing with a solutiou of cyanide of potassium, iu the proportiou of six grains to the ounce of water ; but as it has so great affinity for all the salts of silver, it too frequeutly dissolves more than is required, removing thereby all trace of the picture it has cost us so much paius to procure. Having thoroughly washed it, it may be either set on end to dry, or be more expeditiously dried before the fire ; it will then be found to have lost much of its intensity, but as the film which forms the picture may be easily rubbed from the glass, it is needful to fix it by pouring, in the same manner as we did the collodiou at the outset, a small quantity of transparent spirit varnish, which will restore a great portiou of its brilliancy.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Dear Sir—I supply the *hiatus* left in my remarks of Tuesday Evening, by the omission of recipes, by forwarding the annexed prescriptions.

Negative Developing Solution :

Water	10 oz.
Pyrogallic Acid	14 grs.
Glacial Acetic Acid	¾ oz.

Solutions for preparation of Paper for printing from negative proofs.

1st Solution :

Salt to the oz. Water	50 grs.
Water	1 oz.

Time of immersion, 3 or 4 minutes.

2nd. Solution :

Nitrate Silver	60 grs.
Water	1 oz.

Time of immersion 3 or 4 minutes.

For Albumenizing and preparing paper.

White of Egg—no yolk	equal parts.
Water	
Salt, 30 grs. to oz.	

Immerse 3 to 4 minutes, dry, and subsequently float on solution of Nitrate of Silver, 60 grs. to oz. Water.

For more rapid priuting and general use, being in very many instances preferable, instead of the foregoing, take Canson's plain or Albumenized paper, and immerse in a solution of chloride of barium—(instead of sodium)—10 grs. to the oz., dry, and then float on solution of ammonio-nitrate of silver, prepared by dropping into a 60 gr. solution of nitrate of silver, a strong solution of ammonia, till the precipitate which follows is re-absorbed.

For Waxed Paper for Iodizing:

Whey	1000	parts.
Iodide Potass	20	"
Bromide "	2	"
Cyanide "	1	"
Chloride Sodium	½	"

Immerse 3 hours. Destroy air bubbles.

To Excite:

Water	1	oz.
Nitrate Silver	30	grs.
Acetic Acid	1	drm.

Grape Sugar, if to be used quickly, 20 grs. to half pint solution.

Immerse 10 minutes. Wash well.

To Develope:

Of a saturated solution of Gallic Acid, take 20 grs. to pint Water, and 1 oz. Water just used for washing.

With either or all of these recipes, I think it will be found that failures, perseverance, and practice, *tria juncto in uno*, are all that is needed to ensure success.

Yours very faithfully,
JAMES T. FOARD.

34, *Church-street*,
9th March, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—As it is of importance to Photographic students, that the formulæ given for the preparation of their various solutions be strictly accurate, permit me to correct an inadvertence which has crept into Mr. Berry's interesting paper on the use or substitution of Bromine for Iodine in the process on paper, as given in your second number, (p. 20.)

Mr. B. directs *pure* bromide of potassium to be dissolved in water, and then pure muriatic acid dropped in till the liberated Bromine gives the solution a *Sherry colour.*

This will assuredly mislead the experimentalist. The addition of muriatic acid to a solution of *pure* Bromide of Potassium will *not* produce colour. The immediate production of colour is a proof that it is *not pure*, but that it contains *Bromate* of Potash.

I have tried several specimens of Bromide of Potassium, purchased as pure, and, being disappointed of experiencing Mr. Berry's result on the addition of the muriatic acid, a friend pointed out the cause—the Bromide was *really pure.* Another specimen of the salt, however (sold also as pure), confirmed Mr. Berry's result. The colour was produced: thus affording proof that it contained some Bromate of Potash.

Vide Dr. Whettstein's Practical Pharmaceutical Chemistry, Churchill, 1853, p. 383.

I am, sir, yours obediently,
March 22nd, 1854. L.

To the Editor of the Liverpool Photographic Journal.

Sir—I should feel much obliged if either Dr. Edwards or Mr. Berry would kindly inform me, through your *Journal*, of the simplest mode of extracting the silver from an old bath that has become contaminated with organic matter of some kind or other. Also the component parts of a good, hard, and transparent varnish, and the way to make it.

I remain, Mr. Editor,
Yours truly,
Liverpool, March 10th, 1854. PHOTOS.

To the Editor of the Liverpool Photographic Journal.

Sir—On reading over Dr. Edwards' paper, in the *Journal* for this month (March), a thought struck me, that a Chemical class, for the benefit of the members of the Liverpool Photographic Society, might be formed with great advantage to each individual member wanting in chemical knowledge, as well as to the society at large.

If some member of the Council would bring the matter forward, something might be done to forward so desirable an object.

I am, sir,
Respectfully yours,
F.

P. S.—If the lessons or instructions communicated to the class, could be inserted in the Journal, all the better, as that would be a guarantee that they should be of the right kind.

To the Editor of the Liverpool Photographic Journal.

Sir—As the managers of the valuable *Liverpool Photographic Journal*, kindly offer to reply to Photographic queries, and Mr. Berry has also expressed his readiness to afford additional explanation, permit me to enquire more fully as to Mr. Berry's preparation of Collodion with the Bromide of Calcium, described at p. 19. He directs 50 grains of this Bromide to be dissolved in 1 oz. of rectified spirit, s. g. 826. I have not found it possible to get this quantity to dissolve in the oz. of spirit, (mine was s. g. 828, but this was surely too minute a difference to defeat the intention.)

My Bromide of Calcium was prepared according to Mr. Berry's formula by a most intelligent and careful chemist of this city, and so far from 50 grains dissolving in the oz. I do not think 10 grs. were taken up! the mass remains undissolved at the bottom of the bottle.

Query—the cause and the remedy.

I may venture also on a note respecting Mr. Berry's Bromine process on paper. After carefully preparing two pieces of paper by Mr. Berry's formula (both of which were afterwards used successfully,) I reserved the superfluous solution. It had lost all colour, and being a few days afterwards tried for the preparation of another piece of paper, was found useless. I conclude, therefore, that the *same* mixture will avail for only a very few sheets.

I add another query; will the Bromized papers keep indefinitely as do the iodized, before they are sensitized?

I am, Gentlemen, yours,
A PHOTOGRAPHER.
Bath, March 28th, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—I lately made a small trial of Mr. Berry's process with the Bromide of Potassium by printing two positives from a glass negative, and was delighted with the simplicity, as well as the certainty and beauty of the process.

I am desirous of applying the process, as Mr. Berry says it may be so used, for taking negatives on paper so prepared, with the Camera, but before actually operating this way, I am very desirous of obtaining answers to some queries.

1st. What is the kind of paper to be used in this process for either negatives or positives?

2nd. What is the average time for the Camera working with double combination of achromatic lenses, and good light, to obtain a good negative that will print well?

3rd. What is the average time for the Camera working with a single achromatic lens, light good?

4th. To what extent ought the developing, either negative or positive, to be carried, or is there danger of carrying it too far?

5th. Will paper made sensitive by this process, answer for taking enlarged positives, as proposed by Mr. Wenham, and others; if so, will a second or two of time be sufficient exposure?

6th. If suitable, as above, which of the two developing solutions require to be used?

HUGH HENDERSON.

304, *Gallowgate-street,*
Glasgow, 28*th March*, 1854.

Leeds Photography.—Mr. Washington Teasdale read a valuable paper on the waxed paper process, before the Leeds Philosophical Society, on the 1st of December, 1853, of which an abstract appears in the *Journal of the Photographic Society of London.* He went very carefully into the requisite qualities of the paper; and described the properties, advantageous and otherwise, of that manufactured by Whatman, Turner, Canson, Lacroix, and others, and said he preferred what is known as "New French," of which the only defect is the texture, which does not allow of the sharpness of line required by the architect, or engineer. In reviewing the operations and materials employed, he expresses his preference for the addition of free iodine in considerable quantity to the iodizing solutions, as suggested by Mr. Crookes, which he says certainly has the power of removing the metallic specks, which too frequently disfigure Canson's otherwise beautiful paper. His experiments on the sensitive solutions confirm the doubt raised by Mr. Hunt, as to the accuracy of the common opinion, "that the sensibility of the paper is in direct proportion to the strength of the silver solution," and he employs a weak solution of nitrate of silver, using a proportionately larger quantity, whereby the manipulation is facilitated, and the sensibility greater and more equal over the whole sheet. He had kept sheets in an excited state for eight or ten days in autumn, without their losing much sensibility. But he referred to a slow process, twenty minutes for landscape, in diffused light, in fine clear weather, with one of Ross's lenses, $2\frac{3}{4}$ inches, with half inch diaphragm; five minutes more might be required with the paper at the end of ten days.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 5.—MAY 13, 1854.

M. Stephane Geoffroy, of Roanne, has published a new method of preparing waxed paper for Photographic purposes. He proposes to separate *ceroleine* from the *myricene* and *cerine* (stearine?) of wax, by boiling with alcohol in a retort. To this *ceroleine* he adds the alcohol which has passed over by distillation into the receiver attached to the retort. He mixes 5 ounces of alcohol, 5 drachms of iodide, 15 grains of bromide, and 15 grains of fluoride of ammonium or potassium. On 15 grains of fresh iodide of silver, he drops as much concentrated solution of cyanide of potassium as will dissolve it. This he adds to the previous compound, and shakes it up together. For negatives, he adds to 5 drachms of this mixture, 6¼ ounces of the ceroleine and alcohol, carefully filtered into a porcelain dish, in which he soaks, for about a quarter of an hour, his papers, five or six at a time, until the liquid is exhausted. When dried in the usual way, these papers acquire a very uniform rose tint. These papers are rendered sensitive and developed by M. Le Gray's process, with the addition of 15 or 30 grains of camphorated spirits of wine to a quart of the solution of gallic acid. M. Geoffroy states that "this paper has the advantage in rapidity over Le Grays of about one-fourth; and it preserves its sensibility perfectly in the same proportion of time—three days or more over twelve. It gives, from the first bath of gallic acid, blacks of remarkable intensity, and yet preserves the whites and half-tints in a surprising manner. The clearness of the image yields in nothing to those obtained upon albumen."

We hoped to be able to give some account of this promising *nostrum*, as some of our chemical members have been experimentalising on it, but they are not yet sufficiently satisfied with the results to justify our making public their observations. We hear that in London collodion plates have been kept in a moist state for ten days, and at the expiration of that time a satisfactory impression has been obtained. On removing the plate from the nitrate bath, it is allowed to drain for a few seconds, and then dipped into a bath containing a strong solution of nitrate of zinc, and then placed in the dark slide. The deliquescent properties of the nitrate of zinc preserves the requisite moisture for an indefinite period of time.

Photographic Paper.

Sir,—The difficulty which photographers experience in obtaining an unobjectionable paper, has long been under the consideration of Mr. Saunders and myself, and at length it appeared to us advisable to manufacture a few reams with special reference to Photographic purposes, and I have now the pleasure of forwarding you several reams prepared on various plans, and I have thought it might not be inappropriate to accompany the paper with a few remarks on the subject.

A French writer on Photography, M. Gustave le Gray observes:—"The choice of paper is very important; too much attention cannot be paid to it, especially for portraits."......"I prefer Whatman's paper, lightly glazed; the sizing with gelatine causes it to be rather less rapid in its results than French paper, but, for the same reason, it endures longer the action of the Gallic acid without injury, and thus the retardation is compensated. The paper of M. Lacroix is the most quickly acting of any, but requires to be well selected, the size not being sufficiently strong in all cases."

On the Continent paper is generally sized with farina, and to the presence of this starch is attributable the action of M. Lacroix's paper. Notwithstanding these commendations, which refer to the general character of the papers manufactured by the eminent firms named, all Photographers whom I have had an opportunity of consulting, still consider a good paper to be a desideratum.

To ascertain and account in some measure for the cause of failure in obtaining a suitable paper, I may remind you of the various materials used in the manufacture of paper, and the processes they undergo.

1st.—The materials in general use are composed of hemp, flax, or cotton fibre, and a mixture of these is most frequently used, and with advantage, as far as regards paper for ordinary purposes. The subject has not been sufficiently investigated, but as no one can doubt that the fibres of these different vegetable substances differ, although it may be only slightly in their absorbent properties, in their power of transmitting light, and in their chemical affinities, hence, by the use of a mixture of materials in the same papers, an objectionable diversity in the Photographic action is the result.

2nd.—The materials are boiled in an alkaline solution, and subsequently bleached by chlorine, either generated as gas on the premises, or obtained from chloride of lime. It is impossible, I believe, to entirely remove the chemicals, however carefully the pulp may be subsequently washed, and their presence interferes with the expected action of Photographic chemicals; the Photographer is not acting upon inoperative fibres, but upon equally active substances, although more minute in quantity than those he has purposely introduced.

3rd.—The materials are next cut into small particles by passing them between fixed and revolving knives. If the cutters should happen to have been recently sharpened, small particles of the steel may be diffused through the pulp; and though so minute as to be of no importance in ordinary paper, they may have occasionally caused serious inconvenience to the Photographer. The wearing of the bearings also tends to introduce small portions of brass.

4th.—According to the purpose for which the paper may be required, the material is ground finer or coarser, with greater or less care, and this frequently causes a difference of texture in the same sheet. By using a badly prepared pulp, a sheet of paper, although made of one material, may present as great differences in absorbing and light transmitting power as fibres of different vegetables.

5.—The mode of sizing materially affects paper; in this country sizing with gelatine is the process usually adopted, whereas, on the continent, the size is composed of farina and other ingredients.

From a consideration of these sources of evil, it appeared to us that many of them might be avoided by care; and with a view to test the matter, the papers sent herewith have been prepared. The papers have been made into different sizes, for facility of comment and reference, and I should wish them referred to as Nos. 1, 2, 3, 4, and 5, although they can all be made of any dimensions required, not more than six feet wide. It is intended to supply sheets gratuitously for the next three months to any Photographer who may desire specimens, on application to the under-stated address,* after which period the paper will be obtainable through the usual Photographic chemists. It being very desirable that the result of a series of experiments should be ascertained, it is suggested that all who may be so disposed should communicate the result of their trials, and, if found advisable, I shall be happy to report to the Society at its meeting in June, such particulars as may appear worthy of note, not disclosing the name of any individual without permission. From the information that may be thus obtained, it is proposed either to make further experiments, or further quantities of whichever sort or sorts of the present specimens may prove the most suitable, as the case may be.

Hoping that this attempt to remove some of the difficulties which impede the progress of Photography may be successful.—I remain, yours truly,

WILLIAM STONES.

* Mr. T. H. Saunders, paper manufacturer, Queenhithe, London.

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section II.—Apparatus.

ADHESIVE HANDLES. A piece of burnt Caoutchouc, attached to a piece of wood, used by some operators to hold the glass plate while applying the collodion.

BATHS. Fr. *Bains.* Narrow cells of glass, porcelain, or gutta-percha for containing the solutions used in the collodion process; flat trays of the same materials are employed in the paper processes and for printing.

BOTTLES. Fr. *bouteilles.* For photographic solutions are now obtainable of gutta-percha, thereby obviating breakage; and glass bottles are now made with funnel necks, giving great facilities for filtering and pouring the solutions into them.

BRUSH. Fr. *Pinceau.* (Buckle's). Made by drawing the centre of an elongated tuft of cotton into the end of a glass tube, by means of a thread or bent silver wire, so as to leave a ball of cotton projecting: much used in paper processes.

——— Camel hair and sable, are made without metal, especially for photographic purposes; care should be taken not to use those bound with metal, for the german silver, or tin of the ferules will very soon decompose nearly all the solutions, but more especially those of the silver salts.

BUFFS. Fr. *Polissoirs.* Circular, cylindrical, or oblong pieces of wood padded and covered with wash leather or cotton velvet, used to polish daguerreotype plates; circular and cylindrical buffs are used attached to a lathe, the others are applied by hand. Too much care cannot be taken to keep them dry and free from dust or grease.

CAMERA. Fr. *Camera ou Chambre obscure.* The box to which the lens is attached for producing the image, also applied to both box and lens. Photographic cameras are of three general kinds, plain, sliding, and folding. Of each of these three kinds there are innumerable modifications according to the process to be employed, and the fancy of the maker.

CAMERA STAND. Fr. *Pied a Chambre obscure.* A support for the camera while in use, generally of a tripod form, but varying in weight and construction from the heavy mass for the operating room, to the light spider-like crutch-stand for the tourist.

CAP. Fr. *Obturateur.* A disc or lid made to fit the front of the tube carrying the lens, to exclude the light till required.

CHANGE FRAMES. Thin frames which fit into the dark slides to adapt them to the various sized plates for the daguerreotype or collodion process.

CLAMP. A mechanical contrivance used in daguerreotype to fasten the plate holders down to a table, also to hold the plates themselves to enable the operator to buff them more freely.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

THE third meeting of the Session was held at the Royal Institution, Colquitt-st., on Tuesday evening, the 2nd inst. Mr. COREY presided, and there was a large attendance of members.

The CHAIRMAN explained the arrangements which had been effected with respect to certain rooms at the Royal Institution which were considered peculiarly adapted to the purposes of the Society, not, however until they had undergone alterations.

A deputation of the Society waited on the Council of the Institution on Monday morning, and, after debating the matter in all its bearings, an arrangement was fully entered into, to the effect that this Society should take the rooms for a term of years, namely ten years, at a rent which was then settled and decided, and that, in consideration of that rent, they were to advance a sum of money to the Society, to enable them to build rooms adapted for their purposes, on plans carefully prepared by Mr. Newlands. The plans were before them. It was intended to build a glass house at the corner of Colquitt-street, having a double aspect, north and west, which would give the most steady and uniform light, and the one best suited for their purpose. There would be a private entrance for the members; and there would, in addition, be a certain number of dark closets, which would belong to the persons renting them. There would also be comforts, he might say elegancies, which would be adapted to the lady members of the Society, and which he hoped would be an inducement for more of the fair sex to join them. There would, further, be rooms below, which would afford accommodation for the exhibition of pictures. Hitherto many members of the society had declined to send pictures because they considered there was no place in which they could be properly shown. It was not necessary for him to enter into the terms of agreement, which were merely technical. It would be sufficient for the meeting to appoint three gentlemen as trustees representing the society to complete the arrangements with the Council of the Institution. It had been proposed in committee that the three trustees should be Mr. Newlands, Mr. Forrest, and Mr. Bell, who had kindly consented to take the office.

The proposition that Mr. Newlands, Mr. Forrest, and Mr. Bell should be the trustees was carried *nem. dis.*

Several gentlemen were elected members of the society.

The SECRETARY (Mr. Forrest) said Mr. Cartwright had sent two stereoscopic photographs, one taken at the proper angle, and the other at an excessive angle, showing the difference. Mr. Hartnup, Dr. Edwards, and himself had been engaged for some time in taking photographs of the moon. They had taken some negatives, and printed some positives which he handed round to the members. The CHAIRMAN called upon Dr. Edwards to explain a patent camera which was on the table.

Dr. EDWARDS explained the camera, the principal features of which had been already described in the *Journal of the Society of Arts*. All that he could say was that it was extremely well adapted for the purpose for which it was intended. He was informed by Mr. Newton, who exhibited it, that pictures had been taken by this apparatus of the tidal waves, and other rapid objects, such as the flight of birds. It had been found, he thought by Mr. M'Innes, that they might obtain a focus on prepared plate instead of ground glass. Several contrivances had been attempted for the purpose of accomplishing this, so as to do away with the necessity of using ground glass. This would be a very great improvement. It was easily accomplished by this plan. The ordinary cap had an aperture turned so as to allow the yellow glass to be admitted. The chemical rays were excluded, especially if, instead of yellow glass, thin ruby were applied, which equally enabled the operator to obtain the focus.

Mr. CHADBURN observed that it was Newton's old patent with the exception of the dark glass; and that he had copied it from Mr. Mackinlay's camera.

The CHAIRMAN drew attention to a letter by Mr. William Stones, in the *Journal of the Society of Arts*, on the preparation of Photographic paper, which, he said, he had been requested to make public. It was then read, and appears in another page. This, continued the Chairman, was worthy the attention of every member; and all who were desirous of using it might learn the address of the writer. He had other letters referring to the wax paper process; but he would defer them to other business of more importance.

Mr. BURGESS made some observations on the use of iron in developing. Dr. Edwards, he said, stated at the last meeting, that iron developed a picture more freely, by plunging the plate into the bath, and then developing. It would be found, as he (Mr. Burgess) then contended, that if the salts of iron were used, and the plates were afterwards to go into the bath, it would undoubtedly injure the bath. No doubt the assimilation upon iron was more rapid than upon many substances so used—no doubt the most rapid photographs had been taken with iron. He stated at the last meeting, that he considered it very unsafe to use iron; and, in illustration, he took a few ounces of iron solution which had been poured over some pictures, and analyzed it. He did not use any precipitate, merely filtering it through paper. He filtered about three ounces, and, though he did not do it carefully, he could show them the paper, and the silver resulting. There was no doubt, he contended, that in about three ounces, or rather more, he should have had upwards of 2 grs. of silver. The weight of what he had obtained was 1 gr. 141 parts, very near upon 2 grains. This would convince any person that if they used iron in the plunge bath, the bath would precipitate, and when precipitation once set in, it was almost impossible to say where it would stop. Ammonia was also very unsuitable, as in London it had resulted in fogging, and other defects. In London a great deal was said upon the bath; and, no doubt, the result depended more upon the bath than the collodion. They would find that the collodion which would work well one day would make an inferior picture another day, and that it would again, on the following day, make an excellent picture. He had had several examples of the use of collodion. He had found that as the light changed so did the tint, caused by the rapid action upon the collodion. A great deal depended likewise upon the chemical quantity of the collodion. If there were too much acidity it would not act so rapidly. Mention was made, at the last meeting, of the use of spirits of wine in developing. That was nothing new, it having been used for the last twelve months; and he believed all the experimenters in the room had used alcohol. There was in the last number of the *London Journal*, (of the Photographic Society,) an explanation of an interesting method of blackening positives, by William Bryans, of Chester. He smoked the backs, and fixed it by a coating of varnish. If, instead of this, they put on colour, and turned the picture, they would obtain a most magnificent portrait. He was surprised that Mr. Bryans overlooked this, which was a very important addition to the finish of the pictures.

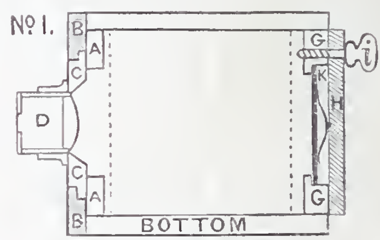
The Chairman.—Do you object to the use of iron at all?

Mr. Burgess.—Not as a developer. There is no better developer than iron. It is mentioned in the *London Journal*, that you are not to use iron for developing negatives.

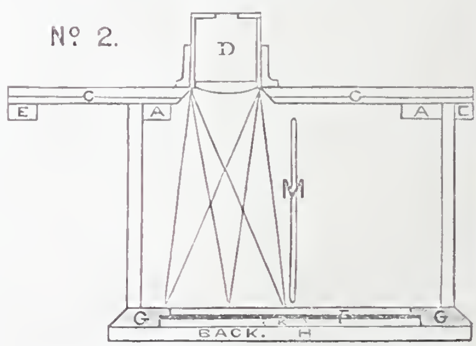
Mr. Berry read the following letter from Mr. Cartwright, explaining the camera by which the two stereoscopic photographs, mentioned in the early part of the preceedings, had been taken. It was addressed to Mr. Forrest:—

Dear Sir—Having had workmen in my house, I have been unable to write to you earlier. My camera differs from yours not so much in the superiority of its performance, as in the extreme simplicity of its construction. Both instruments will produce pictures equally good; but my mode of using it, upon a table of a peculiar form, is probably more certain of a good result.

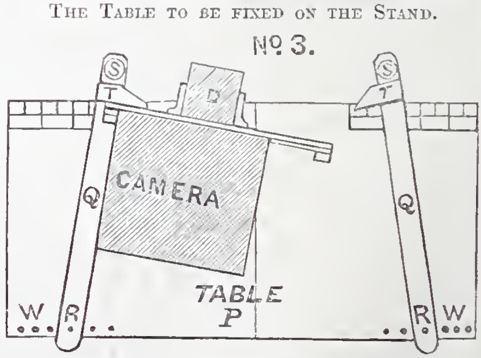
Vertical Section.



Horizontal Section.



The Table to be fixed on the Stand.



A. Front of the box. B. Slide frame. C. Slide. D. Lens. E. Stops on the slide. F. Glass. G. Glassholder. H. Shutter. I. Wooden screw to fasten the shutter. K. Spring to keep the glass in its place. M. Partition. P. Centre line on the table. Q. Guide bars. R. Screws in the fixed ends of the guide bars. S. Screws to clamp the moveable ends of the guide bars. T. Stops to mark the position of the front of the camera against the guide bars. W. Holes for the screws (R), to alter the distance of the guide bars.

My camera is simply a square box, on the front of which is a slide (C) carrying the lens. On each end of the slide is fastened a stop E), to prevent the lens traversing more than $2\frac{1}{2}$ inches across the front. In the back of the box is an aperture, rebated all round, which holds the focussing glass of $6+3\frac{1}{4}$ inches; or a prepared plate of the same size. A shutter (H) is hinged to the bottom of the back; and when it is turned up to shut in the plate and exclude the light, it is fastened by the wooden screw (I). The box is divided into two equal chambers by a vertical partition, ranging, as you Liverpool gentlemen would say, "fore and aft;" so that when the lens is slided on one side of the partition, that half of the box forms a separate little camera, and a picture is taken on that end of the prepared glass which is opposite to the lens, while the other chamber remains in darkness. The slide is then pushed across to the other side of the front, the picture already taken is thus placed in darkness, and the light acts upon the other half of the glass.

The focussing glass is an unmounted piece of ground glass, of the same dimensions as the prepared plate, and occupies the place of the plate in obtaining the focus. Across the middle of it is drawn, with black lead pencil, an horizontal line, and crossing that are three vertical ones, one in the centre and one on each side, at the distance of $1\frac{1}{4}$ inches from the central line, thus—

The table for the stand is a plain board, 18 inches long and 9 wide (a shorter one would suffice). Two strips of wood (Q) are fastened to it by screws (R), placed in such of the holes (W) in the back of the table as may suit the angle at which the picture is intended to be taken. On these centres (R) the strips can be moved, and when in the proper position clamped by the wooden screws (S) at the opposite ends. These strips form guide bars, against which the camera is placed, and when it is also pushed against the small stop (T) nailed on each bar, the position of the instrument is so adjusted that it may be taken away and replaced a dozen times exactly in the spot.

We will now proceed to take a picture. The table is fixed *level* on the top of the stand, with the centre line (P) in a line with the object to be copied. The camera, with the focussing glass in the glass-holder, and the lens in front of the right hand chamber, is placed on the left hand side of the table, against the guide bar (Q) and the stop (T). The loose end of the guide bar (with the camera kept against it as above) is now moved to the right or left, until some object in the centre of the intended picture is upon the right hand vertical line of the focussing glass, where it is crossed by the horizontal line. Clamp the guide bar, and get the focus accurately. Then remove the camera to the right hand bar, and push the lens in front of the left hand chamber. Move the right hand guide bar until the same object coincides with the left hand vertical line of the focussing glass, and clamp the guide-bar fast. The two positions being now ascertained, the camera may be taken into a dark room or tent, and a collodionized plate substituted for the focussing glass. Replace it on the stand in the first position of focussing, and slide the lens in front of the same chamber; uncover the lens, and after sufficient exposure replace the cap. Pass the camera to the second position, push the lens to the other side, and take the second picture. I can easily change the position of the camera in five seconds, and, with collodion acting in ten seconds, take both pictures in twenty-five seconds. Develop and fix the picture in the usual way.

With a table of the size here given, the views may be taken from positions nine inches asunder, but my most pleasing landscapes and statuary are only about three. The average distance of the eyes ($2\frac{1}{2}$ inches) gives a very good stereoscopic effect, but, as in sculpture and painting we do not copy nature precisely, but exaggerate a little, so the poetry of stereoscopic pictures appears to consist in enlarging the natural proportion of $2\frac{1}{2}$ inches to 3, or sometimes 4 inches. Beyond this limit the distortion of the figures often borders on the burlesque. I have seen, in a stereoscopic picture, a man's head apparently a foot in advance of his body; and the drapery of a well-known plaster figure, which hangs down gracefully, so misrepresented by the extreme angle at which the two pictures had been taken, that the figure seemed to be exposed to a violent gale of wind.

The advantage of this camera is the absence of complicated parts, so that any person of moderate mechanical skill may construct it for himself; but those who have not leisure or inclination for such employment may, at a moderate expense, procure those extraordinary little pictures by using the beautiful little camera sold by Messrs. Abraham and Co. And I think it will be found by every person trying the experiment, that the recollection of scenery or buildings can be more vividly and accurately revived by two little stereoscopic pictures of $2\frac{1}{2}$ inches square, than by the largest single Photographic picture ever taken.—I am, dear Sir, yours very truly, SAM. CARTWRIGHT.

Preston, 21*st April*, 1854.

Mr. Atkinson explained a novelty in a camera which was exhibited. The elongation was produced on the same principle as that applied to the folds of the concertina, its great recommendation being a double wooden floor or foot, which was formed by two boards, each being half the length of the camera while on full stretch, but sliding one over the other so as to admit of perfect action in obtaining the focus. It admitted of being applied to lenses of all focal lengths. For the size, Mr. Atkinson said, it was one of the lightest he had ever handled.

The Chairman said it was perfectly suited to a lens of two feet focus.

Mr. Burgess pointed out a simple mode of making a camera stereoscope for 6d.

The Chairman was glad to see so many improvements taking place in the machinery of the art.

Mr. Bell handed round a number of "failures," expressing a hope that some one would be able to explain them, which was more than he could do himself.

Mr. Burgess read the following paper on "*The Mode of Preparing Collodion Cotton.*"

Although my practical experience in the different branches of the collodion process, does not perhaps extend over such a lengthened period as that of many gentlemen present, and may not be of so much interest as use; I am induced, nevertheless to bring before you (Mr. Chairman) and the members of this Society, the result of a series of what, perhaps, I may be allowed to call useful experiments, since they are practical; and I have been induced to perform them from the various complaints which I have heard respecting the quality of cotton, and from the result of my own experience. As so much of the result of the collodion process depends upon the quality of the cotton, it is of the utmost importance to have a good foundation upon which to place either portrait or landscape. Though collodion can be readily purchased, of good quality, yet some may wish to compound their own chemicals. Although the manipulation of gun cotton appears to be one of the simplest of chemical experiments, yet it is not always attended with the same successful results. Now, in order to obtain the same results it is necessary in the first place to procure good ingredieuts; I do not, however, mean to say that you must have all the ingredients chemically pure, as this is very difficult to obtain, but still a considerable share of the success depends upon their purity, and the remainder upon the skill of the manipulator. As to the cotton it ought to be open and woolly in texture, and free from all dirt, grease, &c. The sulphuric acid should be the best, at a reasonable price; I would recommend you to obtaiu it from the "lang lum,"* if possible. Nitrate of potass I consider best to get in the crystals, as I have found it in mauy experiments much the best; but in making gun cotton I cannot say I have found any material difference, although I have tried various samples. In the preparation, I cannot say that I have found any proportions better than those given at page 21 of the *Liverpool Photographic Journal,* but I do nct, as there stated, think it a dangerous experiment, yet it is not always a certain one. We proceed by weighing 4 ozs. of nitre, aud 6 ozs. of acid, or 4 ozs. of nitre by weight, and 5 ozs. by measure of acid; the nitre may be dried, finely pounded, aud put iuto a convenient dish, (a wedgewood mortar answers very well,) the acid is theu added and stirred, 6 dwts. or 2 drms. of the cotton immediately immersed, and stirred with a glass rod, and pulled asunder as much as possible, holding it down with another rod; this operation I continue for five minutes, it is then to be washed as well as possible: by pouring a quantity of water upon it; stirring it, pouring it off, and continuing so to do for some time: when the slightest taste of acid is entirely removed, and before finally washing, the addition of a little ammonia will be better, to insure the removal of any acid which may remain; the cotton is then wrung out, and carefully separated and dried by a moderate heat; and wheu thus prepared should dissolve perfectly and quickly in æther containing a little alcohol, without leaving any fibres, and the film be strong and transparent. In this, I last winter made some cotton, which was very good; but lately proceeding exactly the same way, and with a portion of the articles I then used, I more than once failed in producing a soluble cottou. I was in consequence induced, if possible, to find a cause; and this, after some consideration, I arrived at.

When I formerly made my cotton the weather was very cold, and consequently I did not go into the open air, as recommended, preferring to abide the vapour rather than the cold; lately I removed my acid, &c., to a more convenient distance, to the water, and from this cause the temperature was varied, and hence arose the failures; this I proved by slightly heating all the ingredients, and repeating the experiments. I had always understood, from what I had read upon the subject, that the mixture would generate sufficient heat, but this I find from experience is not the case. I will now lay before you the results of a number of experimeuts, which it will be necessary to know, as we may refer to them again. We will, therefore, number them, commeucing with No. 1, which I find to be explosive, made in the way as the next, No. 2, the compouuds being weighed at the same time and divided, varying the time one minute longer in No. 2. No. 3 is a different cotton; (1 and 2 being out of the bale,) acid and nitre, but made in the same way; No. 4 is part of the last number, but removed upou immersion iuto the open air, but the iugredients beiug of the same temperature, all of these are explosive and good. Nos. 5 and 6 are the same as 1 and 2, but made with the compounds cold in the open air, and are explosive, but very sparingly soluble, and are quite unsuitable for our purpose.

Nos. 3 and 4 are made from very fine cotton. I do not find them so very explosive as the cotton from the first bale, but have not discovered any other difference. I have made samples of collodion from the best of the

* "The tall chimney" at Messrs. Tennants' Chemical Works, St. Rollox, Glasgow.

cotton, but will not at present take up your time with the results. In the 15th number of the *London Journal* there is a very interesting article upon various preparations of cotton, and the making thereof. I was induced on reading it to follow up my experiments, by the instructions there given by Mr. Hadow; the result of a few of the experiments I now produce; but I have, after many and repeated trials, utterly failed in every one of producing a gun cotton; which no doubt arises from the strength of the acid, because if too strong your cotton will be inosluble, and if weak the cotton dissolves.

Mr. Burgess then exhibited a number of interesting experiments, illustrating his observations.

Mr. Saddler: I have used two acids, and succeeded once, but I never tried it again. A great deal depends upon the time it is left in; it must be the exact time.

Mr. Burgess: What is the exact time? About 7 minutes.

In reply to the Chairman, Mr. Saddler said he did not calculate the time exactly: he judged thereabout. Perhaps Mr. Burgess kept it in too long?

Mr. Burgess admitted that it was quite possible to get the happy medium, but he had tried all periods of time almost, and had most carefully followed the instructions laid down, but his results had been so unsatisfactory that he did not mean to make another attempt.

The thanks of the Society were voted to Mr. Burgess for his paper.

The Chairman called attention to a beautiful specimen of printing which he believed to be the work of Mr. Porter, the minuteness of which was especially remarkable, although the negative, in the first instance, perhaps had not been perfectly taken.

Mr. Berry explained the results of some experiments made for the purpose of shewing what description of glass was most impervious to the chemical rays. He had two series of results: one on albumenized paper; and the other bromized paper. With the albumenized paper each colour was altered; for instance, there were yellow and ruby, and pink and blue; the pink and blue were blackened entirely, and the yellow was slightly gone. He then took a different series, and discarding the blue and pink, took the deep yellow and light ruby, and the deep green and blue green. The deep ruby was more or less altered by light; the green and the yellow were gone much before the others. The light ruby appeared to him to be the best. He then came to the bromized paper, which was more sensitive to the chemical ray than iodized paper. He produced a colourless glass, patent plate, which was the most sensitive to light; then came light blue and deep blue, and then a series of yellows, and then rubies and greens. He next produced a third experiment, and they would see that although it contained chiefly yellows and rubies of different shades, yet they almost all came out nearly the same relative gradations as in the original. He had intended to have brought another matter before them, with experiments, but as he was unable then to produce the experiments, he would merely give an outline of his ideas. It was universally observed that from very small apparent causes the most wonderful effects were afterwards produced. Steam, electricity, and now photography, were instances of this. Sound and light were governed by the same laws. Light was refracted at right angle; so also was sound. Suppose, for instance, a carriage passed them; immediately it turned round the corner of the street the sound seemed as it were shut from them. He did not see why they should not be able to produce visible impressions of musical notes in some shape or other, so that on inspection of the *acoustograph*, we shall be enabled to read or play the original tune. He would lay some such experiments before them at the next meeting.

A Member observed that in some of the pictures that had been passed round, and which had been taken by Dr. Edwards, chloroform had been used, and a most pleasing effect had been produced by softening the film. He did not know what quantity of chloroform had been used.

Dr. Thomson: Twenty drops to the ounce. The views at Bidston had been taken by Mr. Hartnup, with a telescope, at a distance of three miles.

Mr. Burgess remarked, that the use of chloroform was pointed out twelve months ago.

Mr. Keith observed that the action of chloroform was merely mechanical in decomposing the nitrate of silver; it might produce a finer film. He had tried it, but had not been able to produce any difference at present.

A Member exhibited some specimens taken on wax-paper, prepared according to Le Gray's instructions.

The Chairman having expressed a hope that members would do all in their power to add to the instruction of all by reading papers, and joining generally in the discussions, the meeting then adjourned.

PROCEEDINGS
OF THE
LONDON PHOTOGRAPHIC SOCIETY.

Ninth Ordinary Meeting, April 6th, 1854. P. Fry, Esq., in the Chair.

The Meeting confirmed the election by the Council of Mr. R. Hunt as Vice-President, in lieu of Earl Somers who had resigned, and of Messrs. Pollock and Pym, as Members of Council in lieu of Mr. Hunt, elected V.P., and Mr. Berger who had resigned. 21 New members were elected.

Mr. Townshend exhibited a portable Camera. Mr. Williams exhibited a travelling Camera and tent.

The President directed attention to a series of pictures taken on collodion at Pau, by Mr. Maxwell Lyte. Also to a series of instantaneous views of the fleet at Spithead, taken by Mr. Fenton with a single lens. And to a series taken by Mr. Elliott, under the direction of Capt. Scott, in the Sound, from the deck of the Hecla, while that vessel was going 10 knots an hour.

Mr. Edward Ash Hadow read the second part of his paper on "*The Quality and Proportions of the Materials required in the Collodion Process: 2, Iodised Collodion and Nitrate Bath*," in which he advocated the use of iodide of cadmium, as more soluble than the iodide of potassium without being deliquescent, and possessing the valuable property of giving a stable collodion; and being beautifully crystalline, it is not liable to adulterations or impurities. He objected to the use of ammonia, as it necessitates the use of an acid bath, which very soon loses its properties; every plate immersed tending to neutralise and ultimately even to render the bath alkaline. He had found four drops of oil of cloves to each ounce of collodion which had been discoloured, and rendered insensitive by the iodine being set free, had the effect of restoring the sensitive quality to a surprising degree. A tendency to solarize in the light parts he had traced to the presence of a minute quantity of nitrite of silver. This the oil of cloves and iodine in the collodion counteracted. The presence of the nitrite had, however, to compensate for the discoloration of the positives, "the important property of much increasing the sensitiveness and rapidity of the surface, allowing pictures to be taken instantaneously with far less light than is usually required. It is thus particularly suited to negatives, in which the colour by reflected light is of no importance, while it adds to the opacity of the dark parts of the picture."

He thought, that there was no mode of restoring the sensitiveness of collodion discoloured by keeping, superior to that recommended by Mr. Crookes—the addition of pure silver. He added his testimony to that of Mr. Hardwick, that the nitrate of silver bath by continued use acquires a tendency to fog, apparently from the presence of some organic matter, though too small in quantity for its nature to be ascertained. He was, however, not sure that the fogging might not be owing to acetate of silver, of which a very little added to a neutral bath will cause complete blackening of a plate under the action of the developing fluid, even though it has not been exposed to light at all.

He said that the strength of the solution of nitrate of silver, must be proportionate to the quantity of iodide in the collodion, or a great loss in sensitiveness ensued. With a 35 grain solution, 4 grains of iodide to the ounce of collodion answered very well. But there would be a great loss of sensitiveness and intensity if the quantity of iodide were 6 grains to the ounce of collodion. The error of over-iodizing arose from the mistake of supposing the iodide of silver alone to be reduced, while, in fact, a large portion of the reduced silver is from the nitrate, so that a very little iodide in the film is sufficient to give intense negatives. For this purpose the collodion should be colourless, unaffected by free iodine: the bath should be neutral; and the developing fluid should contain no more acetic or tartaric acid than is required to prevent weakening of clear parts; after the pyrogallic solution has apparently done its utmost, the intensity may be further increased by pouring on a fresh portion mixed with some of the silver solution, which adds to the opacity of the negative,—a fresh deposit taking place on the parts already reduced. By the use of the nitrite as beforementioned, still greater opacity may be obtained together with the utmost rapidity; and without that violent contrast of light and shade which appears to result from the addition of iodide of iron to the collodion as an accelerating agent.

He suggested the use of the proto-acetate of iron, obtained by the mixture of the solution of acetate of lead and sulphate of iron, as a developing agent in lieu of pyrogallic acid, on the ground of economy and facility of obtaining it pure; whereas noxious ingredients might easily be added to pyrogallic acid from which it would puzzle a chemist to free it.

In conclusion, he suggested that the points to which attention should now be principally directed, were an addition to, or substitute for, iodide of silver, giving a surface equally sensitive to all colours; and likewise some means of developing positives which shall combine perfect whiteness and delicacy of shading with entire freedom from metallic appearance by reflected light, which alone is wanting to make them surpass Daguerreotypes.

[It must be admitted that in the last respect Photographs, both on collodion and paper, greatly surpass Daguerreotypes, and have done so from the first.—Ed. L. P. J.]

Mr. Shadbolt, after expressing his satisfaction with the systematic and well-directed investigations of Mr. Hadow, proceeded to lay before the society the results of his experiments with chloroform as an ingredient of simple or uniodized collodion. "It produced density and toughness, united with considerable fluidity, and when iodized, it was susceptible of a beautiful graduation in the half-tones. It possessed the very great advantage of being perfectly structureless, as would be seen on examination of the minute photographs he then exhibited under the microscope." There were portraits of the Treasurer of the Photographic Society, the chief Cashier of the Bank of England, views of Paris, &c., in spaces varying from the twentieth to the fortieth part of an inch. They would bear magnifying to such an extent that all the features and details became visible without displaying the least appearance of structure in the collodion, though enlarged to the extent of a hundred diameters. The proportion most effective was 20 minims to the oz., used in the following manner. To 5 drachms of pure washed æther add 1 drachm of alcohol 60° overproof, and dissolve in it as much soluble cotton, made as directed by Mr. Hadow, as will produce a very slimy-looking solution, then add 20 minims of chloroform by dropping the latter into the former; it will probably fall to the bottom like drops of oil, but on shaking well for a few minutes it will dissolve. To the 6 drachms thus produced add 2 more of alcohol, containing the iodizing material, that preferred by the speaker being simply *pure* iodide of potassium. The quantity which had been found most effective being thus ascertained, the salt being well triturated was put into a bottle with some of the same alcohol as that used in making the collodion, and well shaken repeatedly for several days, and when poured off, to every 45 minims of saturated alcohol 75 more of fresh alcohol was added, thus making up the 2 drachms required. Each oz. of collodion therefore consists of

Pure æther..............	v drachms.
Alcohol	iii ,,
Soluble cotton...........	quant. suff.
Chloroform..............	xx min.
Iodide of potassium.....	about v. gr.

The chloroform producing not only great *toughness*, but ready flowing qualities, must not be added in too great quantity, as it also causes considerable contractility.

Mr. Shadbolt also stated that he had for some time been in the habit of using alcohol in the proportion of ½ a drachm to the oz. as an addition to the developing fluids, with very considerable advantage; and this he found another photographer, Mr. Keith, of Liverpool, had been operating with simultaneously.

The alcohol added to the solutions of the proto-salts of iron, without any acetic acid, allows the mixture to flow readily over the plate, and thus a very small quantity is sufficient for each picture. When the pyrogallic acid is used he always added it to the usual mixture of pyrogallic and acetic acid.

Mr. Bland stated, that the collodion sold by the firm of which he was a member, for some time past contained chloroform, but being a trade secret it had not been heretofore mentioned.

Mr. Hennah concurred with the remarks made by Mr. Shadbolt, particularly as regarded the utility of the alcohol in the developing solutions, as it rendered the manipulatiou more easy, especially to novices.

A letter was read from D. Llewellyn, Esq., on his practice of the calotypep rocess; and Mr. Spenser read a description of a stereoscopic camera, which he exhibited.

New Developing Agent. — Mr. John Barker, M.B., M.R.I.A., proposes a new developing agent for collodion, the deutoxide of nitrogen, used in place of acids, with the Protosulphate of Iron solution, as much more manageable, more certain, and not so liable to over develope. He says that he has had less experience of its mixture with the pyrogallic solution, but from what he has seen he thinks it may be well worthy attention.

Erratum.—In the report of Dr. Edwards's formula for collodion, which appeared last month at page 50 of this Journal, an error escaped correction. It should have read "*three* drachms of spirit" to five grains of iodide of potassium, one drop of free bromine, and five drachms of collodion.

Familiar Instruction.

No. IV.

Having succeeded in procuring a good positive on glass, we will proceed to consider the means of repeating the representation, it may be to an indefinite extent, by the process of Photographic Printing. There may by possibility be some positives of such intensity, the lights and shadows so broadly contrasted, that by placing them upon the upper surface of paper previously prepared, and thereby rendered sensible to luminous rays, whether of natural or artificial light, that a clearly defined outline may be produced; but these are extremely rare, and it is only by a picture termed negative, *i. e.* having the lights and shades reversed, that a print can be effected, for it is obvious that if the action of the sunbeams be to blacken the salts of silver, as we have elsewhere seen, that we must block out, or prevent, its action upon those parts of the picture intended to be white, or at any rate possessing very faint shadow or half tint. This the negative easily accomplishes, by withholding, or impeding the passage of the light through the thickened coating on the glass, heightened and augmented by the action of the chemicals now to be detailed.

While preparing the positives, before the final drying of the plate, we have ready the following solution:

Saturated Solution of Bichloride of Mercury in Muriatic Acid	1 part,	Mix.
Water	9 parts	

Having a rather overdone positive, wash the plate thoroughly, with not less than a quart of water streamed cautiously over it, and then pour the above gently over while evenly balanced in the hand; a peculiar and extreme whiteness will be observed to pervade the whole of the lighter parts, whilst the blacks become proportionably more deepened; (many have desired to retain the picture in this altered condition;) it must now be washed to a like extent as before, but with more than ordinary care, for if the collodion be not extremely tough, (and we have here need of all the compactness which the advocates for addition of chloroform attribute to it), the film will be found to be so excessively tender that no care will prevent its tearing and stripping away, if not altogether slipping off the plate: the plate thoroughly washed, is to have poured over it a weak solution of ammonia, about a drachm to the ounce of water, when a total change will be observed immediately; for the whole of that which was white will become of the deepest black, the shades in proportion, and what was black will show the bare glass as transparent and lucid as before it was coated: once more it is to be washed, dried, and varnished, as directed for the positive. The more experienced Photographers object to this form, as giving a harsh and unsoftened image; the proof when printed having none of that roundness and graduated depth of tint that pleases the eye; presenting in fact the same contrast that etching or pen and ink drawing does to a highly finished engraving. They therefore convert their positives into negatives by a more costly method.

It is almost out of the limits of the present paper to dilate on this, but having been required to go farther into detail than was at first contemplated, we must not pass it over without brief notice. Take of—

Fine Gold	1 dwt.
Muriatic Acid	2 dms.
Nitric do.	1 dm.

Mix in a saucer, in the open air; for deep coloured fumes of poisonous character will be evolved, and the gold will be rapidly or gradually dissolved in proportion to its purity: when thoroughly taken up, apply the heat of a sand-bath until it be evaporated to dryness, or nearly so; but as the gold is readily thrown down in a metallic form by excess of heat, this must be very carefully adjusted: when almost dried, and become cold, wash it out of the evaporating dish with two ounces of distilled water, and this will give a solution of about one grain of the salts or chloride of gold to each drachm. We now take the rather overdone positive and pour over it the chloride of gold, diluted with two-thirds or three-fourths of its bulk of water, and its tones will then be observed to be so heightened that, without being absolutely changed in its character, the light will be barred in its transit through it, but if not effectually thickened thereby, pour over it, after continued washing, sulphide of ammonium, diluted according to the strength of the picture, the proportion varying so widely as from twenty drops to two drachms to one ounce of water—previous experience as to the quality of the Photograph being the only guide; hence for the slightly initiated practitioner the former mode is obviously greatly preferable. The chloride of gold may be purchased at the usual repositories, with directions for the method of solution, use, &c.; and as both this, whilst being prepared, and the sulphide of ammonium, at all times are excessively offensive and deleterious, their use belongs more to the laboratory than the extemporaneous dark room of the amateur.

We now select the paper. Many have alleged that any paper, if perfectly homogenous and free from water mark suffices; but we recommend that prepared by Canson *Freree*, of Paris. Cut to a convenient size and float for a quarter of an hour upon either of the following solutions:

Common Salt... 20 grs.
Water........... 1 oz.

or, Hydrochlorate of Ammonia, i. e. Sal Ammoniac......... } 5 grs.
Water........................... 1 oz.

When thoroughly moistened with this, so that the whole substance of the paper is imbued with it, hang up by a corner to dry: this may be done in any light. Paper prepared with albumen, charged with these or similar salts, and ready for the application of the following solution of silver, may be purchased, and this is especially recommended as giving far finer half tints, or modifications of light and shadow. Next dissolve as follows:—

Nitrate of Silver in Crystals, 30 grs.
Water.......................... 1 oz.

Mark the previously saturated paper with a pencil, either on the back or face, and float it face downward in a shallow dish or porcelain tray for about two minutes; but this time we must be careful to exclude all light except that of a feeble candle, or that transmitted through amber or ruby coloured glass; when dry, either by fire or natural evaporation, place in the leaves of a book; but it will not preserve longer than about forty-eight hours. Place the negative, with its face next to the prepared paper, in a proper pressure frame, if possible; if not, with a large piece of thick glass over it, with weights on the corners, in order to bring it into close contact with the paper, else the lines will appear ill-defined, if not blotted; and bring into strong daylight, if sunlight the process will be shortened: when the edges of the paper beyond the negative become perfectly black; or, if you have a pressure frame, the print appears, when examined, to be too deeply printed, so as to seem to be spoiled: take it from under and steep in hyposulphite of soda, dissolved in water, three ounces to the pint. When freshly made, this solution will dissolve too much of the silver, rendering the print feeble, and of a foxy redness, unless a little nitrate of silver is added, or it be already charged with silver by previous use. Many Photographers assert, that old hyposulphite is the most effective; but, on the other hand, many objections may be urged against its use, for the hyposulphite may be so charged with silver as to act but very imperfectly on the undecomposed silver in the Photograph; if so, it would infallibly change on exposure. This may be prevented by soaking in fresh hyposulphite, after immersing in that which had become blackened by former use. The print must remain in this half an hour at least, to dissolve out all the silver unacted on; after exposure it will blacken all over, and again the picture must remain three hours in water, and frequently changed, to wash out all the soda, or it will in time fade away. Should the soda have changed it beyond the rich brown tints of a Sepia drawing, its colour may be modified into the blacker hues of Indian ink, by leaving it for some time in water acidulated with nitric acid; and different shades to suit the taste of the operator may be obtained, by carefully watching the various phases it will present in after experiments. Some of the more highly finished prints, by the proficients in the art, are beautifully toned by the action of the chloride of gold; but the expense hardly justifies the learner in its use in the present stage of his experience.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Dear Sir—As I have had several enquiries similar to that made by your correspondent "F," relative to the formation of a class for the practical study of Photographic Chemistry, I beg leave to state, through your columns, that I propose, on the completion of my present course of lectures on chemistry for this session, forming (early in June) a class for the express study of the chemicals employed in Photography; with practical manipulation of the processes, preparation, and testing of the chemicals employed, and a short course of lectures upon the theoretical and practical bearing of chemistry upon the Photographic processes.—Trusting this may prove acceptable, I am, my dear Sir, yours faithfully,

J. B. EDWARDS, Ph. D., F.C.S.

Liverpool, May 1, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir,—Perhaps your unfortunate paper-manipulator readers will be glad to hear, that after repeated failures of Mr. Berry's process, I accidentally bromized and excited a piece of "Marion's" *salé* simple positive paper, the result of which, as a negative, with one minute's exposure in the camera, was very surprising. The details are remarkably clear, and I have no doubt, with a little attention to the proportions, the time may be even considerably diminished. If you can give this space in your next number I shall thank you.—Faithfully yours,

CHRIST. BELL.

Umberslade Hall, May 10th, 1854.

To the Editor of the Liverpool Photographic Journal.

Bath, April 13th, 1854.

Sir,—Permit me to submit a few queries, to which if one or other of your talented correspondents would, by your favour, speedly reply, it would doubtless be very acceptable to others as well as, yours,

PHILO-PHOTO.

1. What is the reason that sometimes (under similar manipulation) negatives become of a reddish brown tint all over, more particularly in the skies during the developing process?—and the remedy.

2. What occasions the frequent greasy-like appearance of the surface of the negative proof, so that it is not only unwilling to be wetted in the soaking subsequent to developing, but when dry has the appearance of having been sprinkled all over with dirty water?

3. What is the occasion of some negative proofs being coverd all over with millions of *minute specks* (lighter than the general surface of the picture), and which, when a positive is printed from them, present an appearance as if a pepper castor had been shaken over the pictnre?—and the remedy.

4. What is the reason why, on many *positive* proofs (printed on albumenized paper), there appear, during immersion in Hypo, largely diffused patches of a reddish-brown colour?

[Supposing that paper negatives are intended by our correspondent, we imagine the following to be satisfactory solutions to the several queries:—

1. The evolution of a red colour in the skies and high lights in calotype negatives, during development, is a proof that the camera exposure has been too long. The remedy is shortening the camera process.

2. Either the insufficient quantity of cyanide in the first wash, to the waxed paper, or an insufficient time given for soaking either in the first or second wash.

3. Deficiency of iodide, &c. in first wash—remedy, a stronger sensitive solution.

4. Either the nitrate of silver wash has been deficient in strength, or the soaking has been insufficient to thoroughly impregnate the albumenized surface.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

My Dear Sir,—Allow me to tender you my most sincere thanks for your manifold favours, and, at the present moment, more especially for your kind answers to my queries respecting Mr. Foard's formulæ. The developing difficulty is now quite intelligible, although I must confess, that from its great dissimilarity to all other previous forms, I should never have construed it in that way. Respecting the iodizing formulæ, I fear I did not write sufficiently intelligibly. I took it for granted that "parts" meant relative quantities; but it was the term being applied to both fluids and solids alike that puzzled me. Would Mr. Foard's formulæ be right if written thus:—

Whey 1000 parts or 1000 minims, 2 oz. 2 dr., fluid.

Iodide of Potass	20 parts	or 20 grains,		
Bromide ,,	2	,, 2 ,,		Solid.
Cyanide ,,	1	,, 1 ,,		
Chlor. Sodium	1	,, 1 ,,		

Immerse 10 minutes n. h.

Pray do bear with my quirks, as the mania (wax-paper) is still raging within me. Your friend, Mr. B. (and I hope mine also) very wisely makes use of dear old Mrs. Glasse's motto, "first catch your hare,"—true, and had the waxed-paper no advantages over the simply iodized I would never use a sheet more,—but stop, I can't consent to forego the great advantage of the keeping property of the waxed over the simply iodized, unless I am compelled to do so; the first will keep good as many weeks as the latter will days, and that is of immense consequence.

I can scarcely fancy that the gravelly appearance of the wax-paper negatives is caused by the repulsive character of the wax—it might be so were it immersed in merely a watery menstruum, but I must be allowed to remind you that the iodide of potass has a decided chemical affinity for the wax, which immediately does away with the repulsive tendency. I believe it to be owing to certain parts or points of the surface of the waxed paper yielding up more of the wax which it had imbibed than the parts more interior. I still think that the process may yet be freed from all its present difficulties, and I am determined to persevere for a time longer at least. Many thanks to you also for your kind offer of information respecting the collodion process, and so adieu, yours most sincerely,

HENRY HELE.

5, *Nottingham-place, Tavistock-road,*
Plymouth, April 29, 1854.

[We have requested Mr. Foard to explain the formula which has excited the doubt of our animated correspondent and enthusiastic photographer, Mr. Hele, of Plymouth, and append his reply.]

Dear Sir,—Your piquant Plymouth correspondent has some cause, I fear, to be perplexed by the wax-paper formulæ given last month, from the term "parts" being used relatively with both fluids and solids. I believe, however, such a form is not altogether unusual (weight being understood) in such instances for the more easy circulation of such recipes among workmen of different countries. The translation of English into French measures ordinarily involves some slight inexactitude, which a form, giving relative quantities only avoids. The quantity of cyanide is usually very small; in the recipe of Vicomte Vigier, published in Horne's Manual, by Fenton, 30 grains of cyanide only is used to 35 oz. by measure of whey. I subjoin the formulæ as there published:—

35 oz. by measure of whey which has been boiled, with the whites of two eggs, to clarify it, and filtered.

385 grains Iodide Potassium
61 ,, Bromide ,,
30 ,, Cyanide ,,
23 ,, Fluoride ,,

My attention to those branches of photography employed in my business, unfortunately prevent altogether my pursuit of the wax-paper branch, so that I can by no means be accepted as an authority in it; but I think it possible, that in its *modus operandi*, as in that of the Daguerreotype, simplicity in the use of materials is usually preferable,—that the action of the essentials in a recipe is too frequently marred by the quantity of other ingredients inserted as improvements.—I remain, Dear Sir, yours very faithfully,

34, *Church-street,* JAMES T. FOARD.
May 10*th*, 1854.

In reply to Mr. Henderson, whose letter appeared last month, Mr. Berry has favoured us with the following:—

1st. Thick Canson's or Marion's, vide Mr. Bell's note, which appears in another page in this Journal.

2nd and 3rd. Must be determined by direct experiment; vide Mr. Bell's letter.

4th. The operator must be guided by the evolution of detail and intensity of the high lights of the photograph as to the period at which the development should be stopped.

5th. Unquestionably it will. The time must be determined by trial; perhaps from 30 seconds to 15 minutes.

6th. The positive.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 6.—JUNE 10, 1854.

Even Photography cannot escape the fangs of the law. The Vice-Chancellor, Sir W. Page Wood, has just granted an injunction against Mr. Henderson, who carries on business as a professional Photographer in Regent-street and the Strand, London, at the instance of Mr. Fox Talbot, to restrain the defendant "from in any manner using, exercising, or putting in practice the invention of the plaintiff, or any part thereof, or counterfeiting, imitating, or resembling the same, or any part thereof, in the preparation of portraits, and from obtaining, making, manufacturing, preparing, or selling any Photographic portraits on paper according to or by means of the plaintiff's said invention, or any part thereof." But Mr. Fox Talbot is to bring an action at common law, to ascertain whether any infringement of his patent has taken place by Mr. Henderson's use of the collodion process.

The order of the Vice-Chancellor is so complete a summary of the case and defence, that we give it at length, in another column, as reported by the *Times*.

This is a subject that we look at on all sides with the greatest regret. Mr. Fox Talbot distinguished himself by his Photographic discoveries, anterior to the invention of Daguerre, and thereby was able to step in and protect the use of the camera for Photographic purposes from the patent by which Mr. Beard would otherwise, in importing the process of M. Daguerre, have restricted it. Mr. Fox Talbot proceeded with his investigations, and, in the words of Dr. Mansell, not only discovered the beautiful process called after his name, the Talbotype, but has given it to the world, in 1841, in so perfect a form, that the innumerable experiments of a dozen years have done nothing essential to improve it, and the best manipulators of the day can add nothing to it.

The benefit of these discoveries, at first protected by patents, Mr. Fox Talbot has thrown open to the world gratuitously, with one reservation—that of portraits taken for sale.

It will be remembered that at one of the meetings of our Society, Mr. Berry read a digest of the various patents which had been from time to time taken out by Mr. Fox Talbot, and his letter to Sir Charles L. Eastlake, the President of the Royal Academy, announcing his liberal abandonment of his private advantage to the public at large. A discussion followed, aided by Mr. Foard, the partner of Mr. Beard, the holder of the patent of the Daguerreotype, and by gentlemen members "learned in the law," and it was decided that except in practising the art of Photography for money, the process had been made free in every respect by Mr. Fox Talbot's renunciation. Therefore, so far as art and science are concerned, we are in no way interested in the result of Mr. Fox Talbot's action against Mr. Henderson. The public have the full benefit of his liberality.

It is said that, to professional Photographers, Mr. Fox Talbot is very exorbitant in his demands for licenses to use his process for portraiture. This may be a matter of regret, as one would not willingly see so much science and skill, in combination with great liberality to the public, sullied by the slightest short-coming to individuals. The public is made up of individuals. But there is something to be said on the other side, even in the absence of any reason given by Mr. Fox Talbot himself. The proverbial ingratitude of the world, in which England, to her shame, forms a flagrant example, to all inventors and discoverers; the systematic plunder of each other, fearfully recorded in the annals of the Court of Chancery, in the shape of injunctions, calls upon every honest man to enter his protest against the doctrine, that the proceeds of the brain are not equally with the products of his hands, the property of the individual, in the possession of which he has a right to be protected by anything that calls itself a government in a civilised country; which brings us to another source of regret and indignation. Mr. Henderson, as Mr. Fox Talbot conceives, is infringing upon and appropriating the proceeds of his brain, and he makes an application to the Court of Chancery to prevent the continuance of the alleged robbery. A previous instance is referred to, in which an injunction had been granted to restrain some other invader, and the Vice-Chancellor grants an injunction in the same terms, restraining Mr. Henderson from using Mr. Fox Talbot's patent, or any part thereof, but binding Mr. Fox Talbot to bring an action at common law, to prove the infringement of his patent by Mr. Henderson. Wherefore this additional expense? Are we to consider the Court of Chancery as having only the authority of police magistrates to commit *mal feasants* to prison for trial? Could not the Vice-Chancellor have ascertained and decided the simple fact, whether Mr. Henderson had or had not infringed upon the rights which Mr. Fox Talbot had reserved to himself? No! the fox must be killed *secundem artem*, by a regular pack of hounds, and not by a countryman with a flail; not that we would for a moment be supposed to liken the worshipful members of the legal profession to a pack of hungry hounds, or any of their Honors, (the Vice-Chancellors or the Master of the Rolls,) to simple countrymen. But the privilege of trial by jury, that "palladium of English liberty," is so great, that every British subject is to be at liberty to spend as much money as he can in obtaining the advantage of it, and to compel any other possessor of the privilege to pay equally high for the blessing, though justice between the parties might be done by a much more simple and less expensive process.

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section II.—APPARATUS.

DARK SLIDE. Fr. *Chassis; ou Cadre a coulisse.* A frame for containing the prepared plate in which it is excluded from the light, by means of a hinged back and sliding front, the latter of which is withdrawn when the slide is placed in the camera to enable the image formed by the lens to act. It must of course be again closed previous to removing the slide from the camera to the dark room.

DARK ROOM. Fr. *Chambre noire.* The room in which the plates or paper are prepared. This should be done either by candle light—all daylight being excluded—or, if gas light be employed, a yellow or crimson glass should surround the jet. Daylight may with safety be admitted if the window be covered with yellow or crimson glass or calico.

DIAPHRAGM. Fr. *Diaphragme.* A disc of metal perforated in the centre, placed in front of a lens, to exclude all but the central rays, and thus correct the spherical aberration or curvilinear distortion; sometimes in double arrangements placed between the lenses.

DIPPER. A strip of glass or gutta percha, bent at the lower end to receive and support the glass plate in immersing and withdrawing it from the silver bath.

DYNACTINOMETER. Fr. *Dynactinometre.* An instrument invented by Mr. Claudet to ascertain the intensity of Photographic light, and to compare the speed of working of various lenses.

ELEVATING FRONT. A sliding plate on the front of the camera in which the lens is screwed; by elevating or depressing this the relative amount of foreground and sky is altered, without pointing the camera out of the horizontal.

FILTER. The filter generally used in Photography is a piece of white bibulous paper folded into four transversely, and then opened so as to form a cone, and placed in a funnel. Asbestos put in the bottom of a glass funnel is sometimes used to filter the silver solutions, but by keeping a little animal charcoal at the bottom of the bottles containing them no filtering will be required, unless bits of collodion or dust get in.

FOCUS. Fr. *Foyer.* The distance from the lens to the point at which a perfect image of an object is produced. This is the visual focus. In a single lens the chemical or actinic focus is one-thirtieth less; in achromatic lenses these foci correspond.

FOCUSSING GLASS. Fr. *Verre depoli.* A piece of ground glass fitted in a frame in such a position that the dimmed side of the glass shall occupy precisely the same plane as the prepared side of the plate or paper to be used in the dark slide.

FUNNEL. Fr. *Entonnoir.* A conical vessel of glass earthenware or gutta percha, for facilitating the transfer of solutions; also to receive the support of the filters.

FOCIMETER. Fr. *Focimetre.* An instrument invented by Mr. Claudet, for ascertaining the difference or coincidence of the chemical and visual foci of lenses.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The fourth meeting of the Session was held on Tuesday evening last, at the Royal Institution, Colquitt-street, Mr. James Newlands, the Vice-President, occupied the chair, and there was a large attendance of members.

Before the commencement of the usual business of the Society, Mr. Forrest, the Secretary, announced that they had taken the rooms in the Institution, and they would soon be ready for the reception of Photographs from all parts of the country.

Mr. Mackinlay announced a method of preventing the collodion film from cracking. This was effected by the addition of three drops of a solution of white wax in ether. Besides preventing the film from cracking, it made it adhere much longer to the glass.

Mr. Forrest called attention to some very beautiful Portraits which had been sent for exhibition by Messrs. Beard and Foard, of Church-street. The specimens, six in number, included very striking portraits of the Rev. Samuel Minton, Rev. W. Pollock, Rev. C. M. Birrell, Mr. M. J. Whitty, &c.; also, to a selection of fifty Photographs, a great number of which had been taken from valuable specimens in the possession of Mons. Choffin, in Parker-street. Mr. Forrest proceeded to exhibit and explain his improved portable Camera. It was intended for field work; it worked with a single lens and a long focus, and it could also be made stereoscopic by a slot or groove fitted between the bottom of the camera and the camera stand, which would enable it to be shifted from left to right, and *vice versa*, two and a half inches—the space between the human eyes when regarding an object.

The Chairman expressed a favourable opinion of the camera, remarking that he had worked with it for some time, whilst still imperfect, and it was then a very good instrument; but it had been so immensely improved, that he thought there was now nothing to add.

In the course of a conversation which ensued relative to the construction of Gutta Percha Baths, the Chairman said the best mode of constructing them was to take a large sheet of gutta percha, and, having softened it by immersion in hot water, to fold it over a wooden mould, and then join the ends by passing over them the blade of a warm knife. By this means there was only one seam, and that was perfectly secure. The cost of this bath would only be about thirteen pence, and it would be a much better one than those in general use, which they could not purchase under four shillings.

Two beautiful Portraits, taken by Mr. Keith, of Castle-street, were next exhibited. The Chairman said one of them was that of an illustrious visitor to the town. It was Tyabjee Bhoymeah, a native Bombay merchant, who has lately come over to this country for the purpose of making himself acquainted with the minutiæ of our mercantile transactions. During his stay in town, he had, in company with a number of his friends, paid a visit to the establishment of Mr. Keith, where the portrait, which was stereoscopic, was taken. The likeness was remarkably striking, and as a picture it was one of Mr. Keith's finest productions, every feature being distinctly pourtrayed, and the rich tone of colour of the beautiful oriental costume in which the gentleman was attired, was represented with the greatest clearness. The other portrait was that of a lady in a blue dress, and in this, as the one exhibited by him at the previous meeting of the society, Mr. Keith succeeded in reproducing the delicate texture of the dress in the most clear and beautiful manner.

Mr. Forrest had to report what they had been doing with respect to the photographs of the moon. He, Mr. Hartnup, and Mr. Towson, had got about 150 portraits of it, and they thought that their next duty was to magnify those portraits in order to see what was in them. They did so, and they were marvellously struck with the fact, that though the photographs were only one inch and thirty-five parts of an inch in diameter, when they magnified them to twenty-four feet in diameter, they had every part of the definition made out with the most marvellous exactness; so much so that they had the volcano, Tycho, among others, magnified to ten inches in diameter, and they could clearly see the light travelling across. He believed the actual measurement of it, as given by astronomers, was $37\frac{1}{2}$ miles in diameter. Mr. Hartnup had received a number of letters from gentlemen in all parts of the kingdom, wanting to know how they got those views, and by what means; whether it was by machinery of some extraordinarily complex character; for they all knew the moon travelled at a prodigious rate, and, consequently, they must keep up the same rate or there would be no impression. This was got over by the excellent way in which Mr. Hartnup managed it with the aid of his large telescope. The operation was very straining to the eyes, and required exceedingly nice adjustment. In the Photograph of the full moon, of which they had many impressions, they had every portion of it delineated in a most extraordinary manner. They had put some of the impressions into the stereoscope, and they had given satisfactory results; but a question had been raised as to whether they really were stereoscopic, seeing that they could not get round the moon. However, Mr. Hartnup had suggested a plan by which this would be settled. It was by taking the moon twelve hours before her full, and then twelve hours after, and the result was that they got a shadow of both sides. They put these impressions in a stereoscope, and he could assure them the effect produced, on looking through the stereoscope, was a most perfect ball.

Mr. Corey enquired whether there was not a map of the moon published which had taken 30 years in the preparation, and remarked that this was more to be relied on which had only occupied 3 minutes in the execution.

The Chairman called attention to a beautiful slide for the calotype process by Mr. Saddler. It was made of ruby glass, and in exposing papers, the great advantage was that the slide was so made as to turn first one side and then the other, and thus take a second impression without removing the papers. (Described in the Photographic Intelligence.)

Mr. Saddler also exhibited a number of very successful wet-paper landscape photographs and explained the process by which they were taken.

Dr. Inman also exhibited a number of very beautiful microscopic views, consisting of paper positives taken from collodion negatives. He said that whenever he had had time to make the experiments, the sun had not shone sufficiently bright; but he had no doubt he should be able to continue them at an early period.

The Chairman before proceeding to read the paper for the evening, which had been written by Mr. Davies, of Warrington, and contained a detailed description of a modified calotype process, practised by him, said he had seen several specimens produced by Mr. Davies, who had never met with a failure, except those which he had sent for exhibition to the Society that night. Being very much interested in them he requested Mr. Davies, as a favour, to give him a detail of the process. Mr. Davies replied that the detail did not differ very much from the process usually practiced; but, still, as it differed in some particulars, he would consent to describe it. He had written it in a letter to him (the Chairman) and he would read that letter as the paper for the evening:—

"Dear Sir,—According to my promise, I now give you my method of working 'The Modified Colotype,' the results of which I shewed you. All will admit, I think, that for the tourist, or when one goes into the country, there are but two processes that can conveniently be practised, viz.:—'The Waxed Paper,' and the 'Colotype,' modified in some respects. The waxed paper, I find uncertain from many causes: first, I think there is much greater danger of staining the back, as well as a more uneven tint. 2ndly, I do not believe the sharpness and definition to surpass or even equal the other process I am about to describe; and 3rdly, the waxed paper takes uo little time to make, and that is a great object to those whose only opportunities are snatched, as it were, from the day's duties. Altogether, I see no decided advantage whatever in the waxed paper process, and I have tried almost if not every process.

"In the first place, I should advise every novice to begin with small papers, and thereby save the expense of failures—besides that, a man can work a small picture at first better than a large, succeeding where otherwise he must have failed, on account of inequality of excitement. As to the make of paper, I *never* use any but Turner's, as all other kinds are unequal in thickness and not close-grained enough, giving the blacks little or no density. My lens is 3¼ inches in diameter, and my opening not above, if quite up to, half an inch. This, by giving distinctness, prevents the same effect as solarization.

"The next step is iodizing the paper. This I do with the double iodide, according to Dr. Diamond's propositions. Some use a stronger solution; but I have found this to answer so well that I have tried none else.

"Take 30 grs. nitrate silver and 30 grs. iodide potass; dissolve separately in a little (say half an oz.) distilled water; mix and stir them round with a glass rod; then allow the precipitate to fall to the bottom; pour off the water and wash with a little distilled water; then fill up to two ozs. distilled water, add about 320 grs. iodide potass, which should dissolve the iodide silver; but if it does not, add a few more grs. till it does entirely dissolve the iodide. To apply this to the paper, I almost always take paper (cut to fit the frame) that has been previously damped, either by allowing it to remain in a damp place or laying between damp blotting paper; but it should be nearly, if not quite, dry again before the double iodide is applied; then, either with the plate glass, or what is better, the porcelain dish, I apply the double iodide to the previously marked side only, taking it off *immediately*, stroking with a thin glass rod till all greasiness disappears, which is sometimes very obstinate on the paper; then, contrary to Dr. Diamond and other of our first photographers, I lay it on the mixture again for a minute; then take it off; dry it, or almost so, by hanging by one corner; then soak in a good quantity of water for three or four hours, renewing the water three or four times, and *agitating* it pretty often, so that every sheet may be well washed, and show the yellow or primrose shade of colour. If this colour does not appear uniformly at the end of three hours, it sometimes will come with a little more washing; but if it does not appear then, it is vain to attempt the photographing with it. More failures arise from unequally iodized paper than any other cause; but if any person follows the above instructions, I think he will accomplish this important part of the process. I generally wash about forty pieces of paper before soaking it in water. I may be asked why I dare to raise my voice against Dr. Diamond and others, in allowing my paper to remain so long on the iodizing solution. I can only reply, I have tried both ways very often, and I find so short a time given to the iodising does not allow the mixture to overcome the inequalities of even the best paper. The skies are, in parts, by strong transmitted light, a grey tint instead of the jet black they appear at sight; and I have not found it to injure the lights at all.

"The next step is exciting and exposure of the paper! To excite, take ten drops each of aceto-nitrate and saturated solution of gallic acid, mixed well with three drms. of distilled water.

"To make the aceto-nitrate:—

Nitrate silver ....30 grs.
Glacial acet. acid ...... 1 drm.
Distilled water .... 1 oz.

"It must be remembered that the solution of gallic acid should not be above a week or ten days old. Some people only use seven or eight drops of gallic acid solution in summer. This I have applied with either glass plate or porcelain dish, laying the paper on the surface of the liquid, then removing immediately, stroking over with the glass rod till all greasiness disappears, and then (unlike Dr. Diamond) laying it on the plate again for a few seconds; then remove, stroke over with glass rod, and blot it off with *clean* blotting paper each time.

"Of this, my general *day's* work is a dozen papers, using only one slide, and the yellow calico bag; but even through the yellow calico I always *fear* too strong a light, and get into the shade, where there is quite light enough to change the papers, &c. The book I carry my prepared paper in, I enclose in a thick brown paper pocket, which I carry in the yellow bag, as I am convinced many failures occur on account of carelessness in the carriage of the paper! As to exposure, my lens is 16 inch focus, with one-half inch diagram; and when I took 'Winwick Church,' (of course the stone is *dark*,) in the sunshine, it took five and six minutes. I mention two times, as I always take two pictures of any object I want when far from home, as then I deem it pretty sure that I shall get *one* good negative. But with a lens eight or nine inch focus, I should say in good sunshine, four minutes would do all that is required. One great fault in photographers is giving too long an exposure, as they cannot develope the skies to a good black without injury to the whites, and giving the positive, when printed, a dirty, unclear look.

"Developing, I always do the same day, if possible, using first the saturated solution of gallic acid and *(the glass plate, &c.,)* allowing the picture to remain on this, after stroking with a glass rod to insure equal action, for five or ten minutes. This, I have found, makes the paper receive the stronger development, which I then lay on more evenly, viz.: without wiping the plate; I add ten or twelve drops gallic acid solution, and six or seven drops aceto-nitrate, stroking the solution up and down the glass plate with the rod to mix them; and I often add a drop or two of acetic acid. Float the paper on this, and watch it by lifting it off the plate at intervals of five or ten minutes, and adding gallic acid and aceto-nitrate in the proportion of three or four to six or eight drops, when it does not readily move about on the glass. The appearance at this point is rather deceitful, as the blacks appear far more intense than they really are; but if you look *through* them at the artificial light you use, a far more truthful idea is given. Some recommend a slight artificial heat, but I (having often tried it) have never found it to accomplish anything but browning of the whites, without giving the blacks any perceptible intensity.

"When the picture is developed enough, wash in water once or twice, changing it, in which state the picture will keep; but I prefer, when at home, fixing at once by blotting the picture, and then laying it in a solution of hyposulphite of soda, 1 oz. or 1½oz. to 8oz. of water, until the yellow appearance of the unacted upon paper disappears: wash well for some 8 or 10 hours, then dry. My negatives, when they will bear it, I always wax, by first ironing them and then applying the wax. The only drawback to Turner's paper is the difficulty of making it take the wax which sometimes occurs. *I* wax it and leave it before the fire, just close enough to keep the wax freely melted, and when it has evenly saturated the paper it should be ironed to take *all* the superfluous wax off, or else it gathers small spots from the positive paper: I myself have lost some half dozen of my best negatives from this cause, so that now I always put it betwixt a clean, or nearly clean, piece of blotting paper, using the hot iron as before.

"I said above *when the negatives will bear waxing*, as I find it often impossible to print from a *negative waxed*, which left *un*waxed printed well enough, only taking three hours instead of half an hour when waxed. The other day I took a picture of the Old Church in this town, and just behind the tower a huge chimney gave out an incessant volume of smoke. However I got the sky pretty dense, but having waxed it, all my efforts to print from it were vain, the sky would not give a white. Having, however, one negative unwaxed, I tried that, and obtained from it a picture as good as I ever took; but waxing gives such a reduction of time (with other advantages, *I* think) that when the skies are dense enough it is a great advantage to wax them!

"The remaining object is now to print from the negative. I find the simplest and best paper to be prepared by dissolving 10 grains of chloride of barium to 1 oz. of water, and floating the Canson positive paper on this (using a glass rod at first to ensure no bubbles) for about three minutes, hang up to dry and leave until wanted. I use the dish for this. The silver solution I use of the strength of 60 grains to an oz., which I apply by the sheet of glass and glass rod as above, and let the paper remain on it for 3 minutes. This gives *any* tone of picture without gold or any other method except the old hyposulphite, which I always use. My bath is rather old, but I find that in a well printed picture it takes from 1 hour to 3 on an average to give the black tones. Here also the novice must be warned to print his positive until the dark parts become muddy-looking and lose their definition of the parts, which will ensure it standing the old hyposulphite for 1 hour, less than which it should not have. I always wash it a little, then blot off, and submit the positive to a new hyposulph. wash before I finally wash in water. The last wash of water must be often changed, and the picture remain some time,—twelve or twenty-four hours if possible. When the skies have an unblackened spot, (which often happens,) I find that stopping out with yellow often leaves a yellowish mark on the paper, so that lately I have used Indian ink rubbed to appear black; this must, of course, be applied before mixing. As to using the bromide of potassium to enable the paper to take green trees, &c., I have found no better results with than without it; nay, I have found the iodide to do all required. If a man will be careful in iodizing his paper, and keeping it, when finally prepared, from the light, I do not know any general cause of failure."

Mr. Morecroft stated that he thought there was the greatest difficulty in the process, and it required much longer time than one previously brought before the notice of the Society. He had paid a little attention to the subject lately, but he had not succeeded as far as he wished. He had, however, two or three impressions taken upon albumenised paper, which he had himself prepared. Mr. Davies stated that he only produced twelve pictures in the course of the afternoon; but he (Mr. Morecroft) could work twenty or thirty in half an hour. Altogether it appeared to him a very lengthy process.

The Chairman explained that the reason Mr. Davies took so few pictures, was on account of the state of his health, which prevented him from devoting much time to the subject.

Mr. Forrest said it was one of the benefits resulting from such a Society, that the members communicated the results of their various experiments; but Mr. Morecroft only gave them an inkling of the way he managed his process.

Mr. Morecroft replied that he had no wish to keep it a secret from the Society, but he had received it on condition of secrecy.

A vote of thanks was passed to the several gentlemen who had favoured the Society with their communications, and a similar compliment paid to the chairman, when the meeting separated.

LONDON PHOTOGRAPHIC SOCIETY.

Tenth Ordinary Meeting, Thursday, May 4th, 1854.—Sir W. J. Newton, V. P., in the chair.

Mr. Robertson's photographs of Grecian antiquities were exhibited by the Society of Arts. Mr. Allan exhibited a portable daguerreotype apparatus. Prints were exhibited which had been obtained from negatives taken by Messrs. Crookes and Spiller on collodion, five days after it had been made sensitive by immersion in the silver bath.

This was an example of the use of nitrate of zinc, after the nitrate of silver bath, to keep it moist by the deliquescent quality of the former. This subject will be found, in another page, to have attracted the attention and experiments of some of the most accomplished members of our Society, and with beneficial results. According to the statements published in the *Philosophical Magazine*, May, 1854, the solution used after the usual nitrate of silver bath, of 30 grains to the ounce, is composed of—

Nitrate of zinc, fused	-	2 ounces.
Nitrate of silver	-	35 grains.
Water	- - -	6 ounces.

The plate is left in this bath for five minutes or more, till the film of collodion is saturated, then taken out, and allowed to drain upright on blotting paper until all the surface moisture has been absorbed, about half an hour, and then it may be put by till required. (It is but just to these gentlemen to say that their experiments with relation to this method are not concluded, but they state that they have retained the plates in this state for about a week, and at that period the sensitiveness was hardly deteriorated in any appreciable degree.) Development need not immediately follow exposure in the camera, but may be deferred to any period within the week; a plunge for a few seconds into the original nitrate of silver bath is previously required.

Mr. Hardwick read a paper "*On the best means of obtaining direct Positives on Collodion,*" the portion read being on "the condition of the film most favorable for the production of pictures to be viewed by reflected light," in which he commended Mr. Hadow's collodion; and to avoid the evils so painfully felt by Photographers, "that the high lights, such as the forehead, hands, and especially the shirt of the sitter come out with excessive rapidity in proportion to the half tints," he recommended that it should be only weakly iodized. This, he says, is more sensitive to feeble rays of light; and he contends that no portion of the alkaline iodide in collodion, beyond that which gives the transparent opalescent film, is adapted to produce a perfect image, visible in every part by reflected light.

The formula which he had found to work the best was—

Æther	- - -	5 drachms.
Alcohol	- - -	3 drachms.
Soluble cotton	- -	$1\frac{1}{2}$ grains.
Iodide of ammonium	-	$1\frac{1}{2}$ grains.

The latter ingredient must be purified with care; and the æther must also be free from alcohol, which is not the case with that in the shops. The next portion of his paper will be on the strength of the nitrate bath and the developing fluid.

Mr. Spencer read a paper "*On the preparation of Albumenised Paper for Positives.*" He advocated the method of floating on equal parts of albumen and water, with 8 grains of chloride of sodium to each ounce of the mixture, beaten up as usual, and strained into a flat dish through a piece of muslin. The papers, having been laid on the fluid and immediately removed, unless very large, in which case 10 seconds may be necessary to prevent their curling up at the edges, are hung up by one corner to dry, and then placed in a press. He disapproves of the use of an iron. The silver solution is 90 or 100 grains to the ounce of distilled water, and applied by means of a brush, which he prefers to either floating or spreading with a glass rod. He would have brushes made with the hair (he does not say what hair) fixed in silver, in the same manner as in the ordinary flat tools, which could be replaced when requisite.

To prevent the fading of Photographs which have been imperfectly washed, and to shorten the time required for complete washing, he said he had used pure hydrochloric acid, sp. grav. 1'16, diluted with about five or six pints of water, on which he laid the prints for about a minute, after they had been washed well in two or three waters for about five or six hours. They are then plunged into clean cold water for about another hour or two, when they may be taken out and dried. He had by him some proofs which for experiment had only been washed altogether for about an hour, and they still remained quite perfect, while others which had a much longer washing in plain water had shown a decided tendency to spoil.

Mr. Judge exhibited and described "a new form of portable camera," made to his instructions by Mr. J. J. Griffin.

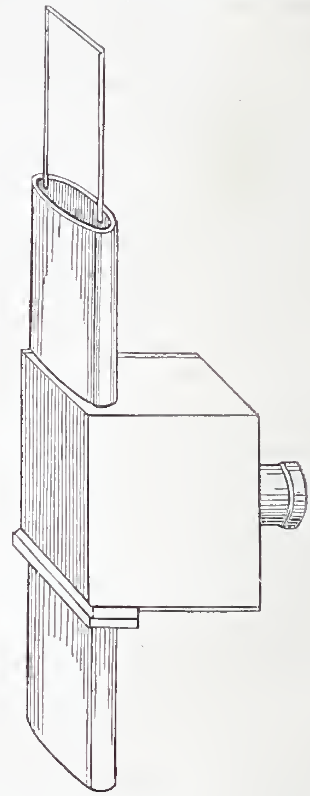
Familiar Instruction.
No. v.

"Con tutto core."

We will suppose the student, by patient perseverance and dexterous manipulation, is perfectly *au fait* at the ordinary routine of taking photographs according to the rules previously laid down, and being satisfied with taking portraits of all who could bear with the numerous abortive attempts, ere the desired excellence can be obtained; and that now he feels expert enough to sally forth, armed with his much-prized Camera, fondly believing he can acquit himself with as much credit as at home, surrounded by all the familiar adjuncts, "the means and appliances to boot," through which he has one by one surmounted each fresh opposing obstacle, and trusts he can enrich his collection by views of neighbouring scenery, or designs of attractive buildings. But the very first effort will convince him that the dark closet and ample space, which have so substantially aided him at home, cannot be dragged about with him in the course of his perambulations; and much that appeared indispensable must now be either materially abridged, or substitutes contrived. The imagination of all who follow this arduous undertaking, has been racked to reduce the essentials into the smallest possible compass; and he will be found the best operator who can most condense or simplify the practice.

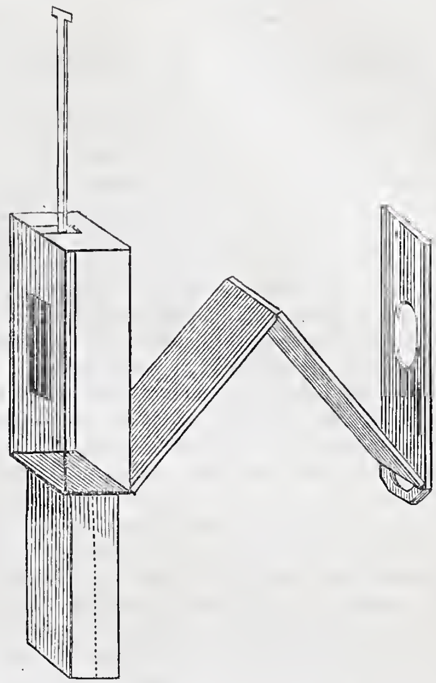
We will consider the different adaptations according to the order in which they have been presented to the notice of this Society, leaving the reader to select for himself that which he may deem the most available.

The nearest form to that which we are accustomed to at home, is one that appeared in the October number of the *London Photographic Journal* of last year, where a large square enclosure, covered with canvas, rendered impervious to light, was stretched over a frame, leaving the back open to receive the upper portion of the body of the sitter, and in this large, dark box the practitioner could operate as there was ample space for camera, chemicals, baths, and washing apparatus, with funnels to carry off waste liquids; but this, as discovered by an enterprising member, requires an amount of quadrupedal power to draw it about. The next, and much more simple form, is the folding camera of Mr. Mackinlay, diagrams of which appear in our February number. For convenience and portability, nothing can surpass this; but there it ends, as the plates must be prepared and finished in some house near at hand; unless the plates can be kept sensitive by the addition of nitrate of zinc, which appears hardly yet established. Some plan must be devised whereby the plate coated with the collodion can first be immersed in the silver bath, and then be shifted to the dark slide of the camera without undue exposure to the light. An elegant little contrivance for this, invented and generally used by Mr. M'Innes, is shewn below, who thereby takes miniature views with a most compact, though diminutive, camera, and afterwards enlarges them at leisure, on returning home.



The glass, in this instance, is just twice the length of the picture to be taken—(in his case what is called a medium plate)—having arranged his focus, the end of the plate is passed down through a slit in the roof and floor of the camera into a bath attached to the bottom of it; when sufficiently coated he draws it up until level with the lens; when time enough has elapsed for the taking of the picture the cap of the lens is replaced; he then has ready a sheath of gutta percha, open at both ends, which he passes over the upper half of the glass, which is, during the exposure in the camera, projected above the roof of it; the lower end of the plate is now drawn up into the sheath exactly as it was into the body of the camera, and being protected from the action of the light may be carried away safely to another place, where he has a bath containing the developing fluid; remaining there the requisite time the image is generated, and it may be freely exposed, to be washed from the iron, and the redundant silver removed by the cyanide of potassium; again washed, and, when dried, may be put away. A plan of Mr. Forrest's is to have the two baths fitted in one case, and attached beneath the camera, through the floor of which an opening is cut; through the roof a brass square rod passes, having a screw clip at the end of it, into which the top edge of the plate is secured. By means of this rod the plate is passed down into the silver bath and re-drawn up into the camera. After the latent picture is supposed to be produced, the baths at the bottom are slipped forward until the developing bath occupies the place under the slit, and by the aid of the rod the plate is again submerged, and when drawn up is released from the slip and taken from the camera, to be washed and fixed in the usual way. Care must be taken in sliding the baths steadily forward without splashing over the liquors one into the other; a most fatal mishap, as the presence of iron in the silver bath would infallibly precipitate the precious metal; here, however, a flute key stop is provided, that it may be easily ascertained when each bath is in its right situation. Mr. G. R. Berry has an excellent and simple form of out-door camera, consisting of merely a flap at the bottom of his plate slide, which opens with a spring, and after being placed over the silver bath the plate is lowered into it, and when raised again the flap is closed, and the same proceeding followed to develope by again lowering in to a bath containing salts of iron. A new arrangement is claimed by Mr. Newton, where three baths are a fixture; and the rod that holds the plate has its collar through which it passes fitted to a sliding adjustment at the top of the camera (omitted in the engraving). An engraved index denotes when it is over the silver bath. When raised, and the embryo picture is formed, the plate holding the rod is gently slid back until the index indicates that it is over the developing liquid, to be again depressed and raised. When the photograph is visible, which here may be seen through a panel of ruby glass in the back of the camera, and once more slid back till over the third bath containing cyanide of potassium, or, what will answer for the time being, till they can be more effectually preserved, common salt.

The writer of this article has determined upon an adaptation of this, fitted to a folding camera for a lens that is expected to cover a plate not less than sixteen inches square. As the focus of this will be of extreme length, it is necessary to have an additional joint in the floor, as shewn in the following diagram :—



In the back of this, an arrangement similar to that last described is shewn, but with only a twofold bath at the bottom, and a sliding rod having a motion to and fro, as well as up and down, with ruby glass panel, to watch the development. As there may be a difficulty from its length in rendering all parts rigid, it is proposed to have at the bottom, and fronting the baths, a wooden eye or staple, and another below the front where the lens is screwed in, so that when the frame is expanded by the struts stretching from the back to front at each upper corner, there may also be passed underneath a wooden bar, which may be bolted through the bottom of the camera into the tripod on which it rests. When extended and made firm, it is to be enclosed with a loose covering made of any material impervious to light: such as black velvet *lined*, or mackintosh cloth, fashioned like a sack, but open at both ends, so that by a string run through the hem it may be drawn tightly over either end of the camera. The taking of photographs may now be proceeded with as in either of the two latter cases, and positives stored to be afterwards converted into negatives, by Mr. G. R. Berry's very beautiful and valuable process, elsewhere detailed; so that the portfolio may be enriched with views of landscapes of surrounding scenery by the process of printing, explained in the last paper.

PHOTOGRAPHIC INTELLIGENCE.

Vice-Chancellor Sir W. Page Wood's Judgment in Talbot *v.* Henderson.

The Vice-Chancellor, withont calling for a reply, said it was quite clear that there was a serious point to be tried at law between the parties. He should grant the injunction, but he felt some donbt as to that part of the order which asked to restrain the defendant from imitating and resembling the plaintiff's invention, 'or any part thereof.'

Mr. Rolt said those words had been copied from the order made in a similar case before the late Vice-Chancellor, Sir James Parker, and they also were the very words used in the patent.

The Vice-Chancellor thought that if that were so, the words 'or any part thereof' must stand as part of the order. Mr. Talbot had certainly in terms described his whole process as one that was applicable on paper, in the first instance to be prepared in a particular way, and rendered highly sensitive to the action of light in the mode he described. Secondly, he claimed as his invention the power of producing a visible Photographic impression npon paper by washing it with liquids, so as to enable it to be beneficially acted upon by light, but the specification only described one liquid, and did not say, as was commonly said, he nsed that among other ingredients, but that that particular one was the one that he preferred. He claimed, thirdly, the invention of obtaining portraits by light and by Photographic means upon paper. He claimed, fourthly, the merit of fixing it upon the paper by bromide of potassium. He did not think that any question arose upon that last claim. Bnt a question had been raised by defendant as to whether what was called the 'collodion' process, and which, in some affidavits, was stated as being gnn-paper or gun-cotton dissolved in æther, and spread as a thin film over glass, was an infringement of the patent; and it was a matter of dispute how that film could be made chemically more sensitive, so as to develop the image. The one side stated that it might be done by a particular preparation of iron, or by pyrogallic acid, which was only another form of gallic acid; and the other, that it was done by a totally distinct substance. The defendant did not say which his process was, and he had a right to reqnire the plaintiff to prove a case against him. He said, indeed, that he did not use gallic acid. Bnt it was said, that as pyrogallic acid was a modification of gallic acid, althongh not gallic acid strictly so called, it might be a qnestion for discnssion whether a process had not been used which might be an infringement of the patent, and that whether the claim was for substitution of collodion for paper, or rendering it sensitive by pyrogallic or by gallic acid. In cases where a process had been invented, and an improvement had been made upon that process, the original patentee conld not nse the latter, nor conld the party improving nse the original process withont permission of the original patentee. They mnst make snch arrangement as they best could. In the present case Mr. Talbot had been in the possession of the patent for thirteen years, and had granted numerons licences. That gave him a *primâ facie* title. There was sufficient, however, before the court to show that an action must be tried as to whether there had been an infringement. Upon the question of convenience or inconvenience of granting an injnnction, the evidence preponderated in favour of the plaintiff's having the injnnction, becanse if the defendant was permitted to make these Photographic impressions, all others wonld have a right to do the same. The defendant ought to be enjoined, following the terms of the injunction granted in a former case by Vice-Chancellor Sir James Parker.

Mr. Fooks then asked that a condition might be imposed upon the plaintiff of making compensation to the defendant if he failed in the action.

The Vice-Chancellor acceded to this suggestion, and directed that the action shonld be brought forthwith, with liberty to apply.

Mr. M'Innes has been engaged taking views $3\frac{1}{4}$ by $2\frac{3}{4}$ in., developing them by plunging into a bath of 50 grains iron and 12 grains citric acid. This gives the clearest and most intense negatives ever produced. He nses a small portion of nitrate of zinc in the silver bath which keeps the negative moist until he returns home, and removes the iodide at his leisure, without injury to the picture. To the field worker this is one great advantage arising from the discovery of Messrs. Spillar and Crooks. He afterwards enlarges them by placing the small camera into the aperture of a half-plate camera, and receiving a positive image (considerably enlarged) upon the usual focus of the large camera. We have seen some positives so enlarged, and afterwards placed in a magic lantern, and increased to 24 feet diameter, and discovered no loss in detail, but an absolute gain, developing minutiæ that was not discernable by the naked eye. This opens up a wide field to the collodion operator, as he may with the greatest facility turn his camera into a magic lantern by placing a light inside, and any negative between it and the lens will throw an image of immense proportion upon a white sheet. We believe it to be a fact, that the enlarging may be increased to life size without the slightest injury to the detail of the picture. Every day is bringing out the uses of the Photographic Art. One of our members has taken some Photographs of the geological structure of an estate not far from Liverpool, that are to be produced as evidence in the Court of Chancery in London. Up to the present none of our members have been enabled to produce anything beyond positive pictures by the use of nitrate of zinc, but a little further exposure may overcome the difficulty.

Statistics of Photography.—Dr. Mansell has suggested that Photographers should record the result of their successful experiments in a table, giving—1. The time of exposure in the camera. 2. The locality (name of the place). 3. The iodizement (process used). 4. The maker of the paper. 5. The diameter of the diaphragm. 6. Its distance from the lens. 7. The diameter, focal length, and maker of the lens.—If our members will fill up such tables as these, and exhibit them with the specimens when the British Association come to Liverpool, they will contribute a most interesting and most valuable stock of information, and a highly important guide to Photographic Art. But it will not be sufficient to say "sea side," as some returns have done; the precise locality and time of day, whether indoors or out of doors, whether in a town or out, should be given as briefly as may be, but none omitted. The state of the atmosphere might also be material.

Ceroleine Process.—Mr. Stephane Geoffray has published some corrections of the original statement of his process, described in our last number. The paper prepared with *ceroleine* requires to be waxed again before printing from the negatives. He used the residue left from preparing the *ceroleine.*

Gelatine instead of Collodion.—E. R., of Tavistock, recommends "Swinburne's Patent Isinglass," in lieu of collodion or albumen, as the film, to receive Photographic action. He dissolves 10 grains of iodide of ammonium, and 1½ ounces of water, in a medicine phial; to this he adds 26 grains of the Isinglass, soaks it for half-an-hour, and then melts it in a vessel of water kept boiling over a lamp or fire, shaking the phial occasionally, till thoroughly dissolved, and then filters through filtering paper, doubled if necessary. This solution being transferred to a clear wide-mouthed phial, is kept hot during the operation of coating the plates, being replaced in the boiling water. The film on the plates, poured on and drained off as with collodion, may then be dried before the fire, or left in a warm place, nearly upright. In this state the plates will keep a long time. Excite with a 30 grain solution of nitrate of silver, quite neutral to litmus paper, expose in the camera when wet, and develop with sulphate of iron, 25 grains to the ounce of water, and a slight dash of tartaric acid, keeping the plate constantly in motion. Fix with very strong solution of hyposulphate of soda. It appears to be rapid.

Double Dark Frame.—This frame is formed for taking two views, and, though double, does not occupy more space than the ordinary single one made of wood. Zinc is used for the slides, between which are three plates of glass, the centre ruby, to prevent transmission of light, (prepared paper being placed on either side): they fit into a rabbet, secured by a small spring; it reverses in the camera, and may be used for any number of views, if additional glasses are provided, containing prepared papers, and held together by India rubber bands, a small bag being used for carrying and changing them to the frame. By a slight modification, it may serve for collodion, retaining only the ruby glass. Zinc and glass being only used, cleanliness is insured; and having no hinges or ironwork to rust, is not liable to derangement.

CORRESPONDENCE.

We have been favoured by Mr. Forrest with a letter addressed to him from Blackburn, of which the following extract announces the discovery of a new preparation of collodion, and sensitizing solution, as certain and more rapid than Thomas's celebrated Xylo-Iodide; with other advantages, such as cheapness, which will render it a great acquisition to Photographers, if it fulfils Mr. David Johnson's anticipations:—

Dear Sir—I am afraid you will have given me entirely up, as you have heard nothing from me since my order for the glasses. But I have been deeply engaged experimenting with collodion and sensitivizing solutions, and have concluded only this afternoon a series of experiments highly interesting and satisfactory, being now able to produce a collodion and sensitive solution, equal, and in many respects superior to Thomas's celebrated Xylo; in fact, in using the two under exactly similar circumstances *(except exposure)*, independent of other properties, tones as intense were produced with mine with seconds less exposure than with his, while mine has the advantage of being cheaper.

Do you think there is an opening for a collodion of this description?

Mr. G. Atkin, I think, told me, when last I saw him, that Thomas had been requested to sell his collodion to members of the Liverpool Society at a cheaper rate, but had not acceded to this request.

I would like, if possible, to bring it out under the favourable auspices of the Society, and if you can suggest to me the best course, I shall be exceedingly obliged. Per-chloride of gold, and the bi-chloride of mercury, &c., are not required. How many pictures have been ruined by their use! Collodion negatives, at once superior to the best wax paper ones, are a *desideratum*, and if I can introduce this to the members of the Society, I am sure many who have been attempting to print from collodion negatives, and who have hitherto failed, will succeed. I have a negative just taken with this collodion, with a single 3-inch Ross lens, diaphram only *one quarter inch*, in sunshine, with above half a dozen people and a dog, as sharp a picture as possible; not one of them knew of the picture being taken, so you may guess as to the rapidity.

The collodion and sensitive solution will be sold separately, and will in this state keep any length of time, and will keep when sensitivized in using condition a month or six weeks.—Yours,

DAVID JOHNSON.

North Gate, Blackburn,
May 9, 1854.

We have been favoured by Mr. Daniel Marsh, of 7, Cheyne-street, Edinburgh, Lecturer on Chemistry, with the following:—

NEW USE OF THE DAGUERREOTYPE PLATE FOR COPYING NEGATIVE PICTURES.

If the daguerreotype plate is made sensitive in the ordinary manner, and put in the pressure frame with a collodion picture, and exposed to light from one to ten minutes, varying with the intensity of the light, and developed in the ordinary way, a faithful copy will be obtained on the plate, which is to be fixed as usual.

The time for rendering the plate sensitive is 40 seconds for iodine, 20 for bromine, and 10 for iodine a second time; the picture appears readily over the mercury, which is best to be heated before putting it on the frame.

It could be applied with the greatest advantage to copy photographs of microscopic objects, after which they could be engraved with great accuracy.

To the Editor of the Liverpool Photographic Journal.

Sir,—I have no doubt many amateurs have experienced the annoyance of the hyposulphite of soda chrystalising on the collodion proof: and the film being so very tender, it can seldom, if ever, be subjected to a second washing; it may be of some use to many of your readers to know that if, previously to wetting the plate with water a second time, they first pour alcohol on it, in the same manner as the collodion, there is no danger of removing the film.

I am, Sir, your obedient servant, a Member,

7, *Savage Gardens,* G. S.
30*th May*, 1854.

P. S.—Can you inform us Londoners when the distribution of the promised Photographs will take place: answer the cause of delay.

[The illustrated numbers can now be had on application to the publisher.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—While travelling recently in South Wales, I observed a slated roof of enormous extent, covering the out-buildings of a scientific and certainly enlightened farmer, and noticed that some of the slates, or what appeared to be such, had a peculiar gloss on them, and, on examining farther, discovered them to be slabs of glass made of the exact size of the slates, and inserted, where needed, in the same manner as the slates. Now most of us have our upper stories unfurnished. I speak this in an architectural, not physical sense, (though many who do not share our enthusiasm would think this latter more appropriate.) How easy would it be to strip off the usual covering, and replace these with slabs of glass, which I find are kept of the size of every description of slate at the principal warehouses of this town, and thereby save great additional expense, and considerable risk in obtaining a light roof for operating; for the heavy and costly superstructure may thus be avoided.—Yours, &c., CAMERA.

Slater-street.

[The recommendation of our correspondent was freely urged as one of the advantages of the remission of the duty on glass; and, to a certain extent, it has been adopted. We see two instances of light admitted to lofts by the glass substitutes for slates, while we write; but the difficulty in fixing them stands in the way of their use in large surfaces. The slates are nailed to boarding, which must be removed to admit light, and the glass substitutes will require some strong frame-work in lieu of it.—Ed.]

THE
LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 7.—JULY 8, 1854.

The Photographic atmosphere is still disturbed by the litigation and discussion on the claims of Mr. Fox Talbot, and his endeavours to obtain a renewal of his patent of 1841. The Rev. J. B. Reade, of Stone Vicarage, Aylesbury, has published a letter, dated the 24th of June, addressed to Mr. Fox Talbot, in which he claims the priority of the use of gallic acid and of gallate, or taunate of silver, and of hyposulphite of soda; and the publication through the medium of Mr. Brayley's lectures, in April and May, 1839, which, however, not being printed, he admits Mr. Fox Talbot might not have been acquainted with. And in a previous letter to Mr. Hunt, Mr. J. B. Reade admitted that "the Art deservedly and by universal consent obtained the name of Talbotype." From this letter, even Wedgwood had inadvertently used gallic acid in taking Photographs on leather, which Mr. Reade says probably led him "to think of applying the tanning solution to paper." Other portions of the science have been furnished by other experimenters; but it seems to be admitted that Mr. Fox Talbot supplied the link that was wanting, and made that practical which was only in embryo before. This alone, probably, will be considered sufficient to establish his patent right,—as in the case of Messrs. Neilson, of Glasgow, and the hot blast, which was established notwithstanding the hot blast, in certain districts of England, was in common use at every blacksmith's forge. General principles, or scientific facts, cannot be made the subject of a patent, but only special applications of them to practical purposes. The real question to be decided is, whether the use of collodion film, or any other surface, made photographically sensitive, is included in the patent. But as the Editor of "Notes and Queries" has very justly observed, in reply to the suggestion of "raising a subscription to enable Mr. Henderson to try a question which is of so much importance to every Photographer," that it is only the "making and *selling*" portraits that Mr. Fox Talbot claims to license; therefore, the professional Portrait Photographers are alone interested, as we stated last month. The London Photographic Society, while acknowledging the great services of Mr. Fox Talbot, and the claims he had to their respect, considered that they stood in the position of guardians of the interests of Photography, and appointed a committee to examine into the circumstances connected with Mr. Fox Talbot's application for the renewal of his patent of 1841. The report was presented to an extra meeting of the Society on Thursday last.

The new waxed paper process announced and described in our report of the London Society's proceedings, by Mr. W. Townshend, if it only justify the account of the projector, realises almost everything that can be desired of Photography—the relative gradation of tints in clouds and the azure of the sky, given with equal certainty in either thirty seconds or ten minutes' exposure; and with similar facility of development. To these advantages is added that of great simplicity of material and manipulation. The excited papers will also preserve their sensitive qualities for ten days or more. Mr. Maxwell Lyte has published a new instantaneous process on collodion which he has brought to a satisfactory result, though "he is hardly prepared to say that it is brought to its fullest perfection; but it is sufficiently rapid to give the waves of the sea in motion with perfect sharpness, and ships sailing at ten knots an hour, and puttling (?) up and down at the same time, and all with a landscape lens!" He has also "another and quite new instantaneous process in embryo," which we hope he will bring to bear in time, to produce specimens for the Exhibition which the Liverpool Photographic Society intend to get up in September, to greet the visit of the British Association of Science; and for which we invite the co-operation of all our readers, and urge the greatest exertions on the powers and industry of the members of our Society. Our new rooms will be ready and well adapted to exhibit the works they will produce.

We fear we shall get into disgrace about our illustrated numbers, but we are obliged to postpone their appearance until some more satisfactory arrangement can be made with regard to printing. Our amateur members, with the best of will and the best of skill, have been prevented, we are sorry to say, by illness in their families; and our professional members are, they are glad to say, too well occupied to undertake it.

We are very much in want of the Photographic printing establishment which we hear has been formed at Pau, in the Pyrenees, rather too far away for us to be able to avail ourselves of it for the benefit of our subscribers. But the Photographs to which the members are entitled are in the course of delivery. Those members who live at a distance would oblige by informing the Secretaries how they can be conveniently transmitted.

The early numbers of our Journal, which were out of print, and which we are gratified to find so generally called for, have been reprinted, and may now be had through the usual channels. Stamped copies of the present and succeeding numbers may be ordered of the Publisher, and of the Agents, price 4d.

GLOSSARY OF TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section III.—Apparatus.

GILDING STAND. Fr. *Support à Chlorurer.* A triangular metal frame attached to an upright rod, fixed steadily in a foot; used to support Daguerreotype proofs during the process of gilding. They are generally made with three thumb screws in the foot to adjust the plate perfectly horizontal.

GLASS RODS or TUBES. Fr. *Batons de Verre.* Are used by some operators to spread the solutions over paper; by pouring a little of the liquid on the sheet and immediately distributing it with the rod, keeping up a gentle friction till all shining patches have disappeared.

HEAD-REST. A contrivance for keeping the head of the sitter steady during the exposure of the plate on paper. Head-rests are of two classes, viz.—those which can be attached to the back of a chair, and those which are inserted in a heavy iron foot. The necessity for such contrivances scarcely exists where the collodion process is employed, and it should never be used unless the "patient" be very impatient or the process very slow,—as it imparts a considerable amount of stiffness to the attitude.

ISOMADESER (Owens). A piece of apparatus, we believe patented, for preparing photographic papers very evenly.

LAMP, SHADED. Fr. *Bougie.* A lantern with a piece of ruby or orange glass inserted within the bull's-eye to cut off the chemical rays.

LAMP, SPIRIT. Fr. *Lampe à Alcöol.* Used to dry off Daguerreotype and collodion plates. Vegetable naptha is sometimes used for this purpose, but a different form of burner should be employed; the best for this purposo being an asbestos wick, hard packed in a narrow metal tube. If a loose wick be usod, the naptha is very apt to overflow and set fire to surrounding objects.

LATHE. Used sometimes in polishing Duguerreotype plates. It differs little from the ordinary turning lathe, the buffs being substituted for the wood to be turned. See Buffs.

In anticipation of the table of relative weights and measures in different countries, as used in Photography, which will be a natural adjunct to our Glossary of Technical Terms, we may as well give some of the information which appears to be most needed for the understanding of the formulæ put forth by French writers, and some English writers, on the art A *minim* is about a drop, and a *litre* rather more than a quart. The decimal form is pints 2.1135. The *gramme* is rather less than 15½ grains, 15.4340. We should advise the purveyors of Photographic *materiel* to import these weights and measures. Doubtless, there are graduated glasses made in France.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The fifth meeting of the Session was held on Tuesday evening last, at the Royal Institution, Colquitt-st., Mr. Corey, in the absence of the President, being called upon to occupy the chair.

A number of new members were proposed by Mr. J. A. Forrest.

Mr. Forrest produced a Photograph of the birth-place of the first Sir Robert Peel, in Fish-lane, Blackburn, taken by Mr. David Johnson, of that town, who had presented it to the Society. He then read the following letter from Dr. Inman, the Local Secretary for the British Association for the Advancement of Science:—

Gentlemen—I am directed to ask you whether the Photographic Society will be willing to exhibit an enlarged projection of the moon on a large screen, say at the Philharmonic Hall, during the approaching meeting of the British Association.

The expenses will be defrayed out of the local fund, and I shall feel obliged if you will give me an estimate of the expense as soon as convenient, to lay before the finance committee.

I am, your obedient servant,

THOS. INMAN.

J. A. Forrest, Esq. } Secretaries Photo-
T. Mackinlay, Esq. } graphic Society.

Mr. Forrest observed that, in reply to Dr. Inman, he had stated that the committee having the management of the photographs of the moon, taken under the superintendence of Mr. Hartnup, had agreed to acquiesce in his desire, and that they would not require the expenses to be defrayed from the Liverpool fund. This decision had been arrived at voluntarily by the committee, without any promptings from members of the Society. He made this statement because it had gone forth that certain individuals had been selected by the Society to make these arrangements. Now, the Society had no control whatever over the photographs of the moon, it being entirely owing to the kindness of Mr. Hartnup that they were allowed to operate.

The Chairman thought that on such a matter as this there should be no misunderstanding. It was solely to the courtesy displayed by Mr. Hartnup on this as on all occasions, and to his own individual exertions, that they were indebted for these Photographs, and he therefore took this public opportunity of thanking him for the kindness he had manifested towards the Society. He was glad to find that his example had been followed by others. Amongst other kindnesses, Mr. Abraham had offered them a very large oxyhydrogen magic lantern, for the purpose of showing the views of the moon.

Mr. Forrest reported the receipt of several communications from stove, grate, and fender manufacturers, and others, suggesting the application of the Photographic Art to the taking of impressions of various artistic productions connected with manufactures, so that copies could be readily multiplied, and sent to agents and travellers for exhibition to customers. He thought it was a field open to Photographers, and one which would be likely to be of great advantage in a commercial point of view. He might observe, that the ranks of the amateur Photographers would be very greatly increased, in his opinion, were persons not deterred by the expense of the camera and materials. This objection, however, was being gradually removed, for as the art progressed it was ascertained that simpler apparatus was required than was formerly used. He was getting up a camera which would take pictures 5 inches by 4, the cost of which would not be more than £2.

The Chairman thought his co-secretary (Mr. Berry) could bear testimony to the progress the Society was making in public estimation, having, he believed, had an opportunity of furnishing the Corporation with prints at a much cheaper rate than could be obtained by any other process.

Mr. Berry did not know whether this was the time it should be made public, but such was the fact. The plan for the improvements around St. George's Hall, and for the construction of St. George's Place, had so far received the approbation of the corporation, that they had acquiesced in the proposition to have views of the proposed improvement furnished with the published reports of the committee. It was first suggested that the plan should be lithographed, but it was found that the expense would be about £25 or £30. He was then applied to as to the cost of Photographic prints, and he had agreed to supply the requisite number at an expense of not more than £3 or £3 10s. He would throw out a hint to professional members with respect to Fox Talbot's recent onslaught. There was "nothing like leather," and he was of opinion that beautifully japanned leather, used for our fancy boots, might be applied to the purposes of collodion positives, in the place of glass. He (Mr. Fox Talbot) had gone a long way to claim collodion.

The Chairman: Then you suggest that instead of putting collodion upon any material, you would take the varnished leather and dip it in the nitrate of silver bath.

Mr. Berry: No, I should put the collodion film on the varnished leather. I defy him *in toto* to claim collodion.

The Chairman asked whether there would not be a similar advantage in the use of gutta percha.

Mr. Berry: I never saw gutta percha black. I think the varnish of itself would give a beautiful black ground if the pictures were taken upon it.

Mr. Bell said if he was rightly informed there was a picture at this time in Liverpool, which was taken by the collodion process before Mr. Fox Talbot obtained his patent.

Mr. Forrest drew attention to the Rev. J. B. Reade's letter, showing the use of gallic acid previously to the patent.

Mr. Saddler inquired whether any one had considered the use of glass instead of wood frames for the pictures in the plate-slide. The substitution of glass for wood prevented staining.

The Chairman believed there was an objection to its great weight.

Mr. Burgess had found that the use of slate prevented staining, and did not make the camera cumbersome.

The Chairman said what they had to fear was not the staining, but the dripping through the bottom. He had generally found a fold of soft paper, not blotting paper exactly, but some very lightly sized, such as lithographers used in printing on stone. If they took a fold of that, and turned it over the edge of the plate, and then laid its edge in the rabbet of the slide, they would find that it soaked up the excess of liquid, and when they took the plate out they had nothing to do but strip the paper off. By using glass or porcelain, they only diverted the excess into another channel.

Mr. Saddler: But the advantage of glass is that you can wipe it so clean.

A Member observed that he had found a coating of marine glue the best thing to avoid staining on glass pictures, but they must make the glass hot before applying it.

Mr. Wood observed that it was the back of the plate where staining took place. If, just before shutting the plate up, they took a rag and wiped over the back of the plate, they would prevent the staining.

The Chairman: You just do with the cloth what I do with the paper fold.

Mr. Wood then produced a newly arranged camera suitable for the paper process. Before explaining its properties, he read the following paper "*On the relative advantages of the Collodion and Paper Processes:*"—

"The subject which it is purposed should occupy the attention of the meeting this evening, is, the relative advantages of the Collodion and Paper processes.

And in submitting my ideas to the assembly upon this subject, I think it probable that the opinions which I may put forth may be somewhat at variance with those entertained by the majority now present. But, Sir, such a circumstance as this should not deter us from giving full expression to our opinions; neither is it one generally to be deprecated. Indeed I think quite the reverse, inasmuch as it invariably has the effect of raising discussion, and thus eliciting truth, which under other circumstances might be dormant, and be to the bulk of society unknown.

Much has been said and written with regard to collodion as a basis whereon to receive impressions, by the agency of light, of portraits or views; or, in other words, as the medium of photographic manipulations. The facilities which it offers to the Photographer of taking portraits or views, very far transcends in many respects any other plan that has hitherto been brought to light. As regards the production of portraits it has well nigh reached its highest state of perfection. The beautiful specimens which are continually submitted to our notice, speak far more loudly than words can as to the high degree of excellency which *this* branch of the art has attained. But while we speak thus highly of the applicability of collodion in the production of *portraits* and such like, we see on the other hand, in the production of negatives of views of the open country, difficulties which to my mind are altogether insuperable, and such difficulties as will not (in the course Photographers are pursuing at present) be overcome. The difficulties of which I here speak, do not, in the abstract, arise from a want of fitness in collodion itself in taking of views, &c.; far from it; for in this respect I conceive it to be *perfection;* but they arise, rather, from something extraneous to itself. I allude to the manipulating it in *preparation* for taking the views. The difficulties appear to me to be at least three-fold. And the first may be mentioned in connection with coating the plate with collodion. This cannot be done well, without a cumbrous apparatus, such as would prove a very great source of annoyance in transit. If we reject this, we must coat it in the open air, where, from dust and wind, we should generally have the plate spoiled ere it reached the first solution. The second difficulty is, the necessity of carrying about with us the sensitizing solution, as well as a cell to use it in. It might occur to some, that its extreme sensitiveness would prove rather troublesome. But this, to me, does not appear a very *great* objection, as we might easily make it less so. Then a third difficulty which I would mention is, in the bringing out the picture, or, in other words, the *developing*. In this operation I hold it to be of the *first* importance that nothing interferes to prevent our *witnessing* the progress of it. Many highly ingenious plans have from time to time been submitted to the notice of this Society and elsewhere, with the view of dispensing altogether, or in part, with the dark operating room. But while we hail these plans and suggestions with a great deal of pleasure, as evidencing a vast amount of thought and ingenuity, we at the same time feel most strongly, that the *universal* applicability of collodion to taking views, where we cannot have access to a dark chamber, is a *failure*. While the plans alluded to have been extremely pretty in *theory*, they have been a failure in practice.

I trust I shall not be misunderstood by those gentlemen whose labours in this direction I may seem to impugn. My only object in bringing this subject before the Society, is, that we may not be spending our time and our talents in striving to prop up a falling building, which has in itself radical imperfections; but seek rather to raise another superstructure based upon correct and tangible principles. I am quite aware that much has been done in the way of taking small views; but it is its *universal* applicability in this direction, let it be marked, of which I am now speaking."

After commenting on various plans which had been proposed with the view of overcoming the difficulties of developing without a dark chamber, he said he objected on principle to the plan of developing without being FULLY able to SEE the process of bringing out the picture.

"But circumstances have of late taken place which lead me to believe that this medium may yet be destined to occupy an important position in photography, even in that department to which our attention has been more particularly directed this evening. I allude (as I may be anticipated) to the discovery of Messrs. Spiller and Crookes, of coating the collodion surface with the nitrate of zinc. I believe it is in this way, or some such, of coating the plate with some deliquescent salt, and thus giving it, to a certain extent, a permanent sensitiveness, that collodion can ever be expected to reach the same degree of eminence in landscape work, that it has reached, and doubtless will continue to maintain, in portraiture.

A process having the same end in view, was mentioned here at the last meeting, by Mr. Mackinlay—that of adding an ethereal solution of white wax to the collodion; and after coating the plate, treating it in the same manner as we should paper in the process of Fox Talbot, by immersing it in a solution of aceto nitrate of silver, and developing with gallic acid. This I consider to be an important idea, and may open up a wide field of research. I allude not so much to the addition of WHITE WAX as to the subsequent treatment of the plate. I can conceive it to be quite possible to give to the glass plate a surface completely analogous to the paper, and treating it subsequently in the same way; and thus combining the preponderating excellency of the glass over the paper, from its *transparency*, with that of the paper over the glass, from its unchangeable character after being iodized.

But you know that it is a common expression, 'that we must treat of things as we *find* them,' and not as we might wish them to be. Finding, then, these difficulties in the use of collodion, in the open country, I turn with *unqualified preference* to paper.

In the use of the ordinary iodized paper, I am led at once to decide in its favour; for in it I recognise characteristic advantages far transcending any other medium that has hitherto been brought into common use. And I may mention that among the Photographers of London this opinion is shared in most fully. Only to mention one name, and honourable in the list, that of Sir William Newton, who, in the last number of the *London Photographic Journal*, distinctly stated, 'that for *journey* work he preferred the paper.'

In coming to this conclusion, I do not feel that any obligation lies upon me to state what particular process in the use of paper I myself would prefer, my duty having been to point out the advantages (if there were any) of the paper over the collodion. And having done this (I may add without egotism) to my own satisfaction, it only remains for you, Sir, and this meeting to decide, how far I may have done so, to *yours* and *theirs*.

In the use of paper as a basis for Photographic manipulations, it must be remembered that it may be prepared to some of its stages for months or years before it may be required for use. And in sensitizing it, no difficulty whatever arises. Many papers are produced, where many hours and days may be allowed to intervene between that process and the taking of the view. And, again, when the view *is* taken, many weeks may be allowed to pass over, ere the picture is developed and finished, And all this without any *deteriorating* effect.

Against all this it may be *urged*, that we do not get so sharp a picture. Be it so! This may be probable; but let it be remembered that this does not at all qualify the position I originally set out with. I do not in any wise give the preference to paper from the superiority of its results, but from the *ease* and *certainty* with which it may be worked in the open country. And as regards the *sharpness* attainable in the paper process, I would allude to the *waxed* paper as being well suited to overcome the imperfection. This is at present occupying a great deal of attention in London, and such is the perfection to which negatives have been brought in sharpness and general detail by the use of this semi-transparent medium, that it seems to me highly probable, that it WILL, if it does not already, completely rival collodion in this respect also.

I believe, Sir, the day is not far distant, when, by the joint efforts of the paper manufacturer on the one hand, and the Photographer on the other, we shall be presented with a medium so fine, so even in texture, and free from *chemical* imperfections, and withal so transparent, that in the hands of the Photographer we shall have this art so far simplified in regard to manipulation, and exquisite in its results, that it shall at once enlist the attention of those who have not as yet joined our ranks and entered into our enthusiasm—a feeling of the mind which it invariably induces; and thus having a larger amount of intelligence brought to bear upon the subject, we shall be permitted to witness such results as our present desires or ardent wishes might seem to reach to."

He then exhibited and described a new portable camera which in his opinion offered every facility for working the paper even under a noon-day's sun. While it is at once portable and convenient, it is universal in its application. Its principle in construction being equally available for what Photographers understand by the half-plate size, up to a picture of the goodly dimensions of the top of a card table.

[The description of this camera will be found at page 92. But for the pressure of important matter and shortness of time we should have given diagrams of it.—ED.]

Mr. FORREST observed that Mr. M'Innes had presented to the Society, some collodion films which had been transferred from glass to paper. Mr. M'Innes was present, and would perhaps explain the principle on which the impressions had been taken in the small, and afterwards in the large size, which bore on the subject just treated by Mr. Wood.

Mr. M'Innes produced the films.

The CHAIRMAN, having stated that he should ask for further explanation of the mode in which the films were produced, after an opportunity had been afforded to the members to discuss the merits of the paper which had just been read, said he held in his hand a paper from his much respected friend Mr. Frank Howard; but before stating its nature, he would give precedence to any member who might desire to offer any observations on this much-vexed question. They were perfectly aware that the facilities offered by paper over glass were unquestionably superior. There could be no two opinions upon the matter; for, as Mr. Wood observed, they could go with any amount of paper into the fields, and carry home results which would astonish their friends. But there was one unfortunate difficulty beforehand. The experience of every one present would, he was sure, confirm him in saying that they could not prepare the paper with any degree of certainty. In his capacity as Corresponding Secretary of the Society, he received letters from all parts of the kingdom—some very much to the purpose, and others by no means so. With all, the difficulty arose how to prepare the paper so that they could depend upon it. Mr. Wood said the great difficulty was that they could not *see* the developing, and therefore, objected to the arrangement of Mr. Forrest and others. But Mr. Newton had obviated this objection by instituting, in addition to the ground glass at the back, a panel of yellow glass, which enabled the operator to watch the developing process. He appealed to the specimens by Mr. M'Innes, on the table, in proof of the invariable success with which pictures might be developed. He still held to the argument, therefore, in favour of collodion, unless Mr. Wood could furnish him with an infallible recipe for preparing paper. If he could do this he would go with him heart and hand. For portability nothing could be better than the camera explained by Mr. Wood, and it was an excellent contrivance for passing the hand inside; while its substantiability, if he might use such a word, when put together, spoke loudly in its favour. But who could help him through the difficulty with which he started? Mr. Howard, after apologising for not being present, requested him, (Mr. Corey) to ask the following questions:—

"Respecting the paper process. The defect generally alleged is that you cannot see what sort of success you have attained until you bring it home to develope, whereas with collodion you can see your effect immediately."

Only imagine (continued Mr. Corey) how annoying to take home forty sheets in the belief that they had hit the right time, to find only one or two good results! But to continue Mr. Howard's letter:—

"Is it not possible so to arrange as to develope the paper photographs on the spot as well as collodion?

"If not,—or under any circumstances,—would it be possible to prepare a paper that should receive a *visible* image, that is to say, the taking and developing to be one operation—only requiring, what was the original desideratum of Wedgwood, fixing the picture produced by the camera?"

Perhaps gentlemen present would furnish other queries, in order that they might have the gratification of Mr. Wood's reply.

Mr. Wood said it should be borne in mind that he did not object to collodion in taking small views, for which he believed it could be worked very well. It was in the production of larger views that he objected to collodion; and he still maintained that the plan adopted by Mr. Newton, of lowering a plate into the solution and pulling it out again, although very well as theory, would cause failure if attempted with a full-sized view—such as a half-plate for instance. The success of collodion depends upon the nicety of the development. How, in the open air, could they conduct their operations with the requisite nicety? He knew well the necessity of developing to a certain point, and then plunging the plate in the water immediately; but they had no opportunity of doing this in the plan alluded to; and it was on this ground that he took objection to collodion for the production of large views: he did not see how they could be done to a nicety. In small views he knew it was done. He could not see the practicability of Mr. Howard's first proposition; for he did not see how they were to finish a picture in the field. It would be very desirable, if possible; but he believed it was not ordinarily done.

The Chairman did not know whether it was ordinarily done; but he had twice had the pleasure of going into the country with Mr. Berry, into the neighbourhood of Chester, where he had taken some excellent pictures; and, in his case, he merely developed the picture, and fixed it afterwards in the open air. He poured water from a jug until he was satisfied that he had washed off all the iron, and then from a bottle he poured the cyanide of potassium on it.

Mr. Wood was not himself prepared with a formula, but he still wished to call attention to the desirability of producing a paper that could be used with certainty. It was clear to his mind, that glass collodions were impracticable; and having settled that to his own satisfaction, though apparently not to the Chairman's, he would desire the members of this and kindred societies to turn their attention to the production of a paper that would be certain in its character. It was with the manufacturers of the paper that failure took place.

Mr. Forrest was sure they would all recollect at the last London Exhibition of Photographs, the productions of Mr. Stewart, all of whose negatives were produced on paper. With what he called "the wet paper process," he guaranteed that every one of the papers carefully prepared according to his formula, would give a good negative. He would likewise refer to a paper, read before the London Society by Mr. Townshend, on the wax-paper process, in which he guaranteed to take out a number of prepared papers, and to bring back good results. He mentioned these facts to show that paper was making great advances. He (Mr. Forrest) was a collodion man, but he never denied the progress of paper. He had tried for the last 18 months to get over the difficulties of collodion, because there was a charm about it which he had never yet seen in paper: there was a distinctness of outline, while the fact that they developed on the spot, and saw what they were doing, was of great importance; whereas out of 99 paper pictures he had seen, on the return of the operator, there were not a dozen satisfactory. These were great disadvantages; nevertheless, he had named men who had been successful; and now that the Society had a sort of collodion aspect about it, he should like to see it assume a paper aspect also, so that both branches might walk hand-in-hand. The positives by Mr. Johnson, which had been referred to, were from collodion negatives. Mr. Johnson prosecuted the paper process for about 18 months, and spent about £25, but at last gave it up. Still it was making progress.

Mr. Berry said the necessity of watching the progress of development did not accord with his experience. He found that if the plate were the proper time in the camera, they would have a proper picture. It was his plan to develop merely with solution of sulphate of iron, with a small quantity of nitric acid added to it; pour this on the plate, and the picture is at once perfectly developed: the plate is now insensible to light; wash and clear it with cyanide; varnish and bring it home. If it required strengthening afterwards, he did so with chloride of gold and sulphide of ammonium.

The CHAIRMAN said it was wonderful to what an extent Mr. Berry could strengthen them afterwards; and, in answer to the Chairman, Mr. BERRY said he laid the project before the Society last summer. He merely used chloride of gold, and if that did not sufficiently strengthen the proof he washed off the gold and poured on a dilute solution of the sulphide, which invariably produced the requisite intensity. If they required a first-rate picture, he believed they must use pyrogallic acid. In varnishing he used the common mastic varnish; and, to prove the very slight protection afforded by ordinary varnishes to prevent the destruction of pictures from atmospheric influence, when he brought home a picture, and found that it wanted strengthening, he merely poured over a little spirits of wine to soften the varnished surface, adding to the spirits a little chloride of gold, which bites through the varnish. If that did not sufficiently intensify it, he washed it again, pouring upon it a little spirit of wine, and then a spirituous solution of the sulphide. Then all that required to be done was to dry it, and put on another coat of varnish. In using the gold, he was guided by the ordinary strength of the negative. If the negative was strong he used a weak solution, and *vice versa*.

The CHAIRMAN, in the name of the Society, thanked Mr. Wood for his paper, disclaiming any hostility to his views; but stating that he was most heartily coinciding with him, if he could by any possibility ensure success.

Mr. M'INNES exhibited some beautiful transparencies taken in the open air, and explained the process of transferring the film by the use of borax and shellac. A solution of shellac in spirits of wine is poured upon the negative; the excess being poured back. After being allowed to dry, another solution of shellac dissolved in water with borax is poured upon the negative as in the first instance, the excess being poured back into a bottle. While moist, a piece of wax-paper is put carefully on the surface, in such a manner as to expel all the air. When perfectly dry it is placed in water and allowed to remain three minutes, or until such time as the paper may easily be detached from the glass with the collodion film adhering to it. Another piece of wax-paper, similar in size to the first, is then moistened with the solution of lac and carefully placed upon the film side of the other. When the whole is dry, the picture may be finished by passing a warm iron over the surface.

Mr. BELL: Do you find any difficulty in printing off these?

Mr. M'INNES: Not at all.

The CHAIRMAN: Do you use the same plan in the small camera?

Mr. M'INNES: Yes, I took about sixty views recently, and only failed in two or three. I develope negatives in sulphate of iron, of which I use about an ounce and a half, with about two ounces of nitrate of silver solution, of forty grains to the ounce.

The CHAIRMAN: Had you occasion to renew the quantities while developing in the field.

Mr. M'INNES: I perhaps took fifteen or twenty pictures with the same developing solution.

In reply to a member, Mr. M'INNES stated that the pictures he had produced would be sufficiently clear to show in a magic lantern, and that it would be possible to colour them upon transparent glass.

Mr. WOOD expressed his conviction that collodion pictures for the magic lantern would not do. He had some beautiful albumenized glass which gave excellent pictures, developed with sulphate of iron and pyrogallic acid.

The CHAIRMAN observed, that the reason collodion would not answer for the magic lantern was because the picture was too transparent.

The thanks of the Society were given to Mr. M'Innes for his impressions and explanations.

Mr. FORREST, in answer to a remark from Mr. Wood, that magnified pictures were unsatisfactory, owing to the fact that no lens was so perfect that it would give a correct picture in all its parts, and that consequently a magnified picture would exhibit magnified inequalities, said he had seen a positive likeness of two gentlemen magnified four-fold, and the likenesses were still perfect. He had been remarkably struck, on one or two occasions, with the compactness of Mr. M'Innes's apparatus, and the facility of carrying about, no less than the results of his operations. He took a figure on one occasion, the height being not larger than one quarter of an inch, as seen with the naked eye, the dress was not visible; but when magnified, the likeness was perfect, and he could see the stripes of the trousers.

The CHAIRMAN said it had been argued

that collodion could not be magnified; but here was important proof to the contrary.

The Chairman, in closing the business of the evening, stated that the glass house belonging to the Society, which was now being built at the Royal Institution, was nearly completed, and would, he thought, be ready for members in about a fortnight from that time. They would there have any amount of light they could desire for the purpose of taking pictures; and those who wished to avail themselves of it would have an excellent opportunity of prosecuting their labours unmolested. They had taken care also that there should be a number of dark closets in which every one who choose could prepare his own plates; and in order that all manipulators might keep everything in safety, their laboratories would be furnished with lock and key. As the expense of constructing these accommodations had been very heavy, the rooms would be rented, every member using one contributing a guinea a-year, while those wishing to have their own closets and laboratories would pay three guineas. There were one or two of these more eligible than the others, which would be put up for competition. Gentlemen wishing for them would please be good enough to communicate with the secretary, Mr. Berry, or with Mr. Forrest.

The Chairman stated, that during the visit of the British Association for the Advancement of Science, it was intended to have an Exhibition of Photographs, expressing a wish that the members would use their exertions to obtain pictures from their friends for that object, observing that the Society would gladly pay any expenses which might be incurred in transmitting specimens from various parts of the country.

The proceedings then terminated.

Focussing on the Collodion Film Direct.—Mr. J. B. Spencer, of Kidbrooke Terrace, Blackheath, has propounded a method of focussing on the excited collodion film by means of yellow or red glass in front of the lens, instead of the ordinary solid cap. He is evidently unaware of this method having been long since suggested and used by our ingenious member Mr. M'Innes, and not only reported in the first number of our Journal as brought before the Liverpool Photographic Society on the 3rd of January last, but again brought before the Society, on the 2nd of May, by Dr. Edwards, and published in the report of the meeting in our fifth number on the 13th of May.

LONDON PHOTOGRAPHIC SOCIETY.

Eleventh Ordinary Meeting, Thursday, June 1st, 1854.—Sir W. J. Newton, V.P., in the Chair.

Mr. Pumphrey exhibited illustrations of the ceroleine process. Messrs. Beard and Ford exhibited two Photographic Portraits, coloured by Mr. C. S. Hervé. The Society of Arts exhibited sixty views, taken by Mr. Delamotte, showing the progress of the works at the Crystal Palace; and twenty views in Gloucestershire, taken by Mr. Cundall. Mr. W. Paine exhibited portraits taken by a moving camera. Messrs. Horne, Thornthwaite, and Wood exhibited similar portraits.

Sir W. J. Newton read a paper "*On removing the Collodion Negative from the Glass to Paper*," which he proposes to do by means of a mastick varnish, prepared and used in the following manner:—Dissolve 1 oz. of the purest gum mastic in 8 oz. of spirits of wine, 60° above proof. Shake it up occasionally, and expose to heat; let it subside, and decant into another bottle. Having cut the paper, either Marion's thin negative or foreign post, rather smaller than the glass, pour the varnish over the collodion, and drain off at opposite corners, then lay the plate flat on the table, that the varnish may remain an even surface. Varnish the paper with a camel's hair brush, so as thoroughly to saturate it, and carefully place it on the negative, so as to ensure perfect contact in every part.

When quite dry, place it, with the paper upwards, in water—warm, if cold will not do—until the collodion separates of itself from the glass. Press it between blotting-paper or fine cotton cloth, and lay it flat to dry; after which, wax it as soon as convenient, to prevent cracking. In reply to Mr. Shadbolt, Sir W. J. Newton said the paper must not be waxed before attaching to the collodion, because it would not then adhere.

Sir. W. J. Newton has since stated that the addition of 30 drops of poppy oil to each oz. of varnish will prevent its cracking.

Mr. F. Hardwick read the second part of his paper "*On Collodion Positives*," which related to the proper strength of the nitrate bath, and of the developing fluid. The first he fixed at a 20-grain solution of nitrate of silver for a collodion containing $1\frac{1}{2}$ grains of iodide, as giving equal sensibility, and in every respect the same perfection of image, as when used of greater strength; and it has the merit of economy and superior cleanliness of manipulation. If proper precautions are observed, such a bath will remain constant in its action for a length of time. His experiments, so far as they had been carried, were adverse to the addition of free nitric acid to the neutral bath, as destructive or injurious to the sensitiveness, and to the half-tones of the Photograph. Where it has been successful, he supposes a very strong bath has been used, and probably a thicker film of iodide of silver, which have obviated the evils to some extent. And he insisted on the necessity of the bath being kept neutral. In speaking of the developing fluid, he drew attention to two appearances of the deposit, which required exactly opposite treatment to produce. One is bright and sparkling, like frosted silver, very white when produced in perfection, but with occasionally a greyish or tinfoil hue. The other is dull, and without lustre—of a whitish tint, slightly inclining to yellow or grey; there is no appearance of metal about it, the colour being that of a piece of chalk. He thought the first was produced by means of a reducing agent, checked, as it were, in its action by the presence of a strong acid, consequently the development proceeds slowly and gradually, and the particles of silver are large and crystalline; on the other hand, the second variety results when the action of the developer is sudden and violent, no impediment being offered by the presence of an acid, except in minute quantity. The particles of metallic silver are here smaller than before, and being comparatively amorphous, they reflect light in a different manner. The distinction in the two cases, then, if the views here given are correct, lies in the amount and strength of the acid used; in the one it is simply sufficient to whiten the picture slightly by preventing the precipitation of oxide; in the other, being increased in quantity, it tends to retard the development as well. In conducting these experiments, the action of several different developing agents was compared, viz. pyrogallic acid; the same with acetic acid and subsequent whitening by bichloride of mercury; protonitrate of iron; and protosulphate of iron.

Pyrogallic acid, though giving, under certain circumstances, a beautifully white deposit, free from lustre, is not adapted to produce the first appearance, nor is it successful when the nitrate bath is reduced to the 20 grains to the ounce. He had been unsuccessful with the pyrogallic and acetic acids, and subsequently whitening by bichloride of mercury.

Protonitrate of iron had also failed to develop the image, with the 20-grain nitrate bath. It required 35 or 40 grains to the ounce.

Protosulphate of iron appeared to be the best adapted to produce the desired effect, in the following proportions: 15 grains to 8 minims of glacial acetic acid and 1 oz. of water. Half a minim of strong sulphuric acid, or a quarter of a minim of nitric acid, with 15 drops of alcohol, might be used, and would certainly make the solution flow more evenly over the surface of the plate, but appeared to increase the liability to specks and dirty marks.

He preferred cyanide of potassium to hyposulphite of soda for removing the superfluous iodide of silver.

He endeavoured to define the average time of exposure on a tolerably bright day with one of Ross's portrait lenses of $2\frac{1}{4}$ inches in diameter, with a diaphragm of $1\frac{3}{4}$ inches aperture, as 2 to 3 seconds. For distant objects, with the full aperture of the lens, it is hardly possible to remove and replace the cap sufficiently quick.

Mr. F. Townshend read a paper "*On the Waxed Paper Process*," in which he recounted his experiments with different formulæ, and had come to the conclusion that iodide of potassium, bromide of potassium, and free resublimed iodine, were the only important ingredients. He used 600 grains of the iodide to 40 ounces of distilled water; to this he added from 150 to 250 grains of the bromide, and from 4 to 6 of the resublimed iodine, so as to give the mixture a sherry wine tint. (Query, brown or pale?—Ed. L. P. J.) He preferred foreign papers. He immersed them completely, not more than 8 or 10 at a time, in the iodizing bath, removing the air bubbles with a bent glass rod, and let them soak for two hours at least. In this state they will keep a long time.

He immersed the papers one at a time in a bath of—

Nitrate of Silver	-	30 grains.
Acetic acid	- -	30 minims.
Distilled water	-	1 ounce.

Let them soak for about 8 minutes, and then washed in two or three separate dishes of distilled water, letting the paper remain 8 minutes in each dish. Blotted off, he placed them between clean blotting-paper until required for use, never using the same blotting-paper twice. They might be hung up to dry, but the room must be perfectly dark, as they were very sensitive. They would keep in this state for 10 days or more, and he thought he would be able to devise a method of making them keep still longer.

For developing, the dishes must be perfectly clean, glass or porcelain the best: but the glaze of the latter is frequently very imperfect. He used a nearly saturated solution of gallic acid, and added about a drachm of the above aceto-nitrate solution, with about half as much more glaciel acetic acid to every 4 oz. of gallic acid solution, He immersed the negative completely in this solution, and skimmed off the film of oxide of silver from the surface with a piece of blotting paper, before raising the negative to examine it. The remainder of the process was the same as usual, and well known.

"This paper will give a good picture with as short an exposure as 20 seconds, or even less, with a single achromatic lens, 3 inches diameter, 14 inches focal strength, diaphragm half an inch; and also, after 10 minutes' exposure, a good, though not equally good, picture being obtained either by a long or short exposure. Of the specimens exhibited, it would be difficult to decide which had been done in 30 seconds, which in 2½ minutes, and which had been exposed for 10 minutes. The paper had been excited four days. There was almost a hurricane blowing at the time. The positive Photograph of *moving cumulus clouds* was printed from a negative taken on paper which had been made sensitive 8 days previously. The light and shade of the clouds are exactly as in nature. The blue æther appears in its proper position as a dark against which the sunlit portions of the clouds tell as high lights, while the under portions are rendered in deep shadow. The different objects in the landscape on which the sun shone are also rendered in some detail, though the tone is much too deep. There is no detail in the shadows."

For portraits it should be used immediately after it has been excited, and should not be washed. If the paper is required to be kept, the acetic acid should be increased by 5 or 10 minims to each ounce of distilled water. As regards length of exposure, the production of a picture was reduced to a certainty, and for the rest care only was required. He now never knew a failure, but of course there was a best time for exposure.

The meeting was adjourned until Nov. 2nd.

An extra meeting was held July 6th at which two Papers were brought forward on the subject *of Keeping Collodion Plates Sensitive for a considerable length of time*, of which we have been favoured with an account by a kind and intelligent correspondent.

The first was by Mr. Shadbolt, which appears to answer most effectually; and a letter was read by this gentleman from Mr. Ellis, an old Photographer, who had likewise been trying the plan, and who stated that, in every instance, he has succeeded with it. The plan is as follows :—

The plate is coated and excited in the usual manner with a 30-grain nitrate of silver bath; but upon removing the plate from the bath, a portion of the following solution is poured three or four times over the surface :—

Alcohol.........60 degrees.........	1 part.
Water	5 ditto.
Honey	3 ditto.

The plate is then allowed to stand upon a piece of bibulous paper for a short time, that the surface moisture may drain off, when it may be placed in a box, or the slide of the camera, for use.

Previous to developing the plate, it is allowed to soak for about 5 minutes in distilled water; then for an instant dipped into the nitrate bath, and the drops from this, when taken out, caught in a measure containing the pyrogallic solution, and poured over the surface with the latter. Thus you will see the only difference in the process is that of using sugar.

The next Paper was by Mr. Crookes, who has made an alteration in his plan, which, he states, answers most effectually, and without any diminution of sensibility—whereas with Mr. Shadbolt's the length of exposure is about doubled. Mr. Crookes' plan consists in the use of nitrate of magnesia instead of nitrate of zinc. His proportions are as follow :—

Nitrate of magnesia	4 oz.
Glacial acetic acid	1 dr.
Nitrate of silver.....................	12 gr.
Water..................................	12 oz.

The plan of using the same, as recommended for the nitrate of zinc; but Mr. Crookes appeared to lay great stress upon the necessity of thoroughly cleaning the glass plates; for he stated that they required more cleaning than when used moist.

The after part of the meeting was taken up in discussing Mr. Talbot's patents; and the feeling of the meeting was very much against that gentleman, particularly his wanting to drag into it the collodion process, the substance, as many stated, not having been even invented at the time Mr. Talbot took out his patent. The meeting at last, I believe, decided that the Council of the Society should be requested to oppose the renewal of his patent in every way possible.

I may mention that it was proposed and carried, to increase the price of our Journal from 3d. and 4d. to 5d. and 6d., and to enclose the same in a wrapper.

The Portable Landscape Camera:

Exhibited and described by Mr. Wood, at the meeting of the Liverpool Photographic Society, on the 4th of July, 1854.

Difficulties of a formidable character have continually presented themselves to the photographer on paper when pursuing the art in the open country, where, from the nature of the locality he cannot have access to a dark room, where he might, without injury to his prepared paper, place it in the camera back; and, after having taken his view, to remove it therefrom, and replace it with another piece of paper. These difficulties have proved a fruitful source of annoyance; and with a view of obviating them, and furnishing the photographic tourist with a camera that shall contain a large number of pieces of prepared paper, and with such contrivances as shall offer every facility of changing them as the views are taken, and, withal, of so portable a character that it may be removed from place to place without the slightest inconvenience, has been the object of the inventors of the apparatus of which a description is subjoined.

The Tourist's Portable Folding Camera has the front and its two sides hinged so that in folding they shall lay flat one on the other. The back, which is entirely of a novel construction, consists of three frames. The outer one, which is about one inch wide, is furnished with tongues on its two sides and lower edges to fit into corresponding grooves in the two sides and bottom of the camera itself in the ordinary way; within this outer frame are fitted and hinged to the bottom of it, two other frames, in which are placed, flush with their inner surfaces, two pieces of plate glass, one transparent and the other ground; and at the top of the inner edge of the outside frame is a spring latch, to keep the inner ones in their places. The prepared paper is placed between these glasses, with its sensitive surface towards the transparent glass. The ground glass has springs at its four corners, in order to give room to the paper in taking the view, and, at the same time, in the absence of the paper, to be in contact with the transparent glass in focussing.

The top of the instrument has deep edges to it, which embrace the two sides, front, and, in part, back also, which thus keep the whole in its proper rigid position. The top is furnished inside with a box, to contain prepared paper, and with an hinged door of a fourth its width; it has also a piece of yellow glass, to enable the operator to place the paper in its correct position, which is secured by a door when taking the view. One of the sides of the camera is furnished with a precisely similar receptacle for the views as taken. The other side is in part formed of a piece of sheet caoutchouc, having an aperture through which the hand is passed in placing the paper in the back. Over this aperture is a wood slide, which falls by its own weight, so that on withdrawing the hand the slide drops and thus prevents the entrance of light. The whole when packed together, which may be done in a few seconds, is about three and half inches thick, and of superfices in proportion to the focus of lens used. The mode of using the apparatus is as follows: after having set up the instrument, the back being placed in its proper position and the lens screwed in, the photographer is to open the hinged door in the back and proceed to focus the object: this being done and the door closed, the right hand is to be passed through the opening in the side and to lower the transparent glass in the back, which is now supposed to be on the bottom of the camera—he should then open the box in the top and take out a piece of the sensitized paper and place it on the glass before alluded to, in doing of which he may be much assisted by looking through the yellow glass; the latch in the back is again to be lifted up, when the ground glass may be lowered on the transparent one, and thus, having the paper between them, he is to take hold of both of them together and to raise them up in their correct positions in the back, and thus at once presenting the prepared side of the paper to the action of the light passing through the lens. After having taken the view, the hand is again to be passed in the camera, the transparent glass lowered, and the paper which has received the picture to be placed in the box in the side of the instrument, when the operation may be repeated.

Preservation of the Sensitiveness of Collodion.—Mr. Crookes announces that he and Mr. Spillar have been making experiments to find a substitute for nitrate of zinc, as recently proposed, on account of the difficulty of obtaining or preparing the latter, and they find that acetate of potassa not only produces the required effect, but increases the sensitiveness in a remarkable degree. They have, however, to work out some points in connection with it, such as modifications, rendered necessary by the slight solubility in water of the acetate of silver, together with the best formulæ for the collodion baths and developing solutions.

Mode of preparing Paper for Positives by the Negative process.—Sir W. J. Newton has published the following mode of preparing paper for positives by the negative process:—

Twenty grains of bromide of potassium dissolved in twenty ounces of distilled water. Immerse your paper, one sheet at a time, in the above, taking care that there are no air bubbles on either side. When you have placed six sheets in, turn them all over together, and take one out at a time and pin up to dry. These will keep for any length of time. Excite with ten grains of aceto-nitrate to one ounce of water; expose to the light in the printing frame from half a minute to three minutes, according to the light, and bring out with gallic acid, finishing with the above aceto-nitrate. When sufficiently developed, pour water over it and place it in hyposulphite of soda for 5 or 10 minutes, and then into alum water, and one or two changes of water afterwards.

A Hint worthy to be taken.—That every English writer should reduce the French into English weights and measures, before printing, wherever it may be practicable.

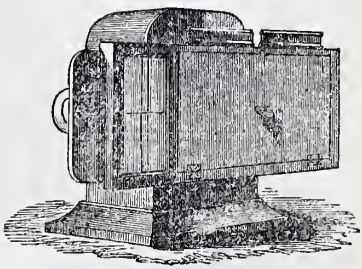
Familiar Instruction.

No. vi.

" Con tutto core."

Whilst on the subject of cameras, much may be said on some valuable suggestions recently made in those intended for taking Stereoscopic Photographs. But as it has always been the intention in these papers to begin at the first principles, and to explain every thing if possible, *ab initio*, it may be as well for us to consider what is meant by the term Stereoscopic. The name of Stereoscope, (from its derivation of *stereos* solid, and *scopeo* to behold, two Greek words,) implies an instrument to enable the spectator to behold an object as a solid in relief, or raised as it were from the ground or plate whereon it is depicted. The two eyes in the human subject, are, in effect, the most perfect form of stereoscope known; but as we need the aid, in our finite condition, of the telescope for distant objects, and the assistance of the microscope for those the most minute, so Infinite Wisdom has taught imitative man to construct that which, by enabling him to see, if not absolutely two sides of a figure at once, yet so far round a rotund figure that it will have the effect of bringing it into a species of alto-relievo, similar to the raised surface of coins, medals, and sculptured reliefs of all kinds. To illustrate this, let the beholder shut one eye, and bring an upright stick so much in front of the flame of a candle that it will shut out the lighted wick from his sight; let him then shut that eye that he is looking at it with and open the other, and if he possess equal sight with both, he will find the flame removed some distance from the intervening stick, thereby proving that he sees farther round a raised object, with either eye than he does with the other. Let him, therefore, by placing a card perforated with two holes, corresponding to either eye, stedfastly regard two pictures perfectly identical, and placed side by side, he will find they acquire an intensity and boldness of outline, so marked that it will almost appear that the figures actually rise, and stand forth from the flat ground, on which they are drawn. This is much more effectually shewn in the elaborate instrument called Wheatstone's Stereoscope, where, two mirrors are fixed, each at an angle of forty-five, and thereby partially back to back; if we place the two eyes equally to the edge of the wedge formed by them, and look intently at two pictures placed on either hand, yet quite out of reach of either eye, we shall then behold only one representation, yet so augmented in force, that it will require but slight stretch of fancy to suppose you can pass your hand behind some of the more prominent figures. But if this *deceptio visus* can be obtained by looking at two objects perfectly identical, how much more is the illusion augmented by looking at once on two pictures, taken just so far apart as would correspond to two eyes.

Appended is a form of camera, which has already appeared in our advertising pages; but it could not be thoroughly understood, unless accompanied with the maker's instructions, (Messrs. Abrahams and Co.) which are added at length.

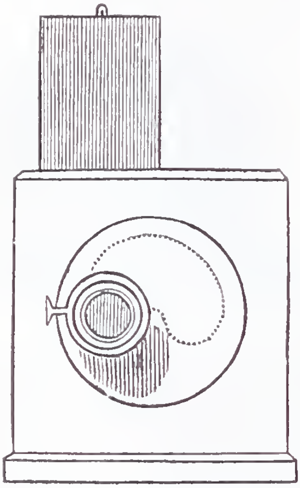


" Directions for use.

" The prepared glass or plate being placed in the back, slide the frame into the grooves of Camera, from *right to left*, till the spring is felt to fall into the first notch, indicating that the focusing glass is in its correct position. Having brought the subject intended to be taken into correct focus, and replaced the cap, slide the back forward in the same direction, till the spring falls into the second notch, when the plate will be in the position to receive the first picture. The back being closed, slide the frame backwards till the focusing glass is again in front of the lenses; remove the cap, and observe that portion of portrait or view that falls between the perpendicular lines. The instrument is now to be moved bodily forward, from right to left, about *three inches*, and adjusted till the same portion of portrait or view occupies the same place between the perpendicular lines as previously. The back is now again to be moved from right to left till the spring falls into the third notch, the glass or plate being now in a position to receive the second picture."

For the taking of views an internal diaphragm is inserted in the tube between the lenses, having a very contracted orifice, which, by condensing the light, adds force to the image. This may retard the operation, but for inanimate objects that is no drawback.

In our May number, we gave an ingenious arrangement by Mr. Cartwright, in which the lens has a lateral motion from right to left; but as this motion is only along a vertical plane it is evident that the camera must also have a divergent motion to make the two images perfectly coincide. Mr. Forrest partly overcomes this by a slot $2\frac{1}{2}$ inches long under his portable camera, which, by an adjusting screw, admits of a lateral movement at the same time. The two foci must converge to the same point in the manner that the two eyes in the human subject do while regarding an object. Mr. Atkinson also very shrewdly proposes to place two small and very inexpensive lenses at the proper distance upon one camera; thus securing all the advantages of an excellent arrangement by a French artist, at a trifling outlay; but unquestionably the most perfect form of Stereoscopic Camera yet shewn is that registered by Mr. Chadburn.

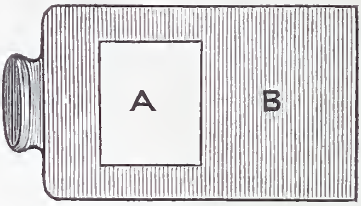


Here, as is seen in the cut, the lens is fixed at one side of a moveable disc, turning on a pivot in the front of the camera, and it is placed slightly converging to the centre. The shutter of the dark slide is divided into halves. One opposite to the lens is raised, and the plate exposed to the action of the rays. When that photograph is taken that shutter is closed; the disc is turned half way round, whereby the lens occupies a position on the opposite side exactly corresponding to its former site; the second half of the shutter is raised, and the stereoscopic duplicate is completed with the advantage of one preparation of the plate, one development, one light, and one sitting of the person to be taken, and no inconvenience in shifting or displacing the camera. If those most desirable of all portraits, viz. those perfectly stereoscopic, are ever to be obtained, it is to be done with this most complete and simple contrivance.

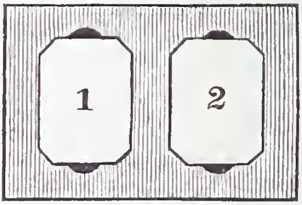
To the purely economical, an excellent, yet simple form, capable of being added to any camera, at an inappreciable cost, is furnished by Mr. Burgess.

Presuming that you have a Half-plate Camera, with the front to slide, as is the case with landscape cameras, take two pieces of zinc, fit them into the frame as dark slides; in one, cut a space the size of the surface to receive the picture, as represented in our No. 1; the other piece of zinc is kept plain.

No. 1



No. 2



No. 2 represents your support frame of glass, slate, or wood, (slate answers very well). Having prepared your plates, put them into their places, having previously put both the slides down; shut your back, and you have your dark frame: this you put into its place in the camera, having focused and the cap put on, slide your lens, say to the left hand, withdraw the plain slide not represented, leaving the other slide with the open A over 1, and B over 2, which will be dark; take off your cap, which will expose No. 1. Having done so, put on the cap; shift the front and lens to the right hand, keeping the camera in the same position; withdraw the slide No. 1 so far as to place B over 1, and which will cover 1 and expose No. 2, when removing the cap—which having done, replace and push the two slides down.

Photographic Printing Establishment. Mr. John Stewart writes that there is a large Photographic Printing Establishment at Pau, in the Pyrenees, where he and Mr. Maxwell Lyte, and a circle of very active Photographers, have been practising the art. It promises to be one of the finest in France. A Photographic Society has been formed, which will afford scientific amusement to the strangers who resort to that place for change of air or change of scene.

Mr. J. Stewart on the Wet Paper Process.—Mr. Stewart has also sent to England a full account of his paper process, which is not new, but has been frequently made the subject of inquiry on various points of detail. He prefers Whatman's paper to all others, notwithstanding its being rather thick, and does not readily absorb the wax necessary to make it sufficiently transparent. It gives a minuteness as well as a mellowness of detail, which he has not found in any other. But there appears to be some difficulty in obtaining paper of the quality he describes as having been Whatman's make. At least other Photographers say that they have not found the peculiarities which Mr. Stewart describes. Canson's paper, he considers good, but that it requires to be carefully selected, as it is so irregular and full of defects. The *papier saxe*, he says, is regular and good, but requires longer exposure than the others, being less sensitive when prepared. He iodizes with 380 or 400 grains of iodide of potassium, 30 grains of bromide of potassium in 20 ounces of distilled water, increasing the iodide of potassium to one oz. for other paper than Whatman's; and subjects the papers, after immersion, to the air pump to ensure perfect saturation. But Whatman's paper requires great care in this operation, as it is easily destroyed by the loss of its size in the air pump. He sensitizes with half an oz. of nitrate of silver, dissolved in 5 oz. of distilled water, and 5 drachms of glacial acetic acid added thereto, floating the paper for ten minutes or a quarter of an hour. This paper must be used while wet. It may be kept moist between glasses. He developes with a drachm of gallic acid, dissolved in a pint and half of water. Canson's paper developes rapidly in one or two hours. The *papier saxe* is longer in beginning to appear, and then proceeds rapidly. Whatman's paper, though the most sensitive, is the slowest to develope, sometimes two or three hours suffice, and very often ten or twelve hours are not too much. Mr. Stewart considers the results superior to those by the processes of Dr. Diamond, Sir W. J. Newton, and others; but it must be admitted that it is by no means as simple or as rapid as many others. With a three-inch lens, fourteen-inch focus, an ordinary landscape may require an exposure of a quarter or half an hour. We fear that the advantages held out will not, in the eyes of our Photographers, in these railroad times, compensate for the delay, in conjunction with the extra trouble and complicated process.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir.—Can you or any of the members of the Photographic Society inform me—1. Whether the nitrate bath prepared by Thomas's formula should be kept in the dark when the plate is not in the bath. 2. If exposed, whether it will lose any of its sensitiveness or not. 3. Should the crystals be kept from the light, or if not will they lose any of their sensitiveness. 4. Should the developing solution be kept in tho dark whilst the picture is developing. 5. The remedy to try the nitrate bath with litmus paper, and the ingredients to be had to neutralize the silver bath. 6. Whether Mr. Hill, of New York, has exposed his process to the public of taking views from nature in their proper hues. 7. Whether Mr. Napier has exposed his process to the public, and in what country does he live, and what countryman is he, 8. Also, whether MM. Bouet and Nante have exposed their process of taking portraits on ivory to the public, if so do you know their process?

[1. Yes.—2. Yes.—3. Yes.—4. Unquestionably. Too great caution with respect to these points cannot be exercised.—5. If the litmus paper be reddened, the bath contains acid, which, however, some photographers advocate. If objected to, as by Mr. Hardwick, he says "neutralize by the addition of a little carbonate of soda, unless iodide of ammonium has been used in forming the bath; in that case, add ammonia, graduated to fortieths of a minim, until the evil is removed.—6. We do not know whether Mr. Hill, of New York, has published his process for obtaining views from nature in their proper colours; but we fear not, or so valuable a method would doubtless be very generally practised.—7. Mr. Napier is, we believe, a Scotchman; but we do not know whether he has made his process public.—8. We do not know the method of Messrs. Bouet and Nante for taking portraits on ivory. We have seen some such works, but we understand that photography does little more than give the outline.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—As you intimate in your valuable periodical your willingness to assist amateurs in their photographic researches, may I venture upon your kindness with the following queries:—

1. Can you please give me a good formula for making *iodized collodion*, for *portraits*? I have tried "Hocken's," but I find the tones too deep for a pleasant positive picture, so wish to make some myself.

2. Also, how is the black varnish made for backing portraits?

Yours, very respectfully,

Manchester, STUDIO.

July 3, 1854.

P.S.—Is there any method of colouring collodion pictures?

[Every operator fancies his form of collodion best; but it has proved far better to purchase at some respectable photographic chemist, describing the character of picture it is required to produce.

Black varnish is made from Brunswick black slightly thinned with turpentine; or, if wanted to dry quick, brown hard varnish and lamp-black.

Colouring of collodion portraits may be accomplished with the same colours as are used for Daguerreotypes.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—A short time since I purchased a camera for the purpose of amusement and instruction of my family, which consists of two young females and a boy. So far, we cannot mako any progress, though we have bought some of the latest works ou the art. We have used glass only; we have gone by R. Bingham. At the first, we used (after the albumen and solution of silver, 50 grains to the oz. of distilled water) 10 grains of iodide of potassium to 1 oz. of water, this dissolved the albumen and silver at once. We next used 10 grains of silver to 1 oz. of acetic acid, in a bottle; in another bottle 1 oz. of acetic acid, with 5 grains of pyrogallic acid, adding a small portion of these together, they turned it a dark dirty bronzed colour, and shaped off like nettles.

At present, we are quite perplexed; so, as you say you shall be willing to answer any one such questions as may be asked, if you will be so kind as to give us a little advice on this subject, or recommend some work that will better instruct us, you will confer a favour on LUCY & EMMA.

P.S.—The distilled water I used was condensed from a small boiler I have at work; is this sort right? I returned the solution of silver in the bottle after having used it in the bath; is that right? We did all in the dark; is that right?

I am obliged to put these questions, the young folks stand over me, dictating to me.

Clarendon Place, L. & E.
near Manchester, June 28th.

[You should not have more than 1 grain of pyrogallic acid. For the rest, look to the first numbers of our Familiar Instructions. Albumen is troublesome aud uncertain. The P.S. is right.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—Your N.B. to the letter of "Camera" in last month's Journal, is very apt to mislead the people. I beg to confirm the statement of "Camera," that glass slates can be, and are fixed in roofs exactly similar to the usual Welch slates, *without any frames*, and to the economical Photographer this is not generally known.

I am, Dear Sir,
Your most obedient Servant,
JAMES ALEXANDER FORREST.

To the Editor of the Liverpool Photographic Journal.

Sir,—Iu order to prove the adaptation of the collodion process to out-door work, I purpose taking some large views and developing the uegatives with pyrogallic acid, and hope to lay both the negatives, and the cheap and simple apparatus by which they were developed, before our next meeting.

I am, Sir, yours truly,
GEORGE R. BERRY.

To the Editor of the Liverpool Photographic Journal.

Sir,—Will you explain the following:—Upon adding from 15 to 20 drops of the saturated solution (in alcohol,) of the iodides of amonium aud silver to my collodion, to render it sensitive, it becomes thickish and clouded, of a pale brimstone colour, and does not seem to settle. If I add, again, a little of the iodide of amonium (dissolved in alcohol,) alone to the mixture it will become clear, but then it is over iodized. If you will kindly point out the cause, and how I may remedy the same, in your next Journal, you will much oblige Your London subscriber, R. A.

P.S.—The gun cotton is prepared with nitrate of potash and sulphuric acid;—and to form the collodion, 20 grains of the above cototu is dissolved in 6 ounces of æther, adding ¾ oz. of alcohol.

London,
June 26, 1854.

[Our correspondent having too much iodine in the bath must add some simple collodion; or, in the first instance, use less iodide iu his solutions.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir, — Duriug the past month I have had time to prosecute experiments on the paper prepared as mentioned by me in your last number, and am sorry to say I find it impossible to lay down any formula which shall be certain of producing fixed results. I have found very different ones from portions of the same excited sheet of paper, taken within a few minutes, and developed with the same mixture; and I am not sufficiently chemist enough to account for the changes apparent in the result. Some days I have obtained very good pictures; and the next day, having used the very same solutions, been unable to fix upon the proper time for exposure. I have had them overdone in 1½ minutes, and uuderdone in 10 minutes; and I am induced to commuuicate to you my experience, as I feel that beginners in the practice of our beautiful art ought to be instructed that the road to success is not always a smooth one, and that they ought not to be discouraged by their numerous failures, but attempt to investigate the why and the wherefore of their cause of failure. Of one thing I am convinced, that this paper process offers great facilities to those who have not much time at their disposal, from its simplicity and rapidity; I have obtaiued uegatives of a red brick building, in the shade, iu 20 seconds, and for tourists, all must admit that this is quick enough. I have found it keep quite sensitive for three days, after which it cannot be depended upon. Among the modificatious of the mixtures I have found the most successful—

Equal parts of solution of
bromide of cadmium, . 20 gr. to 1 oz. of water.
Bromide of potass . . . . . 15 „ to 1 „ „
in which has been put 2 drops muriatic acid.
Iodide of potass . . . . 15 „ to 1 „ „

This mixture is of a deep ruby colour, and leaves Canson's and Marion's papers of a lilac hue, Turner's of a pale coffee. The ouly fault is, that the negatives are hardly intense enough to produce marked black and white positives. Some of our artistic friends would not object to this. I hope some brother Photographer will, now that I can give no more attention to this process, prosecute experiments with more determined success, and communicate to us his results. I have not been able to try with various strengths of silver solution, but believe 20 grs. to the ounce will be found the most effective.

I am, yours, very truly,
Umberslade Hall, CHRISTOPHER BELL.
June 10, 1854.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 8.—AUGUST 12, 1854.

In our last number we announced the conclusion to which the meeting of the London Photographic Society had come with respect to Mr. Fox Talbot's patents. We this month give the discussion which took place, and the particular results at which the members present arrived by "a small majority." It is not our province to comment on either the general conclusion or the opinions of individual members, or to anticipate the law in deciding the question. But we may mention that Sir David Brewster has made an affidavit on behalf of Mr. Talbot, in which he states that he considers the collodion process only a variation of the calotype, because the film has to undergo the same process as the paper; requiring iodising, sensitising, developing, and fixing, especially "the development of a dormant image." Sir J. F. W. Herschel has also made an affidavit, stating that he "did not use gallic acid for the purpose of developing a dormant image, not being aware that a dormant image existed;" which appears to be the main foundation of Mr. Talbot's patent. We give the material parts of their affidavits in another page. But whatever may be the results to Mr. Talbot, we can congratulate all our amateur readers that they are in no way concerned in the matter. They may be as busy as they please, or the weather will permit, at landscape, or portrait, or any other use of Photography, and by any process they prefer. And we hope they will be very industrious, so as to do honour to our Society in the eyes of the British Association next month.

We are happy to be able to recommend to their notice the wax-paper process of Mr. Townshend, which we described in our last number. It has been tried by several of our members, and has proved universally successful in the highest degree. The wax-paper sold is unquestionably high in price, £1 per quire; but some attention is being directed to the practicability of furnishing it at a lower price, or of enabling amateurs to wax their own paper by a more simple process than that now usually adopted. M. Maurice Lespiault has proposed a method of dissolving the wax in turpentine or other solvent, of which we have an account in another page. If it can be brought to bear without injury to the Photograph, it will greatly facilitate the operation, and in a corresponding degree reduce the expense.

Our professional readers must take into consideration that if Mr. Talbot should succeed in his claims on the collodion process, they will not be in a worse position than they were with Mr. Beard's patent in the daguerreotype, which no one has ever blamed him for insisting upon; and although his patent must have very nearly expired, we have not yet heard of any intention on his part of throwing it up for the benefit of the public. Though a patent of a French discovery, purchased by the French government, and thrown open to the world; yet it is held good in this country, in which, by a recent decision of the House of Lords, no foreigner can hold, nor Englishman hold by assignment, an equivalent right, a copyright in the productions of his brains, whether in the shape of literature or music. It seems that we are about to realise the fable of the frogs, and not satisfied with a King Fox public, who paid no attention to anything, we have obtained a King Stork public, who is to devour, or on whose behoof the individuals are to be sacrificed that compose that public. We would not advocate Mr. Beard's rights being confiscated on behalf of the public, whatever supposed advantages might result either to science, art, or King Stork; so, on the same principle, we do not advocate any confiscation of Mr. Talbot's claims on behalf of the professional portrait Photographers, for they alone are interested; and while they are deriving pecuniary advantage from the exertions of his intellectual powers, they should not grudge some proportionate remuneration to him. In reply to the statement that Mr. Talbot is a man of property and does not want it, it should be remembered that the possession of independence is no bar to continued acquisition on the part of merchants or manufacturers, nor is it ever urged against their continuance in business. Why intellectual exertion should be placed in a different position does not appear. Our professional friends would think it very hard to be told that they must work for nothing in future because they had made money enough. *Enough* is said to be a little more than anybody has. Upon what principle is King Stork to decide the amount that represents that indefinite quantity? Much more might be said on this subject, but we have not space to say more to alleviate the heart-burnings caused by Mr. Fox Talbot's proceedings, than that the public have no right to expect more from that gentleman than from Mr. Beard, and that Mr. Beard should remember the fable of the Fox and the Crane, or he may furnish another parallel fable of the Fox and the Stork.

The portion which Mr. Talbot is endeavouring to retain to himself, though the most profitable, is precisely that particular branch of the art in which the success of Photography is the most equivocal. There are some very fine examples in the town of its most legitimate use, the reproduction of fine impressions of scarce prints. Messrs. Bisson are multiplying the finest examples of Albert Durer's engravings. We believe Rembrandt's etchings are to follow.

We must reserve Binocular Photography till next month.

GLOSSARY.

We have been obliged to postpone this article on account of the press of very important matter.

Pneumatic Plate-holder.—Mr. Church has invented and described what he calls a Pneumatic Plate-holder, for the manipulators with collodion. It is a piece of wood, about six inches high, turned in the form of an hour-glass, with concave ends. Over one of these a piece of india-rubber is stretched, to the centre of which a wire or string is attached, and passed through a hole, drilled from end to end, whereby it is drawn down so as to create a vacuum under the plate which is placed upon it, and is thus held securely for cleaning, coating with collodion, or developing, without any possibility of injury to the surface, and equally defending the photograph and the fingers.

Amber Varnish.—Dr. Diamond, who has strongly recommended the use of Amber Varnish, has published a letter on the process of its manufacture. He puts 1 oz. of finely powdered amber into a bottle containing 8 oz. by measure of chloroform, and shakes it well repeatedly for 24 hours or more (!) till the resinous portion of the amber is dissolved. The bituminous portion remains in a spongy state, and requires squeezing in fine silk or muslin to remove the solution, before filtering through paper. He remarks on the difficulty of procuring pure amber. He uses broken mouthpieces of pipes, sold by tobacconists and meerschaum importers, at 2s. per oz.

Chemistry of Photography.—Mr. C. Springham, of Romford, has published a method of ensuring a neutral bath, which many Photographers consider of the greatest importance. This is done by adding to the bath, first, a little pernitrate of iron, which has the property of at once decomposing ammonia-nitrate of silver, (this will guard against alkalinity); second, by adding a little peroxide of iron, which prevents the possibility of acidity. The pernitrate does not in any way affect the photographic chemicals, and the peroxide settles to the bottom of the bottle, and may be left behind on pouring out the bath. On this it should be observed, that some manipulators have a greater objection to the presence of iron in the nitrate bath, than to the presence of acid, which by many is deemed to be indispensable to resist the reducing action of the developing fluid.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The sixth meeting of the Session was held on the evening of Tuesday, the 1st instant, at the Royal Institution, Colquitt-street, Mr. Corey, in the absence of the President, being called upon to occupy the chair.

Several new members were elected.

The Chairman announced that Mr. Atkins had just returned from America, and had brought with him a number of photographic prints which he (the Chairman) would hand round, and which could not fail to delight every lover of the art. He would, perhaps, favour them with his American experience.

Mr. Atkins said he had not seen a collodion positive in America. The pictures exhibited were from negatives, mostly taken on albumenized glass. Messrs. Whipple and Black, of Boston, who had taken them, employed twenty people in printing from the negatives, which were sent to them for that purpose.

The Chairman observed that it was desirable that something of the same kind should be done in this town. Mr. Berry, at the last meeting of the Society, called their attention to the fact that pictures could be printed much cheaper by the photographic process than they could be by the lithographic.

Mr. Atkins explained the process by which the prints were taken. Instead of having the ordinary pressure frames, Messrs. Whipple and Black had small boards, padded, and of the same size as the glass from which the picture was to be copied. The glass was laid on the padded board, and they were pressed together by means of common clothes-pegs. One of the prints represented the startling incident which occurred some time ago on the rapids of Niagara. An intoxicated man, in passing down the rapids in a boat, got jammed, by some unaccountable means, against a projecting beam, upon which he climbed, and remained there many hours, causing terrible excitement in an immense crowd that speedily collected. Many futile attempts were made to rescue him, and, as a *dernier resort*, a raft was constructed and lowered to the wretched man. It floated with the current, and struck the beam. The man made a most desperate attempt to get upon the raft, but his strength was exhausted, and he was lost. The picture pourtrayed the event at its most thrilling stage.

Mr. J. A. Forrest, exhibited some specimens obtained by the wax process, and stated that there could be no question about the great advantage of the process if they could get satisfactory results, and bring the principle to something like certainty. He had been most anxious that those who were prosecuting that department of the art should bring everything they did to the meetings, in order that the members might enquire into the defects, and endeavour to explain their cause. He then proceeded to give some explanations relative to certain improvements he had recently made in a camera adapted for the wax paper process; and in reply to a member, said that a few days ago he was about to test these improvements in the Birkenhead Park, but having put the camera down for a few minutes, while he attended to something else, on looking round found that it was gone.

The Chairman said he had an interesting letter to lay before the meeting. A few days ago Mr. Keith sent three pictures of his own preparation for the inspection of Prince Albert, who it was known took an interest in Photography, and he had received the following letter in reply:—

Osborne, Isle of Wight, 19th July, 1854.

Mr. Becker presents his compliments to Mr. Keith, and begs to inform him that he has laid the Positive Collodion pictures, sent by Mr. Keith, before His Royal Highness the Prince, and that his Royal Highness has expressed his great satisfaction with their execution. The Prince having expressed the wish to keep one of them (the portrait of a lady), Mr. Becker has returned the others, with the exception of that one, and in case it is to be had on sale would ask Mr. Keith for the price of it, if not will return it to Mr. Keith.

The letter was listened to with considerable satisfaction.

The Chairman observed that they had always understood that the royal family took great interest in art generally, more particularly in Photography; and it was asserted on good authority that the Queen herself was an operator. This letter was an unmistakable proof of the interest taken in the art by the Prince Consort.

The Chairman read a letter from a correspondent to the *Photographic Journal*, suggesting a mutual exchange of pictures by Amateur Photographers. [It will be found in another page.] He (the Chairman) thought the suggestion an excellent one, and deserving of attention.

Mr. Berry, knowing that he could not be a loser, would produce some of his positive pictures at the next meeting, in the hope that other members would do the same, with a view to exchanging.

In reply to a question—

The Chairman stated the new glass-house, in the Royal Institution, was in process of being finished; some alterations for the purpose of securing better light having rather delayed the works, and he anticipated that the rooms would be ready for tenancy by next Friday. There were four chambers still at liberty, on the terms previously stated, *viz.* one guinea a-year for the partial use of a dark chamber, and three guineas if the subscriber wished to have a chamber exclusively to himself, in which case he could have all his chemicals and apparatus under lock and key. Many of the elegancies to which he had referred on a former occasion, they had been obliged to forego, owing to the great expense to which they had already been put.

Mr. Bell drew attention to a paper in last month's *Liverpool Photographic Journal*, by Mr. Shadbolt, describing the process of preserving collodion film sensitive by the addition of honey and water. He had tried it with complete success, the film remaining sensitive twelve hours. He made a solution of honey only last night, and this morning he found the film quite perfect. He put the solution on after using the nitrate of silver bath, and having allowed it to drain, he put it by. It retained its moisture. He tried one the other day, after it had been prepared three days, and it was successful.

In reply to the Chairman, Mr. Bell said he believed it was stated in the *Journal* that three volumes of honey should be used to five volumes of water. It should be stirred with a glass rod, until well mixed, and then filtered, which process took a considerable time. Afterwards, they should add one volume of spirits of wine, which he supposed caused the solution to flow more evenly over the plate, otherwise there was some difficulty in getting over the plate, as without great care it was apt to form in ridges.

The Chairman: Do you develope with pyrogallic acid?

Mr. Bell: Mr. Shadbolt states pyrogallic acid, but I have used the ordinary process.

A Member: Do you wash the film off?

Mr. Bell: To a certain extent, but not entirely.

In reply to the Chairman, Mr. Bell further stated that he dipped it in water to wet the film, and then returned it to the nitrate of silver bath; that the whole of the honey would not wash off; that he had not yet found that a portion of the honey was carried into the nitrate of silver bath; that it would injure the silver bath if it were to do so; and it would perhaps be better to have a separate bath for the purpose.

A Member: How long will that solution keep?

Mr. Bell could not say, but no doubt a very long time. He would not recommend them to pour it into the bottle. He did so the first time he tried the experiment, and some of the silver film was carried away with the solution.

The Chairman observed that some little time ago a series of papers were commenced in this *Journal*, which were unfortunately not continued. He had an evidence of the value which they possessed. They were told in one of them that if they saved the washings of the paper, and melted them down, they would obtain pure silver. He had followed the directions, and had obtained a quarter of an ounce of pure silver, which would otherwise have been poured down the sink.

Mr. Forrest presented to the Society some instructive stereoscope photographs by Mr. Jones, a member, illustrating the process of watchmaking. They were very elaborate, and were greatly admired.

Mr. Chadburn, of Lord Street, Liverpool, read the following paper describing *the Action of Light, so far as it affects Lenses; and the Focus of Lenses*:—

The paper I intend reading before you tonight contains simply the action and composition of light—so far as it affects the formation of lenses and a slight description of lenses—so that Photographers may have some idea what sort of tools they are using. I do not intend to go into the various theories as to whether light flows in waves or emanates from bodies. We know it exhibits one phenomenon, and that is—being capable of being directed in any direction by reflection and refraction, and decomposed. I shall consider light composed of pencils or rays.

Light is composed of pencils or rays, which run in a straight line and parallel to one another, when flowing through an even medium, but which pencils or rays can be bent and thrown back, across, or in any or every direction, without interfering one with the other. Now, when a ray of light meets the surface of any transparent medium perpendicular to that surface, it passes into or through it in a straight line, it matters not the difference of its density; but immediately that it strikes the surface of any medium of different density *obliquely* it is bent nearer to the perpendicular if denser, and farther from it if lighter, and it will continue so bent if that medium is of equal density, but if of unequal density it will vary, changing its angle with the change of density. When the sun's rays first enter our atmosphere they do so at a considerable angle, and are consequently bent, and which bending is called refraction ; and as our atmosphere increases in density as it approaches the earth, so the sun's rays are curved towards the earth. The same at even, so that we see the sun before it is up and after it is down.

Now this bending of the rays of light is easily seen in performing the well-known experiment of placing a coin in the bottom of a vessel, and removing the vessel so that the coin is out of the line of sight. Pour water into the vessel, and, as you pour, the coin will gradually come into view, until the whole of it is seen. This shows that water has the power of bending the rays of light, and this is called its refractive power.

Glass possesses this power in a higher degree, so that if you take a piece of thick plate glass and lay it upon a book, and look perpendicular down through it you see the print plain and in its proper position ; but bring your head backwards, in order to look at it obliquely, and you see the lines rise in their position. In both these experiments the rays emerge from the denser into a lighter medium ; in the first from the coin through the water into the air, and in the second from the print through the glass into the air.

There is one observation which I wish to make before proceeding further, and that is, that we are so accustomed to say that we look at this and that, that many are under the impression that sight emanates from the eye—and this was the notion up to the time of Joannes Baptista Porta, the inventor of the camera obscura. Objects are seen (felt by the optic nerve) when the light reflected from surfaces strike against the eye. The sun is the source of all light, and its beams illumine every object; and it is the absorbent, or non-absorbent, (reflective,) qualities of the various objects that make them visible to our senses.

But, to return to our subject, if we take a piece of thick glass, whose sides are parallel, and fling a ray of light obliquely upon its surface, we find it is bent down until it reaches the second surface, when it is again refracted; but, as in the first case, the ray entered a denser medium, and was bent towards the perpendicular, so, in the second, it emerges into a lighter, and is bent from the perpendicular parallel to itself before it entered the glass, but not in a line with it, it having been bent in passing through the glass. The ray before it entered the glass is called the incident, and afterwards the refracted ray.

Now, it is of importance that we should know, when a ray enters the surface of a glass, what direction it takes—to what angle it is bent — where to find it — and whence it emerges from it. Almost all transparent substances have been tried, and their various refractive powers calculated from experiment, Glass and air are what we have to do with to-night. Now, supposing we wish to know the precise direction of the ray we have been speaking about, Sir David Brewster gives a rule for it, [which Mr. Chadburn explained ; but it would be too technical for our pages. In the first place the direction of the incident ray is to be found, and a line drawn for it, and where it intersects the glass, for which a perpendicular line is to be drawn. At the intersection of these lines place one leg of a pair of compasses, and describe a circle round it. A horizontal line through the point at which the ray intersects the circle will give the angle of incidence. A horizontal line will also indicate the direction of the ray through the glass, to the other surface ; from whence it will emerge in a direction parallel to the incident ray, if the two surfaces of the glass are parallel; but if they should vary, the ray will be refracted or broken, and the direction must be found by an adaptation to that surface of an angle corresponding to the angle of incidence upon the perpendicular lines above mentioned. Mr. Chadburn went into these particulars in more detail, with the aid of diagrams ; but without the latter the mathematical calculations would scarcely be intelligible to general readers, and not very interesting]

If instead of two flat surfaces we take two curved ones, segments of spheres, a lens, for instance, and throw parallel rays upon its surface, we find that the only ray which passes through in a straight line is that which enters at its centre, because it is the only one which is perpendicular to its surface, all the others must enter obliquely more or less, according to their respective distances from its centre. If you wish to find the direction of any of the rays, those nearest its edge, for instance, draw a line through the centre of the radius, and the point where the ray enters the lens, and which will be perpendicular to that point, then draw a circle as before, and measure the angle of incidence, and you will find the refracted ray where it emerges at the second surface ; and, by repeating the same rule again, find where the rays *meet*, for the ray entering in the same position on the other side of the lens will be refracted exactly the same. The point where they meet is called the focus for parallel rays, the distance of which will be, for a double convex lens, its radius; for plano-convex, double its radius. For lenses of unequal curves the focus may be found by the following rule—divide double the product of radii by their sum; for a meniscus divide twice the product of the radii by their difference.

But if the incident rays are divergent, radiating from a point, and fall upon a lens, the focus will be further from the lens than for parallel rays. According to its distance, so will its focus be. If the radiating point is twice the distance of its true focus, the focus will be the same distance, and if you bring the point to the same distance as its true focus the rays will be parallel, if nearer they will become divergent. The size of images are produced in the same way; if you want to copy a picture the same size as the original, and your lens is 6-inch focus, by placing your picture 12 inches before the lens the image will be 12 inches behind it, and of the same size; if you want to enlarge it, say double, the distance of the object before the lens will be half that of the image behind it, the same rate reversed applies for diminishing.

Now, if you draw a lens, a plano-convex for instance, and put parallel rays incident upon it, and, by following the foregoing rule, trace those rays near its centre, and those near its edge, you will find that they do not all meet at one point, that those near the edge are refracted at a greater angle than those near its centre, and consequently unite nearer the lens than those which pass through its centre. This is called the spherical aberration of the lens. It will not produce a flat field, as it is termed, to correct which spherical aberration various curves and various forms of lenses have been made. There is the double convex, whose surfaces are of equal curves; double convex, whose surfaces are of unequal curves; plano-convex, whose surfaces, one is flat, the other convex; double concave, whose surfaces are equal curves; double concave, whose surfaces are unequal eurves; plano-concave, whose surfaces are concave and plane or flat; meniscus, whose surfaces are convex on one side, on the other concave of a greater radius, so as to act as a convex lens; concavo-convex is convex on one side, on the other concave, of a shorter radius, to act as a eonvex lens. Concave lenses refract the rays opposite to the eonvex, parallel rays being incident are refracted divergent; the angle of which is found by the same rule as for convex: and by it you will find that its angle is such that if you bring the refraeted rays back through the lenses they will meet at the same distance before it as those do through a convex lens of the same radius.

Now, in some of the forms of lenses it is found that parallel rays incident upon and refracted through them do not, as I said before, meet at one point, but that the rays passing through, near the edge, come to a focus much nearer the lens than those through near the centre; in a plano-convex lens, whose plane surface is exposed to parellel rays, the difference is as much as four to five times its thickness; if such a lens was put in a camera you would have a defined picture in the centre, but confused at the edges; and by turning the plane side in, for the edge you would lose the centre, so that you could not get a flat picture, except by using a stop so as to cut off the rays from the outer edge. Now, if we turn the lens and expose the convex side out, we get a tolerably flat field; the difference of the two rays being $1\frac{71}{100}$ths of its reckoning—so that in using a plano-convex lens the convex side should always be outward. A double convex, whose radius are 1 to 6, has a difference of $1\frac{7}{100}$th. A meniscus may be made so that all the rays meet at one point. If after striking your first surface convex, you find the refracted rays, and draw the seeond concave, so that the rays are perpendicular upon it, they will pass through without a second refraction, and meet at one point. It may also be overcome by a combination of two—a double convex and plano-convex. So far, we are considering that light is of one colour, and its rays subject to one angle of refraction. Such is not the case; Sir Isaac Newton found that by receiving a beam of sun light upon the face of a prism, it not only refracted it, but produced out of the white light of the sun seven coloured rays—red, orange, yellow, green, blue, indigo, and violet, and that the red suffered the least refraction, and the violet the most. This he repeated with always the same result, and this he called the prismatic spectrum. He also found that by receiving the rays from this prism upon another, that he could recompose it, and produce white light. This prismatic spectrum you can readily produce by placing a prism before your lense, keeping out all light except a small hole to admit a ray upon a prism, the image will be thrown upon the ground glass. White may also be produced by painting the colours upon a disc and revolving it at great speed, or using a combination of coloured glasses. Sir Isaac Newton found he could only recompose white light by refracting back again the rays to the same direction. and he thought that each colour denoted its angle of refraction, and that refraction could not be produced without colour; this made him turn his attention to the construction of reflecting telescopes: refracting ones, according to this theory, always produced images with coloured fringes; but later experiments discovered that this was not the case, that some kinds of glass has not only a greater refractive power, but also a greater dispersive power than others. This dispersive power of glass acts with lenses the same as prisms—the colours are each produced and refracted at different angles. The violet having the greatest refrangibility is brought to a focus nearest the lens, the red the farthest, so that independent of the spherical aberration there is this chromatic aberration to correct; the first can nearly be overcome in a single lens, but not the latter. Dollond was one of the first to establish this, and it was to him that we owe the achromatic combination. His experiments were very ingenious—he made a trough with parallel glass sides in it—he put a glass prism and filled it up with water so as to form two wedges of water and one of glass, and found that he could produce colour without any apparent alteration in the direction of rays. He then altered the angle of the sides of the trough and his prism, until he produced refraction without colour; this naturally suggested to him that different kinds of glass might have similar effects, that is, one correcting the other. He, therefore, made two pieces of glass, the one of crown and the other of flint, wedge shape, and cementing them together found that by altering their respective angles he could produce refraction without colours; crown required an angle of twenty-nine—flint one of twenty-five degrees. The refractive and dispersive powers of flint glass being—

			Dispersive.	Difference. Extm. Rays.
Lead 2 parts, Flint	1	1·830		
„ 3 „ „	1	2·028	0·052	0·026
Plate from	1·514	1·542	0·032	0·017
Crown „	1·525	1·534	0·036	0·020
			0·033	0·018
Water	1·336		0·035	0·012

He immediately set to work upon spherical lenses, and after a great deal of difficulty succeeded in perfecting one. Lenses are only as wedges, as I stated before; the point where a ray enters a glass is to it a plane. Now, in constructing the achromatic lens there is a combination of different kinds of glass, ground so that their refractions are the reverse, crown glass having the least refractive and dispersive power, is made into the convex; flint into the concave; and as the combination has a real focus, the excess of refraction is given to the convex. You see in this that what it wants in refractive power as glass, is compensated by giving it greater angles, so that when united their dispersive powers will be equal; and as their refractions are the reverse,. they will unite the colours, and not only bring the rays to one point, but of one colour. But it is not enough for Photography that lenses should be achromatic. Sir David Brewster is of opinion that there are only three primary colours (and this is now the generally received opinion,) in the solar spectrum—the red, blue and yellow, and that the other colours are produced by the overlapping or mixture of these colours, one with the other. Professor Stokes, and Sir John Herschel have also discovered other peculiarities, that the different colours have different degrees of temperature, and that there is evidence of rays at both ends of the spectrum that are not discernable to the eye. In exposing the bulb of the thermometer for instance, the temperature rose in three minutes, in the blue from 55 to 56; green, 54 to 58; yellow, 56 to 62; full red, 56 to 72; edge of red, 58 to 73; and below, not visible, 61 to 79. That heat lies in the red or crimson, and that the yellow is the luminous ray—that these have little or no power of producing chemical change, but that this power lies in the blue end of the spectrum, to which has been added the lavender ray. This chemical force is termed Actinism, and as in Photography we are dependant on these colours, it follows that glasses whose correction is for the lavender will not only be the quickest, but the optical and chemical focus will agree. If an achromatic object-glass is corrected for white light, perfectly achromatic, and put in the camera, it will be found that after focussing to the eye it will require turning in to produce a defined picture; the reason is that the lavender is not discernable to the eye, and that possessing the highest degree of refrangibility it meets before the other rays, and consequently its focus is nearer the lens than the visual; this is corrected by giving the concave a little deeper curve, or the convex a little flatter, so as to elongate the lavender and unite it with the visual. This, of course, may be overdone, and in this case we have to turn out the lens. So that it will be seen that light has three great properties—heat, light (luminous), and chemical, each of which can be separated

Glass stained with the oxide of copper, and washed on one side with a solution of alum, presents scarcely any obstruction to light, but almost totally excludes heat, whilst black mica obstructs nearly all light, but offers no impediment to heat. And you all are aware that by using yellow glass in your dark rooms, so called, you can prepare your plates with impunity.

The paper was illustrated with numerous coloured diagrams, showing the particular angles of refraction of the various rays, &c.

At the request of the Chairman, Mr. Chadburn described the process of grinding and polishing lenses of various sizes.

During the course of the illustration, Mr. Chadburn explained that there were three courses of emery used in the grinding, and that the emery was washed four or five times, and drained through various vessels, so that a polish was almost obtained in the grinding. This was called "fining," and the polish was given afterwards. All depended upon this "fining," as if it was not carefully performed it was impossible to get a regular and even curve.

In answer to the Chairman, Mr. Chadburn said that the achromatic lens was polished by hand. They had what they called the parabolic grinder, which could be adjusted with the greatest nicety.

The Chairman: Is the weight of the hand sufficient?

Mr. Chadburn: The weight of the tool is sufficient.

Mr. Chadburn further said that machine ground glasses, when carefully attended to during the process, generally presented a greater equality of surface than those ground by hand.

In answer to a further question, it was elicited that the immense lens displayed in the Great Exhibition was ground by machinery.

A conversation then arose with respect to the use of red and yellow glasses in photographic practice, one of the members observing that it would be desirable to have red glass ground on both sides, and put before the lens to enable the operator to focus truly. Mr Chadburn remarked that no useful end could be attained by having the glass ground. Mr. Keith recommended the use of a yellow glass door as superior to an extra lens, as the lens threw the picture upon itself, and the operator could scarcely judge of its degree of development.

Mr. Bell asked if it were really the case, that the French lenses were superior to those of English manufacture?

Mr. Chadburn said the glass was superior, but not the grinding. The duty levied upon glass in England, until very lately, had such an injurious effect upon the manufacture that optical glass making had been driven upon the Continent.

Mr. Chadburn then exhibited the camera, which he said had been advertised a month previously, and pointed out the stereoscopic adaptation which produced two pictures on one glass. Some conversation took place upon it.

The Chairman then handed round a picture from a porcelain intaglio tablet, sent by a gentlement in Fife, showing the effects of transmitted light.

Mr. Berry, after some allusions to the remarks of Mr. Wood made at the last meeting, exhibited—indeed, fitted up before the members, out of an old board, a couple of hoops, and some yellow calico—a tent in which, by the use of pyrogallic acid, pictures might be produced in the open air. The tripod used was light and simple, but so firm that Mr. Berry could sit upon it with perfect safety. The pictures, he explained, could be developed in from five to ten minutes; and the specimens which he handed round (including the spire of St. Nicholas' Church, the Himalaya steamer at the Landing Stage, and others,) showed that collodion might be worked in the open air, even on large-sized plates.

With this experiment the proceedings terminated.

Tests for Intensity of Light and Fluidity of Collodion.—Mr. J. W. Gutch has made public a suggestion of Mr. S. T. Coathupe, of Bristol, of the use of a tourmalin or Nichols's prism and a piece of unannealed glass, or selenite, to analyse the light. On holding one of the former close to the eye, and the glass or selenite at about two feet distance, the usual phenomena of polarised light will be discovered; and in proportion to the degree of polarization will be the increase of time required, beyond that usually given to the lens. He also suggests, as a test for the fluidity of collodion, an ordinary specific gravity bead, which will float in the centre of the bottle of collodion, when it is of the density the operator prefers. As the collodion thickens the bead will rise, and the proper degree of fluidity can be recovered by the addition of æther or alcohol, or a mixture of the two, as may be required.

LONDON PHOTOGRAPHIC SOCIETY.

Extraordinary Meeting, Thursday, July 6th, 1854.—Sir W. J. Newton, V.P., in the Chair.

Mr. Shadbolt explained and demonstrated a method of taking pictures on collodion plates, rendered sensitive some time previously to exposure; and a paper was read by Messrs. Spiller and Crookes "*On the Methods of Preserving the Sensitiveness of Collodion Plates.*"

In our last number we gave a notice of this meeting, together with the formulæ of Mr. Shadbolt, and Messrs. Spiller and Crookes, for "preserving the sensitiveness of collodion plates;" to which we have only to add, that Mr. Shadbolt had tried "loaf sugar, moist sugar, grape sugar, sugar of milk, mannite and honey, together with glycerine;" but he found that honey succeeded the best. He had found some difficulty in causing the solutions to flow evenly in developing, but he overcame them by plunging the plate with its latent picture into a bath of distilled water, lifting it up and down till the collodion film was moistened evenly, and the preservative syrup nearly removed. After draining off the superfluous water, he dipped the plate for an instant into the nitrate bath, and letting the drainage from this fall into a glass measure, he added the developing solution—

Pyrogallic acid..................	8 grs.
Distilled water..................	5 fluid oz.
Acetic acid (not glacial)	2 ,,
Alcohol	1 ,,

and developed in the usual manner.

Messrs. Spiller and Crookes directed the attention to the necessity of having the nitrate of magnesia pure, to counterbalance the quantities of acetic acid and nitrate of silver given in the formula. The bath will keep in good order for a long time; the only point to be attended to is the draining of the plates slightly after coming from the silver bath; and if necessary the removal of liquid from the back with blotting paper, so as to introduce as little silver as possible into the nitrate of magnesia. A solution of one grain of silver to the ounce is quite sufficient to keep the plate sensitive; and when the strength rises above a certain limit it will dissolve off the iodide in small holes.

Messrs. Spiller and Crookes also strongly insisted on the necessity of keeping the plates free from the action of light, dust, or noxious gases.

Mr. Sparling explained a method by which, when about to take a photographic view, the operator could ascertain at once how much of the landscape would be represented on the ground glass plate.

The thanks of the meeting were voted to these gentlemen for their communications.

The Secretary read a notice from the Council relative to the application of Mr. Fox Talbot for a renewal of his first photographic patent, to which the attention of the Society was drawn with a view to discussion.

A letter was read from Mr. Laroche, relative to an action brought against him by Mr. Fox Talbot, in which certain vexatious proceedings were recounted, but for which the law or the lawyers must fairly be held to be accountable, instead of Mr. Fox Talbot; and Mr. Laroche stated that his solicitors had on his behalf entered a caveat against Mr. Talbot's application for an extension of his patent term, and that it was his intention to resist such application to the utmost of his power, and in so doing he trusted that he might meet with the well-wishes and support of all who were interested in photography.

Mr. Mayall expressed his opinion, that the credit of the invention of photography was due to Mr. Reade; and he found fault with the attempt made at the formation of the Society, to compromise between Mr. Talbot's claims and the independence of the art. He called upon the Society to enter a caveat against the renewal of the patent.

Mr. Fry said that it was not competent for the Society to take any such step, as it was not a corporate body; nor was it necessary, as the action now pending against Mr. Laroche would bring under the consideration of the courts all the claims of Mr. Talbot, protested against by members of the Society. However, he thought that the expense of defending this action ought not to fall on Mr. Laroche alone, as his means were moderate, and he was not defending his own interests only, but those of the art.

Mr. Mayall held to his opinion, that it would be better that the Society should itself actively oppose Mr. Talbot's attempts to place fetters upon the art, and if that was impossible, that then some one of its members should, as its representative, enter a caveat, as the Privy Council would not refuse to renew the patent unless the opposition to it was strong and earnest Should the burthen be thrown upon Mr. Laroche's shoulders, he would set an example which he hoped others would follow, by subscribing £10 to assist him in defraying the expenses of his defence.

Several members of the Society having expressed their intention to follow Mr. Mayall's suggestion,—

Mr. Vignoles proposed the following resolution:

"The members of the Photographic Society having had their attention drawn to the Petition, presented by Mr. Talbot to the Privy Council, for a renewal of his Patent of 1841, and considering this petition in connexion with the actions now pending (by which Mr. Talbot claims under that patent the right to the exclusive use of the collodion process), and being of opinion that the collodion process was not discovered by Mr. Talbot, and that it is a different process from that known by the name of Calotype or Talbotype (for the use of which the patent of 1841 was granted to Mr. Talbot), hereby record their conviction that it will be an injury to the progress of the Photographic Art, and an injustice to the members of this Society, should the said patent, thus interpreted, be renewed."

Mr. Mayall withdrew his motion in favour of the resolution, which was seconded by

Mr. Marshall, who agreed with the opinion that the Society could not as a body take any active steps in opposition to Mr. Talbot. He wished to consider the question from a moral point of view. Putting aside the legal rights that Mr. Talbot might or might not possess, he would say that when a man was placed in a position in which the acquisition of wealth was not of importance to him, and endowed with abilities of a high order, those talents were given to him as a trust which he was bound to administer for the benefit of his fellow-men, and that it was wrong and selfish for any one so placed to take out a patent at all. He considered it the duty of the Photographic Society to make Mr. Talbot aware of their opinion of the character of the course which he was following.

Mr. Fry would not contest the right of Mr. Talbot to take out a patent; the fault which he found with him was, that having taken out a patent, he endeavoured to embody in it the discoveries which had been made by other persons, such as Mr. Archer, and by all of them given to the world.

M. Buss contrasted the proceedings of Mr. Talbot with the liberality generally shown by photographic discoverers.

Mr. Shadbolt stated, that if the attempt was made to take a picture by the mode specified in Mr. Talbot's first patent, the result could only be a failure.

Mr. Malone addressed the Society, claiming their attention as a shareholder in one of Mr. Talbot's photographic patents. He instanced the way in which he became possessed of a share in that patent, as refuting the charge brought against Mr. Talbot of illiberality. It had been contended that that gentleman's patents, even if valid, would be of no commercial value without the subsequent discoveries of Mr. Archer and others, but he maintained that the paper process was now continually made use of for the taking of portraits, and stated that in a journey made by him in Germany a few years since, he had found that the paper process was universally employed in that branch of the art.

Mr. Maskelyne said, he had yet to learn that when a gentleman had spent much time and labour and gone to considerable expense in any scientific investigation, it was not open to him to secure for himself some return, by making his discoveries the subject of a patent, and that having taken out a patent it was not his right to defend it. The points in dispute, appeared to be—the validity of the original patent, and, supposing it valid, the right of Mr. Talbot to include under it the use of the collodion process. These were questions, however, upon which the Society could come to no decision,—they were questions for the decision of a court of law. It would be more than useless, it would be imprudent for the Society as a body to express any opinion at all upon them; for not only would such expression of opinion do nothing towards a settlement of the dispute, but it was quite possible, that in any judicial trial of the case, the opinion of the whole Society might be outweighed by the evidence of a few persons, whose high scientific position, or the peculiar character of whose studies, entitled them to be heard with special attention. The subject would come before the courts in two forms: the action now pending, and the application for the renewal of the patent. As to the latter, it was open to individuals to take any course they might choose, but it was desirable that the Society should avoid acting as a commercial company; it was a scientific body, and should do nothing to injure that position.

Mr. Fenton concurred in the opinion, that the Society, not being a corporate body, could make no active opposition to the renewal of Mr. Talbot's patent, but he thought it would be failing in its duty if it expressed no opinion upon the subject; and he could not share Mr. Maskelyne's apprehension that the formally expressed opinion of the Photographic Society would be without its weight in a court of law, or in the deliberations of the Privy

Council. There were, doubtless, cases in which the evidence of two or three, or even of one person, of profound acquirements in a special direction, might overbalance the testimony of a crowd of persons whose powers of deduction were weaker, or whose studies were more superficial; but this was not one of them. The Society was composed of men constantly engaged, some of them professionally, some of them as a relief from other labours, but all of them ardently, in the investigation of the principles and in the practice of a delightful art. Since its formation, the greater part of the progress made had been the contribution of its members. Among them were to be found the men best qualified to speak with authority as to the correctness of the theories of the science, and to illustrate by their productions the highest points of excellence to which the practice of the art had attained. If the opinions of such a Society were not entitled to consideration, to whom could a jury or a judical body look for guidance in the decision of questions so out of their competence? The Resolution proposed by Mr. Vignoles would serve the purpose of expressing the opinion of the Society, both upon the claim made by Mr. Talbot, to consider collodion as only paper under another form, and upon the necessity of resisting the renewal of a patent, under which such a claim could be made. He regretted that Mr. Talbot had rendered it necessary for the Society to express any opinion reflecting blame upon the course he was pursuing. In common with many members of the Society, he felt much respect for Mr. Talbot's persevering researches, and for the great services which he had rendered to the art, and would have gladly assisted in any plan by which their sense of those services could have been manifested. He thought, that had it not been for this claim to the monopoly of the collodion process, the Society was so far bound by the concession made at the commencement of its existence (by which the patent was abandoned, with the exception of its use for taking portraits), that it would not have expressed an opinion as to the validity of the patent, nor opposed its renewal, but the circumstances were now widely altered.

Mr. Shadbolt stated, that after all that had been said, he was not convinced that the Society had done its duty when it had merely expressed an opinion upon the points in dispute: he should therefore propose a resolution, to be adopted by the Society, that the Council should draw up an address to the Privy Council, deprecating the renewal of Mr. Talbot's patent, in the following terms:—

"That the Council of the Photographic Society be required to forward a memorial to the Privy Council, in deprecation of any extension of existing, or alleged existing patents relative to Photography, upon the ground that many processes are claimed in the patents, which have been invented subsequently to the sealing of such patents."

This resolution having been seconded, was carried by a small majority, and the meeting was then adjourned till after the recess.

Collodion on Paper.—At the July meeting of our Society one of our members suggested the use of japanned leather, instead of glass, as a surface for the collodion film for positive Photographs, with the view to obviate the risk of breakage and the necessity of black varnish. About the same time Mr. G. M. Campbell, of the Museum, at Halifax, wrote an account of his success in the use of common glazed black paper, coated with collodion, which he manipulates in the following manner:—He attaches the paper to the corners of a glass plate with a little gum, and then coats it in the usual manner with collodion. He then removes the paper, which is $\frac{1}{8}$th of an inch broader than the glass, and floats it in a 30-grain nitrate bath. When the greasiness has disappeared he turns it over and floats it on the back to keep the collodion moist. To prepare it for the camera he lays it on a clean glass plate, to which it adheres by the moisture, and places it on the slide, developing in the usual way with pyrogallic acid, for which he recommends the following formula:—

Pyrogallic acid	5 grs.
Distilled water.........................	1 oz.
Glacial acetic acid	1 dr.

Of this, take 20 minims to 2 drachms of distilled water, and fix with either hyposulphite of soda or cyanide of potassium, 2 grs. to the oz. of water. He uses the same process for negatives, but on Turner's negative paper, which he says answers as well as glass, and retains its sensitiveness much longer, but the developing solution must be used much stronger—the above formula with two volumes of water. When the Photograph is fixed and washed he lays it face upwards on a clean cloth until it is nearly dry, then places it between blotting paper and passes a hot iron over the back.

The use of black paper had been suggested long ago, but neglected until Mr. G. M. Campbell made the above experiments.

Familiar Instruction.
No. VII.
"Con tutto core."

The subject of Stereoscopic pictures, and the Cameras for their formation, would appear to have been as fully considered in our last as the purpose of these rudimentary treatises would allow, but as this has been complimented with more than the usual share of comment, and this, too, from operators remarkable for their skill and judgment, it is due to them to bestow a few more words upon the topic.

Perfect as Mr. Chadburn's camera appears to be, it is found to require to be moved in addition to the adjustment of the lens or plate-slide, as the case may be. But be it observed, the derangement may be corrected, and the perfectly stereoscopic effect may be preserved in this form of camera by the simple act of cutting through the plate when finished, and transposing the halves in mounting, that is the right hand for the left. But what we contend for, and hoped we had found, was a camera, which, when rigidly fixed upon a firm and steady stand, would admit by its own machinery the focus of the same lens to be thrown correctly upon either half of a slip of glass six inches in length. For it is obvious that if the movement of the camera be indispensable—and a series of experiments that have been pursued by the writer, but too fully establish that fact—then the same object can be as effectually attained by shifting a camera the requisite distance, whose lens is immoveable in its centre, in fact a camera of the simplest and most inexpensive kind. This was clearly apparent during the experiments alluded to, when a camera, whose lens was fixed, was placed upon a table, and the image thrown upon the right side of the focus glass, and a mark made upon the table to denote its position; it was then displaced three inches, and, by making it describe the segment of a circle, the image was thrown upon the left hand half of the ground glass; when properly focussed upon it, the position was again marked; the shutter of the plate-slide being divided, the plate put inside, and the picture taken upon one side of it by opening the lens with the image thrown first upon the left half: the shutter was closed, the cap replaced, and the camera removed to its original place; and the same form gone through again, with the right side, the effect so produced was perfectly stereoscopic; distance was fully and unmistakeably apparent, the roundness of the shoulder could be traced, the space between the figure and the back-ground be observed, and the hollow between the shirt collar and the chin so evident that it seemed as though the finger could be inserted. Now it is true the table so judiciously contrived by Mr. Cartwright fully meets all the difficulty that might arise from not shifting it to its proper position, and thereby either making the picture undefined in its outline, by not being in focus, or if properly sharp and clear, yet not stereoscopic, from the image not occurring in its proper place in the plate. Mr. Forrest, by the slot at the bottom of his camera, secures this desired purpose. Now it may be objected, and with great reason, that the aberration of rays would be so great that it would produce distortion of the image. In the long focus used for views, though the rays of light would be unequally thrown upon the plate, yet the inequality would not be of sufficient extent to derange the harmony of the landscape; but for portraits, when the integrity of the features must be preserved, the entire resemblance might be sacrificed; the length of rays in that portion of the arc farthest removed from the object would be lessened, and those nearer as much enlarged.

We are again indebted to the inventive genius and dexterous management of Mr. Cartwright, for reducing the needful motion of both camera and plate-slide to the simplest form of action, combining also an almost infallible certainty. To the slab or table at the top of his camera stand, he has affixed the two parallel moveable bars invented by Mr. Latimer Clarke, one end of each of these is fixed with a screw, permitting motion to the table, the opposite ends in like manner to the camera; so that, with a stop on either side of the table, the camera can be shifted from side to side without deviating from the focus. To the back of the camera is a shifting slide, somewhat similar to the slide of Mr. Abraham's invention, but having no shutter, and a much lighter catch or stop to keep it in its place; the camera has its lens fixed, and is divided into two compartments; the whole, being extremely light, is taken into the dark room, and the prepared plate put in its proper place; the camera is put on the stand, but put as far as the stop will allow to the left side of the table; and the plate-slide pushed as far to the left as it will go, so that the image is first reflected upon the right side of the prepared plate; by means of the ground glass at the side of the plate-slide, the focus is adjusted, the cap is removed, and the picture taken by the plate being exposed. When sufficient time has elapsed, he takes hold of the plate-slide, and by drawing it gently, yet quickly, to the right hand, not only draws the plate-slide across the camera, but also the camera, by means of the action of the moveable parallel bars, across the table; now exposing the left half of the plate with the advantage of only having to focus once, thereby preserving the expression of the features of the sitter; for as the cap has only to be replaced when the sitting is finished, and no shutter to be raised or depressed, the whole is accomplished with great rapidity, taking little longer than an ordinary sitting; and it only requires turning to the dark room to be developed, for the representation to be complete. This appears to combine the several advantageous peculiarities of every form of stereoscopic camera, with the utmost facility of action, and withal the greatest certainty of result, for the specimens taken there will present the most perfect perspective, and give to each separate object its relative position, so that the beholder no longer contemplates a flat picture, but sees, or believes he sees, trees, houses and human figures as solid as in nature.

M. Maurice Lespiault's Turpentine-wax Process.—In *La Lumiere* the following process has been made public, and commended. Dissolve 200 grammes, (6oz. 24grs.) of white wax in a litre bottle ($1\frac{3}{4}$ pints) of rectified spirits of turpentine, by means of hot water, 40 degrees centigrade, shaking it from time to time during a quarter of an hour, when it ought to be of the consistency of olive oil. Filter and immerse best Saxe or Canson paper. The sheets thus prepared, being well dried, are then plunged into a bath of iodide thus composed; and where they must be left for two hours, in order that the wax may be well saturated :—

Filtered rice water	1	litre.
White gelatine..................	6	grammes
Sugar of milk	20	,,
Iodide of potassium	25	,,
Iodide of ammonium	2	,,
Bromide of potassium.........	4	,,
Chloride of sodium	2	,,

Fluoride and cyanide of potassium about 50 centigrammes of each.

The rest of the process does not differ from Le Gray's. [This is a most excellent and economical method of making wax paper, and it has been tried by some of our practical members with Mr. Townshend's admirable process, and the results are highly satisfactory.—Ed.]

Mr. Maxwell Lyte's Instantaneous Process.—After the plate is coated with collodion, and sensitised in his usual manner, (he uses formic acid and iodide of ammonia), he pours over it a mixture of equal parts of the two following solutions :—

1. Nitrate of silver ...... 200 grains.
   Distilled water .... 6 oz.
   As much iodide of silver as will dissolve.
   Mix and filter.
2. Grape sugar or honey 8 oz.
   Water .... 6 oz.
   Alcohol .... 1 oz.
   Mix, dissolve, and filter.

The plate is allowed to drain, and placed in the camera. A *deep* negative is impressed instantaneously by one of Ross's landscape lenses. The grape sugar or honey must be very pure, and free from any strong acid reaction, and they are improved by long exposure to the air, till they are completely candied, before mixing. Of his other process he does not give any account, but he suggests that "there are many other substances yet to be mixed with the collodion—*e. g.*, all the alkaloids, or indeed any of the deoxidating agents known, and probably with good results."

Mr. Knott's Process.—*To make the Gun Cotton:* Into a tea-cup put two tablespoonfuls of nitre; add to that as much sulphuric acid as will make it to the consistence of boiled oil, and as quickly as possible some small bits of cotton, so much as will just soak the solution up; but not on any account let the cotton be dry; rather put less cotton than overdo it. After it has soaked in the solution for five minutes, place the cup containing the cotton, &c., under the water-tap, and allow the water to wash the cotton well, continually agitating and dividing the cotton, that not a trace of the acid be left; then open the cotton and spread it on a piece of paper, and allow it to dry in the sun, or some warm place; when dry, put into a bottle and dissolve it in the ether, to the consistency of oil; it will not dissolve completely, but the greater portion of the cotton will be taken up. This is collodion.—*To iodize the collodion:* In a 2 oz. bottle of spirits of wine put a few crystals (small) of iodine of potassium and bromide of potassium, and about four drops of liquid ammonia; shake it well up, and put a few drops into the collodion and shake well; try it in the silver bath what sort of coating; if a pale colour, add more iodizing solution till your coating has the appearance of cream. *To develop the picture:* I employ the sulphate of iron, ten grains to the ounce, with two drops of nitric acid, and pyrogallic acid, three grains to the ounce, and one drachm of acetic acid. I mix the two together till I get the colour of sherry. With this collodion and developing I am enabled to take pictures, in the smallest amount of time, and all the gradations of shade quite perfect. *For negative pictures* I employ the same mixtures, and then whiten them with corrosive sublimate, and finally blacken them by pouring over them amber dissolved in spirit; they are then ready for printing, and produce the most beautiful results. We have been favoured by Mr. Knott with the following specific directions for the developing fluid, to which a correspondent has directed his enquiries:—

1.	Sulphate of Iron....	14 grs. to the oz.
	Nitric acid	2 drops,
	Spirits of Wine	10 drops.
2.	Pyrogallic acid......	3 grains,
	Acetic acid	1 drachm.

To one drachm of No. 2 add six ounces of No. 1.

He does not usually measure these quantities himself, but approximates to the above; judging by the appearance of the solutions when they are in proper condition. He has not made any other alteration or improvement in his process, but continues to use it successfully.

Extracts of Affidavits respecting the Calotype Photographic Process:—

Sir D. Brewster's.—"That the said collodion process consists chiefly in a mode of obtaining the negative pictures upon a film or skin of iodized collodion spread upon glass, instead of obtaining them upon a sheet of iodized paper according to the plaintiff's invention, described in the said specification. That I consider the said collodion process to be only a variation or modification of the plaintiff's said invention, called by him the calotype, for the following reasons, videlicet:—First, Because the skin of iodized collodion spread upon glass serves as a substitute for the sheet of iodized paper employed by the plaintiff—Secondly, Because, in both cases, the iodized surface (whether collodion or paper) requires to be excited or rendered sensitive to light by washing it over with a solution of nitrate of silver, or by dipping it in a bath of the same—Thirdly, Because, in both cases, after an invisible image has been impressed upon the photographic surface (whether of collodion or paper), it is requisite to develop it or render it visible by washing it with a liquid (which is the chief and principal part of the plaintiff's said invention): and the liquid generally employed for that purpose is either gallic acid, as described by the plaintiff in his said specification, or a modification of the same, termed pyrogallic acid—Fourthly, Because (whether the first or negative image is obtained upon collodion or upon paper), in either case, the final result of the process is the same, videlicet, a positive picture is obtained upon paper by the action of light. That I have read a copy of the joint and several affidavits purporting to be made by Robert Hunt and Charles Heisch, sworn in this cause on the 22nd day of this present month of May; also copies of two several affidavits purporting to be made by Alphonse Normandy and William Henry Thornthwaite, both sworn in this cause on the same 22nd day of May instant; and that, notwithstanding such affidavits, I fully believe that the plaintiff was the first and true inventor of the calotype process described in his said specification, and that the said calotype process was very different from any photographic process previously known; and I say that the distinction attempted to be drawn in the said affidavits between the collodion and calotype processes is fallacious, inasmuch as the collodion process borrows from the calotype process its most essential point, videlicet, the development of an invisible image, and therefore it ought to be considered merely as an improvement upon the latter process."

Sir J. F. W. Herschel's.— "Sir John Herschel also published the fact of his having used gallic acid in a Paper communicated by him to the Royal Society on February 20th, 1840, and which paper is printed and published in the *Philosophical Transactions.*" I say that the inference attempted to be drawn to the prejudice of the plaintiff from my memoir in the *Philosophical Transactions*, here referred to, is erroneous; inasmuch as in the experiments there referred to, I did not use gallic acid for the purpose of developing a dormant picture, not being then aware that any such dormant picture existed, but only with a view to increase the sensitiveness of the paper. I say that my memoir, above referred to, extended to nearly sixty pages, and that gallic acid is only once named in it, to the best of my recollection; I say, that in writing the passage of my memoir above quoted, I did not contemplate the photographic process, since called the calotype process, nor was I then acquainted with that process."

Paris Exhibition.—Captain Owen, from Marlborough House, has written to the London Photographic Society, relative to the Exhibition at Paris, enclosing some particulars of the mode in which contributions were to be forwarded, and the extent to which the respective governments will operate in transmitting articles from hence; and asking whether the Photographic Society will assist, by the appointment of a Committee to select specimens, "for the purpose of securing as complete a representation as possible of the state of Photographic art in this country." The exhibition will open on the 1st May, 1855, and all goods must reach Paris between the 15th of January and 15th of March, except in a few peculiar instances, which will be admitted till the 15th of April. Demands for space should have been made before the 1st of this month; no charge will be made for such, and the exhibitors and their agents will be admitted free during the exhibition. The English government will undertake the conveyance, from London, of all articles intended for exhibition entrusted to its charge, and the French from the French ports or frontiers. The exhibitors themselves must forward the articles at their own expense to London, and must communicate through Captain Owen, Royal Engineers, Marlborough House, as the French Commissioners will only communicate with the commission appointed by each country for that purpose. The other regulations for arrangement and display assimilate to those of the Exhibition in Hyde Park.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—In a report of a meeting of your Society which appears in No. 9 of the *London Photographic Journal*, there is a description given of a process adopted by Mr. Knott. I have lately tried it, and find it *very good* so far, but I am puzzled as to what quantity of pyrogallic should be added to the protosulphate solution, and I should esteem it a favour if Mr. Knott would intimate, through the next number of your Journal, what quantity he finds answers best, and also if he has made any improvements or modifications in his *modus operandi*.

Begging a thousand pardons for the liberty I have taken, and with hearty wishes for the success of your valuable Journal,

I remain, your well-wisher,

BROMINE.

P.S.—How would formic acid act when added to the developing solution, instead of acetic acid? In your last number you mention a process by Mr. Lyte, by which pictures can be taken in a short time with a *single lens*—do you know *any* of the particulars?

Victoria Park, 19th July, 1854. B.

[We have given Mr. Knott's and Mr. Maxwell Lyte's processes at length, page 109.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—As considerable inconvenience is felt in not being able to procure the "iodide of ammonium" freshly made, you would confer a great favour upon myself and others if you would give the formula for its preparation a place in your journal.

I am yours truly, TYRO.

[Formula for Iodide of Ammonium.—Take 250 grains good dry iodine, 70 ditto of clean iron filings; place the iodine in a small basin, and pour over it four or six oz. distilled water. Then add the iron filings in portions; stirring well with a glass rod, for some minutes between each addition, the solution will become a very intense reddish-brown colour; but when the whole of the iron has been introduced and stirred for some little time the colour will disappear, and the solution will be a very pale green. This is a solution of iodide of iron. Filter it, and add to it 118 grains of fresh sesqui-carbonate of ammonia, dissolved in as small a quantity of distilled water as convenient, and stir well together, a dense bluish-white precipitate is formed, which is carbonate of protoxyde of iron, and the iodide of ammonium remains in the solution. Throw the whole in a filter, and when all fluid ceases to drop, pour it into an evaporating dish, and with a gentle heat evaporate and crystallize.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—Doubtless many of your readers will understand me when I speak of a Porcelain Intaglio Tablet; I do not know any other name for the thing, but I mean those thin indented porcelain tablets which, on being held between the observer and the light, exhibit pictures produced by the stopping out, as it were, of some portion of the rays. If, instead of a view or an individual, one of these be placed in the focus of the camera, the room being partially darkened, and a good deal of light be allowed to pass only *through the plate*, the operator will be rewarded with a positive of exceeding softness and beauty. The experiment is easy of performance, and has the novelty of the light being *transmitted* to recommend it. I speak of the collodion process for glass positives. I have ventured to send one to the Secretary of the Society, and am, your most obedient servant, H. C. M. D.

Leven, Fife, July 24th, 1854.

[The specimen sent is remarkably successful.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—I will feel much obliged if you will kindly inform me, through the pages of your Journal:

1. Whether Photographic portraits can be taken with a *double convex lens*, the diameter thereof being $1\frac{3}{4}$ inches, and the focal distance $4\frac{1}{2}$ inches?

2. *If they can be taken therewith*, what *diameter* of diaphragm is necessary?

3. What *distance* must the said diaphragm *occupy in front of the lens?* And,

4. *How* am I to ascertain the *chemical* focus?

G. S. THATCHER.

London, July 27, 1854.

[Double convex lenses are not fitted for Photographic purposes, as the field of the focus is not flat, consequently the image will be distorted and enlarged as it extends from the centre. For further explanation of this, see our report of Mr. Chadburn's paper on lenses at page 100. The chemical and visual foci of a double convex lens will be very nearly identical.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—You would greatly oblige by informing me, through your Journal, the best method of treating positives from collodion negatives by the ammonio-nitrate of silver process. Mr. Foard, in the number for April, page 54, gives directions for immersing the paper in a solution of chloride of barium, and when dry floating it upon the ammonio-nitrate solution, but goes no farther with his process. By treating the paper so far as Mr. F. directs, and after exposure fixing in a bath composed of hyposulphite of soda 1 oz. and water 6 oz., very good and clear pictures are produced; but what I am desirous of obtaining is the rich and deep tones which I observe in other pictures, obtained, as I am informed, by the ammonio-nitrate of *silver process*.—I am, Sir, yours respectfully,

R. A.

P.S.—Is it necessary to wash the picture in water after taking it from the printing-frame, and previous to placing it in the fixing bath.

London, 28th July, 1854.

[The desired tint may be obtained by adding a few drops of the chloride of gold into the hyposulphite solution, and the more the solution is used the better it will become. Ironing the Photograph will also give very beautiful tones. The washing of the Photograph is immaterial; the object is to save the excess of silver.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—Permit me, through your columns, to throw out a suggestion which, if carried out, would, I think, greatly enhance the interest which we amateurs take in the Photographic Art. I mean that of a mutual interchange of pictures; thus enabling our Photographers to furnish their portfolios, and become possessed of landscapes, views of buildings, &c., almost unattainable in any other way, and would produce some little return for what is really an expensive pastime.

In the majority of cases a negative is obtained, you strike off three or four proofs, and, unless blessed by an extensive circle of acquaintances, who will accommodate you by taking a large impression off your hands, there is an end of it.

My idea would not confine this interchanging operation to any locality, but if the thing be feasible, and some plan could be defined, Photographers all over the kingdom might be invited to join in it; but, by way of a beginning, I would suggest that some six members at the next monthly meeting (or at the rooms if more agreeable) should each bring say half a dozen positives to be then and there exchanged, and then, by a very simple process, each will find himself enriched by so many new pictures; or if the same number would make a deposit at the rooms in a box or portfolio to be provided for the purpose, parties wishing to exchange might be left at liberty to do so; trusting, as we might safely do, to their own sense of propriety that a picture of nearly equal value should be left for that taken. If such an operation were once fairly started, might it not be carried on *ad infinitum?*

I am, yours, &c.

A TYRO.

P.S.—I do not think there would be any harm in naming the above on Tuesday evening next.

Birkenhead, July 27, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—I perceive from your last number, that several gentlemen are proposing to focus on the collodion film direct, by placing yellow or red glass in the front of the ordinary brass cap. It is a pity that there should be a quarrel about priority in suggesting this method, which any one who tries will find to be valueless. For, 1st—It is impossible to get a very sharp focus through red or deep orange-coloured glass. 2nd—The focus that is obtained is not the right one. It is that of the yellow and red rays, so that all the fine correction of the lenses is thus rendered useless. 3rd—I find that the most sensitive specimens of collodion are slowly acted on, even by the yellow and red rays. This of itself should prevent any cautious Photographer from adopting the process.

I am, Sir, your obedient servant,

J. NEWTON.

August 3, 1854.

[We were induced to notice this proposal, which was put forth as a novelty in the *London Photographic Journal*, because it had been so recently discussed in connection with Mr. Newton's camera, in the report of the meeting of our Society, which appeared in our pages, and wherein a reference was made to a previous publication in our *Journal* of the same method, as used by one of our own members. Mr. J. B. Spencer, we took it for granted, was unaware of these proceedings. He lives so near London, that he has probably never given a thought to provincial photographic discoveries or literature; but the editor of our brother journal should not treat his younger relative with so much indifference or neglect.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—You will exceedingly oblige a number of Photographic friends and myself, if you can favour me with any explanation of a remedy for the appearances I am about to mention, which have of late given no small annoyance to a number of amateurs in this quarter.

After a picture has been developed and cleaned in the usual way with proto-sulphate of iron (about 10 grs. to the oz.), and (saturated solution) hypo-sulph. soda, a deposit is found on the picture, which gives it a hazy appearance. If the film of collodion is sufficiently tenacious, this may be removed with a hair pencil or a piece of silk, but the picture is never so pure after this operation. The developing solution has been tried of various strengths, and of all the different kinds known, without any improvement. The silver bath used is 30 grs. to the ounce.

Numerous explanations and remedies have been suggested without effect; and the readiness with which I observe you afford information and instruction to amateurs has induced me to trouble you with this communication, in the hope that you may be able to remove our difficulties.

I am, Sir, yours respectfully,

Edinburgh, 28th July, 1854. J. C.

[The effect referred to, is probably caused by using an impure nitrate of silver, of which there is just now a large quantity in the market.—Ed.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 9.—SEPTEMBER 9, 1854.

The Editor of an American newspaper is stated to have found himself one day suddenly deserted by all his printing establishment: and being unable to produce his paper, *suo proprio manu*, without the usual assistance, he coolly posted a notice on the office window, announcing his deserted position, and that under the circumstances he had gone away to amuse himself;, which he recommended his readers to do also. We find ourselves this month very much in the position of our brother editor: not from being deserted by our printers, but by our contributors and correspondents. We presume that they are taking advantage of the weather and the commencement of the sporting season, and are gone in various directions, armed with single or double-barrelled cameras, or single or double-barrelled guns, and we trust that our game-bags or our post-bags will be in future replenished thereby. In the mean time we must endeavour to make up for their deficiencies, and supply our readers with matters from our private stores and the best sources open to us; and clear up some arrears which the press of matter during the last two months have caused us to fall into. But first we must correct a misprint in our last address, which, to those who were uninitiated in Æsop's fables, (doubtless considered too frivolous a class of literature for such an enlightened and utilitarian age as the present,) must have created some confusion. Instead of being a King Fox public, who paid no attention to anything, it should have been King Log. The frogs, who had petitioned Jupiter for a king, being dissatisfied with the Log he first sent them, and on which they could inflict all sorts of indignities, received a Stork instead, who proceeded to devour them forthwith, for the benefit of the state. This we conceived to be very much the condition at present, when every literary and scientific individual is to be sacrificed to the so-called *public* benefit; and we warned Mr. Beard,—the possessor of a very questionable patent himself, which he had rigidly enforced against all infringers, while he was anxious to avail himself of Mr. Talbot's invention without respect to the reserved rights,—that the King Stork public might serve him as the Crane, in another of those recondite portions of allegory to which we have alluded, treated the Fox, who had invited her to a repast of which she could not partake by reason of its being served on a flat dish, viz. by inviting him to a feast in return, from the advantage of which he was shut out by similar disabilities, the viands, in the fable, being placed at the bottom of a long-necked vase, where they could only be reached by the long bills of a Crane or a Stork. When writing that, we were not aware that Mr. Beard, in spite of his patent, had become bankrupt; and that his patent was actually run out, which we have since been informed is the case, and by the new law cannot be revived; as one of the requirements now is that the patent can only be taken out by the inventor. The term inventor has, it is true, a wide signification. Sir W. J. Newton has published a letter on the subject of Mr. Fox Talbot's patents, in which he states his impression that "they are by no means valid, inasmuch as it would seem that he was not the *originator* of any one of the chemicals employed for such purpose, either as a developing agent, or any other part of the process; but that by a careful and scientific research into the labours and discoveries of other persons, Mr. Talbot was the first to *modify* a most delightful branch of photography." As we said in our last address, we had better leave this matter to be settled by the law; but we may remind Sir W. Newton that he has only adduced another instance of the action of a King Stork public, which will recognise nothing but success, and pays no attention to other experimenters, however closely they may have approximated to the ultimate achievement. The history of the steam engine and other discoveries, and the various patents connected therewith, will shew that the person who reduced previous discoveries into practical application has always been considered and treated legally as the inventor. His appeal to Mr. Fox Talbot to forego his application for a renewal of the patent, and to relinquish his legal proceedings against those who infringe it, would involve the return of a great part of the money he has received for the license and use of it, or would involve another application of the King Stork principle, in stripping these licensees of their vested rights for the benefit of their professional brethren; for we must repeat our congratulation to our amateur friends, that they are not in the slightest degree affected by the question, whichever way it may be decided. Mr. Fox Talbot has thrown open all his discoveries to the world, except for the purpose of taking portraits for sale. The last words of Sir W. Newton's letter are calculated to mislead. Mr. Fox Talbot has given the full benefit to his non-professional brethren.

Binocular Photography has received a severe blow from a letter which we give at length elsewhere. The writer, however, falls into an error in his attempt to account for the defect attributed to the stereoscope, "the stillness and absence of colour, which we have never witnessed except in death," for we have the same in statuary, as he himself observes in another line. We may fairly set down Binocular Photography as one of the hallucinations of the day; to which, indeed, the present generation appear to be peculiarly predisposed.

Two errata appeared in our last journal, one of which was too scientific to be of very material consequence: it occurred in the description of the different kinds of lenses. "The meniscus with the concave surface of greater radius than the convex, so as to act as a convex lens; another concavo-convex, the concave of shorter radius to act as a *concave* lens." It was misprinted *convex*. The other mistake occurred in the latter part of the description of Mr. Knott's process, in which he was made to say that he "blackened with amber varnish." As this referred to the well-known mode of operation, and it was obvious that a transparent varnish of the nature of amber would blacken—it was of no great importance. The latter part of the word ammonia was overlooked, and the first syllable being common to both words, the sentence, "blacken with am*monia* and then coat with *am*-ber varnish," became abbreviated in the way it appears. It is singular that this is the second, if not the third time, Mr. Knott's description has been subjected to the same mistake.

GLOSSARY OF TECHNICAL TERMS USED IN PHOTOGRAPHY.

We fear our contributor who furnishes this article, has been ill, as we have only received a small portion, too late for insertion in the present number.

Pneumatic Plate-holder.—Mr. Bolton, of Holborn-bars, London, has claimed the Pneumatic Plate-holder described in our last, as the invention of Mr. Pechler, more than a year ago, and Mr. Bolton stated that he has made it for sale ever since.—An adaptation of the school-boy's sucker, a piece of thick leather screwed on to a handle and wetted, has also been suggested. It will hold a plate of considerable weight, but will require care or constant use to keep it in condition.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The seventh meeting of the Session was held on the evening of Tuesday the 5th instant, at the Royal Institution, Colquitt-street. Mr. Newlands, the President, occupied the chair, and there was a larger attendance of members than usual.

Mr. Sheridan and Mr. Robinson, of Dublin, were present. The former exhibited a great number of beautiful negatives taken on waxed paper.

On the Chairman requesting him to explain the process by which he had obtained these highly satisfactory results, he said that he had used Mr. How's process, with little or no variation. This process was the subject of a paper read before the Chemist's Association, and was printed in the "Chemist" and in the "Manual of Science." part 4. In reply to Mr. Corey, he said that he was not able to answer the question whether any benefit was derived by the use of the cyanide and fluoride of potassium. He was no chemist. He had found that the best photographers were not the best chemists; but those who, without any pretension to chemical knowledge, took up a receipe and worked it out. He had heard some distinguished member of this society say, on a previous occasion, when speaking on collodion, that "the best that could be said of these ingredients was that they did not do any harm." He had not found the many ingredients Mr. How advocates, including cyanide, do any harm. He had tried Mr. Townshend's process, which omitted these chemicals, but had not been successful with it. He ought to say that the paper he used he had got in Liverpool, and it might not have been in good condition.

Mr. Corey exhibited some prints from negatives taken by Mr. Townshend's process, in which considerable success had been obtained, but with some defective details in the light parts.

Mr. Sheridan said his own negatives by this process would produce the same results, and showed the only two negatives he had taken by the process in corroboration. He believed Mr. Townshend's process was the most simple, and therefore he had little doubt that it would prove to be the best plan; but his successes had been with Mr. How's process, and when he had been requested by the secretary to exhibit these specimens, he had thought it right to carry out the whole process, from the waxing the paper to the development, according to the prescribed formula. He should mention that instead of using the white wax as sold by the shops, which contained very little wax, with a great deal of stearine, he used the common yellow or bees-wax. He took about four ounces and melted this by means of a hot iron on to a double fold of blotting paper, which thus became a solid mass. He then placed his paper under this, and with an iron, moderately heated, passed over the surface, sufficient wax was transmitted to the paper below. The only other peculiarity in his method of proceeding he believed was, that he allowed the papers to remain a long while in gallic acid before he added the aceto-nitrate to the developing bath.

Mr. Corey asked of what strength was the gallic acid, and how long he allowed the paper to remain in it?

Mr. Sheridan said it was saturated, and that he left the papers in for any length of time that might be convenient. In fact, he carried them about in the gallic acid until he had an opportunity of completing the development when necessary, and it often occured owing to his so frequently moving from place to place. He had been very much interested at meetings of the London Photographic Society, when certain processes had been demonstrated before them, and he had now brought some negatives which he had taken that morning, and which were in the process of development, and he would complete them in the room. The sun took it into his head to put on his nightcap, and there was a very thick haze at the time, so that the morning was not favourable. He would, however, make the experiment. They were now in the gallic acid. He then produced a glass tray fitted into a wooden case, and on opening this, and removing a sheet of blotting paper, the negatives were seen saturated with gallic acid, and the subjects partially visible. Mr. Sheridan said the negatives would remain in the moist state any reasonable length of time.

Mr. Corey: Do they not progress at all towards development?

Mr. Sheridan: If they were to remain a month they would take no injury, according to his practice. He then poured on the saturated solution of gallic acid, of which he generally used eight ounces as in this tray. He had now a question for several of their chemical members. He added some alcohol to the aceto-nitrate this morning, and he supposed there must have been something in the bottle for it had turned to that milky appearance. He was afraid it might have interfered with the photographic action.

Mr. Sheridan then poured some gallic acid into the tray and another portion into a measure to which he added four drachms of the milky aceto-nitrate ; and having lifted out the negatives he poured the mixture from the measure into the gallic acid in the tray, and mixed them by tilting the tray on each side. He then replaced the negatives in the fluid and closed the box. He found this method very convenient, for he could add his aceto-nitrate in the morning to the gallic acid in which the negatives had been placed the previous night, and shut it up to dissolve while he was going through the operations of the toilet ; and it was gradually preparing for him when he should be ready for it. In reply to Mr. Corey he said that he had allowed the negatives to remain only a short time in the solution after he had added the aceto-nitrate. Sometimes it required a longer period than others when the exposure was too short for the nature of the subject and the amount of light. But after having added the aceto nitrate he watched the progress of development very narrowly, and so soon as sufficiently intense removed the negative to clean water, and after brushing the surface well with a soft brush, to remove the deposit which invariably settles on it, to a greater or lesser extent, proceeds to the next stage, that of removing the iodide of silver.

Mr. Corey : Do you clean them with cyanide of potassium ?

Mr. Sheridan : On no account, in the wax-paper process. He used hyposulphite of soda. Collodion he cleaned with cyanide.

Mr. Corey : What strength do you use the hyposulphite ?

Mr. Sheridan : A saturated solution, and he left the negatives in it as short a time as possible. There had been, in this Society especially, an antagonistic feeling as to the merits of collodion and wax paper, a feeling particularly manifested when Mr. Wood read a paper on the subject. He (Mr. Sheridan) was not a wax-paper man : he was a regular "collodion" to the back-bone ; but he thought the two processes did not come into collision at all. Collodion was very beautiful indeed ; and no one could deny it. So long as they had the conveniences with them nothing could be better ; but he had taken negatives with wax-paper, under circumstances where the use of collodion would have been impossible. Independent of the advantage of wax-paper in some instances, he produced two views taken that morning with it in half an hour, whereas with collodion it would have been impossible to have got the materials ready in the time. He exhibited the negatives, which were those in the process of development. The process, observed Mr. Sheridan, while explaining, and practically illustrating it, is not "tedious," as a gentleman once told me, He said he would have nothing to do with wax-paper, as he had to get up two or three times in the night. I have not to get up in the night, and I have taken on one occasion, at Bolton Abbey, eighteen successful negatives in one day, driving twenty miles to and from the spot ; but I must confess I am an enthusiastic photographer.

Mr. Corey : Do you ever find it necessary, after drying, to wax the negatives again ?

Mr. Sheridan replied that he always waxed them again if necessary ; but, unless they had been subjected too long to the developing operation, it was not requisite. He exhibited some specimens of both kinds. If it became opaque he re-waxed. In reply to Mr. Corey, he said that he was able to keep negative paper sensitive for ten days. It was not, he said, always the best negative that produces the best positives. He exhibited one negative he took in West Ireland, which remained in the slide a fortnight before he developed, and it remained in the gallic acid another fortnight before he added the aceto-nitrate, and although a weak and apparently a bad negative, produced a most pleasing positive. He could recommend to all photographers this process of Mr. How's as being the best (speaking from his own experience) he had yet seen.

On the proposition of Dr. Cauty, seconded by Mr. Atkin, a vote of thanks was accorded to Mr. Sheridan, for "the lesson he had given them in manipulation."

Mr. Sheridan, in responding, said Liverpool was remarkable for the beauty of its positives. The best positive he had seen in London was sent from Liverpool ; but the negatives had hitherto been considered inferior. This had been attributed to some chemical influence in the atmosphere ; but the problem had been completely solved by his friend, Mr. Robinson, who, since he had been in Liverpool, had produced some of the finest negatives he had ever seen in his life, and being an enthusiastic admirer of the art, and ever willing to extend the knowledge of it, would have been very happy to have exhibited them here this evening ; but they are all very valuable subjects, composed of family groups, most artistic and beautiful, disposed chiefly with garden scenery, and being yet unvarnished, he could not press him to produce them, since in this fragile state some accident might occur to the collodion film. Mr. Robinson, however, would present to the meeting some positive pictures taken in Ireland, which he ventured to say the meeting would pronounce to be of a character worth looking at. . He had brought with him a number of positives from collodion negatives ; but, from what Mr. Robinson would show, he considered it unnecessary, as perhaps it would be injudicious, to produce them. Amongst his, however, he must say, those displaying the greatest amount of artistic feeling, gradation of shade, and distinctness of half-tones were from Mr. Robinson's collodion ; and his experience in this article extended over all the makers of known excellence.

Mr. Robinson,—after alluding to the fact that 15 or 16 years ago he exhibited some small photographs in that very room, before the Philosophical Society, and observing that at that time they could not obtain hyposulphite of soda,—said he was accustomed to work both collodion and wax-paper, cutting his coat according to his cloth : where he could work collodion he used it, and where wax-paper only was available he used that. He exhibited some beautiful specimens, including stereoscopic, photographs, and collodion positives, on a very large scale. One of these latter was a view of Donnybrook Fair, taken on Friday week, others, of the new buildings attached to Trinity College ; and there was also a beautiful collodion of a magnified tongue of a fly. The length of exposure, of the large views, with a single lens, was from 20 to 30 seconds, generally with sunshine ; but a second view of Donnybrook Fair was instantaneous. When working with collodion in the open air, he generally tried to get into some cottage near, and he provided himself with three or four large sheets of yellow calico, a little hammer, and a few tacks, and formed an impromptu dark room, which he found to answer his purpose very well. He generally prepared his bath according to Thomas's formula, with nitrate of silver, charged to saturation with iodide of silver. In reply to a question, he stated that he did not use gallic acid in his bath, having some time ago spoiled two or three baths by doing so. He recommended the study of the much abused paper of Mr. Fenton on the nitrate bath, as, in his opinion, it was more important to look after that matter than to trouble one-self about this or that person's collodion. The bath must be perfectly neutral to get good pictures.

Mr. Corey : Does not the presence of acid prevent the collodion fogging?

Mr. Robinson : Yes, there was such a thing as alkalinity. If they obtained a small quantity of nitrate of silver, fused it to blackness, and then procured a neutral collodion, and used those, they would get foggy pictures. It could be remedied by the addition of acid, as in the case of accidental presence of ammonia, but the use of acid in any other case he found prejudicial. In developing he used—

Pyrogallic acid ....3 grs.
Distilled acid..................3 ounces.
Acetic acid ....1 drm.

He always worked by Thomas's formula.

Mr. Sheridan : Is not the effect of Thomas's bath produced by nitrate of silver ?

Mr. Robinson : No ; you saturate the bath with iodide of silver.

The Chairman : It is Thomas's process, in its integrity ?

Mr. Robinson : They followed that. They must, however, take care that the nitrate of silver did not contain the slightest portion of acid. In fixing negatives on glass, he had been accustomed to use cyanide of potassium.

In answer to Mr. Forrest,

Mr. Robinson intimated his intention of sending some of his views to the exhibition of photographs at the Royal Institution, during the visit of the British Association to Liverpool.

Some beautiful glass positives, by Mr. Lee of Shaw-street, and some exquisite paper positives from collodions, by Mr. Porter of the Collegiate Institution, were exhibited and much admired.

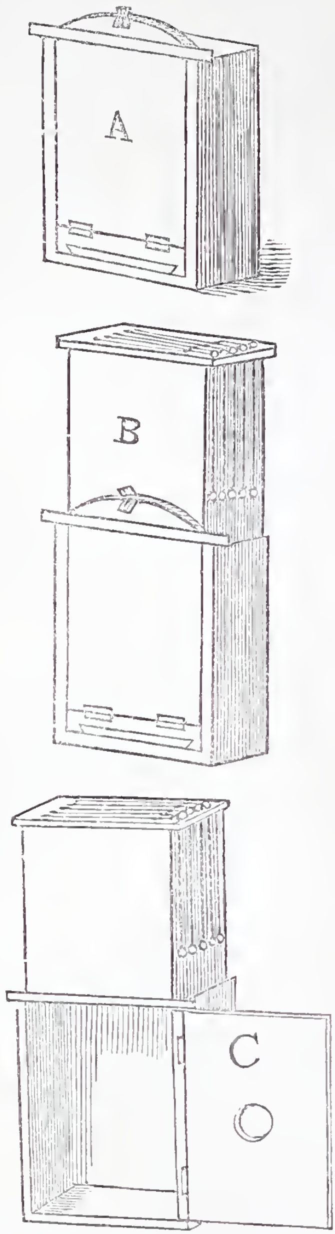
Votes of thanks were accorded to Mr. Robinson, Mr. Lee, and Mr. Porter.

Mr. Corey stated that, acting on a suggestion contained in a letter read at the last meeting, Dr. Inman had forwarded some pictures taken by himself, for the purpose of exchanging with any other member.

Mr. Forrest announced that Mr. Edward Pedder, of the Old Observatory, St. James's Monument, was prepared to print negatives at a charge of 4d. each.

Mr. Forrest produced an improved camera-slide for the paper process, of which the following are diagrams :—

Fig. A represents the slide of the Camera closed up. Fig. B represents the proposed additional case, in its situation for working, on the top of the slide. Into this the papers are to be drawn up like the scenes of a puppet show, after they have been exposed to the action of the Camera. Fig. C exhibits the protective case on the top of the slide, and the back opened to shew the means of adjusting the papers in fitting them into the slide.



He said, My invention is simply a novel mode of slide for the back of the camera, to carry one or two sensitive papers, and to change them for exposure without touching them. The rapid and easy manner in which this is done, offers to the followers of the paper processes important facilities, and its advantages on the score of economy are great, seeing it is but an alteration or rather addition to the usual common slide. Having received the approbation of our Society at its last meeting, I can therefore recommend it with greater confidence, and to those who have not seen it I beg to call their attention to the alterations I have made with a view to portability.

Mr. Frank Howard made the following interesting and valuable observations on the effects to be aimed at by Photography, which were applauded throughout by the amateur members of the Society:—He said, that he had not anticipated that there would have been so much interesting matter before them that evening, and he had undertaken to fill a gap, which he feared at this season of the year might be expected, with a few remarks on some points in connexion with Photography, in which there either appeared to be great misconception or which were treated with unmerited neglect. He had been led to make these observations by the description of Mr. Townshend's "cumulus clouds, telling light and dark against the blue sky as in nature." He had also seen photographs taken by one of their professional brethren, which were very beautiful in general effect, but he was told that the public would not have them, they preferred the "beautiful white back grounds." The professional members must of course be governed by what their employers would take, but the amateurs, of whom there were a great many in the room, were not bound by any such considerations; they were free to carry the art of photography as far as their means would allow; and he was desirous of placing before them the results of the experience of artists in pleasing the world, with respect to one object which he had heard almost universally insisted on as a desideratum, "the purity of the whites." He was in hopes of producing before them some specimens of photography in which the effects he should recommend had been attained; but one of the misfortunes attendant on the collodion process had interfered with him, some of the most beautiful he had ever seen had unfortunately been fractured; and others the film damaged. He had a very few which he would send round presently; but he would commence with some other examples of art. He was quite aware that at the present time everything that had been considered right in art was called in question, and that in this very intellectual age we considered any novelty, like Pre-Raffaelitism, a great advance upon our predecessors. But he would, nevertheless, place before the meeting some of those results which artists of all countries had hitherto concurred in admiring, and which had hitherto commanded the approbation of the public. He must confess that he had more confidence in the experience of past times than in any new-fangled notions, how great soever the patronage under which they were introduced, and how great soever the talent by which they might be supported. He would first send round some French lithographs. It might be asked what lithographs had got to do with photography; but it would be found that in even slight sketches such as those representing white objects, very little pure white had been allowed to remain. It was this quality which distinguished French lithography as superior to English work—the very small quantity of pure white allowed to remain. He would then send round an engraving from Sir Joshua Reynolds, (the heads of Lady Augusta Gordon, as cherubs.) It might be said that the subject did not require a great deal of white: but they might depend upon it, that if Sir Joshua Reynolds had thought it desirable, he would not have scrupled to introduce it. The next he would send round was a gentleman in a white silk petticoat (the Pope) by Sir Thomas Lawrence, and though it was necessary to make it appear white, they would see how little of it remained pure white. The next, the little Queen of Portugal, in white satin, and though the engraver had undoubtedly exaggerated the tints, the principle of allowing the smallest quantity of pure white was only rendered the more evident. The half-tones should be delicate, but they must be there. All sorts of expedients were resorted to for the purpose of getting rid of the crude white. First, they would print upon India paper which was of a low tint, as in the instance he exhibited: then they would print on coloured paper, rather than have the intense opposition of black and white, which photographers appeared to be so ardently endeavouring to obtain. For it should be observed that black was subjected by artists to the same restriction as white. He sent round a portrait of the Duke of Wellington, by Sir Thomas Lawrence, and though there was a velvet collar represented, they would see how little of pure black, as well as of pure white, was introduced. Mr. West, on commencing a picture, mixed a small portion of yellow with all the white he used, and a portion of red with his black, that he might always have a reserve of black and white for any brilliant point, such as an eye, or a piece of armour, and he thus limited his pure white and intense black to very small quantities. He would send round some etchings by Vandyke, in which it would be observed that those were the most effective in which the white had been reduced to the smallest quantities. He then passed round a number of engravings from Wilkie, Gerard Douw, and others, and exhibited some large engravings from Sir Thomas Lawrence, Northcote, Westall, and Rubens, in which these principles had been most successfully carried out; and contrasted them with a lithograph of Overbecks, "Raising the Son of the Widow of Nain," which was lamentably ineffective for want of it. He had also the opportunity of exhibiting a few photographs in which the effect he recommended had been in a great measure obtained by reason of the absence of sky; and one of them, by Mr. Keith, had been found great fault with, for what he was sure every artist would consider a great merit, the small quantity of pure white, which looked as if it had been touched on by hand to give brilliancy to the water.

Some amusement was excited by Mr. Sheridan, in whose hands it was first placed, turning it twice in a wrong direction; on which Mr. Howard remarked, that it was not the first production that had been said to be a fine picture whichsoever way it was looked at.

Mr. Sheridan, having placed the photograph in the right direction, said that undoubtedly it was a fine picture whichsoever way it was looked at.

Mr. Howard handed round some photographs on collodion, one of which he thought remarkably successful. It looked better by daylight, and it would be observed that the amount of pure white was very small, although the whole subject was light.

Mr. Lee: People do not agree about that.

Mr. Howard said he was aware that doctors differed; some cured, while others killed their patients. But it was this difference in opinion which had induced him to bring the subject before the society; because he could not help feeling that the art had been greatly retarded by the endeavour to obtain what every artist endeavoured to avoid.

A very beautiful collodion photograph of the "Three Graces," from a groupe in statuary, was here handed to Mr. Howard, on which he remarked that the only defect in this instance was in the intensity of the black background; had it been lighter the groupe would have had a better effect.

Mr. Sheridan: If an old blanket had been hung up for the back ground, and the fold allowed to appear, the defect would have been avoided.

Mr. Lee said he had tried the old blanket, and it had not succeeded.

Mr. Howard observed that the little more or less made all the difference. Professional Photographers were at the mercy of their customers; but with amateurs it was not so, and he recommended them to study what was best for the art, and apply it to Photography, which he had no doubt would then advance in more rapid strides.

Mr. Forrest observed that the specimens produced by Mr. Keith were remarkable for that half tone of which Mr. Howard had spoken

Mr. Howard: it was Mr. Keith who said that the public would not have those half tones, but preferred the "beautiful white backgrounds."

Mr. Sheridan handed a photograph, from an alto relievo of a female figure, to Mr. Howard, who remarked that it was French, and said that the effect might have been greatly improved had the light been managed differently. There had been a light above the head, and a side light apparently below the feet. It would have had a better effect if the light had been only from above, and reflections thrown in from below, if the shadows were too strong. There was a natural expectation on the part of the human mind to see the light as it was found in nature—from above. It was true that Mr. Kenny Meadows was very fond of representing his subjects lighted from below, as if they were on the stage: but his drawings were admired on account of the grace and expression in them, in spite of what, it must be admitted, was a defect. A black line down the front of a lady's nose was no beauty; besides, one could not possibly suppose that any lady could go to that place in which the light proceeded from below.

Several other photographs were exhibited and commented on. And in conclusion Mr. Howard called on those who differed from him not to be outdone by the great masters of the fine arts. He put it to them as a point of pride to shew what they could do; so that if they were taunted with not being able to produce such an effect, they should be able to say "why there it is." He had endeavoured to shew them the way, and could now only add,—Do it.

Among the number of beautiful specimens exhibited by Mr. Sheridan, Mr. Robinson, Mr. Lee, and Mr. Porter, with reference to Mr. Howard's observations; some apparently exhibiting clouds, others with the defective or "beautiful" white skies; there was a very fine landscape, the subject reflected in the water, which had been taken by Capt. Henry, of the 4th Dragoon Guards. Mr. Sheridan said, incidentally, that he thought the atmosphere of Ireland would be found well adapted to produce the effect which Mr. Howard had advocated. And with regard to the disasters which Mr. Howard had recounted as the objections to collodion, they might be prevented by transferring the film to paper, as in the instances which he then produced. They were very perfect and one as transparent as glass. Mr. Sheridan said it was too transparent It had been transferred by Sir William Newton's process.

The Chairman announced that Mr. Corey and Mr. Forrest had been appointed a committee for superintending the arrangements for the approaching exhibition of photographs; and that any one intending to exhibit specimens should forward them to those gentlemen.

In reply to the Chairman,

Mr. Hartnup, of the Liverpool Observatory, stated that he should be happy to fall in with any arrangement the Society might desire to make, for the purpose of securing an opportunity to the members of inspecting the photograph of the moon. Gentlemen connected with the Society had undertaken to enlarge it, and he should be happy to do anything they might suggest.

On the proposition of Mr. Sheridan, seconded by Mr. Porter, it was decided that the enlarged view should be exhibited, for the inspection of members of the Society, in the large Lecture-room of the Royal Institution, the Council to make the arrangements, and give intimation as to time and other particulars to the members.

Mr. Frith thought there was something very encouraging to be derived from the paper of the evening, by Mr. Howard, whom he remembered asserting roundly that there was no artistic effect to be produced by the camera, and that all they had to do was simply to confine themselves to the mere outline of objects. It was very encouraging to them, indeed, to hear Mr. Howard now admit that there were not only artistic features, but to find him coming forward to instruct them how to produce those artistic effects.

Mr. Frank Howard stated that his object in his paper alluded to by Mr. Frith, was to show that the truest representations of any object in nature would not produce a good picture, for which some infusion of the human mind was indispensable; and he feared that he must say so still. But he was desirous that the photographer should do as much as he ought to be able to do since he saw a certain amount of success; and that there was no bar to their carrying out that success to the fullest extent. This evening he was endeavouring to guard them against the fault of looking upon pure blacks or pure whites as merits. When the earliest painters began, as Fuseli had justly remarked, they feared to sully their tints. They heard that trees were green, and, like the Pre-Raffaelites, they painted them green. So in their flesh, they painted the whole one flesh colour, and were afraid to introduce half-tints for fear they should sully the purity of the colour.

Mr. Bell asked whether purity of tone was not considered a beauty?

Mr. Howard said undoubtedly it was. But then the painter understood a very different thing by purity of tones. He did not mean that half-tints should be excluded, but that the most delicate gradation should be introduced, and should be distinguishable. The photographers and the public appeared to have heard that white was the emblem of purity, and, therefore, they proposed to exclude the half-tints for the purpose of obtaining a blank white, which every artist endeavoured to avoid.

Mr. Frith thought that the principles laid down by Mr. Frank Howard were perfectly correct, and that his paper was an extremely valuable one.

A vote of thanks to Mr. Howard, for his valuable paper, closed the proceedings.

French and English Measures.—In our short notice of this subject we were misled into an imperfect statement, which needs completion, as we have heard some doubts expressed as to the fact. The *minim* is the 60th part of a drachm. The *litre*, given as pints, 2.1135, takes the pint as 16 oz., but this pint is going out of use, and the pint of 20 oz. being generally adopted, the most intelligible form in which we can give it to our readers will be, a pint and three quarters and 1 drachm. These changes of measures may be very advantageous at some future time, but at present they are the source of great inconveniences and mistakes amongst those who are not constantly engaged in the practical applicatien of the subject. The long names of the French measures and weights, and the extended decimal notation, are in descriptions, a perfect nuisance. We would again suggest to our Photographic purveyors to import from France marked glass measures and the principal weights used in the practice of this art.

LONDON PHOTOGRAPHIC SOCIETY.

At a recent Meeting of the Council of the Society a sub-committee was appointed, in accordance with the request of the Board of Trade, for the purpose of securing an efficient representation of English Photographic Art at the Paris Exhibition of 1855.

Its members are Sir W. J. Newton, V.P.; Mr. Rosling, the Treasurer; Mr. P. Le Neve Foster; Mr R. Fenton, Hon. Sec.

The formation of the committee having been notified to the Board of Trade, together with an estimate of the amount of wall-space likely to be required, the following answer has been received:—

Board of Trade, Department of Science and Art, Marlborough House, London, August 15, 1854.

Sir,—I am directed by the Lords of the Committee of Privy Council for Trade to acknowledge the receipt of your letter of the 10th instant, in which you state that a committee has been formed by the Council of the Photographic Society, for the purpose of assisting in the representation of English Photographic Art at the Paris Exhibition of 1855.

My Lords felt much satisfaction on hearing that the council of your Society had appointed a committee, and will be glad of their co-operation.

I am further directed by my Lords to add, that although the applications for space in the Paris Exhibition have been forwarded to the Imperial Commission, in accordance with Article 9 of their Regulations, arrangements will be made to reserve some space for the Photographic Society.

I have the honour to be, Sir, your humble Servant,
FRANCIS FOWKE, Cap. Roy. En.,
for the Secretary.

Roger Fenton, Esq.,
Hon. Sec. Photographic Society.

The Committee therefore requests that all members of the Society, or other persons wishing to send photographs to the Paris Exhibition, will give early notice of the quantity of wall-space they will need.

For this purpose forms of application will be issued, to be filled up by intended exhibitors with a statement of the numbers of pictures they wish to send, and of the area in square feet that the pictures when framed will cover.

Due notice will be given of the latest date and of the place appointed for the reception of pictures.

No picture will be received, of which the carriage to the place appointed for their reception in London is not paid.

It is recommended—

That on the back of each frame should be written the name and address of the sender.

That the subject of each picture should be written underneath it, with the name in full of the photographer.

That all pictures be framed in a simple deal bead (either varnished or gilt) one inch wide, and one inch deep, and with margins of uniform sizes, graduated according to the size of the photograph.

For example, pictures 8 inches by 6, should be mounted with a margin of 2½ inches between the picture and its frame; pictures of the sizes 9 by 7, up to 15 by 11 inches, with a margin of 3 inches, and pictures of a larger size, with a margin of slightly increased measurement.

Where the pictures sent are small, they should be arranged several in one frame.

For example, a frame 26 inches by 21, inside measurement, will contain, with sufficient margin, four works of the size of 9 inches by 7.

All communications should be addressed to the Hon. Secretary of the Photographic Society, 21, Regent-street.

COLLODION PROCESSES.

Dr. Thomas Woods, of Parsonstown, in Ireland, a neighbour of Lord Rosse, has published a process which differs from that generally in use, by the substitution of a mixture of iodide, and chloride of iron for the iodide of potassium, and using the collodion mingled with common salt. "The details of the process are as follows:—

Take of

Sulphate of iron	10 grains.
Iodida of potassium	24 grains.
Common salt	6 grains.
Spirits of wine or alcohol	2 oz.
Æther	2 drachms.
Strong water of ammonia	3 drops.

Powder the salts and mix them well together, add the alcohol and æther, and finally the ammonia. Allow the precipitate to subside. For preparing the plate, mix one part of the clear solution with three parts of collodion, to which has been added a saturated solution of common salt in the proportion of one fluid drachm of the salt solution to four ounces of collodion. Spread on the glass plate in the usual way and immerse it for one minute to one minute and a half in a neutral solution of nitrate of silver, 30 grains to the ounce. Develope the picture with a solution of sulphate of iron one scruple to the ounce of water; and finally fix with the hyposulphite of soda. A very beautiful picture may also be obtained by using the developing solution of sulphate of iron, of the strength of 20 or 30 grains to 4 ounces of water, and adding to the hyposulphite wash strong water of ammonia, in the proportion of 20 drops of the latter to 6 or 8 ounces of the former. The iron solution should be well washed off previously to putting the plate in the ammonia and hyposulphite. By this process I have obtained most exquisite pictures in very short spaces of time. In many cases the light parts of the pictures are pure silver, forming a good mirror.

Mr. Edward Hadow has printed an addition to his paper on the collodion processes, in relation to the use of iodide of cadmium, in consequence of an accidental omission of the quantity to be added to the collodion containing 6 grs. of gun cotton to the ounce, viz., 5 grs., which is equal to 4 grs. of the iodide of ammonium. This quantity of gun cotton having been objected to as giving too thick a film, he has given another formula:—

"Soluble cotton, dried at ordinary temperatures	4 grs.
Iodide of cadmium	3½ grs.
Pure alcohol	3 drs.
Pure æther	5 drs.

In the directions given for the preparation of soluble cotton I specified no exact proportion in which the acids were to be mixed, on account of the variations in sp. gr. of the nitric acid requiring variations in the quantities; but althought no universally applicable formula can be given, it may be useful to name the proportions suitable to acids of certain sp. grs. which are not unfrequently to be met with:

Sulphuric acid, sp. gr.=1·836 at 60°.
Nitric acid, sp. gr.=1.40 at 60°.

If acids can be met with *accurately* of these sp. grs., the soluble cotton can be prepared with perfect certainty by a mixture of equal measures."

M. M. Lespiault suggests the following modification of collodion:—"If the alcohol and æther used to dissolve the gun-cotton have been previously saturated with ceroleine, the layer of collodion applied upon glass acquires an elasticity which *always* prevents its splitting in drying, even when the alcohol and æther may not be of very good quality. Photographers know that cracks reticulated like muslin often appear, and spoil, or affect, the delicacy of the finest proofs: ceroleine will give them a certain means of remedying this serious inconvenience. I have not remarked any difference of sensibility between simple collodion and that which has been ceroleinated; the uniformity of the layer is the same, and the glasses are cleaned with equal facility. Might we not arrive at a process of employing collodion ceroleinated dry; like albumen, but without iodide, by spreading it on glass of waxed paper, and then rendering it sensitive by the known processes?"

Mr. G. Muirhead, of Glasgow, gives a method of using collodion dry:—"I have found that light acts almost as energetically on a dry surface as on a wet, and that if a plate be washed well in water (after immersion in the silver bath) to remove all the free nitrate, and allowed to dry, it will remain unaltered for a lengthened period, provided it be kept from light or any deleterious gases, such as ammonia, &c, When wished, a picture can be taken on this plate, but before developing must be dipped in the silver bath, as a photograph will not develope without the presence of *free nitrate of silver*. If the plate is not thoroughly washed, on adding the developing solution it will blacken all over."

Mr. John Wilson gives the following mode of darkening glass negatives, as preferable to that generally adopted, by corrosive sublimate and ammonia:—"Wet the plate with common water, pour over it then as much of Le Gray's gold fixing mixture as will remain on the plate; let it remain for one minute until the plate has darkened; pour the mixture back into the bottle, as it will do again, and then apply the mercury and ammonia according to the usual way, which will make the negative a very fine black without any risk of destroying the collodion. By this method I have got very good pictures from negatives that were quite useless before, from not being exposed long enough in the camera. I also have found great advantage from putting four drops of Le Gray's gold mixture to every ounce of the pyrogallic developing solution. I think it a preventive against the cloudiness that often arises from the presence of alkali in the bath."

MM. Barreswil and Davanne give another method of strengthening collodion negatives which have been fixed either by cyanide of potassium, or hyposulphite of soda:—"Pass over the fixed and washed collodion picture, a film of saturated solution of iodine in water, form iodide of silver upon the surface, and then if we perform this operation in day-light, the iodide of silver becomes modified, and susceptible of blackening by gallic acid. Then wash the glass plate with abuudance of water, to remove excess of iodide, to place it upon a levelling stand and pour over it a saturated solution of gallic acid mixed with a few drops of a weak solution of nitrate of silver. It must be carefully watched, and re-fixed with a weak solution of hyposulphite or cyanide of potassium, to prevent the image getting blacker.

Mr. How's Wax Paper Process—We give this process, which Mr. Sheridan so highly commended at the last meeting of the Liverpool Photographic Society.

"The easiest way of waxing the paper is to take an iron (those termed box irons are cleanest and best for the purpose,) moderately hot in one hand, and pass it over the paper from side to side, following closely after it with a piece of white wax, held in the other hand, until the whole surface has been covered. By thus heating the paper, it readily imbibes the wax, and becomes rapidly saturated with it. The first sheet being finished, I place two more sheets upon it, and repeat the operation upon the top one, (the intermediate sheet serving to absorb any excess of wax that may remain) and so on until the number required is waxed. The sheets which now form compact mass are separated by passing the iron over them; then placed between folds of bibulous paper, and submitted to a further application of heat by the means just described, to remove all superfluous wax and render them perfectly transparent."

To prepare the iodizing solution, "Take some milk, quite fresh, and add to it, drop by drop, glacial acetic acid, in about the proportion of 1 to 1.5 fluid drachms to the quart, keeping the mixture well stirred with a glass rod all the time, which will separate the caseine; then boil in a porcelain vessel to throw down any caseine not previously coagulated, and also to drive off as much as possible of the superfluous acid. After boiling five or ten minutes, the liquor should be allowed to cool, and then be strained through a hair sieve or piece of muslin: when quite cold the chemicals are to be added. They are the following:—

Iodide of Potassium	385 grains
Bromide of Potassium	60 ,,
Cyanide of Potasium	30 ,,
Fluoride of Potassium	20 ,,
Chloride of Sodium in Crystals	10 ,,
Resublimed Iodide............	1½ ,,
Alcohol	2 ounces

"The above are dissolved in 35 fluid ozs. of the strained liquid, and after filtration through white blotting paper, the resulting fluid should be of a bright lemon colour. The iodizing solution is now ready for use, and may be preserved in well-stopped bottles for any length of time." The remainder of Mr. How's process is similar to M. Le Gray's, except the addition of 1 drachm of alcohol, specific gravity 836, in lieu of the animal charcoal in the sensitizing solution; and need not therefore be repeated.

CORRESPONDENCE.

To the Editor of the Photographic Journal.

I have made the experiment of taking a portrait while the camera was moving through an horizontal arc of $2\frac{1}{2}$ inches long, the axis of the instrument being directed to one point the whole time. By this means I obtained perfect definition of parts at the same distance as the point, but of no others. No binocular effect is produced; but a distortion never perceived in looking at a natural object. In fact nearly the same thing is produced as was described by Sir David Brewster, as the result of using a large diameter lens, namely, the representing more of a solid object on the retina than could be obtained by looking at the object itself; in which opinion no doubt he is theoretically correct, although in practice, within the limits usually employed, it is not perceptible.

To obtain the binocular effect with one picture I hold to be impossible, because the image in the two eyes would then be precisely similar, which by viewing solidly in nature can never be; the right eye seeing more of the right side of the object than the left eye can, and the left eye seeing more of the left side of the object then the right can; hence this difference between the images of the two eyes becomes, by experience, associated with solidity, and can never be produced by surface only; consequently single pictures can only appear solid as far as light and shade and perspective can make them, the insufficiency of which is but too apparent when an object is viewed in the stereoscope. The optical part of this instrument merely alters the apparent place of each picture, so that they appear to be situated on the same spot, and consequently as one only, while each eye sees the one belonging to it alone, and hence the perfect imitation of nature, the eyes beholding for the first time a picture indeed.

It is curious and instructive to observe how persons, viewing stereoscopic portraits for the first time, are struck with the stillness and absence of the natural colour, and how soon the eye, after being accustomed to them, gets reconciled to the defect. I account for it in this way, the eye never having witnessed the solidity and absence of colour and motion, except in death, becomes painfully affected, but after a time the ideas become independent of each other, and we see beauties without being painfully affected by the defects alluded to, as was before done in respect to statuary. T. Reeves.

498, New Oxford-street.

To the Editor of the Liverpool Photographic Journal.

Sir—For the benefit of those who may take an interest in the waxed paper process to which I had the satisfaction of calling the attention of the Society at their meeting on Tuesday last, I beg to add to what I then said a word or two on the subject of one material principally used in the development of the negatives, namely, gallic acid. It is vain to expect good results, even with the best and most carefully prepared paper, and the most judiciously regulated time of exposure, unless the developing material I have alluded to be fresh and pure. Of this I have had sad experience since our meeting on Tuesday. Yesterday I went to Chester, with Mr. Robinson of Dublin, in search of Photographic subjects. Although the morning here was as dull and dark as it well could be, and even in Chester, until afternoon, it was not very fine; we had the good fortune to find not only subject for our "*pencil of light*," but after all, a very fair share of the sun's favours. I took with me twenty-four sheets of prepared paper, twenty of which I was able to make available, and, as a matter of course, expected as many pictures—failure under ordinarily fair circumstances, with Mr. How's process, being a thing unlooked for. My stock of gallic acid being exhausted, and arriving late in Liverpool, I sought for this material in one or two places in vain, but ultimately found it at a respectable dispensing druggist's in Church-street; and, with little loss of time, got twelve of my *expected* negatives in process of development. Judge of my disappointment this morning, on finding them all completely spoiled, and on examining the gallic acid, found it to be an ill-coloured, *fine* powder, with a strong alcoholic smell, and obviously very old. That the fault was with the acid, is proved by the fact, that, with the remaining pictures, using other acid, I have had the accustomed result, as shown the other evening at the Society's Meeting. As a caution to photographers, in *this respect*, I shall feel greatly obliged if you can find space in your Journal, for at least the substance of this note, condensed as you may best think fit. I cannot omit saying that Mr. Robinson's success with collodion was perfect. He took with him, twelve large-sized glass plates, and returned with twelve most perfect and intensely black negatives. They are not yet printed from, but I am quite sure will prove a step in the right direction; so artistically, ably, and with such good taste, argued for by Mr. Howard.

I am, Sir, your obedient servant,
JAMES P. SHERIDAN.

HANGING UP PAPER TO DRY.

To the Editor of the Liverpool Photographic Journal.

Sir,—I have heard a suggestion on this subject which I am unable to attribute to its rightful owner, but it accords in principle with the observations of Mr. Forrest, at the last meeting of our Society, relative to the care requisite in the treatment of paper, to prevent stains from the contact with the fingers. The most delicate French hair-pins are obtained, and one pin bent back in the middle so as to form a hook by which the paper is to be suspended on a line. The paper must be passed over the unaltered pin, that there may be no risk of contact with the metal which may be exposed by the injury of the varnish in bending to form the hook.—Yours, &c. A Member.

[Mr. T. L. Merritt, of Maidstone, suggested this method of suspending the papers, on account of a double fleck from the pinhole frequently occurring in the developing, and spoiling the negative. He also has suggested folding back a quarter of an inch of the paper at each end, to prevent the curling and warping, which frequently takes place on removal from the bath, in iodizing by Dr. Diamond's method. —Ed. L. P. J.]

Postcript.—We beg to draw the attention of all Photographers to the Exhibition which is to be made by the Society during the visit of the British Association; and request that all those who may be able to co-operate will send their Photographs to the rooms of the Society at the Royal Institution, Colquitt-street, as early as possible, directed to the Secretaries.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 10.—OCTOBER 14, 1854.

During the last month Photography in Liverpool has met with high consideration. An admirable Exhibition in the Society's New Rooms, at the Royal Institution, has been collected, and, during the visit of the British Association, was remarkably well attended, to the credit and profit of the Society. We must endeavour to find space for special notice of its principal attractions. Papers on Photography were read at the meetings of the British Association in St. George's Hall, and the enlarged Photographs of the Moon, nearly fifty feet in diameter, formed some of the most interesting exhibitions of the Session. It will be seen by Professor Phillips's observations, recorded in another page, that to the Liverpool Photographers belongs the most successful adaptation of the art to lunar portraiture up to the present time. That this compliment should have led to some rivalry in claiming the several portions contributed by various members of this Society is natural enough. Each will, of course, claim the greatest value for the part he had an individual hand in. In this respect it resembles a celebrated nursery alphabet, in which A was an apple pie, B bit it, C cut it, D danced for it, and E eat it, &c. The performers may fairly divide the honour between them, and we hope there will be no stint to their exertions for even greater success, except such as occur from the coyness, constitution, and coquettish disposition of their fair sitter. The various aspects of her face enlarged to nearly twenty feet in diameter, as large as the great room at the Royal Institution would allow, were exhibited on a subsequent evening for the gratification of our Society, the British Association not having had the courtesy to invite them to the soirée in St. George's Hall, for which they furnished the greater portion of interesting matter, Photographs, not only of the moon, but of all kinds, having been liberally lent for the gratification of visitors. The Association was well received in Liverpool. Every effort made to do them general and individual honour—a larger number of lady associates on their list than they ever had before—a considerable subscription, independent of memberships and associateships, contributed to provide them with entertainment, mental and bodily—and it would not have been too great a stretch of courtesy on their part if they had occasionally invited the several societies who had made exertions or gone to expense to further the objects of the British Association. Whatever the arts may do, science does not appear, in this instance at least, to advance the amenities of life,—it may advance civilization, but has not led to civility. We regret to see that Dr. Hugh Diamond has been led into a hasty denunciation of " Buckles' brush," as " a bungling contrivance, which always causes a deal of roughness on the paper." Mr. Buckles' own success, that of Mr. Rosling, whose Deodora Pine, No. 70, centre room of Exhibition at the Society's Rooms, is one of the most beautiful specimens of photography that we have seen, and the exquisite production of our own Mr. Morecroft ought to have protected his invention from such strong language, when it would have been quite sufficient to have said that Dr. Diamond preferred a camel's hair brush. A comparison of the Deodora Pine we mentioned, which is a Talbotype, in the production of which a Buckles brush has been used, with No. 44, another view of the same tree, by Rosling, from collodion, will certainly not be to the disadvantage of the former.

The London Society have issued a form of application for space for exhibiting photographs at the Paris Exhibition in 1855, which is to be filled up by those who desire to send any, and returned to the Secretary before the 15th. As this notification will appear too late in our pages to allow of individual application, unless a few days of grace be given, the Secretary of the Liverpool Photographic Society will make the requisite demand for such an amount of space as is considered the members may be disposed to fill.

It would appear that Mr. Fox Talbot is not the only person obnoxious to the charge of desiring to appropriate and monopolise certain processes in connection with photography. The editor of our elder brother Journal remarks that, amongst other instances in which this desire had been carried beyond a legitimate length, is a patent taken out by Mr. Duppa, for a method of rendering photographs on paper transparent, and colouring them from behind; which does not appear to differ in essential points from the process of M. Minott, given in the previous number of the Journal. Certainly this is a patent which, if it will hold water, a matter exceedingly doubtful, we should not object to, as we should never wish to interfere with Mr. Duppa's sole possession of a practice, which, as good photographers, we hold to be highly detrimental in every way. If photography cannot obtain the colours of life from nature, their addition to the usual results can only be destructive or disadvantageous. There is a large head in our Exhibition, sent down by Mr. Mayall, as a photograph, coloured by hand. Better it had been all by hand, for we cannot trace the slightest remains of photography, except in the constrained solitude of a copyist's execution. In Mr. Keith's portraits, in the same room, the photography is allowed its full effect; but it only directs the colour of complexion, while the colouring interferes with the beauty of the tints produced by the camera alone, as exhibited in the admirable head on the upper right hand corner of his case, marked No. 173. A fine print is converted into a bad picture. Moreover, we think the endeavour to supply by extraneous means any deficiencies found in the present state of the Art, very likely to interfere with the advancement of photography; and as such we hold it our duty to condemn it. There can be no objection to filling up any accidental damage in an occasional instance; but to introduce systematic disguisements is like mixing chicory with coffee, sand with sugar, dust with pepper, and such like abominations, and will certainly increase the necessity for calling the culprit "to prayers." We shall always hold them up to execration, and warn photographers against their practices as skaters are guarded from spongy ice by boards marked "DANGEROUS."

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section III.—APPARATUS.

LENS. Fr. *Lentile, ou Objectif.* } Photographic lenses are of three descriptions, simple, achromatic, and double achromatic. Simple photographic lenses are either plano-convex, double convex, or concave-convex; the latter form is generally termed meniscus. Single achromatics are always made either plano-convex or meniscus, and are composed of two pieces, 1st, a double convex crown glass lens, and, 2nd, a plano-concave or double concave flint glass, according to whether a plano-convex or meniscus lens be required to correct the chromatic aberration. (*Vide* FOCUS.) The foregoing are used for views. Compound achromatic lenses are principally used for portraiture, but are equally applicable for landscape. The distances perhaps are not so well rendered as with a single lens, but in taking views in a town, where time is an object, this would not operate prejudicially. These lenses are composed of two achromatics placed one at each end of a tube. The front lens being a plano-convex convex side out, and the back one assuming the outward appearance of a double convex lens; but between the crown and flint glasses a space of air intervenes equivalent in form to a meniscus. The radii of the curves of these lenses are so calculated that the spherical aberration or error of figure in the front lens is corrected by a counter-error in the back one, and a higher degree of perfection is given to the image, at a loss of time however, by the use of a diaphragm. (*Vide* DIAPHRAGM.)

LEVELLING STAND. Fr. *Support horizontal.* } *Vide* GILDING STAND.

MEASURE GLASS. Fr. *Epreuvette Graduée.* } A small conical or cylindrical glass vessel on a foot, graduated into ounces, drachms, and minims, for measuring liquids, so that the quantity of distilled water at 60° Far. contained in the glass shall exactly weigh as much as it measures. The conical form of these is the best, as it admits of easier cleaning, and of more correct measurement of small quantities.

MERCURY BOX. Fr. *Boite à Mercure.* } A box of well-seasoned wood, having an iron bottom slightly cupped in the centre to contain the mercury used for developing daguerreotypes. The impressed plate is placed in a frame in the top of the box, and a gentle heat applied to the iron bottom till the process is complete.

MR. KNOTT'S PROCESS.—On this "knotty" point, another fold of complication was tried by the typographers of our journal last month. We feel almost as exasperated as the enraged naturalist immortalised by Peter Pindar, who burst into an execration of dissapointment, after all his endeavours to boil them red: "Fleas are not lobsters, d—— their souls." Amber varnish will *not* blacken, in spite of all the printer's devils can say to the contrary: and thus we cut this "Gordian Knot."

LIVERPOOL PHOTOGRAPHIC SOCIETY.

An extra meeting of this Society took place in the large room of the Royal Institution, on Thursday evening, to enable such of the members as were not connected with the British Association to see the enlarged Photographs of the Moon. It was very well attended, and Mr. J. P. Sheridan was invited to take the chair.

Mr. Frank Howard read Mr. Corey's paper on the history of the photographs of the moon: "The impulse towards obtaining photographs of the moon appears to have been general in different parts of the kingdom about the beginning of this year, and I believe on the continent of America somewhat earlier. The first American specimen brought here is in the room, and will be handed round. In the southern parts of this country, if we may judge from the effects of the Craig telescope, they have succeeded but indifferently; and in the papers issued by the Astronomical Society containing reports of their proceedings, in the May number we find a letter from Lord Rosse to the Astronomer Royal, wherein he says—"First, as to Lunar Photography, I have constructed a smooth clock-work motion to carry a plate of glass, and its performance is satisfactory." He then goes on to describe a regulator, whose motion appears to be similar to what is called a governor to a steam engine, but is too technical for a general audience; moreover the practically curious may find it, as I have stated, in the proceedings of the Astronomical Society. He then says, "The object was to obtain a regulator independent of position. The direction of the motion of the glass plate is regulated by an adjustable glass slide, and we set the slide by trial, not by a table computed for the purpose. To set the slide, an eye-piece with lines truly parallel is inserted. By such means a very pretty picture of the moon can be obtained; but at present I believe there is no known photographic process which is sufficiently sensitive to give details in the least degree approaching the way in which they are brought out to the eye," Of course he there means to those who are fortunate enough to possess an astronomical telescope of great power; but, as those who do not, form a very large majority of my hearers, we may be able to present a novelty, rendered doubly valuable, inasmuch as the moon has painted her own portrait. That a certain amount of success was then obtained by the able assistance of Professor Phillips and Dr. Robinson is evident, from the fact of a photograph now in possession of the professor, which we shall be able to show you. About the same period as that in which Lord Rosse pursued his labours, my brother secretaries, Messrs. Forrest and Berry, applied to Mr. Hartnup, of the Liverpool Observatory, who most cordially consented to co-operate with them, and to benefit the Liverpool Photographic Society with his valuable lucubrations; and to place the results of the working of the instruments in his possession in their hands. The excellence of the Liverpool Astronomical telescope is too well known to need more than a general description. Its object glass is $8\frac{1}{2}$ inches diameter, and its focal length 12 feet. The eye-piece was removed, and a small camera substituted, so that the image could be thrown upon the ground glass; but to their great surprise the actinic, or chemical, focus was discovered to be 9-10ths of an inch beyond that of the visual focus. This could only be elicited after repeated failures, and necessarily occupied many laborious nights, for it was only in the ascension and declination of the moon they could at first work; and I have the authority of Mr. Hartnup to state, that he looks upon the progress now made as only one step towards the degree of perfection he hopes to arrive at. In January, Dr. Edwards, Mr. Forrest, and Mr. Hartnup commenced their experiments. In taking the pictures it was necessary, as we have seen in Lord Rosse's letter, to follow the motion of the moon; but, as in the Liverpool Observatory a clock-work motion is provided in all telescopes of astronomical character, this was so adjusted that the telescope followed the moon in right ascension nearly; then the hour circle and the declination circle being both clamped, the image of the moon was kept as nearly as possible in the same place, as seen in the finder, by means of the rods for giving slow motion to the instrument in right ascension and declination. The time for taking these pictures varied from 30 seconds to 3 minutes, and the chemicals employed were those ordinarily used for taking positive collodion pictures; for the many different kinds of collodion suggested by the many various kinds of experimenters in this most capricious compound gave no better success, not even Mr. Thomas's much-lauded and generally successful xylo-iodide. The bath was, if not actually neutral, but very slightly acid, and the developing agent, sulphate of iron, in the proportion of 10 grs. to the oz., for unhappily pyrogallic acid was not found to be advantageous. I say unhappily, for it has been very satisfactorily proved, both by Mr. Berry and others, that a negative artificially produced—that is to say, converted from a positive by the action of chloride of gold, mercury or other chemicals—invariably sacrifices much of the detail, and not only destroys most of the finer lines, but certainly, as is well known, impairs the integrity of the collodion film. Therefore, until a collodion be discovered that is instantaneous in its perfect action, the use of pyrogallic acid as an immediate negative developer will be very limited, and the map of the moon necessarily be defective in detail, as you will perhaps detect in the representation. At any rate, if you do not, the Astronomer Royal, in passing a well deserved eulogium upon the gratifying progress of Mr. Hartnup's labours, took occasion to point out the imperfect definition of the inequalities of the bright limb of the moon. Mr. Berry has, however, in the new glass room of the Society, succeeded in obviating the difficulty, and he hopes to be able to make pyrogallic acid easily manageable. The negatives, as first obtained, will be those first shown to you; and to the uninitiated it may be necessary to explain that in this case the lights and shades are in inverse proportion to the original; and it was requisite for the purpose of successful exhibition that they should be again reversed, and at the same time enlarged, thereby once more losing much of its minute definition. To Mr. M'Innes this very delicate work was entrusted, who has, in the present infancy of this most delicate art, most ably acquitted himself.

"In these specimens, necessarily defective, now about to be shown to you, you will observe the vast amount of light that will be perceptible across the heights and mountainous projections, the hollows also, which may fairly be taken to be craters of volcanos, and many other delineations which no map of the moon, after years of cost and labour, has even yet produced so clearly: so that I may fairly claim a large portion of merit for the Liverpool photographs of the moon, and for this we are mainly, if not entirely, indebted to Mr. Hartnup's untiring and valuable exertions. We have now opened the field to other operators, and trust that amongst the many objects offered to the noble Association, whose talented members throng around us, this will be fouud worthy of a place in their records."

Mr. Howard observed that, from Professor Phillips's eulogy, (given in another page,) it appeared that the Liverpool Photograpic Society, by the valuable aid of Mr. Hartnup, of the Liverpool Observatory, had left all competitors far behind—the Professor himself, and the great Craig telescope on Wandsworth Common, included. The moon of the latter was declared to be all moonshine, and the photograph of the sun fully justified his position, that photography was not adapted for portraiture, as he was sure nobody would know this professed likeness of the sun. (These photographs were handed round.) The members of the Society who had been associated with Mr. Hartnup in the production of the specimens that would be exhibited were—Mr. Forrest, Mr. Berry, Dr. Edwards, Mr. Towson, Mr. M'Innes, and Mr. Corey. For the light by which they were enabled to exhibit these magnified portraits of the moon, both in St. George's Hall and here, they were indebted to the kindness of Mr. Abraham, of Lord-street, and the active exertions of Mr. Woods, of that establishment.

The various phases of the moon were then thrown upon a disc about tweuty feet in diameter, as large as the room would allow, and excited great admiration. Professor Phillips's full moon, and that of Mr. Hartnup, were exhibited alternately, to justify the claim of superiority to the production of our Liverpool astronomers: and it was fully accorded by the applause of the audience. Some little discussion took place as to the cause of the much greater ruggeduess of the inner edge of the half-moon than the circumference, which appeared generally to be considered as partly arising from the direction of the light, and partly from actually greater inequality in the surface of the moon in those parts. There was no ground for attributing them to any defect in the photography.

In reply to a query whether the revolution of the moon upon its axis would account for the greater smoothuess in the outer edge, Mr. Frank Howard said, that notwithstanding there appeared in the full moon, as taken by Mr. Hartnup, the very hole through which the axle-tree went on which it might be supposed to turn, he believed that astronomers were quite decided that it did not revolve on its axis; and they came to this conclusion from the fact of its always presenting the same face to us, which could not possibly be the case if it revolved on its own axis as well as round the earth.

A vote of thanks was uuanimously accorded to Mr. Woods and Mr. Abraham, for their kind assistance, and to Mr. Sheridan, for his conduct in the chair. Some stereoscope views of the moon; two large photographs, from albumenised glass, of the Sydenham Glass Palace; and a gigantic folding camera, of novel construction, by Mr. Woods, were exhibited.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The eighth monthly meeting of the Session was held at the Royal Institution, Colquitt-street, on Tuesday, the 10th instant. In the absence of the President, on the proposition of Mr. Forrest, seconded by Mr. Frank Howard, Mr. Corey was called to the chair.

In the course of a conversation originated by Mr. Letheheád, the Chairman observed that it had been suggested whether it was not desirable to have another exhibition of the enlarged photograph of the moon, (hear, hear,) but as they could not expect Mr. Woods to attend so frequently with his expensive apparatus, without receiving some acknowledgment, it had been debated whether another exhibition could not be so organized that it would pay its expenses.

Dr. Cauty inquired whether members of the Society had free access to the exhibition; and the same privilege of introducing a friend as into that room. The Chairman was afraid not.

Dr. Cauty observed that the notice which had been given to the members at St. George's Hall, clearly implied that they had that privilege; at all events it would be a liberal course to pursue, and one which he thought would be likely to benefit the Society. A similar privilege was extended to the members of the London Society, and was found to work well. The same notice to which he had alluded, stated that "country members would receive in return for their subscriptions if posted, a copy of the *Photographic Journal*, monthly, in addition to the ordinary privileges." He thought the Journal ought not to be mixed up with the Society, having always understood that it was a private speculation.

The Chairman: So it is. It is the property of a few members of the Society, and unquestionably their exclusive property: they have a right to do what they like with it. Knowing that the non-resident members of the Society are not likely to receive direct benefit from their subscriptions, they liberally present them with a copy of the Journal.

Dr. Cauty: Still it is mixed up with the Society, and I don't think it right to make the Society responsible.

Mr. Corey: And don't you think the Society may be proud of it?

Mr. Frank Howard thought they were losing sight of the original question, namely, whether members were entitled to the privilege of attending the exhibition, and of introducing a friend. His own opinion was, that it would be beneficial to the Society if such an understanding was arrived at; as it might induce others to come and pay.

The Treasurer observed that there were many members who had not yet paid their subscriptions.

Dr. Cauty thought a list of defaulters should be made out.

Mr. Sheridan said it would be well if all persons who were behind hand with their subscriptions were applied to by the Secretary. He was decidedly in favour of members who had paid being admitted to the exhibition. It would be calculated not only to bring the members together, but to introduce fresh elements into the Society. As to those members who had not paid, he questioned whether they could not be sued for the amount of their subscriptions.

Dr. Cauty proposed that members of the Society—those who had paid their subscriptions—should have the privilege of visiting the exhibition, and of introducing one friend.

Mr. Frank Howard seconded the proposition, which was carried *nem. dis.*

The Chairman said he had received a letter from an old and valued correspondent of the Society, Mr. Hele, of Plymouth, a portion of which was as follows:—

14, Densham Terrace, Plymouth,
October 1st, 1854.

My Dear Sir,—The formation of your Pictorial Exchange Club is most certainly a step in the right direction, but the occasional fading, especially on the otherwise good productions of amateurs, induces me to suggest the propriety of there being among all its working members, a tried and approved mode of fixing, to the lax and careless way of hurrying over which I attribute most of such misfortunes.

Perhaps Mr. Sheridan, to whom all the followers of the wax-paper process must feel themselves greatly indebted, or some other of the more liberal-minded contributors to your Journal, may be induced to lay down more precise rules and formulæ for our guidance on painting, more especially as that season is now short at hand, a season in which there is not much else to be done.

The plan proposed in some one (where, I forget,) of the many works on the art, I am convinced, both from theory and experience, renders the proofs perfectly stable, and until a better is offered to the notice of the members of the Photographic Society, I must beg to call their attention to it. The principal point consists in well washing off with a large soft brush and cold water, the nitrate of silver from the picture on its being taken from the printing-frame, partially drying by placing it between bibulous paper, or clean linen, and then plunging it into a weak solution of common ordinary salt. Should any nitrate remain after the washing, it is thus converted into a chloride of silver, a salt soluble in hypo-sulphite of soda. The plunging the proof immediately from the printing-frame, charged with its worse than useless nitrate of silver, into the hypo-bath, causes the risk of the formation of hypo-sulphite of silver, which I am led to believe to be, in certain states, insoluble in water. Proofs fixed in the ordinary way, occasionally, after a certain period, begin to fade, the mishap being attributed to an imperfect washing out of the hypo-sulphite of silver, which may be seen by transmitted light, by that part of the picture being more opaque than elsewhere. I should feel extremely obliged to any kind photographer for a better mode of fixing than the above. I see that I have omitted to state that after the bath of common salt, the picture should, as usual, go through the hypo-sulphite of soda bath until all the yellow iodide of silver be dissolved out.

I should like to learn whether any of your industrious photographers have tried the ceroleine process, and with what results, also, whether those who have been in the practice of adding solution of gold to their fixing bath, have found their pictures to have failed in their permanency?

From all authors agreeing in the description of the great disparity between the actinic rays of spring and autumn, I have been surprised at being enabled to take pictures nearly, if not as well, in the latter as in the former part of the year. I should be pleased to learn by what means they were brought to the above conclusion respecting the great difference of power of the two seasons in their actinic force.

Wishing you every success in all your undertakings,
Believe me, my dear Sir.
Yours very faithfully,
HENRY HELE.

The Chairman observed that he should be rather afraid of following Mr. Hele's suggestion as to brushing the print over after being taken from the frame.

Mr. Sheridan: That was suggested by Mr. Gray, of Galway, i.e. to wash with water previously to the application of the gold. It produces a blue colour, and invariably destroys the force of the picture. I am not in a position to judge of the chemical properties alluded to: with me every thing is derived from experience; but I have invariably found a want of force in the pictures so washed.

Mr. Berry fully bore out Mr. Sheridan's observations, remarking that he never saw a rich picture which had been washed with water previously to being put into the hyposulphite bath. He believed that, to get a good tone, it was necessary to plunge it immediately in the bath.

Mr. Sheridan produced some beautiful photographs on wax-paper, observing that, with regard to some of them, in order to compromise the matter with Mr. Howard (who, at a previous meeting, had advocated half-tints,) he had turned down the edge of the paper, which, by allowing the light to go down gradually, softened the picture very materially.

The Chairman remarked that some of the photographs produced shewed that minute correctness of detail could be obtained by the wax process as well as by collodion.

Mr. Sheridan: I think that is an opinion which is gaining ground every day.

While the views were being handed round, Mr. Berry read the following paper on "Townshend's Process:"—

It may appear something like apostacy, on my part, appearing before you this evening a disciple of the waxed-paper process. Since on the last occasion I had the honour to address you, I was endeavouring to prove that collodion was applicable especially in the production of views. I leave my defence until I have finished Townshend. All honour to Mr. Townshend, for his very beautiful and simple process; and personally I feel grateful to him for, by publication, placing it within my reach, and I hope that I shall be able, by demonstrating the extreme simplicity of the process, to engage many to follow it out.

The particular form I have hitherto adopted is as follows; and by reference to the original paper it will be seen I have adopted the medium proportions:—

To iodize the paper, take

Iodide of potassium	600 grains.
Bromide ,, ...	200 ,,
Free Iodine	6 ,,
Water	40 oz.

When dissolved place in a flat dish, and immerse the wax-paper sheet by sheet, taking care that each sheet is thoroughly imbued with the liquid before a second is inserted.

This is a necessary precaution to avoid irregularity in the impressions when developed.

As a rule, I allow my papers to remain immersed in the iodizing bath longer than the method described by Mr. Townshend even sanctions, as much as three or four hours after the immersion of the last, for which I have certain reasons. Then pin them by one angle to a shelf or other convenient receptacle to dry.

The next process: Sensitizing the paper I have taken some liberties with; being forced by necessity so to do. The original form directs that each sheet shall be immersed in the silver bath, singly and alone eight minutes, the formula of the silver bath being as follows, and which is the bath I have used:—

Nitrate of silver	30 grains.
Glacial acetic acid......	30 minims. or drops.
Water	1 oz.

After the prescribed immersion, remove into another dish of distilled water, and immerse them also for eight minutes; then if the paper be required to keep more than the second day, another immersion for the same time, in another water bath, is necessary: thus involving the use of three separate dishes.

I took two dishes with me, but alas, at the outset of my labours, I broke one; the necessary consequence was that I had to make one dish do the work of three. Hereupon I took council with myself, and having found the following summary process answer all my need, I have adhered to it ever since:—

I placed one paper in the silver bath, and allowed the chocolate brown of the iodized paper to be completely converted into the pure primrose colour of the iodide of silver; then I have immersed a second sheet of the iodized paper, observing the same precautions, and thus have gone on until six or seven sheets, according to my expected consumpt were sensitized. I waited eight minutes from the time the last sheet became yellow, and then poured off the silver solution, draining until no drops fell; I then poured on water until the dish was nearly full, and by agitation separated each sheet, so that the water flowed between them freely. After half an hour I poured off this water, and repeated the affusion for about ten minutes, and then pinned the papers up to dry, and when perfectly dry preserved in a portfolio or other case. The papers so prepared will keep perfectly good for ten or twelve days; and I have found them to be quite as sensitive at the expiration of that period as when first sensitized.

The time of exposure with an ordinary view lens of 19 inches focus, 3 inches diameter, and ¾ inch diaphragm, varies from 1 minute to three in sunshine, and in shadow up to half an hour.

I have now arrived at the development of the image, and it is here, more than at any other point, that failures have occurred.

It has been accepted universally by photographers, that 1 oz. of water dissolves 4 grains of gallic acid; and it has been assumed that if we take, say 8 grains of gallic acid, and shake it up for some minutes in the one ounce of water, we obtain a saturated solution of gallic acid. Never was there a greater error; and many a fine picture has been spoiled by the hasty preparation of the solution of gallic acid.

I would impress the following precautions:

1st, Be sure that the gallic acid solution is saturated either by prolonged agitation and subsequent repose, or by solution in hot water or in spirits of wine.

To this saturated solution I add at once ¼-grain of nitrate of silver to 1 oz. of solution, and a proportion of acetic acid varying from nothing up to five drops, depending on the character of the exposure in the camera.

Such is the certainty of the process that no one ought to have a single failure; and although I have to record as many failures as successful results, yet I can endorse each failure with the particular reason why I did not produce a successful result. And now a word for collodion.

I am sure that had I taken my collodion apparatus I should have produced a greater number of pictures and of a better quality. I acknowledge the collodion process has its difficulties, but I here assert that in a given time I will produce more negatives by the collodion process than is possible by the waxed-paper process; for I never developed a picture on waxed-paper in less than an hour, and frequently have prolonged the operation all night.

For fixing I use a solution of cyanide of potassium, ten grains to the ounce.

A Member inquired whether Mr. Berry adhered to bromide of calcium.

Mr. Berry: I am using now, for the sake of economy, iodide of potassium alone. This (producing it) is the portable bath. I have now five prints in it, and it will receive another print without overflowing, with the plates in it.

The Chairman produced several wax-paper negatives taken by himself, which Mr. Berry had developed; and some positives which Mr. Sheridan had been kind enough to print for him.

Mr. Berry said another observation had come casually under his notice that day. There was a photograph in the exhibition—of the Crucifixion he believed—of a peculiar tone, which had been very much admired. That day he had been waited upon by a gentleman who asked him if he had any positive wax-paper. He thought the querist must be labouring under a mistake, but that gentleman assured him that he had seen in Sanford's list that they had positive and negative wax-paper. He further said that it was used in printing, and adduced the picture of the Crucifixion as an example. The great advantage of using this description of paper was, that it subdued the glare which they had in albumenized paper.

Mr. Sheridan said that in photography, as in every thing else, there was "nothing new under the sun;" he himself having but a few hours since tried experiments on paper of this description, for the purpose of producing transparencies, which he found were sooner obtained than by the ordinary process. He had certainly not succeeded so well as he expected, but hoped to obtain good results by salting his paper with 8 grs. of salt, and then saturating them in the nitrate of silver bath.

He did not think it was so much an object to get rid of the glare of albumenized paper as it was to obtain more roundness and sharpness, which they could not produce by the other process. (Hear, hear.) There could not be two opinions as to the necessity of care in developing, for if the gallic acid were not pure it would destroy the picture altogether. He would take this opportunity to correct a misapprehension which had gone abroad on this subject. He had stated on a former occasion that he had had some pictures spoiled by bad gallic acid, which he had obtained at a respectable druggist's shop in Church-street, and it had been supposed that Mr. Johnson's shop was the one he had referred to. He took the earliest opportunity of correcting that impression, which was entirely erroneous. He had received a communication from Mr. How on the subject of wax paper, accompanied by some pictures taken by the process, to which he (Mr. Sheridan) called the attention of the Society some time ago.

Mr. Sheridan produced the pictures, which were much admired. The time of developing varied from a quarter to half-an-hour.

Mr. Berry: The time of developing depends very materially upon the quantity of acetic acid used.

Mr. Sheridan: I very frequently put in a drachm, which I fancy generally increases the power of developing. Here is a very beautiful picture by Mr. How.

The Chairman: Who will advocate collodion after that?

Mr. Berry: I will.

Mr. Sheridan: There are circumstances under which wax-paper would be practicable, where collodion could not be used. I shall be very happy to break a lance with Mr. Berry, and I will undertake to take more pictures on wax-paper within a given time than he by collodion.

Mr. Berry: If I had time I would accept the challenge.

Mr. Sheridan: Again let me observe, I am a collodion man.

The Chairman: For portraits there is no question that it is the best.

Mr. Sheridan: Where you can command the facilities nothing can be like the collodion. I had occasion to go to Aigburth yesterday, on a moment's call. I had some iodized paper; I put a camera into the carriage, and in an hour or an hour and a-half, I brought home three pictures.

Mr. Berry: You did not develope them at the same time?

Mr. Sheridan: No.

Mr. Berry: Collodion pictures are taken and developed at once.

Mr. Sheridan: But how long would it have taken you to get the apparatus ready under the circumstances? But to return to Mr. How, he says that a great facility in developing in a very short time is obtained by heating the gallic acid very considerably, almost to a boiling point during the day. Leave it to cool to a temperature of about 60° or 70° in the evening, and you will find that the picture is developed almost immediately by adding aceto-nitrate. You can have it developed in half an hour. This afternoon I took three pictures in that way very successfully. Here is a little picture, not very well printed, which I took the day before yesterday, (looking towards the Unitarian Chapel.) It was taken with five minutes' exposure, and was decidedly overdone. It was completed in three quarters of an hour, washing and waxing, and was printed from within two hours.

The Chairman: By heating the solution you obtain the same result as I explained at a previous meeting, by dissolving in hot water.

Mr. Sheridan: I invariably dissolve in hot water.

The Chairman (referring to Mr. How's pictures,) said they had all the sharpness of albumenized glass.

Mr. Sheridan in some subsequent observations on collodion, observed that the slower they developed, the better the half tones and details were brought out. The strength of the solution he generally used was the ordinary one of

1 gr. of pyrogallic acid to an oz. of water;
20 drops glac. acet. acid.

With respect to printing Mr. How had given him a valuable idea, and that was, not to use crystalized but fused nitrate of silver. In preparing albumenized paper he used 40 grs. in the solution, but if they wanted to print quickly they should use 100 grs. Some of these specimens were printed with 40, and some with 100. This one (producing a view of Glasgow Cathedral,) is worth showing merely for the sake of explaining the use of cyanide of potassium. That was a negative apparently of no use at all, it was as black as ink; but I put on a weak solution of cyanide of potassium, and obtained that result, which is not a bad illustration of Glasgow atmosphere.

Mr. Sheridan: I have been asked many questions as to Mr. How, and if he gave instructions in his process. Referring to a label on the portfolio before me, obtained from the house with which Mr. H. is connected, I should say he did; but I believe he considers all that can be said on the waxed-paper process will be found in his published account of it. Mr. How, however, who conducts the chemical and philosophical department of Messrs. Knight's house in Foster-lane, is, I have his authority in saying, ever ready to give any additional information that may be sought from him, either by letter or otherwise. He is, I can answer for it, most obliging in this respect, and under a very modest and unassuming exterior, is possessed of very varied and extensive knowledge, My own earliest notions of photography were obtained from him in the beginning of 1851, when he was then a photographer of some note.

Mr. Sheridan also produced specimens (figures) on salted and albumenized paper, printed from two glass negatives by Mr. Berry. He requested Mr. B. to permit him to print from these negatives, to satisfy some London gentlemen who were present when Mr. Berry read his paper at the meeting of the British Association, and declared that these negatives, which were produced in illustration, would not print. I think I have satisfied the meeting that they do print, and beautifully; and shall have an opportunity in a few days of satisfying also the doubts of the gentlemen in question on the point. Alluding to prints from wax-paper, he observed that 19 out of 20 of the pictures so printed from wax-paper negatives, as well as from collodion negatives, were destroyed by over hypo-sulphiting, and over washing.

On the proposition of Mr. Sheridan, the thanks of the meeting were given to Mr. Berry for his paper.

Chairman: As much disappointment was expressed at our last meeting at the very meagre account given by the operators of those beautiful specimens on albumenized glass, I have since then looked through the different methods so commenced for producing them, and will read you an abstract of them, commencing with that of Mr. Fox Talbot. Mr. Corey then read a short Paper, the substance of which, greatly enlarged, will be found in our "Familiar Instruction."

A Member observed that Mr. Fox Talbot had invented an instantaneous process on albumenized glass.

Mr. Sheridan: He had done it by an electric spark; but it is not a practical system.

Mr. Berry remarked that Mr. Fox Talbot advertised that he could take portraits instantaneously on albumenized glass, but he was obliged to abandon the practice in a few days, and then laid violent hands on collodion, which he had maintained ever since.

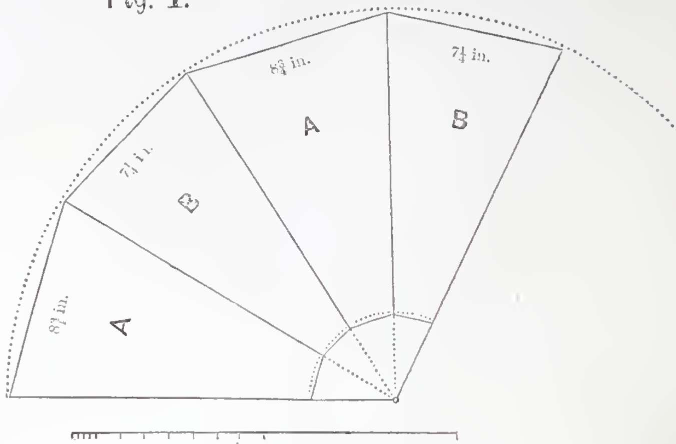
Mr. Sheridan alluded to the absurd notion that albumen required the application of heat, and said the fact was, albumen required no heat at all to make it soluble with nitrate of silver.

The Chairman: Mr. Reeves invented a most complicated machinery to boil it with steam.

Mr. Sheridan then described a portable little instrument of simple construction, for enabling an operator to take his observations with accuracy, on the most expansive prospects :—

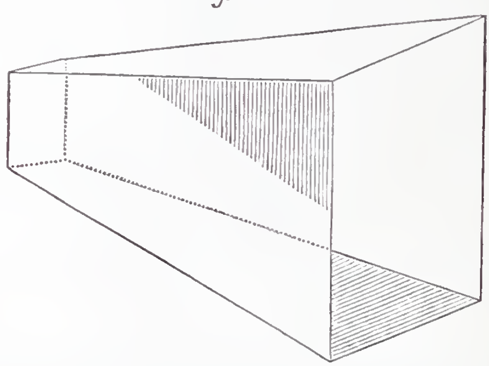
The little instrument I am about to describe is one which Mr. Forrest requested Mr. Robinson of Dublin to produce at our last general meeting, but which unfortunately he happened not to have with him. It is a small conical shaped box, open at either end, very portable as you may observe, as I always carry it thus, in my coat pocket; it is very useful, and like many useful things, exceedingly simple. No photographer should be without one, for although he may not be out for photographic purposes, still he cannot fail to be constantly observing views or objects, which he would wish one day or other to point his camera at, and by this simple instrument he can at once determine whether or not the view is suitable to his lens and camera, and what portion of it or from what point the ground glass can be made to comprise it. All who have had experience in out-of-doors' work will have felt the inconvenience of determing the necessary point, which with the camera itself can only be done by carrying it backwards and forwards, first to one side and then to the other, and so on till the desired object is attained. With this instrument, as I have observed, all this trouble is avoided. By looking through the smaller end, the larger one will be found to expose just as much of the view as the ground glass of the camera will take in, if placed in the same spot you take your observation from, provided the instrument is made on a proper scale. I think I can convey a better idea of it, and the way of constructing it by a diagram on a black board. I must first, however, remark that I have had the idea of the instrument first from Mr. Robinson, who, I believe, had it from the inventor, Mr. Grub, of the Bank of Ireland, a gentlemen well known to the scientific world as connected with telescopes, and maker of the beautiful instrument which formed such a conspicuous object in the central hall of the Dublin Great Exhibition. To mathematicians there is known a means of calculating its form and size with the utmost accuracy, by knowing

Fig. 1.



Scale of $\frac{1}{5}$th of an inch to the inch.

Fig. 2.



the focal length of the lens employed, and the exact dimensions of the plate or paper to be covered, but for all practical purposes this rule-of-thumb way of doing it will be found to answer very well.

Thus from a base line you describe a portion of a semi-circle, whose radius on a given scale is equal to the focal length of your camera; take for instance the one I generally use, which is 16 inches focus, and taking a picture 8¾ in. by 7¼ in., mark off on the circle A 8¾ in. from the point where the circle cuts the base line, then B 7¼ in., and again A 8¾ in., and lastly, B 7¼ in.; thus A and A correspond to the top and bottom of the largest end of the instrument, and B and B to the sides; from these points lines are drawn to the point, the limb of the compass rested on in describing the semi-circle, and from each of these lines where they touch the circle, draw a straight line so as to cut off the curvature. Now describe an inner circle from the same point as the first, a little less than quarter the radius of the other, say 3½ ins. (or on a corresponding scale), and draw straight lines as before from point to point where the circle cuts them, and the figure is finished. You have now only to cut partially the cardboard down the radiating lines, so as to enable you to bend it into the form of a conical box, as in the second diagram, and cutting off the curvature at top and bottom, and lining it with black paper or linen so as to allow of its being pressed flat for the purpose of occupying but little space, and your instrument is complete. To prove its accuracy place your camera in any convenient position, and observe the objects that are just visible on either extreme of your ground glass. Try your instrument from the same place, and if it takes in the same objects it is quite correct, if however it does not take in so much you must by little and little increase the side of the small end by cutting more off it, till the objects do appear. The instrument may be made on any scale, that of ¼ in. to the inch is a very convenient one, and it is recommended that the aperture of the small end should not be less than 1 in., so as not to contract the pupil of the eye, or cause you to see along the outer side of the instrument. I have to apologise for delaying you so long about so simple a matter, but it is I think of a good deal of practical utility, and I shall be very glad if it be found to be so by the members of the Society.

On the motion of Mr. Frank Howard, a vote of thanks was given by acclamation to Mr. Sheridan, for the beautiful specimens he had produced, and for his services in many ways to the Society. The meeting then adjourned.

PHOTOGRAPHIC PROCESSES.

The desire to find some method of operation, which shall be less liable to destruction than glass and the collodion film upon it, and the great success that has been attained with waxed paper processes has led to a number of efforts to obviate the difficulty attendant upon waxing the paper, or the expense of purchasing it ready waxed.

M. Tillard proposes to add iodide to a weak turpentine-wax solution, for the purpose of waxing and iodizing at the one operation. He puts one ounce of white wax into a quart of spirits of turpentine; and to eight ounces of this, after solution and filtration, he adds 15 grains of pure iodine, and plunges the papers for five minutes. The rest of the operation like Le Gray's. He states it is tolerably rapid in the camera. That the various processes may be differently affected by the same atmosphere will very probably be found the case, which will account for some of the different opinions, or the varying success of the several methods, so highly commended by some, and so decidedly rejected by others.

With regard to the use of glass M. Gaudin has suggested that too great heat will interfere with that perfect cleansing which is requisite for the collodion process; and he has found another disturbing element in the structure of the glass, on the surface of which he says there is frequently an alkaline silicate, which sometimes forms a net-work of crystals on the face of mirrors, being decomposed by the carbonic acid which it received from the air. To remove this he finds it necessary to use nitric or acetic acid with tripoli, the latter being insufficient alone. This is for new glasses. For such as have been used before he recommends a mixture of alcohol and distilled nitric or acetic acid. Tripoli is not wanted, and is so tenacious and dirty that it should not be used except when it is impossible to do without it. He strongly urges the necessity of saturating the nitrate bath with iodide of silver, to prevent its depriving the plate first dipped of any portion of the indispensible requisite for successful operation. He prefers the iodides of zinc or cadmium to either iodides of potassium or ammonium, and would iodise the bath by an alcoholic solution of the iodide; but he insists on the necessity of great purity in the alcohol, or the nitrate will be rendered utterly insensible.

We gave Mr. Maxwell Lytes' instantaneous process last month. He has not added anything to it. Nor have we any account of a second process of great rapidity, which he said he had in embryo. He always uses pyrogallic acid as a developer, and for portraits adds fornice acid in the proportion of "6 drachms to 10 oz. of developer."

For the restoration of old collodion he recommends the use of two or three strips of sheet zinc scraped bright instead of silver as recommended by Mr. Crookes. In two or three days the collodion becomes quite transparent, and loses all its red colour. He thinks the presence of silver in the collodion very objectionable. Moreover, it will not act beyond a certain point, i.e. it will not discolorise very dark collodion. He finds cadmium act very well, also metallic arsenic, which seems to accelerate the action at the same time.

M. Gaudin says that "the presence of a film of nitrate of silver, hitherto considered indispensable, is not necessary during the exposure of the collodionized plate; it is only useful during the reduction, consequently the silver bath may be replaced by a film of water without loss of sensibility." He recommends, when more than ten minutes will occur between sensitizing and exposure in the camera, that the plate should be well rinsed in distilled water, and replaced in the silver bath a few minutes before developing; the pictures will be certain to succeed, without the collodion losing any of its sensibility. He has even dried a collodionized plate at the fire, and yet obtained a photograph after passage through the silver bath. He prefers sugar to acetic acid, as it does not diminish the sensibility, though it retards the action of the sulphate of iron in developing. He prepares his collodion with iodide and bromide of zinc; and the proportion of nitrate of silver in his bath is 5 per cent., adding 5 or 10 parts of nitrate of zinc, and an equal quantity of white sugar. The plate must be allowed to drain 5 minutes after the second dipping.

Familiar Instruction.—No. viii.

"Con tutto core."

We had purposed devoting our usual paper under this head to the consideration of the waxed-paper process, but sundry experiments being deemed necessary to establish the relative value of the processes of Messrs. How and Townsheud—for as they are each of them excellent in their products, they each of course find many advocates, all strenuous in upholding the merits accordiugly as they find them; and as the very beautiful results in our own exhibition, and also some fine specimens shewn during the visit of the British Association, of pictures takeu from albumenized glass, have excited much curiosity amongst our own practising readers as to the means of their production, it has been deemed better to take up that question at once, and defer the waxed-paper till another occasion.

The process of albumenized glass, though almost the first by which photographs upon glass were produced, has been but little practised, and is therefore but imperfectly known, insomuch that the few who do practise it differ widely in their mode of manipulating; nor can we hope to give these separate processes in full; space will only admit of a digest of them: we will begiu with that of Mr. Fox Talbot, who says—"Take the liquid portion of the white of an egg, rejectiug the coagulum, and mix with an equal quantity of water, and having cleaned your plate thoroughly with a little strong ammonia or potash and water, pour the mixture of egg and water evenly upon the plate, and after pouring off the superfluous albumen at the corner dry it at the fire; the film of albumen will be uniform and hardly visible. To an aqueous solution of nitrate of silver add a sufficient quantity of alcohol, so that an ounce may contain 3 grains of nitrate." He then says he has tried from 1 to 6, but finds, out of various proportions, 3 grains to be the best. But more experiments are here required, for the results are much influenced by this process: dip the plate into this solution aud let it dry spontaneously, when faint prismatic colours will be observed upon it." It is important to remark, that the uitrate forms a true combination with the albumen, rendering it much harder, aud insoluble in liquids which dissolved it previously. Wash with distilled water to remove any superfluous portion of the nitrate of silver, then give the plate another coating of albumen; but in drying be careful not to apply too much heat, or a decomposition of the silver will take place, I have endeavoured to dispense with this fourth operation, as it is not so easy to produce an even coating as in the first operation, but find it to be indispensable.

A great difference is here observable in this process, and that recommended by others; for in one formula you will find iodide of potassium recommended to be added in the proportion of 1 part to 100 of albumen; in another a saturated aqueous solution of iodide of potassium, and a few drops of this added; while Mr. Reeves says 7 grs. of iodide and 2 grs. of bromide of potassium to the oz. of albumen; but in all these latter cases the albumen is to be shaken up to a thick froth, set by for two or three days, and only the clear part that shall have separated to be used. The mordants in these cases, therefore, are esseutially different, and it is much to be regretted that the beautiful pictures referred to by Negretti, have no history attached to them whereby we can tell what process was followed in their production. The strength of the bath, too, appears to differ in like manner; for, to pursue the narrative from which we departed, we find, in continuation of Fox Talbot's formula, a combination of iodide of iron with acetic acid recommended thus:—"To an aqueous solution of proto-iodide of iron, 140 grs. to the oz., add first an equal volume of acetic acid, and then ten volumes of alcohol; allow the mixture to repose two or three days, it will then have changed colour, aud the odour of both alcohol and acetic acid have disappeared, and, in lieu, an agreeable vinous odour be perceptible. Into this the plate, prepared as previously directed, is dipped for a few seconds only. All these may be done in open daylight, if the direct solar ray be avoided." He now directs a bath of "70 grs. of nitrate of silver to the oz. To three parts of this add two of acetic acid." If we are to take this literally, it would require six oz. of acetic acid to be added to nine oz. of solution of nitrate of silver. The passage quoted is verbatim, as stated, and is manifestly an error, aud must mean two parts of acetic acid to three parts of the nitrate of silver previous to its solution. If the plate be dipped rapidly only once or twice into this it will then acquire a great degree of susceptibility, aud ought to be placed in the camera without delay, and after exposure in the camera, to be developed by proto-sulphate of iron in the proportion of one part of a saturated solution to three of water; but the average time of exposure is not mentioned, nor does there appear any correct data, to guide us as to the proper time of exposure. Hitherto it has been supposed so long as half an hour, and even an hour, was required, but I am assured by Mr. Carr, whose beautiful views of the most prominent objects in Rome, as well as other parts of Italy, are so well known, that the time of exposure was only four minutes; hence we may safely infer that the action in the camera may be taken in about the same ratio as wax-paper, or possibly a little slower in its effect. With the wax-paper the time of remaining in the camera ranges from 2 minutes for a bright light upon the object, to 30 or 45 minutes if a deep shade. From Mr. Carr we learn also the absolute necessity of drying the albumenized plate by heat; and he has invented an ingenious apparatus for drying it by the heat of steam; not exposed to the direct vapour of the steam, as Mr. Reeves directs, who advises the plate to be boiled in a tin vessel where the steam can play round it but not drop upon the plate. Both these gentlemen agree in the necessity of developing by pyrogallic acid, but the latter is particular in cautioning the operator to abstain from the use of strong hyposulphite of soda for fixing, as he says it is liable to detach the coating from the plate, and recommends the use of bromide of potassium in the proportion of 25 grains to 6 oz. of water. The plate to be washed before and after fixing.

As the results of albumenized glass are singularly minute and delicate in their details, having been selected for this perfection for the glass microscope and the stereoscope, we strongly recommend its use to our readers, for it is evident whichever of the various processes here touched upon may be selected, that the working of the light on them is very little more protracted than wax-paper, whilst its portability is quite equal to collodion plates, with the advantage of being carried ready prepared, and developed at leisure. On the score of economy it is also to be commended, for the cost and waste of collodion for large plates is considerable, and the expense of waxed-paper has been seriously complained of by those who are not successful in waxing their paper, and are therefore constrained to purchase.

On Tuesday the Abbe Moigno read a paper on this subject before the Chemical Section of the British Association; but as I was unfortunately deprived of the pleasure of hearing it, and no report of it has appeared, I am unable to say whether he advocates any peculiar process.

PHOTOGRAPHY AT THE BRITISH ASSOCIATION.

On the third day, Professor Phillips submitted to the section "Notes on the Mountain Gassendi, and further Trials of Photographs of the Moon." He observed that the duty which he had to perform would have been far better executed by either of the other members of the committee appointed by the Association to take measures for investigating, by accurate telescopic observation, the physical aspect of the moon. The other members of the committee were Lord Rosse and the Rev. Dr. Robinson, both of whom were far better acquainted with the aspect of the moon, by the employment of finer instruments, and their greater astronomical knowledge, than he was. But nothing which they had to show, in the shape of the photographs of the moon, was at all to be compared with the results that had been obtained by the voluntary exertions of the Photographers of Liverpool. The learned gentleman then proceeded to describe that tract of the moon which had been committed to him to survey, and which contained the crater of Plato. He illustrated his observations by a very beautiful drawing of this portion of the moon's surface, by Mr. Nasmyth, and observed that daily experience showed that the more their telescopic power was increased the less circular appeared the lunar craters, and the less smooth the surface of the moon, All was sharp and irritated—a perfect representation of its past history which was marvellous to see. Passing from this portion of his subject, the learned gentleman alluded to the much-mooted question as to there being traces of the action of water on the surface of the moon as now presented to us. At one time he believed that there was no trace of water to be seen, but he confessed that more recent observations, particularly those made by Lord Rosse's telescope, shook his belief in that opinion. The learned gentleman's lecture, if we may so term the cursory observations which he made, was of a most interesting character, and was eminently calculated to accomplish the end at which he aimed—namely, to lead all parties to a study of this most attractive subject, (for attractive it certainly is in his hands,) and in thus making us acquainted with the wonders of nature, teach us to recognise and acknowledge the power, and greatness, and glory of God, the Creator of all.

On the fourth day, Mr. G. R. Berry read the following Paper "On Collodion Negatives:"—There appears to have been a great difficulty with many operators in obtaining that requisite intensity of negative collodion proof that shall, by the after-printing, yield satisfactory positive paper impressions. Selecting from the formulæ generally followed, the author of this paper applied chloride of gold to the negatives he desired to strengthen, in the proportion of one grain to an ounce of water; and if this did not produce the desired result, he, after washing away the excess of chloride, floated over the proof a solution of sulphide of ammonium, varying in strength from three to forty drops to one ounce of water. By this means, impressions so feeble as to be hardly visible by transmitted light became capable of yielding satisfactory results when used for printing. One difficulty remained: the collodion film, at all times tender while moist, becomes so easily disrupted from the glass plate after the application of any of the strengthening processes, that the acquisition of a perfect negative was the exception and not the rule. This obstacle may be easily surmounted by allowing the photograph to dry after being developed and fixed either by cyanide of potassium or hyposulphite of soda, and then varnishing in the usual way. The photograph may then at any period of time be safely strengthened by repeating the gold and sulphide of ammonium process, observing to use rectified spirit of wine instead of water as the menstruum for the gold and sulphide. The tenacity of the varnish insures the safety of the collodion film, and another coat of varnish completes the process. The author found that by the use of gallic acid in his silver bath the time of exposure was much prolonged in the camera, but the developed pictures proved of extraordinary intensity, and by this means he has at all times been able to produce satisfactory negatives, provided always that the collodions employed be not made sensitive by iodide or bromide of ammonium. It is true that a portion of gallate of silver soon precipitates, but silver solutions of moderate strength always retain in solution a portion of the precipitant; and this fact has been made use of by the author, Mr. Thomas, and some others, by adding excess of moist iodide of silver to a new silver bath, to obviate the tendency it has to dissolve out the film of iodide of silver on the collodion plate. When using a bromide as the sensitizing agent, bromide of calcium has been found most effective; the nitrate of lime resulting from its decomposition in the silver bath having no detrimental action. The formula is as follows:— Bromide of calcium 4 grs.; dissolve in spirit of wine 2 drs.; add rectified ether 6 drs.; gun cotton *quant. suff.* The silver bath used must be 60 grs. to the oz. The bromized collodion is tolerably rapid, and, unlike most others, improves by age, even beyond a twelvemonth. The author has used the following formula with a simple 30 grain silver bath, and has obtained in all the varying conditions of light, whether of views or portraits, any amount of vigour desired:— The collodion: Take pure iodide of potassium, any quantity; triturate this in a glass mortar with spirit of wine, 54 over proof, until the spirit is unable to dissolve more of the iodide. Take of this solution 3 parts, sulphuric ether, free from acid, 5 parts; mix and dissolve in it gun cotton, to form a tough and rather thick film. The developing agent is, pyrogallic acid 2 grains, glacial acetic acid 20 drops, spirit of wine 1 drachm, water to make up 1 oz.

Dr. Edwards, F.C.S., also read a paper "On Collodion Photographs of the Moon's Surface."— About the commencement of the present year, the Liverpool Photographic Society, recognising the importance of this subject, and the interest felt in it by the British Association at its last meeting, requested Mr. J. A. Forrest, its secretary, Mr. J. Hartnup, of the Liverpool Observatory, and himself, to act as a committee for obtaining photographs of the moon by the Liverpool telescope, and to lay them before the present meeting. This committee had produced a large number of pictures with variable success, and some of the most perfect copies were now presented. The telescope is furnished with an excellent equatorial mounting, and clock-work motion of great firmness and steadiness. The object-glass has a focal length of about $12\frac{1}{2}$ feet, and a small camera-box being substituted for the eye-piece, the image is received upon the ground glass or prepared plate, in the ordinary manner. After much fruitless labour, the chymical focus was discovered to be about eight-tenths of an inch beyond that of the visual one, the glass being over-corrected to that extent in respect to its actinic focus. This had since been found to be nearly co-incident (when the length of foci in the several lenses are duly allowed for) with the experience of Professor Phillips and others. The focus once accurately ascertained of course answers for all subsequent experiments. It was at first difficult to decide whether the want of sharpness of outline observed, was due to the motion of the object or to imperfect focussing, and the most excellent specimens were obtained by the continual motion of Mr. Hartnup's steady hand, in addition to the clock movement, while his eye was kept on the finder with a micrometic eye-piece of good power, by which he could maintain the position of a given point in the field. When the moon is off the meridian, her rate being variable, this seems the only mode of following her motion accurately. Such were the mechanical arrangements, and the chymicals which produced the pictures inspected were—collodion, containing iodide of silver, iodide and bromide of potassium, a neutral, or *slightly* acid silver bath, (30 grains to the ounce,) and a developing solution of sulphate of iron, with acetic or formic acids. The fixing agent was cyanide of potassium. Collodions were employed, containing respectively, iodides of ammonium, cadmium, calcium, iron, and other samples containing bromides of ammonium, calcium, or zinc, without obtaining any advantage of properties; and, indeed, a marked disadvantage followed the use of very sensitive collodions, which seldom gave both the mapping and the detail on the dark limb with equal distinctness. The pictures had been since copied and enlarged in the camera, by transmitted light, and for this purpose those developed with the iron have been preferred. The excellence of the pictures for transmitted light, whether in copying or illuminating by the lantern, seems to be governed by their tone of colour rather than their apparent opacity. Mr. M'Innes has been very successful in copying and enlarging these pictures for the lantern, and the effect of the illuminated images would, no doubt, prove interesting at the proposed soirée. These results had been obtained in consequence of the interest already taken in the subject by the Association.

During the meeting of the Association, the following Papers were also read:—"Notice of some Photographic Pictures of the Moon, taken by the Craig Telescope." By Dr. Lee.—"On a Stereoscopic Cosmorama Lens." By G. Knight, Esq.—"On some Photographic drawings of Snow Crystals, as seen in January, 1854, drawn by Mr. Glaisher;" also "On Photographic drawings of Meteorological Instruments." By Dr. Lee.—"Hints on the Management of some difficult subjects in the application of Photography to Science;" also "On the means of applying Photography to War purposes in the Army and Navy." By Samuel Highley, Esq., F.G.S., F.C.S.— "On Photographs upon Albumen, by M. Ferrier." By M. l'Abbé Moigno.

PHOTOGRAPHIC EXHIBITION AT THE ROYAL INSTITUTION.

By the aid of friends and well-wishers the Liverpool Photographic Society have been enabled to collect a considerable number of Works in Photography, in their new rooms at the Royal Institution, most of them being of the highest class in the respective methods of operation. All processes are here well represented—Albumen and Collodion on Glass—Wax-paper, Albumenized Paper, and Talbotype or Calotype, Positives and Prints from Negatives; single Photographs and Stereoscopic pairs, Portraits, Landscapes, Works of Art and Natural History, to the number of 400 specimens, agreeably arranged in three rooms at the back of the Royal Institution, with a good entrance in Seel-street; open from nine till five in the day, and from seven till nine, lighted by gas, in the evening.

Press of matter, which compels us to add four pages to our number, will prevent our giving more than a hasty glance round the rooms, which are well worthy of attentive study.

In the first room we have Wax-paper, Mr. How's process, admirably illustrated by Mr. Sheridan, in Skipton Station, Ilkley Castle, Bolton Abbey, &c. Prints from Collodion Negatives by Mr. Robinson: "A Lake," and "Chester Cemetery." Calotype by Mr. Cartwright, of Preston: "The Fire Engine Station," at that place. The Calotype, (Buckle's process,) by our own valued member, Mr. Morecroft; in "Quarry Bank," "Country Inn," and a "View on the Avon." Albumenized Glass, by Negretti: "Views of the Crystal Palace," singularly beautiful. Wax-paper, by Mr. W. J. Cox, of Devonport, wonderfully minute and distinct. Collodion Positives, by Mr. Corey and Mr. Knott; and a "Lake Scene," sent in by Mr. Atkinson, called La Margeride, we believe also on albumenised glass, in which the reflections are very finely rendered.

In the second room, which is the best lighted, we have a frame of Prints from Collodion Negatives, by Mr. Tunny, of Edinburgh, of which the centre specimen—a view of Edinburgh, from the Calton Hill—is very beautiful. A number of exquisite Positives on Collodion, by Mr. Lee, of Shaw-street, including a Portrait of Mr. Bishop, of the Collegiate Institution, which is as fine as anything we have ever seen. Four beautiful Photographs from Collodion Negatives by Mr. Delamotte, Views of the Interior of the Crystal Palace at Sydenham, two very large; Mr. Rosling's exquisite specimens of the Calotype, Buckle's process; Mr. Morecroft's Stereoscopic Views, by the same process; Mr. Sheridan, from Wax-paper and Collodion Negatives, Views and Groups of Portraits, remarkably happy; many of Mr. Buckle's own; some by Mr. Archer, the first to use Collodion, Mr. Johnson, of Blackburn, Mr. Forrest, Mr. Keith, Mr. Foard, Mr. Mayall, of London; one as large as life and coloured, with crayons, which we have noticed elsewhere; Mr. Millichap represents Daguerreotype in some large Portraits.

In the third room we have Stereoscopic specimens of beautiful effect by Mr. T. R. Williams, of London, taken by the Talbotype; Mr. Sanford's Wax-paper examples, of large size and elaborate detail; Mr. Carr's beautful Views of Rome and other parts of Italy, printed from Albumenized Glass; a few examples of Townshend's process by Mr. Berry and Mr. Corey; Collodion by Dr. Cauty; and other specimens by Mr. Forrest, Mr. Pedder, M. Teynard, Mr. Crabb Creeke, &c.—altogether forming a most interesting and instructive exhibition.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—During the exhibition of the beautiful Photographs of the Moon, the other evening, Mr. F. Howard fell into an error when he stated that she did not revolve upon her axis; and I was in hopes that some person then present, more competent than myself, would have corrected him. If the moon did not turn upon her axis, in her motion round the earth, every portion of her surface would be presented to our view in gradual succession; but in consequence of her so turning, and that just once in the same turn that she performs her revolution round the earth, she always shows us exactly the same face. Owing, however, to the motion of the moon on its axis being uniform, while the motion in her orbit is unequal, she does in fact reveal to us somtimes a little of one side, and sometimes of the other. These appearances are called the moon's libration in longitude.

I need not pursue the matter further, but I would recommend Mr. Howard to study some of the elementary books on astronomy, in which he will find much that will both interest and instruct him, respecting this wonderful satellite of ours.—I am, &c.,

Birkenhead, Oct. 9th, 1854. A TYRO.

[There is a fallacy here which we have not space to expose.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—That hypo-sulphite of soda should have for any length of time maintained its reputation as a fixing agent for positives, surprises me not a little. To neophytes, a hint or two may be useful, and if you can find room for this note, it is heartily at their service. I think hypo-sulphite of soda for fixing positives should be altogether abandoned in favour of cyanide of potassium, the latter being more speedy, less dangerous to the picture, and requiring much less washing to remove the excess after the desired effect is arrived at, and never like the hypo-sulphite developing dendritic crystals over the picture (probably) by the assistance of water derived from the atmosphere.

Having thus disposed of hypo-sulphite as a fixing agent for positives, I come to speak a word or two against *plunge* baths for developing and fixing, as being only a lazy man's contrivance to save trouble, and like many others of the same class, leading only to labour and disappointment. I will briefly endeavour to make myself understood by an illustration. On removing the sensitive plate from the camera it is to be borne in mind, that we are operating on an almost infinitesimal quantity of the *silver salts*, and a certain amount of chemative action is desired; if *plunged* into a bath the whole strength of the reagent is brought chemically to act on the small amount of silver salts, which may be thus entirely decomposed, not so much by intensity as by being every instant attacked by a fresh portion of the solution. This especially applies to the *plunge* bath, of hyposulphite of soda, which in some places makes the collodion film transparent where least wanted or expected. The plan would be to use the levelling frame or some contrivance in place of it, pouring over the plate just as much of any solution as should produce before its exhaustion, the exact amount of action required.

In practice I have for positives, up to six inches by five, abandoned the stand, preferring a pair of simply constructed forceps, made thus: a piece of iron wire about the thickness of the ribs of an umbrella, about seven inches long, is flattened at the extremities and a round hole pierced in each; it is then bent to the shape of a pair of sugar tongs, the ends made hot and rubbed over with a piece of gutta percha, which coats them and prevents decomposition. With these tongs the glass is taken diagonally, the collodion poured on, and when *set*, being still held by the tongs, placed face downwards in a horizontal bath of nitrate of silver solution, the tongs projecting a little beyond the glass, form two (?) feet of a tripod, which is completed by one of the free corners of the glass resting on the base of the bath, leaving the whole surface of the glass to be acted upon, and thus avoiding specks of dust, &c. settling on the collodionized face of the glass. I then place a dish cover over the whole, and leave it till sensitized. In the remaining parts of the process I use the same tongs, and the facility of manipulation conferred by so simple a contrivance is very surprising; its extreme economy will recommend it, and with ordinary care a dozen of pictures may be made without soiling the hands.—I am, Sir, your obedient Servant, IL FANATICO.

Leven, Fife, Sept. 23, 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—I have tried several specimens of collodion from shops in this city, and, in many instances, when I have put the plate into the silver bath, the collodion film has cracked and washed off. I should be glad if, in the next number of your valuable journal, you would please explain how this can be remedied.

Also, if after exposing the prepared plate in the camera, is it necessary that the image should be developed immediately?

By answering these two queries, you would much oblige your reader,

JOHN T. ANKERS.

Manchester, Sept. 22, 1854.

[First—The proportion of ether may have been too large; in which case add a little spirits of wine—or the gun cotton of inferior quality; and for this there is no remedy—or the plate was inserted too soon in the bath, after pouring off the collodion. Second—Develop immediately.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—Can you inform me about what date Mr. Fox Talbot's patent for the collodion process expires? I have received the enclosed from the Patent Office; but I think there must be some mistake, as I thought his patent was taken out in 1841. I am sorry to give you any trouble. I enclose a stamp for a reply; and your answer will much oblige yours respectfully,

F. STUART.

Office for Patents, 65, *Chancery-lane*, *Sept.* 14, 1854.

Sir—In reply to your letter of the 13th instant, we beg to state that Mr. Talbot's Patent for Photography upon Glass bears date the 12th June, 1851, and therefore will not expire until the 12th June, 1865.—We remain, yours truly,

NEWTON & SON.

Mr. F. STUART, Pro J. W. MOFFATT.

[For Calotype, in 1841; on glass, 1851.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—Having derived much instruction from your valuable Journal, especially from the able papers by Mr. Berry, I hasten to lay before you a process which I think is quite new, and which promises most astonishing results.

Having been led, by some remarks of Mr. Berry, to try numerous experiments with the iodides and chlorides of silver, I have hit upon the following process, which, although not yet perfect, will no doubt soon become so in in the hands of more able operators than, Your obedient Servant,

JAMES CULLEN SMITH.

The Grange, Ashton-under-Lyne, October 7th, 1854.

Wax Canson's paper—(the process recommended by Mr. How is a good one)—then immerse it in a bath of the following solution for $3\frac{1}{2}$ hours:—

Chloride of sodium in crystals......	115 grs.
Chloride of bromine, (sat. sol.)	12 min.
Cyanide of potassium	10 grs.
Bro. of ammonium..	4 „
Free iodine......................	12 „
Sugar of Milk	300 „

The whites of three eggs;

1 oz. alcohol, in which has been dissolved 7 grains of shell lac;

20 oz. distilled water.

Mix the salts and albumen first with the water, then add the spirit, a little at a time, stirring it; there will be a slight precipitate, which must be allowed to subside. Take the papers out of this bath, and hang them to dry—they will keep good some time. To render sensitive—

75 grains nitrate silver.
1 dram glacial acetic acid;
1 ounce distilled water;
1 dram alcohol.

Leave in this bath for about five minutes, then wash in two dishes of distilled water; expose in the camera, with half inch stop, sixteen inches focal length of lens, about fifteen seconds in the sun; develop as Le Grey recommends, first with gall. ac. then with a little aceto. nit.: should the picture become black very soon, add a little glac. ac. acid. If this process has been carried on right, and the exposure not too long, you will have a splendid proof in about a quarter to half an hour's development. This process gives most splendid blacks, and the half tints are very soft and fine, and is incomparably quicker than any I have seen published. Fix with hyposulphite of soda, and wash well.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 11.—NOVEMBER 11, 1854.

The Liverpool Photographic Society has taken an important step in resolving upon keeping open a permanent Exhibition of Photographs at their own rooms in the Royal Institution. The interesting collection which has been on view since the visit of the British Association to this town will soon be dispersed, if they have not already reached their owners. We trust that in the collection intended to replace those which we have seen and admired, an attempt will be made to render it as instructive as possible. The best specimens of every variety of process should be obtained from the inventors, or those who have been most successful in the manipulation; and our own members should be allowed to hang their own efforts, alongside for comparison. Invitations properly addressed to Mr. Maxwell Lyte, Mr. Townsend, Mr. How, Mr. Hardwick, or Hardwich (for we cannot make out which is the right spelling), Dr. Diamond, Sir William Newton, Mr. Crookes, and others, would doubtless induce those gentlemen to aid in the attempt to develope the art of Photography, for which they have already done so much, and such as have made public their mode of operation, might be complimented by being elected honorary members of the Liverpool Photographic Society. The London Society has followed our example so far as to take rooms for themselves, at 21, Regent-street, where they will in future hold their meetings. Whether they have operating rooms attached or not, or whether they will think of having a permanent exhibition such as we have suggested, we do not know; but even if they should, it would not in the least interfere with the object we wish to attain here. Few of the experimental photographers would grudge two specimens, one to each society, for so important a step towards the decision on the relative value of the various processes of Photographic art. The steady and energetic efforts of our own enterprising members, will, we have no doubt, command sufficient respect from all lovers of the art to induce them to render the assistance we have advocated for our Society, as the principal representative of Photography in this country, out of the metropolis.

The subject connected with Photography at present dividing the interest with Mr. Maxwell Lyte's instantaneous process and the rival methods of using and preparing wax paper and albumen, appears to be the application of the art to the production of engravings on steel and lithographs. We give two papers on the subject from a foreign journal, conducted by the Abbè Moigno, who took part in the proceedings of the British Association, and read a paper on albumenised glass, and produced some beautiful specimens executed by M. Ferrier, which have attracted the attention of several of our active members to that mode of operation. On the other hand, Mr. Sheridan's experiment on a collodionized plate which had been made sensitive about five months previously, produced at the last meeting of the Liverpool Photographic Society, appears to corroborate M. Gaudin's views with regard to the use of collodion in precisely the same way as albumen, which we described in our last number; and if capable of being carried out, will lead to results of the highest value to travelling photographers.

GLOSSARY OF TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section III.—Apparatus.

PARALLEL MIRROR. Fr. *Glace Parallèle.* An oblong reflector placed in front of the camera lens at an angle of 45°, to reverse the position of the figure in the resulting photograph. A rectangular prism, having its hypothenuse (or side opposite the right angle) silvered, is sometimes employed in lieu of the plane mirror, with the view of avoiding the double reflection from the two surfaces of the latter; but as this produces no visible double image in the photograph, and the prism obstructs so much light and is so very expensive, the substitute is by no means advantageous.

PHOTOMETER. Fr. *Photographometre* Two pieces of apparatus of different forms for measuring the intensity of the actinism of the light.

PLATES, GLASS. Fr. *Plaques en Verre.* Should be of perfectly flat glass, and cut so as to fit the frames of the dark slide easily, but not too loosely. For Positives they ought to be of patent plate or patent colourless glass; for Negatives this is of less importance, but special care should be taken to avoid specks and air balls, as they would infallibly injure the prints.

PLATES, SILVERED. Fr. *Plaques en Argent.* For Daguerreotype should be very carefully selected, as many failures result from their defects. Beginners should choose plates of rather stout copper, with a good coat of silver, as they will bear polishing more frequently, and not be so liable to get worn away in spots as thinner ones. Electrotype plates seem to produce the best results, owing to the purity of the silver; but there is a want of density in the coating that makes it soon wear through.

PLATE-HOLDER. Fr. *Planchete a Polir.* Used in Daguerreotype to fix the plate during the polishing; the forms of this instrument are so various that it would be entirely out of our province to describe them here. But it would be an unpardonable oversight to omit mentioning that beautiful contrivance the "Pneumatic Plate-holder" for the collodion process; it is beyond all praise; by a simple adaptation of the elasticity of vulcanized India-rubber, a beautiful vacuum is produced in the holder, and the plate held most securely by the pressure of the external atmosphere.

PLATE BOX. A box fitted on two sides with parallel and corresponding grooves to receive the edges of the plates, as in a rack. These boxes are made to suit the various sizes of plates, and occasionally several sizes are arranged within one case.

PRESSURE or PRINTING FRAME. Fr. *Chassis à Decalquer.* A stout wooden frame having a thick sheet of plate glass in front, on which the negative is placed, plain side down, the *dry* prepared paper is then placed face down on it, and over that a padded back, which are all pressed together by screws, springs, or wedges, the front of the frame is then exposed to the light as necessary.

QUINTOSCOPE. A French instrument, named after the inventor, for taking stereoscopic portraits, views, &c. It consists of two compound achromatic lenses, placed two and a half inches apart on the same camera, with a movement by which that distance may be increased or diminished at pleasure, its object being to take the pair of views or portraits at the same moment, so that the images (allowing for the angle) may be identical.

REVERSING FRAME. See Pressure Frame.

Mr. Berry's Pneumatic Plate-holder.—The most certain and the most manageable plate-holder will be an indian rubber bottle inserted into a glass tube with a trumpet mouth, such as are sold by chemists for surgical purposes; on squeezing the air out of the indian rubber, and applying the mouth of the glass to the back of the plate, the vacuum created by releasing the elastic bottle, gives the firmest hold. It is remarkably clean, easy to manage, and not expensive.

Portable Tent for Photographic Purposes.—Dr. Anthony, of Washwood, near Birmingham, has published the description of a tent which has, he says, the following advantages:—1. It is put up or taken down in three minutes; 2. It perfectly resists any moderate pressure of wind; 3. It is roomy enough to enable the operator to breath freely; 4. The manipulation of the plate is performed while standing at a table; 5. It will pack into the form and shape of a gun-case; 6. Should any portion be damaged, it may be repaired by a common carpenter; 7. It is cheap. Imagine a four-post bed surrounded by yellow curtains, about 6½ feet high in two joints (fishing-rod); the peculiarity being the table, which is made of a boot-jack pattern, folding into a small compass, and enabling the operator to stand in the hollow. The posts pass through four square holes cut at the corners, the table resting on shoulders and being wedged to make it steady; the upper joints are then fitted into the ferules, and being spiked at the top, stretchers keep the frame of the canopy in form; and the curtains (which are of a double layer of yellow calico, and one of dark green externally) are drawn from front to back over the frame-work, the said curtains being closed at the front and sides, but partially open behind. At the corners, four bits of punched leather sewn to the yellow drapery, fit on to the four spikes, and four cords from the said spikes are strained to four iron pins driven into the ground in the direction of the corners of the tent.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The ninth monthly meeting of the Session was held at the Royal Institution, Colquitt-street, on Tuesday, the 7th instant. In the absence of the President, Mr. Corey, C.S., was called to the chair.

Several new members having been admitted into the Society,

The Chairman announced that it had been resolved to establish the Photographic Exhibition as a permanent one, and mentioned, amongst other persons who had presented pictures to the Society for the purpose of exhibition, the names of Mr. Cox, of Devonport, and Mr. Sheridan, of this town. He then read a letter from Dr. Thomson, the Secretary of the Literary and Philosophical Society, stating that at the last meeting of that society it was unanimously resolved that the privilege of attendance at their public meetings should be renewed to the President and Secretaries of the Photographic Society. The Liverpool Academy had also politely sent to the President and Secretaries of the Society a free admission to their Exhibition of Paintings.

Mr. Frank Howard moved that these acts of courtesy should be acknowledged in suitable terms, and the same invitation extended to the officers of the Literary and Philosophical Society.

The motion was carried by acclamation.

Dr. Thomson did not know whether he could separate his identity as Secretary to the Literary and Philosophical Society from that of member of the Liverpool Photographic Society, but if he could he would thank them for the manner in which the invitation of the Literary and Philosophical Society had been responded to. He then drew attention to a large diagram, on a black board, "dedicated to Mr. F. Howard," to show that the moon did revolve upon her axis once during her revolution round the earth. He pointed out that the face of the moon being kept in the direction of the centre of the circle representing the earth, she had turned her back to what might be called the four points of the compass, and therefore when she returned to her first position she must have gone round her own axis. He had been much surprised that his *learned* friend Mr. Frank Howard had fallen into such an error, but he thought the credit of the Society was at stake in allowing such errors to go forth uncorrected.

Mr. Frank Howard regretted that Dr. Thomson had not been present when the statement was made. He then would have seen the accuracy of the statement in the sense in which it was used. A member had asked whether the rotation of the moon on its axis could accouut for the much greater smoothness of the edge or outer line of the moon than of the centre. This clearly implied a rotation of a very different kind from that described by Dr. Thomson, and his own description and diagram proved that such a rotation as that enquired after and replied to could not exist; therefore the words used were quite correct. He then drew a wheel, (to which Dr. Thomson had referred in the course of his observations), and on the felly he drew a small circle, and said that precisely as that circle revolved upon its axis during the onward motion of the wheel, the moon revolved upon her axis, and no more. It was the most perfect parallel of the motion of the moon round the earth, performing a cycloid; but he thought that few persons in common conversation would say that that small circle revolved upon its axis. But even if they did, it was not the particular turning on its axis enquired after. If they took a common cup and ball, and whirled the ball round the handle, it would revolve upon its axis exactly as the moon revolved, but very few persons would so describe it. If, on the other hand, they twirled the ball with the finger and thumb, it would then certainly revolve upon its axis, the string by which it was suspended, and everybody would so understand it. This was the rotation enquired after, and such rotation on its axis the moon had not. There was no difference between them as to the facts, but only as to the words by which it should be described.

Dr. Thomson thought his friend had profited by a lesson he had given him, but the moon certainly revolved upon its axis, and the Society was brought into disrepute by such mis-statements appearing in the Journal.

Dr. Cauty said the Society was not responsible for what appeared in the Journal.

Mr. F. Howard would take upon himself all the responsibility of the words in the sense they were used. The Society were not in any degree responsible for what appeared in the Journal, or for what any member might say in that room; if they were they would be responsible for a great deal more than they would like.

The Chairman exhibited a very excellent folding camera, by Mr. Chadburn, the peculiar features of which were its lightness and compactness.

Several pretty little Photographic copies of prints were presented to the Society by Mr. Forrest.

Mr. Corey stated that amongst other complimentary attentions the Society had received was one from the Abbe Moigno, who had politely sent every week a French publication—the *Cosmos*—in one of the numbers of which he made honourable mention of the English public, and the Liverpool public in particular.

The Treasurer said he had hoped to be able that evening to lay before the Society some specimens of the work of French Photographers. During his visit to France he saw some magnificent specimens on the pier at Havre, but the price was so exorbitant that he could not be induced to become a purchaser. The photographer had taken views of the waves of the sea and the floating clouds, and made most artistic pictures of them. He had taken vessels and steamboats in motion, the outlines being as perfect as if the object had been stationary. The price he asked for a picture nine inches by seven inches was twenty francs, and when told that that was an enormous price, his only reply was that they were worth it. He (the Treasurer) saw Mr. Chevalier, the optician, who begged of him to present from him to the Society his last work, containing notices of his latest improvements, and an especial notice of an instrument adapted for enlarging from negatives, which he had perfected with very great trouble and care, and which would enable a photographer to produce from the smallest negatives positives of any size. In answer to Mr. Forrest, he (the Treasurer) said that the general impression in France respecting the photographs of the moon produced by the members of the Society, was that the Liverpool Photographers had got much further into the skies than the French Photographers had.

Mr. Forrest said if any one were to take a small camera and put a negative into their frame and their lens into a half-plate camera, they would then receive the image upon the ground glass of the large camera, and by adjusting the lens until they got the correct focus, they might take any sized picture, according to the size of the lens of the large camera.

Mr. Stewart, a member of the London Photographic Society, speaking in reference to the observations made by Mr. Bell respecting the views of the sea and clouds which he saw on the pier at Havre, said that he had seen photographs of the waves in motion two years ago, not only single views but double views for the stereoscope. He himself showed stereoscopic views of the sea at the first meeting of the London Photographic Society. To take such views was not so difficult as might be supposed. Of course the plates must be brought to such a degree of sensibility as to take the view momentarily, and then by means of a spring the cap must be removed and re-placed instantaneously.

In reply to a question from the Chairman, whether he got the persons to stand still for his photographs of St. George's Hall, Mr. Lee observed, that in one picture he took of St. George's Hall there were about 1500 people, who could not be asked to stand, yet all of whom were represented very distinctly. The time of exposure of the plate was from one to fourteen seconds.

Mr. Forrest: One very amusing object in the picture is a young man scratching his head.

Mr. Frank Howard referred to a letter which he had received from Mr. Townsend, relative to obtaining photographs of clouds, some specimens of which he had hoped to exhibit when he read his paper on the desirability of having small quantities of pure white or black in photographs.

11, Promenade Terrace, Cheltenham,
October 18th, 1854.

Dear Sir,—I am just returned from the Continent, having been absent from home more than two months; on my way through town Mr. Bolton put your letter into my hands.

I regret extremely that it was not in my power to assist you at the time you wrote. Had I been at home I should have had great pleasure in sending you what little I possess in the way of photographs of clouds; but I have had but very little time and opportunity since the publication of my paper to obtain further examples, though I feel certain that with time and opportunity I should be able to multiply them. Some of my skies have been taken with a single lens, when the atmosphere has been very clear and the sky very marked in light and shade. Those instances where I have taken perfect representations of clouds have been when I have used a double achromatic lens with a very small diaphragm, about a quarter of an inch in diameter; the time of exposure being from ten to fifteen seconds. To obtain both the landscape and clouds together, a sunlit distant view, with marked light and shade in the sky, or bright sunlit foreground and marked sky, should be chosen. Of course clouds can only be obtained with very short exposure, and little diffused light. Your paper interested me much, as I have always waged war against pure white skies in positives, and the "fine black skies" of negatives so greatly sought after; they are not only incorrect in an artistic sense, but frequently in a scientific one, as the sky is often less highly lit, than the landscape.

I am, dear Sir,
Yours very truly,
FREDERICK TOWNSEND.

Dr. EDWARDS expressed his opinion that it would be very desirable to retain the Exhibition of Photographs as a permanent one; and said that on a recent visit to London he had had an interview with Mr. Sanford, who had lately taken some splendid negatives upon wax paper, and had promised to present prints to the Exhibition.

The CHAIRMAN said he hoped this example would be followed by many others; for though the photographic season was comparatively at an end, there were many days in winter which would be extremely favourable for photographic operations on account of the clearness of the atmosphere, and as the trees would then be denuded of their foliage, many views might be taken which in summer it would be impossible to obtain.

Mr. SHERIDAN agreed with Dr. Edwards that it was extremely desirable that the Photographic Exhibition should be established as a permanent one, as it would be a kind of educational exhibition to the members who must there see the advances made from time to time in the various processes. He suggested that when photographs were presented to the society, a little more care should be taken of them; as he was grieved to see the beautiful photographs presented by Mr. Sanford, nailed against the damp wall of the exhibition room, without even a glass to protect them.

The CHAIRMAN then called upon Mr. Berry for his paper.

Mr. BERRY said that he had, in conjunction with Mr. Foard, made some experiments with the instantaneous process of Mr. Maxwell Lyte, which had convinced him that a great increase of sensibility could be obtained by its adoption; but as his experiments were yet incomplete, and he had not yet been able to determine upon the conditions necessary to success, he wished to defer the publication of his paper until next month. One thing he could state, that the process required a perfectly neutral bath, and the older the honey was the better.

Mr. SHERIDAN said that he was present at the meeting of the London Photographic Society in June last, when Messrs. Spiller and Crookes read their paper upon the preservation of the sensibility of collodion plates by the use of nitrate of magnesia. He had at that time, from experiment, condemned the process as impracticable; but he happened a few days ago to come across a box in which were three or four plates which had been prepared at that time, he took an impression upon one of them and obtained a very tolerable negative; and he believed if he had treated it fairly, it would have been perfectly successful. It was taken in the afternoon in a drawing room, and with very short exposure. He also exhibited one of the prepared plates which had been kept since June last, and upon which he had not yet experimented, In justice to Messrs. Spiller and Crookes he would retract anything he had said against their system, as he was now convinced that there really was something in it. He then circulated round the room the contents of a portfolio of photographic pictures, by Bedford, Roger Fenton, Sedgfield, How, and others, which were admitted by all present to be the most beautiful specimens which had ever been laid before the society. Mr. SHERIDAN said that he did not show himself ambitious of his own credit by circulating these exquisite productions before his own. He then introduced the subject of printing photographs, and passed round a most instructive and interesting series of pictures, showing the various tints obtained by the use of chlorides of barium, ammonium, sodium, &c., and also the changes which took place in the fixing bath. He had adopted the expedient of cutting the pictures in two, by which the colour was shown as taken from the printing frame, and also the colour after the picture was fixed. He also gave his formula for printing, which will be found in another column. He also exhibited some positives from collodion negatives by Mr. Keith, of Castle Street, which fully maintain the reputation he has already acquired. He would caution all practitioners against printing with ammonio-nitrate of silver, as he was not aware that it possessed any advantage over the simple nitrate, and he had never printed pictures with it satisfactorily, as they were always liable to fade. At the last meeting he stated that he had got a valuable hint from Mr. How, in regard to the preparation of silver solution for printing from fused nitrate, he (Mr. S.) presumed to insure its neutrality by the evaporation of all acid. But he had since printed some positives with very acid solutions, and could not observe any difference.

Mr. LEE exhibited a new American clothes-peg, and recommended it to the notice of paper-men as a very useful little article for hanging the papers up to dry. He said they could be obtained at one shilling a dozen from Mr. M'Dowell, St. George's Bazaar.

After a desultory conversation the proceedings terminated.

PHOTOGRAPHY.

(From Cosmos, 21st October, 1854.)

"Photography has not been wanting at the Congress of the different branches of Science and Industry which has taken place at Liverpool; it has shone with great brilliancy: for one of the principal results of that splendid reunion has been the exhibition of the beautiful photographs of the moon, taken by Messrs. Hartnup, Forrest, Edwards, and Berry, and of which we have already spoken. An immense linen cloth or screen, fifty feet square, was extended in front of one of the balconies of the gallery: on the balcony (opposite) was placed a magic lantern, illumined by a Drummond light, a jet of oxygen and hydrogen gas thrown upon a piece of lime: the photographs of the moon placed in the focus of the lens of the lantern, and illumined by that brilliant light, were projected on the screen, aggrandised to enormous proportions. They were in sufficient number to represent our satellite in all her phases from the new moon to the full; and the numerous audience, by the aid of the explanations of Messrs. Hartnup and Phillips, were enabled to make a complete study of the astonishing peculiarities of that surface, bristling with craters and volcanic mountains. Everybody admired a full moon as truly astonishing, and which covered almost the whole of the vast screen without losing its sharpness. Nevertheless we have regretted that the difficulty of obtaining positives on albumen compelled them to content themselves with negatives or inverse images.

Photography is cultivated with ardour at Liverpool: the numerous amateurs of that great city have constituted themselves into a very flourishing society, which publishes, like the Photographic Society of London, a monthly journal, which will be found *dans les salons du* Cosmos. It has, among other things, organised an exhibition truly remarkable, where we may see the *chefs-d'œuvre* of Archer, Diamond, Delamotte, Mayall, Williams, &c., &c. We have been struck with the beauty of the positives on collodionized glass by a young *artiste* of Liverpool, Mr. William Keith, of Castle-street. They will bear comparison with the most beautiful portraits on plate (query Daguerrotype or engraving? Ed.) and are obtained with extraordinary rapidity. Mr. Keith was quite willing to operate before us, without concealing anything, and he has promised to send us a complete description of his method for publication.

Mr. Berry, the director of the magnificent establishment for Pharmacy in Colquitt-street, an establishment with which there is nothing to compare in London or in Paris, and which is one of the wonders of Liverpool, exhibited to the Association some excellent negatives on collodion, obtained by the process of strengthening of which we give the formula.

Mr. Wenham brought some perfect Photographs of microscopic objects, obtained directly by the focus of an ordinary microscope with considerable enlargement, by an entirely novel arrangement of lenses.

Mr. Samuel Highly, of London, in a lecture, listened to with the greatest interest, described a most ingenious contrivance, by the aid of which the Photographic apparatus, on board a ship at full sail, could produce Photographic images of fixed objects situate on the sea or on its shores. He has also brought important *perfectionnements* to the difficult art of Photographic reproduction of microscopic objects for the study of anatomy and physiology. Mr. Deane exhibited the stereoscope with cosmoramic lenses, already described in the pages of *Cosmos* by Mr. Knight.

We had been charged by Mr. Ferrier to offer to the British Association large Photographs on paper representing views in France and Italy, obtained by means of negatives on albumen, and we cannot describe the wonder they excited. Mr. Fox Talbot, the illustrious inventor of Photography on paper, repeated to us many times that he had never seen any more perfect: that they were for him the *beau ideal.* It is in contemplating these apparently *chefs-d'œuvre* that we appreciate the service which M. Niépce de Saint Victor has rendered to the art, by the discovery of the properties of albumen. Why is it that some one has not yet given to this precious substance the only quality it wants, rapidity of impression? The stereoscopic views on albumenized glass, by M. Ferrier, were perhaps yet more admired, because no one at Liverpool knew how to imitate them, although Photographs on paper have been obtained with collodion, which, like those of Messrs. Bisson Bros., at Paris, rival the large prints obtained with albumen by M. Ferrier."

The remainder of the paper consists in some remarks upon the Craig telescope, twenty-four inches aperture, and seventy-seven feet focal length, but which unfortunately is not perfect nor hung equatorially, and on the mode adopted in taking Photographs of the moon.

A translation of Mr. Berry's paper on collodion negatives is also appended.

Familiar Instruction.—No. ix.

"Con tutto core."

The preparatory processes, according to Messrs. How and Townsend, were to be the subject of a series of experiments, before giving any directions upon the head of waxed-paper; and the effect of these experiments serves only to prove that though in the hands of their respective admirers, each is capable of producing most beautiful results, the facility of preparing is in favour of that of Mr. Townsend, to so great an extent as to outweigh any advantage that may be discoverable in any other mode. As it is in the preparation of the paper in its preliminary stage only that they differ, both shall have an accurate description, and our readers can then judge for themselves upon their respective merits.

First, as to the selection of the paper, the thin paper sold in this country, prepared by Messrs. Canson Freres, appears suited for waxing, but Whatman's has been recommended as being more easily kept clean in the subsequent washings. Whichever may be chosen, it is to be cut into convenient sizes for the camera, whether four, six, or nine to the sheet, and one of the pieces laid in a flat tin dish, containing perfectly clean wax, melted, without being allowed to boil. When thoroughly soaked into every part of it, the paper must be held up to drain and cool; the wax will be found concreted in thick masses over both sides; the paper so coated must be placed between four pieces of fresh paper; two layers of soft bibulous paper also beneath; the same above and a thicker piece of clean paper over all, an iron just heated so that a drop of saliva will boil upon it without immediately rolling off must be passed over it, the excess of wax will melt off the inner paper and spread to the rest; when all are thoroughly waxed, they must be separated, and each one by itself be ironed between fresh soft paper, (superior cap-paper is best), until the glossy appearance caused by excess of wax is no longer visible, and every part has the appearance of thin tissue paper when held up to the light. They are now fit for use.

Mr. Townsend advises the following solution to begin with. Take of

Iodide of potassium	600 grs.
Bromide of potassium	200 grs.
Water	40 oz.

When thoroughly dissolved add dry iodine in the form of dark scales, about 5 grs. so as to give the solution a deep brown sherry tint, but a paper giving directions at length will be found in page 90, No. 7, of this Journal.

Mr. How says, "Take some milk quite fresh, and add drop by drop 1½ drachm of glacial acetic acid to each quart, keeping the mixture stirred with a glass rod, until the curd be separated if not wholly divided. Boil in a porcelain or glass vessel until the entire coagulum be thrown down. After boiling five or ten minutes, suffer it to cool, and strain through muslin; when perfectly cold add the following chemicals:

Iodide of potassium	385 grs.
Bromide of potassium	60 grs.
Cyanide of potassium	30 grs.
Fluoride of potassium	20 grs.
Chloride of sodium, (common salt)	10 grs.
Resublimed iodine	1½ grs.
Alcohol	2 oz.

To be dissolved in 35 oz. of the strained whey; and after filtration through white blotting paper, it should be of a pale lemon colour.

Either of the above solutions (for here the difference of the two modes terminates) should be poured into a flat square dish, so as to be about half an inch up the sides of the vessel. Take one of your waxed papers by two corners, and, placing the two opposite corners against the sides of the dish, slowly bend the paper until it gradually touches the liquid, and continue the downward pressure till every part of the surface is passed upon the face of the liquid, driving all air bubbles before it, and now lies flat thereon. Press one of the corners under, and then with a bent glass rod sweep over the paper, thoroughly submerging it, and again driving off all air bubbles. Do this again and again; and then turn the paper and repeat the operation, so as to saturate the paper. The paper in Mr. Townsend's solution now appears of so deep a purple as almost to look black; that by Mr. How only just as deep a colour as to bear a proportion to the colours of the different liquids. Having completely immersed your paper, go through the same process with the other pieces of waxed-paper, until there are four or even six in the dish; suffer them to remain not less than two hours, and then pin each up to a shelf to drain and dry. They will keep in this condition a considerable time, and as the iodine becomes gradually used for the solution, it must be renewed. Now take of

Nitrate of silver	30 grs.
Glacial acetic acid	½ drm.
Distilled water	1 oz.
Alcohol	1 drm.

Pour about 6 oz. prepared as above into a fresh and perfectly clean dish, in a room lighted only by a candle, or through yellow glass, and gradually immerse the iodized paper therein, observing the same precaution as to air bubbles as before. The deep colour will slowly disappear, and the paper become again to all appearance quite white; but if it could be examined by daylight without the certainty of spoiling it, it would be found to be a deep primrose colour. It must now be left about eight or ten minutes, and then lifted into a dish containing fresh water; slightly agitated by its corner, and left again eight or ten minutes; and if not required for use the same day or the next, be washed a second time in more fresh water. In the meantime proceed with the other papers. When every one is washed, drain slightly, and then place piece by piece between folds of soft bibulous paper cut to the same size, or drain in a dark place by pinning the corner to a shelf till dry. The waxed-paper is now ready for the camera, and when placed in the dark slide should have either a piece of card board, or else a fold or two of red blotting interposed between each, else the light during the exposure will pass through and injure the paper on the opposite side. The time for exposure varies according to the amount of light and its active influence; at the present season the brightest lights will not produce a picture in less than five minutes, and if the sun be not shining, the time must be as much as 30 or even 45 minutes, whereas in the bright summer weather two minutes suffices. Much good effect may be looked for if we should have a clear sharp frost, as the papers are not so susceptible to cold as the metal plates in Daguerre's principle; and many objects which during the summer are concealed by the overhanging umbrage of the thickly leaved trees, are now shining out through the bare and motionless branches; many objects too on the borders of lakes or banks of rivers which could be at other times approached only by shifting and unsteady boats, will present striking objects from the firm and unyielding ice.

We will now proceed to the development. In all books of instruction we are told to use saturated solution of gallic acid; but to fill water with gallic acid and leave it to dissolve, will not saturate the solution. Put about half an ounce of gallic acid into a glass measure that will bear moderate heat; pour nearly boiling water upon it, by very gentle degrees, constantly agitating the glass until the whole is dissolved; set it by to get cold, when much will be found again deposited; the supernatant liquid is saturated solution. Of this take four ounces, and add to it one drm. of sensitizing solution to which about six drops more of glacial acetic acid has been added, and shake up thoroughly and pour into a clean flat dish. If any doubts of its perfect cleanliness exist, wash carefully with a solution of cyanide of potassium. Place first a fresh piece of soft paper at the bottom, then one of your exposed waxed-papers, taking great care to smooth out all air bubbles; upon that put another; and over all another fresh piece of soft paper, to save the photographs from being stained by the decomposition which ensues. Should the liquid become too suddenly brown, and throw down a dark-coloured deposit, it must be changed for fresh in another dish carefully washed as before. The time for developing will vary according to the light and time of exposure, and may be broadly stated to range from four hours to forty hours. During its progress they may be taken, and held up to weak or masked lights to examine them. Here I will call attention to a most excellent letter from Mr. Marriott, at the head of our correspondence this month, which contains the result of most judicious experiments in this stage, and ought to be most attentively considered by the reader. When so far developed that the skies appear black or nearly so, and all the middle tints are brought out, and the outlines clearly perceptible, whilst the whites are clean and not cobwebbed, the development is sufficient; and the negative must be well washed in two waters, and then plunged into a solution of hyposulphite of soda, 60 grains to an ounce, and left there with occasional agitation, until the whole of the yellow iodide remaining is dissolved out, when it must be washed in three or four waters, left for an hour, and then pinned up to dry. If held to the fire so as to gently warm the wax, or a warm iron be passed over it, in some cases re-waxed, it will be found much more transparent and better fitted for printing.

MR. SHERIDAN'S FORMULA FOR PRINTING PHOTOGRAPHS. *Fixing Solution*:—Hyposulphite of soda, 3 oz.; chloride of silver, 120 grs.; iodide of silver, 20 grs.; chloride of gold, 6 grs.; pyrogallic acid, $\frac{1}{2}$ gr.; water, 20 oz. To this Mr. Sheridan adds two or three grs. of nitrate of silver, because it had been recommended, though he is unable to account for its use, as it would be converted into chloride as soon as it touched the liquid, and there is a large amount of chloride already.

ENGRAVING BY PHOTOGRAPHIC PROCESSES.

M. Niépce de St. Victor, the nephew of M. Joseph Nicéphore Niépce, one of the earliest experimenters in photography, has been long engaged in perfecting his uncle's process of engraving by means of the operation of light. M. Chevreul at the same time that M. Nicéphore Niépce was engaged with M. Daguerre, though ignorant of their investigations, was occupied with a cognate subject, the effect of light upon dyed stuffs. In consequence of some discoveries of M. Chevreul, that in the case of dyed stuffs the action of the air was necessary to enable the light to act, a double experiment was made in his presence by M. Niépce de St. Victor, on plates of silvered copper, coated with a varnish which was compounded of

Benzine ....90 parts.
Essential oil of lemon-peel......10 ,,
Bitumen of Judæa, (Asphaltum). 2 ,,

a slight modification of the original formulæ of M. Nicéphore Niépce One of these was placed in the receiver of an air pump, exhausted to half an inch of mercury, the other was placed in a similar receiver, but unaffected by the air pump. A photographic picture on albumenised glass was laid upon each plate, and they were then subjected to the sun for ten minutes; they were then submitted to the developing agent,

Oil of naphtha ....3 parts.
Benzine ....1 ,,

The image appeared on the plate which was in the receiver full of air, but no trace could be discovered on that which had been in the exhausted receiver, showing the necessity of the union of air with light to effect the photographic action. To show that there was no peculiarity in the receivers to cause this difference of influence, they were reversed, and the experiment tried again with the same results. In *vacuo* no image could be obtained. M. Chevreul observes that it should now be ascertained in what manner the air acts, which he proposes to investigate. M. Niépce de St. Victor intends to repeat the photographic experiments in various gases, particularly in oxygen.

Whether the above discovery is the important and unforeseen circumstance which has induced M. Niépce de St. Victor to anticipate his memoir we cannot say, but he has published many of the results of his endeavours to improve his uncle's method of engraving by photography. He adheres to the bitumen of Judæa, (Asphaltum) proposed by M. Nicéphore Niépce, but under the modification mentioned in the formula given above. He produced a portrait of the Emperor of France, very lightly touched by the graver, after the action of the aqua fortis and a view of the Louvre, which required no touching.

M. Chevreul says that the improvements by Mr. Niépce de St. Victor, on the process of his uncle, are: first, the rendering the varnish compounded of asphaltum about sixteen times as sensitive as before; 2nd, having obtained a varnish more homogeneous, and more capable of resisting the action of aqua fortis, after it has received not only the impression of the light, but also the influence of the air. And he suggests that to render the process of M. J. N. Niépce perfect, it remains to operate in the camera obscura on a metal plate, with an organic matter more sensitive than the present varnish, and which matter after the action of air and light shall remain insoluble in the developing fluid, and in the acids that are requisite to bite in the parts of the metal plate which are laid bare by the operation.

According to M. Chevreul, the process for obtaining the heliographic engraving of the view of the Louvre was:—1. The production in the camera of a negative on albumenised glass. 2. A positive obtained on albumenised glass from that negative. 3. The application of that positive to a steel plate coated with the bitumen, and then submitted to the vapour of the essence of bergamot. 4. The exposure to the light. 5. The development or dissolution by benzine of such parts of the bitumen as are unacted on by the light; or placed under the blacks of the positive. 6. The biting in of the plate by aqua fortis. On this the editor of *Cosmos* says:—"If we have properly understood the note of M. Niépce de St. Victor, this series of operations is not quite exact, and will lead into error any parties acting upon them. It is not before the exposure to the light; but after that exposure, and also after the application of the solvent or developing agent, the benzine, that the plate should be submitted to the vapours of bergamot, immediately before the biting in with aqua fortis. And that, in fact, the object of the fumigation is to render impermeable to aqua fortis the whites of the image represented by the bitumen which the action of the light has rendered insoluble by the benzine, and already partially capable of resisting the action of aqua fortis; the other parts of the plate, denuded of the bitumen by the solvent or developing agent, and which correspond with the blacks or dark tints of the subject, will thus be alone acted upon by the aqua fortis, until they have the depth of engraving.

M. Niépce recommends that a steel plate should never be bitten in till the photographic action is perfectly successful, or the image well brought out: then the result will be infallible, if the coat of varnish on the plate be thin, homogeneous, uniform, free from grains of dust or air bubbles, made of good asphaltum, properly exposed to the air and light. If these conditions be complied with, the time of exposure to the light need be very short; and one might almost take the image direct upon the steel plate in the camera, without the intervention of the positive on albumenised glass: but at the present stage of the discovery, he says that it will be more prudent to act through the intermediate process of placing a positive above and in contact with the metal plate, and expose it thus to the action of the light.

The editor of the *Cosmos* says that the new varnish of M. Niépce is more fluid than that made according to his previous formula, extending itself thinner over the plate, is more sensitive, receiving more delicate traits, and reproducing better the middle tints; and it is equally adapted to engraving on glass. The plate of glass is submitted to the same operation as the metal, but instead of biting in with nitric acid, fluoric acid is used. If subjected to the vapour of that acid it will be engraved *en met* (flat). If covered with the acid diluted in water, it will be engraved hollow. We may thus obtain very pretty photographic drawings engraved on glass. If glass flashed with colour on one side be used, white drawings on a coloured ground will be obtained.

M. Niépce terminates his note by the following interesting observations:—

1. A plate covered with sensitive varnish, and submitted in the dark to a current of air, will be found in the same condition as if it had been exposed during the time to the combined action of the air and light. The varnish is no longer soluble in benzine.

2. A plate exposed to the light and air in such a way that the varnish which covers it is no longer soluble, remains in the same condition of insolubility after a long stay in a box well-closed; the solubility is not re-established, as some persons suppose.

For a certain time exposure to the light greatly increases the sensitiveness of asphaltum; after which it destroys it altogether.

Photography on Lithographic Stones.—We have seen many attempts to fix the productions of the camera on Lithographic stones, in order to obtain the power of reproducing them by the ordinary process. M. Herman Halleux announced that he has succeeded in fixing the images of living objects. The processes to be followed vary with the objects to be represented. *En âttendant* the publication of all these means, we may give the mode of fixing and reproducing the images of architectural objects. He selects a stone which is not too heavy, and gives it the grain that is required for a chalk drawing; he then impregnates this surface with a weak solution of sesqui-oxide of iron, free from oxalate. Thus prepared, the stone will keep a long time, provided that it be not in the light. When the stone is to be exposed in the camera, it should not be wet, but moist. The time of exposure will vary. It is developed with a solution of carbonate of ammonia, after which it is washed, and prepared for printing in the usual way.—*Cosmos, 28th October*, 1854.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—Having found the wax-paper very uncertain in developing, and not knowing the best of the many formulæ published by different parties, I have been led to try some experiments upon the subject, the results of which are at your service, if likely to interest any of your readers. The papers I used were Canson's and Whatman's; prepared some according to Mr. How's formula, some according to Mr. Thompson's. Pieces of these were excited, and exposed in a frame together to diffused light, the parts intended to remain white being protected by slips of tin foil; the time of exposure varied from ten seconds to fifteen minutes. Each of those pieces was afterwards divided into six, and placed in the following developing solutions:—

A	Saturated sol. gallic acid, made with hot distilled water, and allowed to cool.	
B	Sat. sol, gal. acid	1 oz.
	Acetic acid (commercial)	1 drm.
C	Sat. sol. gal. acid	1 oz.
	Acetic acid	1 drm.
	Aceto nitrate of silver	½ drm.

D, E, F same as A, B, C With the addition of two volumes of distilled water.

The papers in C were developed very well in three quarters of an hour; the blacks were intense, and the whites very bright. Those in F were well developed in 1 hour 50 minutes; the blacks good and the whites clear. Those in A and B only showed faint traces after three hours, when half a drachm of aceto-nitrate of silver was added to each; the papers then developed rapidly, and were taken out in about 30 minutes. Those in A being very intense, but the whites being muddy. Those in B much clearer, but not so dark.

The pieces in D and E were left for 24 hours before any aceto-nitrate was added; they all went muddy, and some very faint, hardly showing that they had been acted upon by light.

I tried another set of experiments, using three different developing solutions:—

A	Sat. sol. gal. acid	1 oz.
	Aceto nit. silver	20 drops.
B	Sat. sol. gal. acid	1 oz.
	Aceto nit. silver	20 drops.
	Acetic acid	20 drops.
C	Sat. sol. gal. acid (with acetic acid), which had been used the day before and filtered...	1 oz.
	Aceto nit. silver	20 drops.

The object of this last was to see if a discoloured solution of gallic acid could be used without staining the pictures. The papers, after exposure to light, were developed very rapidly by A, and quickly by B and C, but with very great difference as to intensity; the acetic acid appearing to keep the white clear, but at the expense of the shadows. From these experiments, and others I need not particularize, I deduce that pictures ought to be quickly developed to prevent staining; that the gallic acid solution ought to be saturated; that acetic acid ought not to be used when the proof is supposed to be faint from short exposure or bad light, but that it is very useful in lowering the tone of a too forcible negative, and keeping the lights clear. I do not like to use the gallic acid a second time, as it certainly tends to stain the paper if a faint negative is not developed in half or three quarters of an hour, or as soon as the silver begins to precipitate, and the gallic acid to turn brown. I think it best to throw away the solution, wash the negative well in clean water, and place it in some fresh gallic acid and aceto nitrate until sufficiently forcible. I found both Canson's and Whatman's papers good: the latter much more opaque in the shadows, and easier to keep clean in developing; the former stronger in texture, and the definition and detail much clearer. The papers prepared according to Mr. How's formula I thought rather more intense and sensitive, but the others were very good. I intend to try some experiments as to the best preparation for wax paper, and will send you the results if I should find any points not already noticed.

I remain, dear Sir, yours most sincerely,

MONTAGUE MARRIOTT.

Montpelier-square, London, 4th Nov., 1852.

To the Editor of the Liverpool Photographic Journal.

Sir—Since I wrote you I have satisfied myself that cyanide and fluoride of potassium increase the sensibility and intensity of wax paper, but I intend to make further experiments on this point. In writing an account of the wax-paper process, you will perhaps allow me to suggest the importance of a few points:

1. Choice of paper.
2. Regular waxing—(turpentine I have found injurious, it lessens intensity). I use an iron plate over a gas-burner.
3. Choice of an iodizing solution.
4. Time of immersion, which ought not to be less than two or three hours.
5. Careful washing after excitation. I always use one quantity of distilled water for the first washing; this lasts for a long time, and saves the silver; for the second washing a *large* quantity of river water answers well.
6. Developing. This I think ought to be done with a sat. sol. of gallic acid and aceto nitrate of silver, generally without the use of acetic acid, at least in our climate. I have been unfortunate enough to spoil many negatives from this cause, before the experiments I made showed me its peculiar retarding effects.

I shall be most happy to give you any details that you may think useful on any of the points I have written on. I remain, yours sincerely,

M. MARRIOTT.

Montpelier-square, London, 8th Nov., 1854.

To the Editor of the Liverpool Photographic Journal.

Sir—The fallacy asserted in the editorial note on Tyro's communication in your last number will be speedily dissipated, if you can prevail upon Mr. F. Howard, or some other member, at the next meeting, to move twice round any table in the room; in one case keeping his face turned to the centre of the table, and in the other, to some particular corner of the room. In the second case, the gentleman will not turn upon any real or imaginary axis within himself, and yet every side of his head will in succession be turned towards the table. In the first case, the gentleman turns upon his axis once for each circuit which he performs round the table, and illustrates popularly the reason of the same face or side of the room being turned always towards the earth.

This note is not intended for insertion in the Journal; but if the members of the Society are expected to feel proud of the Journal, it will be desirable that errors, when pointed out, should be acknowledged and corrected.

I am, Sir, your obedient Servant,

A MEMBER OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY

Nov. 2, 1854.

[We hope our correspondent will not object to our printing his letter, as it will save us a lengthened explanation, for which we had not room last month. The "fallacy" to which we alluded was involved in the supposition of the "Tyro" that such a turning on its axis as described above could have any connexion with the turning on its axis which was referred to by Mr. F. Howard and the member who made the enquiry whether the turning on its axis could have caused the greater smoothness of the outer than of the inner edge of the half moon—implying that the photograph had been rendered defective by the motion of the outer edge. In this respect, or photographically, the moon may be said not to turn on her own axis; as, according to the statements of our present correspondent, and the quotation from the "elementary books" recommended to Mr. Howard's study, she only turns, if we may use such an Irish mode of expression, that she may not turn at all, as regards the earth. In that relation she turns upon her own axis precisely as much, and no more, than a circle inscribed on the felly or circumference of a wheel would do during the revolutions of that wheel. The circle itself would, like the moon round the earth, perform a cycloid round the nave of the wheel, and in the manner in which our correspondent proposes Mr. Howard should revolve on his own axis round the table, may be said to revolve upon its axis, though few persons, in common conversation, would so describe its action. Whether the moon be kept in its apparent fixed relation with the earth by a powerful attraction which will not suffer the nearest point of the moon to recede from it, or whether it turns with an independent motion, so as to keep her face always turned to the earth, is wholly beside the question put at the meeting, and to which the reply was made. If it be objected that such a rotation on its axis as we refer to would have affected the inner as much as the outer edge of the moon, it must be admitted that such would be the case, and that the query must have been made without considering what it involved; but to suppose that such rotation as referred to by our correspondent could be alluded to, is to reduce the query to an absolute absurdity. We presume that this was the feeling of the meeting, and accounts for the silence on the subject to which our first correspondent adverted as the exciting cause of his letter. No pains will be spared by us to render this Journal such as the Society may justly be proud of, and we think we cannot do that better than by limiting the discussions in our pages to the matters in dispute, rather than the words which may be made use of in the course of au argument. The reverse of this is the foundation of uumberless "fallacies" iu the present day.—Ed.] *Note.*—It will bcen that th is matter was taken up at the Society's last meeting, and Mr. Howard gave a similar explanation of his meaning.

To the Editor of the Liverpool Photographic Journal.

Sir—Owing to the difficulty of getting collodion good regularly, we were iuduced to try for ourselves. We have tried Mr. Knott's process, but without effect.

We got our chemicals at the first place in this town, and as finely prepared cotton as could be obtained in the world. We took his instructions from No. 8, of your Journal. Although we went to the letter, we could not get the cotton to dissolve; after standing some hours we decanted the ether from the cotton, and we have the ether now as clear as when the cotton was put to it, and the cotton, now it is dry, similar to what it was when put in the ether, like some very small flocks.

If, Sir, you or Mr. Knott could inform us how we missed it, or would put us in the way of making good positive collodion, we should feel obliged.

SUBSCRIBERS FROM THE FIRST.

Clarendon-place, near Manchester.

P.S.—Sir, is there any difference between Æther and Ether?—[None. Ed.]

[The cotton would appear to be insoluble —if too iuflammable it is always so. The æther may be too pure. If our correspondent would send down samples of the cotton and the æther, a more conclusive answer shall be given as to the cause of failure. Look at Mr. Hadow's paper on collodion in No. 4, of our Journal, page 52, and Mr. Burgess' paper in No. 5, page 61—and see also the following letter.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—I thank you for your prompt reply to my last note. I have finished making the camera for use in a room, and from experiments already made I have no doubt it will answer. I have made the slide so that it can be leaned, with reference to the lens, hanging it, as you suggest, like a looking-glass.

You may perhaps remember that you and I had some conversation respecting the best mode of preparing iodized collodion. Since I returned home I have looked over the numbers of the "Liverpool Photographic Journal," and find it is there stated, as I understand (page 50), that when bromine is used in the collodiou, a 60 grain silver bath is necessary. Now I regularly use a 30 grain bath, and it would be very inconvenient to have to change. I think you stated that the best way to sensitize collodion was to put in first the iodide of potassium, and then gradually to add a solution of bromine till the uecessary effect was produced. I beg to ask if a 60 grain bath is necessary in this case? There is another question also: bromine being very volatile and bad to keep and manage, will not a salt of bromine do as well? I am about to try iodide of cadmium iustead of iodide of potassium, for the purpose of making a collodion that will keep well. From your experience, would you say that I might add to it bromide of cadmium for the purpose of obtaining greater sensitiveness?

I observe in No. 5, of the Liverpool Journal, you have a paper ou the preparation of gun cotton. I have adopted a plan suggested in the London Journal, and I never fail now in getting good cotton; it is the following:—

Take of dried nitrate of potass coarsely powdered 10 drachms, sulphuric acid, the ordinary strength of the shops, 20 drachms by weight—mix. After a little while, aud when the temperature of the mixture is not uuder 130 deg., add cotton wool 60 grains; immerse for 15 minutes at least; wash, by putting the cotton into a funnel and allowing water to percolate through it under a tap for a considerable time, till all the acid is removed.

I find that the advantage of this process is that any one can perform it, anywhere. Pure sulphuric acid and nitrate of potass are not necessary, and you have no need to the "lang lum," at Glasgow, for the former. It is uecessary to attend to the temperature; if too high the cotton is dissolved in the acid; if too low, it will not be soluble. The addition of the water to the nitrate of potass causes the temperature to be raised even too high when the acid is added; so that it is necessary to wait a little before the cotton is introduced.

If I could iodize my collodion as well as I can make it I should be satisfied.

I am, Dear Sir,

Yours sincerely,

Otley, Oct. 6th, 1854. EDWARD THOMPSON.

[Any of the bromides may be used. Mr. Berry used and recommended bromide of ammonium. Look again to his paper on the subject, and the decision thereon in No. 4, at the page you refer to. Bromide of calcium has also been used successfully. Your other questions shall be answered next month. —Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—You will greatly oblige by an answer in your next number of the Photographic Journal to the following:—Mr. Sheridau, in No. 9, speaks of having taken with him twenty-four sheets of paper, twenty of which he made available. Does Mr. S. use double slides, which would require twelve? or what other form of slide to take so many paper pictures in one afternoon? I am, yours, &c.

Heaverhill, Nov. 4, 1854. S. SUCKLING.

[On the occasion alluded to, Mr. Sheridan was sufficiently near to a house to change his papers, but he has a travelling car which he can convert into a dark room, and with this aid he operated most successfully at Bolton Abbey.—Ed.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

No. 12.—DECEMBER 9, 1854.

Holding the position of principal Provincial organ of Photography, our columns are, of course, open to the communications of all persons, whether desirous of making enquiries, or of placing before the public new processes or contrivances, or observations on any subject connected with the art or science. When statements of facts within the writers' knowledge come to us attested by a name and address, however we may doubt the accuracy of the observation, we are bound to place it before the public. We have neither an index expurgatorius—nor a censorship of the press, to decide what any person shall write or publish, so long as it is not a personal attack on any other parties. If any one choose to emulate Dogberry, and "write himself down an ass," he must take the responsibility of it. What we deem absurd opinions, we might qualify with a doubt; but when any individual, be he high or low, writes that he has tried certain experiments and found certain results, we should not be justified in withholding it from our pages, however extraordinary or contrary to preconceived notions it might appear. It is our duty as a Photographic Journal to give publicity to it, and leave the body of Photographers to judge of it and test its accuracy. Many of the best Photographers have been led into mistakes. Mr. Maxwell Lyte sent a "wrong letter" on his instantaneous process to the London *Photographic Journal*, which was inserted without comment; but, causing many enquiries from correspondents, was corrected by the transmission of the "right" letter some time afterwards. Mr. James Cullen Smith, dating from the Grange, Ashton-under-Lyne, sent us a new formula the month before last, just in time for insertion, but leaving us no space, if we had felt the inclination, to make a comment on it. We suppose that subsequently, like many other formulæ put forward in this infant state of the science of Photography, he found it would not work: but being of Fouché's opinion, that "a man had better be a knave than a fool," instead of acknowledging his *folly*, he prefers the reputation for *knavery*, and he sent a letter to the London *Photographic Journal* stating, that he had practised a hoax upon us. But when a man puts it in writing that he has previously written a lie, the question is, which is the truth? and we may fairly ask whether he is not endeavouring to practice a hoax on the London *Journal*, in making them believe that his blunders were intended as a hoax upon us. The cap of folly must remain upon the head of our correspondent in either case, though few may be inclined to dispute his claim to the laurels of knavery. The hoax, if any, in the first instance, is practised upon the great body of Photographers and not upon us. Mr. Sheridan, one of the ablest practical Photographers among us, has remarked, that those most successful in the art have not been the best chemists, and he did not profess to be one himself. His practical experience, and that of other extensive operators, might give power of estimating a formulæ tolerably accurately at first sight. It is possible, though we have great doubts on the point, that good chemists might, with similar certainty and more confidence, pronounce upon the efficacy of any proposed method. But in the present stage of the art, the great number of Photographers are neither profound chemists nor experienced operators; and it is upon them that the hoax, if any, as we said before, has been practised, and they alone will probably have been the victims of Mr. James Cullen Smith's blunders or falsehoods. It is of little consequence which they may be, as our inexperienced or unscientific readers cannot do better than follow the advice given by Mr. Sheridan, and other successful operators, "adopt some one method and adhere to it." If there be any truth in the statement that the letter was intended as a hoax, it must have been intended as a covert attack upon our valuable member Mr. Berry, in which case it is only a further proof of Mr. James Cullen Smith's folly; for the reputation of Mr. Berry, as a scientific and practical Photographer, stands so high, that nothing that Mr. Smith or any one else can say, will ever reach it, fly their kites or their folly never so high.

Were we astrologers, we should say that Mercury, the god of petty larceny, was in the ascendant, and being jealous of the attention Photographers have recently paid to the cold Moon, has exercised his baleful influence on the art, and cast an evil eye on the journals and operators in general. Immediately alongside of the notice of Mr. James Cullen Smith's claim for the crown of knavery, in the London *Photographic Journal* appears a letter from Mr. Robert Barclay, of Farringdon-street, stating that he did not write the letter which, signed by his name, appeared in that Journal two months before; complaining, as we understand him, of his name having been used to ask a question that implied folly or ignorance, under the imputation of which he declines to remain. Some captious writing has also appeared in the London *Journal* and *Notes and Queries*, to which our Devonshire friend, Mr. Hele, and another correspondent, J. W. H. have administered a just and temperate rebuke.

"Our art is a new one, and it is as well that there are different opinions amongst those who devote themselves to it, as it developes not pictures merely, but skill and talents also: and each may perhaps be enabled to add a mite to the wonders of the 19th century. And this, Mr. Editor, will be best accomplished by each of us trying to excel in our own line, and communicating the results of our experience to each other, without decrying other processes, or squabbling which is the best process, collodion or albumen, wax paper or calotype."

This good advice has not been followed, for we have since had two long letters on Collodion *v.* Paper, writen with considerable causticity, and reminding us of the knight with the gold aud silver shield: each knows his own results, but appears to be scarcely acquainted with the results obtained by other processes. Mr. Owen, of Bristol, and a friend of his, Mr. Ponting, have taken Photographs of the same scene, both on collodion and by calotype, and in their estimation the latter was by far the most satisfactory.

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

SECT. III. APPARATUS.

(Concluded.)

SCREENS. Fr. *Ecrans.* Upright folding frames, covered with different materials for back-grounds. Dark blue or drab appear to be the best colours; these may be either of cloth of those colours or painted in distemper. A good effect is produced by having the back-ground of black cotton velvet; and working in a soft reflected light wherever requisite to relieve a dark part of the figure, by means of a white hand-screen or sheet of stiff white pasteboard, on a long handle, moved about between the sitter and the screen, and in the direction in which the illumination is required. In taking portraits at a room-window a white screen should be placed so as to reflect some light upon the otherwise un-illuminated side of the figure, so as to prevent deep harsh shadows.

STEREOSCOPE: An instrument in which a pair of views or portraits, taken at different angles to correspond with the views seen by each eye separately, are superimposed by refraction through two half lenses placed edge towards edge, the width of the eyes apart; or by reflection from two mirrors, placed at right angles, thereby giving the appearance of perfect solidity and relief.

STEREOSCOPIC CAMERA. A camera suited for taking double photographs for the stereoscope.

The Quintoscope (vide ante) is a variety of this instrument.

TRAYS, PORCELAIN or EARTHENWARE Fr. *Curvette, en Fayence ou Porcelaine.* Are made oblong, of various sizes and shapes, to suit the different sizes the photographic papers cut to; none should be used that have not ears at the corners, or at least one at one corner, as without this aid it would be almost impossible to pour properly from them in returning the solutions to their bottles. These trays should be selected as flat in the bottom as possible, as many warp in the kiln. Care should be also taken to avoid those containing spots or kiln cracks, as the silver solutions would affect them and perhaps cause "marbling" in future proofs.

Gutta Percha is sometimes employed with considerable advantage for these trays; but for the silver solutions, for the paper processes, it is safer to use porcelain or glass.

VAPOUR PANS. Fr. *Boîtes a Vapeur.* The boxes containing glass dishes for applying the iodide and bromine in the Daguerreotype are sometimes so called.

ERRATA.

Glossary, p. 142, *for* Section III. *read* II.
Do do. Art Plateholder, 4th line from end, *for* beautiful vacuum, *read* partial vacuum.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The tenth meeting of the second Session was held at the Royal Institution, on Tuesday evening: Mr. Newlands, the President, occupying the Chair. There was a large attendance of members, and the proceedings were of an unusually interesting description.

On the proposition of Mr. Forrest, seconded by Mr. Corey, Mr. J. H. Weightman, of Eaton-place, Breck-road, and Mr. W. Anderton, of 25, Falkner-square, were elected members of the Society.

A discussion, originated by Mr. Bell, the Treasurer, with respect to the needless expense of sending notices of each meeting to members—needless because more than one half were always returned with "not to be found," "gone away," "refuses to pay," or something of the kind written upon them,—resulted in a suggestion, by Mr. Woods, to the effect, that at the commencement of each session, members be furnished with a card, stating the evenings throughout the year on which meetings would be held, and that an advertisement be inserted in one or more of the Liverpool newspapers preceding each monthly meeting, stating the subjects to be discussed.

Mr. Sheridan said that a newspaper advertisement would not answer the purpose, while he was persuaded that some means should be adopted to let the members know the subjects to be discussed, which, in many cases, would cause gentlemen to attend who otherwise would not. He was of opinion that gentlemen who lived at a distance, would be glad to pay a shilling a year to have their notices posted.

The President stated that in the London Societies such members as wished to have their notices sent by post, forwarded to the Secretary a requisite number of stamped envelopes directed to themselves.

Mr. Frank Howard thought this suggestion a valuable one, and if Mr. Sheridan would put it in the form of a resolution, he should have great pleasure in seconding it.

After some further discussion, it was deemed advisable to defer the consideration of the subject until the next monthly meeting.

Mr. Corey exhibited and explained M. Marion's (of London) newly invented dark slide for the wax paper process. The contrivance consists of a narrow envelope of card-board, the size of the dark frame, up which passes a card that has the sensitive paper pasted by its upper edge upon it; the envelope is long enough to pass through a small slit or opening in the top of the slide. We annex the directions for its use. "Undo the screws of the door in the frame, to their whole length; open the said door, and place the envelope in the frame, causing the upper part to enter the opening made at the top; remove the flap, then close the door again, and fasten the bottom screw, which should press upon the card-board without touching the envelope. This done, place your frame in the groove of the camera, and draw out the envelope by the part which projects beyond the frame, until you find a resistance; the envelope will then be entirely drawn up, and will have left the sensitive sheet exposed, being held fast by the binding screw at the bottom. Now turn the two, four, or six binding screws in the centre, (according to the size of the paper,) which serve to push forward the sensitive sheet, and place it in the focus; it will then be found pressed by the card-board close against the glass of the frame. This done, proceed as usual." The dark slide and enclosed envelope, on being passed round the room, was much admired for the ingenuity displayed in its construction.

Mr. Berry said, at the last meeting he proposed that he should, this evening, say a few words on some experiments with Mr. Maxwell Lyte's process, by which he had been able to obtain much more rapid results than by the ordinary process. On the 30th of November and the 1st of December he went to the Observatory, and with a long focus lens, took a positive impression of a brig; the river was very rough at the time, and the vessel rolled considerably; but by watching his opportunity when the roll was at its extremity on one side, and by opening and shutting the camera as quickly as he could, he obtained the spars and rigging perfectly sharp and distinct, notwithstanding it was a very dull morning. The solutions prepared according to Mr. M. Lyte's formulæ had greatly improved in effect by keeping. He might observe, before sitting down, that a gentleman wished him to take a view over the water, for which purpose he prepared some wax-paper, intending to make use of it on the first opportunity. It was a month ago when he prepared his paper, and that opportunity had not occurred; this, he thought, was an effectual answer to wax-paper. If he had wished to have taken the view with collodion, he could have got it anytime. Curiosity, however, prompted him to try one of these sheets of wax-paper prepared a month ago. On Saturday last, at a very dull period of the day, he placed the sheet in his camera, and took little pains in developing, yet he obtained a result that had nothing particularly the matter with it, and which, with additional care, would have proved very creditable. Mr. Corey had complained of black spots on his negatives. They would observe in the specimens obtained, as he had just described, a kind of circle, which was caused either by neglecting to soak the paper long enough in the silver bath, or to wash it thoroughly afterwards; unless the wax-paper was thoroughly saturated with moisture, so that the whole would run off without forming deposits in different places, spots would occur. That was why he advocated a prolonged exposure in the bath, and washing. The peculiar worm-creeping look was in consequence of using, he imagined, hyposulphite instead of cyanide. Mr. Berry also produced an economical envelope, to be used in a similar way to that of Mr. Marion's, consisting of a brown paper bag, which may be readily made, and is easy to use. In conclusion, Mr. Berry expressed his belief that wax-paper was not so very susceptible of injury as it was imagined. The sheet to which he had referred, lay on his desk near a window, among several, with nothing over them but a piece of brown paper. He took it out early in the morning, carried it away to the dark slide, and put it in the camera: in fact. he did not believe in dark rooms.

In reply to Mr. Sheridan, Mr. Berry stated that it was prepared by Townsend's process.

Mr. Forrest exhibited and explained an envelope for wax-paper, of a similar construction to that shown by Mr. Corey, but more simple in its action, being adapted to the usual dark slide.

The Chairman: You have not to gum your paper?

Mr. Forrest: No; I hold it with one hand, and draw up the envelope with the other.

The Chairman: And you can make a dozen of them in an hour or two, and put them in a small space?

Mr. Forrest: Yes, and they act with great ease. There is a pencil mark showing when you have got high enough.

Mr. Burgess said he had received a second letter from Mr. Thompson, of Otley, complaining of the publication of his previous communication in the *Photographic Journal*, on the ground that it was a private letter. The letter in last month's *Journal* appeared very absurd,—at least gentlemen would find it so if they worked upon the formula for making gun cotton given in it. That formula was very different to the one he (Mr. Burgess) introduced to the notice of the Society some time ago, Mr. Thompson using water "in addition to the nitrate of potass." The mere fact of the writer having used water was the cause of his letter being brought before the Society. It contained nothing of a private nature, and, emanating from a chemist, it was thought worthy of publication: the 2 drachms of water was accidentally omitted.

The following paper upon "Collodion Transparencies," by Mr. McInnes, was read, at that gentleman's request, by Mr. J. A. Forrest, numerous beautiful specimens illustrating the process being circulated about the room.

In laying before the Society a few specimens of my positive transparent pictures, enlarged from small negatives, I beg to offer a few remarks, and an outline of my method of obtaining them.

Some time ago I had the pleasure of exhibiting before this Society, a small and very portable camera, well adapted for out of door work, capable of taking a picture, small indeed, but of extreme sharpness and intensity. The ease and rapidity with which I could obtain, in almost any situation, a strong negative, by this small apparatus, induced me to try whether I could not enlarge them, without losing any of the beautiful detail of the original. I adopted the mode of enlargement described by Mr. Stewart, in a letter to Sir John Herschel, which appeared in the *Athenæum* newspaper some months ago, with only this difference, that instead of having the box made in one piece, I used my small camera, introducing the lens into the opening of a half plate camera box, thus placing them front to front; the negative to be copied, I placed in the groove for the slide of the small camera, and exposed it to the direct rays of the sun, or to the brightest portion of the sky, the picture being received upon a collodionised glass plate, placed in the slide of the larger box. My first efforts, however, were directed towards enlarging Mr. Hartnup's negatives of the moon, for the purpose of exhibition by the magic lantern. As it was necessary to obtain a perfectly transparent film in the dark parts of the picture, to produce the proper effect in the lantern, I had to try various collodions and developing agents for that purpose. I tried pyro-gallic acid, but it did not give satisfactory results. After many trials I found that a perfectly transparent film could be obtained by using a collodion slightly iodised, and developing with a weak solution of proto-sulphate of iron, in which was dissolved citric acid, in the proportion of about 15 grains of proto-sulphate to about 10 grains citric acid to the oz. of water. The enlarged copies of the moon, lately exhibited by the magic lantern, and also as positives on glass, when placed upon a white surface, were enlarged and developed by this method.

I afterwards turned my attention towards enlarging some negatives which I had taken with my small camera. My first idea was to obtain a copy, and by transferring the film of collodion on to a white surface, to produce a picture, similar in effect to the usual mode of printing *(I bring one specimen to show the effect)*; I however found so many difficulties in the way that I soon abandoned it. But being struck with the appearance of these pictures when viewed by transmitted light, and their capability of being brought to some degree of perfection, and of the pleasing results to be obtained, I eagerly followed the path opened to me.

As it was necessary in my former operations to obtain a transparent film of reduced silver; in these pictures it was requisite to produce the shadows opaque and dark, at the same time that the lights and middle tints should be clear and well defined. To produce this effect I used, as before, collodion slightly iodized, and increased considerably the strength of my developing solution. I use about 50 to 60 grains of proto-sulphate of iron and 10 grains of citric acid to the oz. of water.

The time of exposure to the light depends upon the intensity of the negative and the amount of light. I find the time to vary from half a minute to five minutes. With a weak negative and four minutes' exposure a strong copy may be made in the dullest day in winter.

After developing the picture, which I prefer to do by immersion, I wash it well in water, but do not remove the yellow coating of iodide of silver, as it gives to the picture a rich and warm tone. In none of the specimens which I exhibit has the iodide of silver been removed.

When the picture is quite dry I remove the film of collodion, by the method which I have already given to the society, on to a piece of waxed-paper, and while the paper is still moist, I cover it with another piece of the same size, attaching the two with lac dissolved in water, by the aid of borax. The film of collodion is now indestructibly placed between the two sheets of waxed-paper.

The few specimens, which I have the pleasure of laying before the Society this evening, will at least show what this method of copying is capable of; and I trust, will induce some of the members, more competent than myself, to enter the same path, as I am convinced that it leads to a wide, and I believe, as yet, untrodden field, where, by a judicious selection of subjects, very beautiful results may be obtained; likewise as transparencies, how well adapted for many useful ornamental purposes?

To amateurs, especially, I recommend it, who, like myself, have not much time to spare upon this fascinating art, as it combines in itself three important points, economy in time, labour, and expense.

Since writing the above, I have been presented by Mr. Atkinson with two pictures, printed in the usual way from negatives enlarged by gas light; the original pictures from which they were taken are only $2\frac{1}{2}$ in. × $2\frac{1}{2}$ in. I have great pleasure in bringing these before the Society's notice, as it strengthens my conviction that a wide field is being opened to us.

With the power of using a small camera, which may almost be carried in the pocket, and of printing our minute negatives of any size that may be required, and that by the ordinary flame of a gas light, must, to the generality of amateurs, be a matter of great interest.

I may mention, that Mr. Atkinson's pictures were enlarged with very imperfect apparatus, and the apparent want of sharpness is to be attributed to that cause. He is, however, I am happy to say, going on with his experiments, and will no doubt soon produce a perfect instrument for enlarging by artificial light.

Mr. Atkinson, only a few hours ago, put into my hands a copy of that celebrated photograph, the "Crucifixion," along with the small negative from which it was enlarged.

The negative was taken yesterday, and enlarged in the evening by gas light, and as he informs me by an Argand burner not more than one inch in diameter.

I strongly urge your attention to these two specimens, as I believe two very important facts are here made apparent, viz.:—that the negative, by being enlarged, loses little or none of its sharpness; and that a *weak* negative, by this method, will produce a stronger picture than by the ordinary mode of printing.

The paper was warmly applauded.

Mr. Corey perceived that Mr. McInnes left the iodide of silver on the light, and that, in consequence, the print was deeper and of a better tone. He had always been given to understand that iodide of silver was not the agent by which the light was produced.

Mr. McInnes repeated that in none of the specimens in the room had the iodide of silver been removed: pure iodide of silver was not affected by the light. When he first commenced the collodion process he never used to remove the iodide of silver from the negatives, merely washing them with water, then varnishing and using them for printing. He found that printing through this yellow medium was such a very slow process, that he commenced to use hyposulphite, but he spoiled so many pictures that after a while he used cyanide. A pure iodide of silver was insensible to the direct action of light. If they made their iodized film in this way, and washed it well, they avoided discoloration.

Mr. Sheridan believed that it did not change if varnished. He had been printing, for instance, from a negative by Mr. Keith. It remained under a burning sun, as intense as we could expect it here, for a month almost consecutively, every day, and it changed in no degree. But he would rather take a hundred prints from any other negative than from that. What was the object of leaving the iodide of silver on he could not understand, because it only retarded the process. When I have taken a collodion off a glass plate, and transferred it to Marion's paper by Sir William Newton's process, a very excellent printing negative becomes useless: it is too transparent. I could only print by the addition of paper at the back to make it more opaque.

Mr. Forrest thought that one point of great interest in connection with Mr. Atkinson's plan was, that it enabled them to work in the evening. During the summer they might prepare a stock of negatives, and enjoy their winter evenings in taking large impressions from them.

Mr. Sheridan wished to know whether Mr. Atkinson was enabled to get direct positives by his process: if not, it would not answer the purposes of printing.

Mr. Atkinson: No sir.

Mr. Sheridan: It is a beautiful picture, by transmitted light; and you may copy them by night, but they will not be direct positives.

Mr. Lee: I have got direct positives frequently upon glass from them.

Mr. Keith observed that such positives might be blackened, and made good positives by the application of bi-chloride of mercury and hyposulphite or other alkaline.

Mr. Corey thought wax-paper would be the best means as a medium for copying from, under this process.

Mr. Atkinson in reply to questions said the apparatus he now used was incomplete, so that he could not make use of all the light from the Argand gas-burner. The picture thus took five minutes, while it would otherwise have only taken about two minutes. The light was not enclosed but open, in the room, being merely placed in front of the condensers. The regulation of the artificial light depended very much upon the picture. One burner would be found sufficient.

Mr. Forrest observed that during the visit of the British Association, a gentleman representing the Panoptikon, a large photographic establishment in London, told him that they got their pictures enlarged by cutting a hole in a door and putting a magnifying glass outside, the lens being placed inside upon an elevated standard, moveable backward and forward. A piece of paper was put into the groove to receive the focus, and when perfectly obtained, a piece of collodionised glass was introduced. Those members who had attics with small windows to their houses, would find it a simple but effectual plan to put a piece of wood against the window, place their negatives in an aperture in the wood, having the camera stand underneath, at a sufficient angle to the ceiling to receive an impression upon a piece of white paper, for which collodionised glass should be substituted when the proper focus had been obtained.

Mr. Sheridan observed that the original paper describing the mode adopted at the Panoptikon appeared in the London *Photographic Journal*. It was a mirror, not a magnifying glass, placed near the aperture in the door. The mirror was for the purpose of throwing light upon the transparent negative placed in an aperture in the door..

After some further conversation,

The Chairman presented the thanks of the Society to Mr. McInnes for his valuable paper, which had provoked an interesting discussion.

At the request of the Chairman,

Mr. Foard delivered the following observations on a permanent exhibition of photographs. He remarked that till the circular of the Photographic Society reached him the preceding day, in Manchester, he was not aware that the subject of a permanent gallery of photographs would this evening be brought before them. He had arranged with Mr. Corey to deliver some remarks on the character and merits of the photographic productions contributed to the recent exhibition, as he believed it would be an advantage to have their respective qualities of excellence canvassed, with a view of arriving at some definite conclusions as to the qualities most desirable to be cultivated. They all attributed certain excellence to the merit of tone, sharpness, strength, and artistic arrangement when displayed in a picture, but they were uncertain to which of these qualities to give the preference, or if any was to be sacrificed for the rest, which was the least valuable. Differences in taste there undoubtedly would be, and some artists would prefer one or other characteristic to the others, and seek it in their works; but still one or other must be absolutely more valuable, and must be estimated accordingly. No two pictures would be precisely similar, and therefore one must be better or worse than the other; and the best when determined on should be selected as a standard. It was necessary that the taste of amateurs and professionals should be properly directed, and that a standard of excellence should be held up for imitation. The object definitely fixed, the result was half attained. The subject would have opened a wide field for discussion, and might be well ventilated by the various amateurs; and as it was a matter of some moment he hoped that he would have the pleasure of bringing it forward on some future occasion. With respect to the establishment of a permanent gallery, which had been brought forward by the Vice-President at the last meeting, he thought it would be better to have an annual and temporary exhibition, similar to that of the Liverpool Academy, than a permanent one; it would be impossible to keep up the public interest in a permanent one; it would become stale and unprofitable. But he thought that a place of sale, a bazaar, offering facilities for purchase and exhibition was required. The public taste had to be cultivated into an appreciation of the particular merits of photographic pictures. An increased taste and an increased demand would increase the facilities; for as it increased the necessary production, the public and the producer would alike be benefited. One of the difficulties in the way of sale was undoubtedly the price, and yet the demand was so small that the price was inevitably kept up. He had been connected with photography for many years; had witnessed many changes in it and anticipated more; he had been met once in his endeavours to treat with a provincial builder when about to open an establishment, with a refusal to treat, as the builder declined to have any thing to do with showmen and such people. They had passed by that period, and he hoped would enter on a fresh one. There were objects of interest on all sides to be reproduced, in man and in the matter by which he was surrounded; and although photography could not, and did not, compare with art-proper in its interest, it had a special and particular interest of its own—an interest as a testimony to the truth. A photographic picture might not afford the same pleasure as one by a skilful artist possessing the claim of colour and selection; but it had an interest, an increasing interest, extending to the remotest generations in its accuracy, "the interest of the truth," every portrait would retain that value till the end of time. Uninfluenced by change or fashion, it remained a fact; and if photography was not capable of the same powerful moral influences as art, it at least exercised an intellectual one; it made us better observers of nature; it gave us a taste for chemistry and science. It threw men back like Antæus of old on his mother earth, to rise a giant refreshed; it called him to converse with nature, and lifted him from the trouble and toil of this iron life to the contemplation of the beauty and glory of nature around us, and he hoped to see the art so stimulated by the increased taste of the public, that amateurs would be able to set off on an annual excursion; laying in a fresh stock of health for the year, and of news for sale; so that they might clear the expenses of their trip. He was himself frequently deterred from purchasing only by the price, and if they had more purchasers there would be a more active production, and the price would soon be reduced. He believed that if there were a place of exhibition and sale, pictures would have been sent home from the Crimea, which would have been eminently interesting. Now, failing publication in the *Illustrated London News*, there were no facilities for publication. He concluded by hoping that an annual exhibition would be opened, embracing works from all sources, properly classified, at a moderate price, to which catalogues would be furnished, containing not only a descriptive account of the various processes, but of the nature and character of the picture, so that the public should become more familiar with the art.

Mr. Howard said the society was bound by the terms of its constitution, to have a permanent exhibition. He then repeated the suggestion in our leader last month, that the inventors of new processes should be applied to for what they considered satisfactory specimens of the results to be obtained; and that our own members should hang their efforts along-side to afford the means of comparison.

The Rev. T. R. Banner thought, as they had rooms, it would be very foolish not to put on the walls such specimens as they could collect; while they might have an annual exhibition at which they might have all new designs and new instruments, as well as pictures.

Mr. Sheridan made some observations to a similar effect.

Mr. Foard quite agreed with all Mr. Howard had advanced with regard to a permanent gallery, which would cause the greatest possible advantage to the Society. His principal objection to a permanent gallery arose from a proposition to have a charge for admission. If they had one, he thought it should be free. An annual exhibition, he was of opinion, might be made to pay its own expenses, as well as the expenses attending on the permanent exhibition.

Mr. Burgess thought it would not do for the gallery to be free for any one. Pretty well, if members were allowed to introduce friends: that, he thought, would be free enough. Mr. Foard had truly said that France exceeded them. No doubt, but they were tied down by these confounded patents which always ruined every thing.

Mr. Frank Howard announced that he had received a letter from Mr. Horne; the trial Talbot *v.* Laroche, in which professional photographers were especially interested, was expected to take place about the 12th of the month; and that a member of the Society, (Mr. Forrest) had been empowered to receive subscriptions to enable the defendant to bring the case effectually before the public.

Mr. Newlands thought they should not discuss the question as a Society matter, but merely as one addressed to individual members.

Mr. Sheridan, with all due deference to the Chairman, thought the subject was within the scope of the Society, collectively, or as a body, inasmuch as it was the settlement of a claim set up by Fox Talbot, which, if not vigorously pushed now, might go on *ad infinitum*.

Mr. Corey agreed with the Chairman that it was not a matter for the Society.

Mr. Forrest: Nevertheless I shall be happy to receive subscriptions.

The thanks of the Society were accorded to Mr. Foard for his observations.

During the evening some beautiful collodion specimens, chiefly portraits, by Mr. Keith, and others by Mr. Foard, were circulated for inspection amongst the members.

LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, Saturday, November 2, 1854.—P. Le Neve Foster, Esq., in the chair.

A communication was made from the Council, informing the members that it had been resolved to open an exhibition during the ensuing season. The Council hoped to be able to announce at the next meeting of the Society, the place, and also the time of opening, which it is expected will be in January next.

Mr. Hardwich read a paper on *Positive Printing*, in which, after briefly referring to a paper on the same subject communicated by him to the *Photographic Journal* in September, he took up the enquiry where that left off, viz., at the decomposition and precipitation of sulphur by adding tetrathionates, or bi-sulphuretted hyposulphite, (four atoms of sulphur to five of oxygen,) to the solution of hyposulphite of soda: the nature and mode of preparing tetrathionates having been the subject of the first communication, with the view to obviate the necessity for the use of chloride of gold by some cheaper material. He said, in theory, tetrathionates, on losing sulphur, would become first trithionates and then dithionates; but they also liberated a free acid of some kind, which he did not pretend to explain or describe; but he had proved by experiment, that decomposing hyposulphite of silver, when placed in contact with hyposulphite of soda, produced the same acid, which he conceives to be beneficial to the photographer, because the colouring bath of hyposulphite and tetrathionate always works better after they have been mixed for some hours and a deposit of sulphur has taken place. He then made some remarks on the chemical changes brought about by the addition of alkali or caustic alkali to the colouring solution; and, acknowledging the assistance of Mr. Fenton, he concluded with some practical observations:—1st, On the acidity of hyposulphite colouring baths, and the modification of effect produced by neutralising. The acid bath colours quickly, and produces dark tones, but it is apt to turn the white portion of the print yellow, and it always dissolves away the lighter shades (half tints) more or less, so as to render over-printing necessary. The neutral bath, on the other hand, does not interfere with the pureness of the whites, nor does it dissolve the half-tints to so great an extent; but unless the colouring principle is present in considerable quantity, the action is slower.

If the bath be neutralised by the addition of alkali, such as carbonate of soda, in excess, it reacts on the colouring salts, and destroying them, impairs the properties of the solution. He prefers carbonate of lime, powdered chalk, or whiting. 2nd. On the increased energy of colouration, combined with yellowness of the light parts, caused by the presence of free nitrate of silver upon the surface of the proof at the time of immersion in the colouring bath. This he attributes to the acidity of the bath; and would prevent the yellowness by first soaking the print in hyposulphite of soda, free from acidity, and then putting it into the colouring bath. 3rd. On the relative amount of hyposulphite and tetrathionate of soda required in the colouring bath which he did not define, but said that a very small quantity of the tetrathionate succeeds if it has been mixed with the hyposulphite for three or four days before it is used: a deposit of sulphur must take place before the solution is active: the solution of hyposulphite of soda may be very strong. 4th. On a slight difference in the effect, observed on adding hyposulphite of silver to the colouring bath. He thought the tones were more purple and less grey in colour than when no silver was present; but he stated this with caution; it required to be confirmed.

The Chairman said they were all deeply indebted to Mr. Hardwich for his very valuable paper.

Mr. Fenton stated, in illustration of the continual decomposition going on in the hyposulphite bath, that, having some time back obtained a bath of old hyposulphite which produced in the positive prints extraordinary brilliancy of colour, he laid it away for a couple of months as a reserve. When again made use of, he was surprised to find that it had completely lost all its colouring power. The sides of the bottle containing it were coated with scales of sulphuret of silver, while, at the bottom, was a considerable deposit of sulphur.

Mr. Pollock stated—In July last he put aside a bath, first dividing it into equal portions; one of which he placed in a gutta percha bottle, and the other in a common glass bottle. They were placed side by side on the same shelf, the only difference being, that one stood in the light and the other in the dark. About ten days ago he thought he would try the bath, when he found that in the gutta percha bottle to answer beautifully, whilst that in the glass bottle was perfectly useless; the other was as good as it was six months since; he never having altered it excepting by occasionally adding a little gold. He believed that no better bath could be made than by taking the deposit of an old hypo bath and letting it stand for a night or two, when it would be fit for use.

Mr. Pollock described a camera of a novel construction and illustrated its use.

Mr. Newton brought under the notice of the Society an invention of Mr. Maxwell Lyte for printing a sky, or figures in the foreground of a photographic picture, by means of two different negatives, which he considered very important. Clouds might by this plan be added to a landscape, by taking a good engraving, and transferring the clouds on to the positive picture by a second negative.

Mr. Mayall suggested that backgrounds taken from pictures were almost always deficient in delicacy. He found that clouds were best defined by means of the smoke of a candle.

Mr. Fenton thought that the contrivance exhibited by Mr. Lyte, though very ingenious, was not of such a character as the Photographic Society could approve. Instead of employing themselves about the method of making artificial scenery, they ought to consider how best it could be taken from nature, and he conceived that there would soon be found no difficulty in obtaining simultaneous pictures of sky and landscape represented with equal truth. It was very difficult to put in an artificial sky which would harmonise with the general tone of the picture. Instead of directing their efforts to improve nature, their object should rather be to copy it as perfectly as possible.

Mr. Mayer agreed with Mr. Fenton.

The Chairman called the attention of the meeting to a little instrument for holding pictures, invented by Mr. Thwaites, of Bristol. It consisted of a clip, composed of two small slips of glass, one of which was bent at the end to hang it up on a line. Between the glasses there was an india-rubber spring acting as a fulcrum, by which it was opened to take hold of the paper. It was clean, simple, and, he should think, very effective.

Mr. Ralph described a portable camera, and exhibited a series of collodion pictures produced by it. Mr. Fenton exhibited a series of views in Yorkshire. Lieut. Rypinski exhibited a number of coloured photographs, the colours having been applied on the back of the glass. A volume of Photographic Illustrations of Scripture was exhibited by Messrs. Constable and Co.

NEW PROCESS ON GLASS.

Mr. Thomas Mogford, of 55, Devonshire-street, Portland-place, publishes three new processes on glass, of which he thinks the following is the most important—Dissolve the gluten of wheat in spirits of wine, and iodize it as you would collodion, add a few drops of acetic acid, then pour it over the glass and dry it; or it may be placed in the bath before it is dry, when it is very sensitive; but, dried, it is a very slow process, and is very useful in taking landscapes at a distance from the dark room. The advantage over the albumen process is, that it is more easily applied to the glass, and is not liable to crack or come off the glass. I give no proportions, as I have not sufficiently ascertained them. I have no doubt but other operators with more skill and leisure will soon perfect the process if it be found valuable.—*Journal of the Photographic Society.*

Sulphate of Iron Baths.—Mr. E. Conduche has suggested that the reason why sulphate of iron baths, used for the production of positives on collodion, gradually increase in power, is, that binoxide of nitrogen, which Dr. Barker proposed to employ in solution in protosulphate of iron baths, is actually formed by the absorption of nitrate from the collodionized plates immersed in it.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—With a measure of thanks to every one who advances the pleasing art of photography, and more especially now to Mr. Berry for his lucid paper and remarks in the October number of your Journal, may I request a little additional information from him on a point or two not sufficiently explicit. At page 130, (No. 10), near the bottom of the second column, he says:—"As a rule, I allow my papers to remain immersed in the iodizing bath longer than the method described by Mr. Townsend even sanctions, as much as three or four hours after the immersion of the last, *for which I have certain reasons.*" Being highly interested in every improvement having reference to the wax paper process, Mr. Berry would add to favours already conferred by an explanation of what these certain reasons are, and from his practical knowledge of chemistry, such additional information would have a tenfold value. Some time since I was unintentionally and unavoidably compelled to leave a batch of papers in the iodizing solution for five or six hours or more, and much to my regret and surprise, four out of five, when dried took on the blotched appearance of the one now sent, only much worse, the present paper being one of a few that I had ventured on keeping for a trial.

At page 131, near the bottom of the first column, Mr. B. writes thus:—"To this saturated solution I add at once a quarter of a grain of nitrate of silver to one ounce of solution, and a proportion of acetic acid, varying from nothing up to five drops, depending on the character of the exposure in the camera." Now, am I to understand that the five drops is to be added to the solution for the negative that has had an under-exposure, and nothing to the one supposed to have been over-exposed.

At page 132 of same number, near the bottom of the second column, Mr. Sheridan says:—"With respect to printing, Mr. How had given him a valuable idea, and that was, not to use crystallized but fused nitrate of silver." I should feel very thankful to Mr. S. if he would inform me what advantages are to be derived from the use of the fused over the crystallized salt in the process of printing. Add again, at page 133, about the middle of the first column, Mr. Sheridan says—"Alluding to prints from wax-paper, we observed that nineteen out of twenty of the pictures so printed from wax-paper negatives, as well as from collodion negatives, *were destroyed by over-hyposulphiting and over-washing.*" A little explanation on this point would be thankfully received, having always understood that the measure of hyposulphiting should be regulated by the amount and depth of printing, and that too little washing would be attended with the ultimate destruction of the print, but that an over-washing could be attended with no worse consequences than an additional trouble and a loss of time.

Whatever trouble I am thus giving must be set down to the fault of an enthusiasm in photography.

I am, Sir, your obliged,

HENRY HELE.

14, *Densham Terrace, Plymouth.*

[1. It is convenient to leave the papers for a more lengthened period in the iodizing bath, to ensure the complete saturation of the wax with the chemicals employed, so that when pinned up to dry, both after iodizing and sensitizing, the fluid shall drain completely away without leaving drops on the surface, which in the after process of development inevitably produce spots on the negative. 2. Yes. Mr. Sheridan answered the first question addressed to him, in a remark at the meeting; "it was possible that it evaporated any acid that might be existing in the nitrate; over hyposulphiting destroys the photograph; over washing destroys the paper."—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—I need scarcely say how obliged I am to receive a letter from you, in which you did me the honour to request a paper for your Society—an honour I should truly be proud of, did I feel myself equal to the task. I thought I had answered it, but finding that I could not have done so, I beg to tender you my apology for the neglect. The first notice I got about your most interesting Exhibition was from our friend Cox, whose works, I saw, were so highly approved of. He is a thorough good fellow, and truly deserving of any little attention your Society may be pleased to show him. He is a hard-working and zealous photographer; but I think his strong point is the collodion. His pictures were very good in middle tones and shadows, but from the negatives being rather weak, they would not stand a great depth of printing. I suppose there is no such a thing with you as a list of the photographs exhibited; if in the affirmative, I should like much to have a peep at it.

You have my best thanks for your negative on my injured iodized sheet (referred to in the previous letter). I fancy it must have been much *under* exposed in the camera—only four minutes. You speak of black blots in the wax-paper negatives; I don't recollect ever being troubled with such like annoyances. The most that puzzle me, are—occasional irregularities in different parts of the same sheet—a wavy kind of appearance, in which some parts are much deeper in tone than others, and always running across it in a direction opposite to that which clouds should do. Neither do I ever get the many little black dots and white moons, which appear in the one you so kindly returned. You say that they are probably owing to too long soaking in the primary solution. Now, Mr. Berry, whose chemical knowledge I so much respect, recommends their being soaked a very considerable time longer than photographers in general do. When I did so, the papers on becoming dry, took on in different parts, and on some more than others, a kind of bloom in blotches, which always weakened the intensity of the negative in that particular part. I am longing to see your fast-approaching Journal, in which I indulge a hope of a remark or two on that head from Mr. Berry. I should much like the chemical rationale of that part of the process, *i.e.* the iodizing one: I cannot comprehend how a prolonged soaking can injure the wax in the paper. The numberless black spots on the negative you sent you say were caused by a long soaking in the primary solution; how do you reconcile that opinion with Mr. Berry's, when he recommends a longer soaking than he first was wont to do? Pray do pardon me if I am taking too great a liberty in thus apparently questioning you; it is the love of the art that irresistibly urges me on; and I hope, as soon as I again commence printing, to forward you a few specimens of the effect of that love; as, since I last sent you any proofs, I have been diverging a little off the ordinary photographic path; on which Captain Scott, one of the members of the London Photographic Counsel, has just complimented me, by saying that I should by all means follow on the (as yet) not much frequented road.

The loss of Mr. Berry's dish was a most fortunate occurrence, for the necessity which it drove him to, of making one only serve his purpose, still tends to lessen the weight of the photographer's kit. Supposing the need to be six exeited sheets, and the time required for the excitement to be only five minutes each, with the addition of eight minutes after the completion of the last sheet, making in the whole thirty-eight minutes for the first to remain in the aceto-nitrate bath, and of course a proportionately shorter period for the others;—now, seeing that such a proceeding be admissible, another point is gained for the photographer; and from which I am led to infer that any reasonable exposure of the iodized sheet to the exciting solution would be unattended with any injury. I had thought, from previous trials, that a prolonged action of the aceto-nitrate bath had the effect of occasionally eating off the iodide of silver in larger or smaller patches, in the same way as it would do with an excited collodionized plate, if kept long in a bath not previously saturated with iodide: at all events, I would beg of Mr. Berry information on that point, *i.e.* what change he expects to take place by the eight minutes' exposure to the bath after the yellow iodide is perfectly formed. I had thought that no benefit was gained by an exposure (longer or shorter) after the sheet had taken on an even-coloured and uniform coating of iodide. I had formed such an opinion from numerous trials of different periods of floating the sheet in the aceto-nitrate—a stronger or weaker solution of salts in the primary or iodizing bath—a larger or smaller proportion of free iodine in it—or a thirty or a forty grain solution of nitrate of silver in the exciting bath, did not with me appear to cause the slightest difference in the ultimate results in either of these cases. I had come to the conclusion that a certain chemical decomposition, or rather change, had to take place between the chemical solution and the wax, and afterwards the two antagonists, if I may be allowed to use such an expression, became dormant. From Mr. Berry's recommending the prolonged soaking in both the primary and secondary baths, I have now reasons for believing that I have hitherto worked in error. His immeasurably superior chemical knowledge makes me respect whatever is said with his sanction.

The remarks made at page 131 of the last (October) number respecting *positive* wax-paper are unintelligible to me.

Mr. Sheridan speaks of the advantages to be gained by printing with the fused nitrate instead of the crystallized. I hope to see some little explanation of what these advantages are in your next *Journal*. I think I spoke of it in my former letter. His use of the cyanide of potassium is a capital hint, and will save many an otherwise useless negative. I have not as yet tried it. In the next column Mr. S. says, 19 out of 20 of the pictures so printed from wax-paper negatives, &c. were destroyed by *over hyposulphiting and over washing.* I have always thought that a certain amount of time in the hypo bath was absolutely necessary, and that there could not be such a mishap as "over-washing." Now for a truce, for want of paper; and if Sebastopol has been as sharply besieged, as my valued correspondent, *i.e.* if he has had the patience to wade through the infliction, I should have thought it would have been brought to a capitulation; and in order to make some amends, I will willingly excuse a more lengthy answer, however desirous for such information may be quite agreeable and convenient to him.

I am, my dear Sir,

Yours obliged,

HENRY HELE.

14, *Denham Terrace,*
Plymouth, Nov. 13, 1854.

P.S.—Curious enough, your highly prized Journal has just reached me—just as I was about to post what now probably lies on your study table. It is a rambling affair, and you can just run it over at your leisure. I have just seen, under "notices to correspondents," that my queries will be postponed until the next month—perhaps so much the better, as I shall thus have the advantage of more time being allowed for their consideration, and consequently more detailed answers. Your Journal stands over until the evening—a treat, indeed, over a muffin and cup of coffee.

[Mr. Berry has answered the queries in this letter in the remarks he made at the last meeting.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—After being in pursuit of your valuable Journal for more than two months, applying through my stationer and other friends every week during that period, I have just secured the first ten numbers out, myself, while on a visit to Manchester.

Now, I have been dipping in the science of photography since last March, without any proper formula, trying first one receipt for collodion, then another—until I am now minus several pounds, besides the anxiety and uncertainty of experimenting without a clear knowledge of chemistry. Awake, asleep, at home, or abroad, I could hear nothing, know nothing, but photography. In fact, it is more a wonder than anything else that the camera is preserved entire to see December. Perhaps you may say, what has this to do with our Journal? Well, it has just this to do with it—I feel convinced if I had got your valuable paper sooner, anxiety, time, and expense would in a great measure have been avoided.

I observe in your correspondence amateurs in the same predicament as I have been dozens of times, and you have helped them out, viz., black spots, old collodion, annoyed with it cracking and coming off, &c. &c. However, I stumbled upon a method, until I got your paper, that rather pleased me, but I now place myself at the bottom of the list. I iodize the collodion with iodide of potassium and iodide of ammonia, using an acidulated silver bath, developing with iron solution and acetate of lead, fixing with cyanide of potassium. With a clear atmosphere I could not work in less than six seconds, and invariably it took twelve seconds. Could you suggest an iodizing solution that would act in one half the time? Also a receipt for spirit varnish to preserve negatives. One of your correspondents gave a hint which I should be glad to hear more of—viz., that the camera can be made to act as a magic lantern to show negatives. If amateurs were aware how this could be done, it would be very pleasing pastime during the vacation, if I may be allowed to use the expression—to exhibit portraits and views taken during the summer season.

I should, therefore, feel obliged if he would give some particulars as to the change necessary. By-the-bye, I observe the names of highly respected gentlemen possessed of optical knowledge attending your meetings regularly; if you think this worthy of bringing before their notice, perhaps they might give some definite information upon the subject.

Wishing you much success,

I am, your obedient servant,

THOMAS RATCLIFFE.

Colne, December 4th, 1854.

[For quick Collodion see Mr. Berry's formula in No. 2, page 19. Dr. Diamond recommends amber varnish, for which see No. 8, page 98.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—Do you find the action more uncertain in winter than summer? Some days I take very clear pictures, and on others they are dingy and unsatisfactory. I have a glass room which is heated with a stove and pipes to a summer temperature. If you know or suspect a cause for this, you will much oblige me by communicating it to me at your convenience.

I am, Sir, your obedient servant,

THOMAS BROWN.

Maryport, November 21, 1854.

[In the present state of the science it is impossible to decide.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—There have been some suggestions lately in the *London Photographic Journal* to employ a paid artist to make experiments. Now, I firmly believe in the old saying, that "whoever wishes a thing well done should do it himself," and consider it would be of great service to the art if *comparative* experiments could be made on the different formulæ recommended, and that these experiments should be made at the present unfavourable time of year. Most of the processes published work well under favourable conditions, but very few are to be relied upon in bad weather or feeble light. It is to be regretted that very few comparative results have been published; most writers having contented themselves with recommending their favourite methods of operating. It would be impossible for any one person to carry out this proposition, but by dividing the labour amongst several it might be easily accomplished. I would suggest the following divisions:—

1. The different qualities of paper, and their applicability to the wax-paper and Talbotype processes, using always the same solutions.
2. The different iodizing solutions, using the same paper and exciting solution.
3. The different collodions, both positive and negative.
4. The different exciting solutions.
5. The different developing solutions, positive and negative.
6. The darkening and varnishing negatives.
7. The printing positives.
8. The colouring positives in the hypo-bath, and the different recipes for the latter.

I may as well mention my method of iodizing the nitrate of silver bath for collodion, which I find answers well, as I have adopted this plan for more than two years:—

Dissolve nitrate of silver, 300 grs., in distilled water, half-an-ounce; add iodide of silver, about 2 grs. (the quantity is of little consequence), and stir with a glass rod until dissolved; then add, gradually, 9½ ounces of water, stirring continually. It will become cloudy by the precipitation of part of the iodide of silver, as the solution becomes diluted, but will be thoroughly saturated: it should then be filtered, or allowed to settle, and decanted for use. I do not like the plan of adding iodide of potassium, as the iodide of silver is immediately precipitated, and is very insoluble in a dilute solution of nitrate of silver, besides the nitrate of potash formed in the bath is objectionable.

I remain, yours sincerely,

MONTAGUE MARRIOTT.

Montpelier Square, London, 4th Dec., 1854.

Edward Thompson, Otley.

[Bromide of Cadmium mixed with a small preparation of the Iodide, has the advantage of being rapid in action, producing intense negatives, keeping well, and working with a 30 grain bath, with other Bromides a 50 grain bath seems indispensable.

In this correspondent's letter an unfortunate omission occurred: after the 10 drachms of dried nitrate of potass should come, water 2 drachms, then sulphuric acid 20 drachms, &c. We trust our estimation of his letter will be an excuse for our making it public, and regret the misprint.—Ed.]

THE

LIVERPOOL

PHOTOGRAPHIC JOURNAL.

CONDUCTED BY SOME

MEMBERS OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY.

VOL. II.—1855.

PUBLISHED FOR THE PROPRIETORS.

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THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 1.—JANUARY 13, 1855.

In commencing a new year, and completing our first volume by presenting our readers with a title-page and classified index, we have to acknowledge the favourable reception our endeavours to record the progress of Photography have met with. Our earlier numbers have been reprinted to meet the gradually increasing demand; and we shall spare no exertions to deserve the growing encouragement which has been hitherto accorded to us. We are aware of many provoking mischances, such as misprints, and occasionally errors in MS.; but, although some ridiculous blunders have appeared, we believe that no statement has been inserted in such an incorrect manner as to lead to inconvenience or the promulgation of erroneous opinions. Of course, as we said last month, we cannot hold ourselves responsible for the contents of any letter addressed to us; nor can we be held, neither can the Liverpool Photographic Society be held responsible for any opinions of individual members, or the mode in which they may be expressed at the meetings, of which we give a report as faithful as we are able to do. A foolish question, or what may be deemed such, may elicit a valuable answer. An incautious expression may, by the very fact of its being misunderstood, lead to some new view or interesting observation; and when explained, must necessarily tend to induce more care in the choice of words and in the mode of putting them together. It was an old latin proverb, that "there was no book so bad, that it had not something good in it, and no book so good, that it had not something bad in it." There are few even of the best of the photographers, who have not at some time given utterance to what they afterwards have discovered to be erroneous opinions, and still fewer who have not used expressions of which the meaning was not perfectly clear. Those who know a subject, are too apt to presume a knowledge on the part of their hearers or their readers, which they are not entitled to expect; and they will express impatience at what they consider unnecessary prolixity in discussion. But they should remember, that it is to the "wise" only that a "word" (or less) is stated to be sufficient—*verbum sap;* and that in the present state of Photographic science, and the sudden and enormous expansion of the art, the greater number of those interested must inevitably be as children, and require to be provided for accordingly. When we proposed our "Glossary of Technical Terms" and our "Familiar Instruction," they were thought to be trifling; but we have been repeatedly thanked for the information we have thus afforded to amateurs or admirers of Photography, many of whom have little or no experience. We commence the year with the art in a very critical position. Portraits are being executed in Photography and Daguerreotype, here and in London, at a shilling and eighteenpence each, including an apparently morocco case and gilt frame; and in some places in London, if you will buy a hat, you will be given a Photograph of yourself in the crown. It is not yet established whether Fox Talbot's patent includes the collodion process; at present the verdict of the jury appears to set it free, but that is subject to the revision of the Vice-Chancellor. We know that many of the most skilful of the professional photographers are beginning to hope that he may decide in favour of Mr. Talbot's claim, as they see the danger of throwing open the art to general inexperience in its present state; and fear that it may be annihilated in public favour by the vulgarising it would be sure to undergo in the hands of the unskilful practitioners, who are ready to "rush in where angels fear to tread." The Exhibition of the London Photographic Society was opened by Her Majesty on Thursday last.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The eleventh monthly meeting of the session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 2nd January, Mr. Foard, in the absence of the President, being voted to the chair.

Some exquisite specimens by Fox Talbot's calotype process, from the gallery of Beard and Foard, in Church-street, were circulated about the room during the evening. One, a portrait of Dr. Beard, of Manchester, was especially admired.

The Chairman, alluding to what a member had denominated the "unphotographic state of the weather," observed that it gave them an opportunity of making a great number of interesting experiments.

Mr. Bell stated that in a short visit to the country, last summer, he took with him some papers prepared according to Mr. Berry's process, with bromide of potassium. He found the impressions at the time very indistinct, the period of exposure having been very short, not exceeding 25 or 30 seconds; but he had amused himself this winter with placing some of them, which he found in his portfolio, in the aceto-nitrate of silver bath, and which had developed sufficiently to enable him to print from them; which, when first taken, he could rot do.

The Chairman had found that for printing positives Mr. Berry's was a very advantageous process; that bromide of potassium was altogether preferable to iodide of potassium for making strong positives when the pictures had to be copied a very large size; and that the old Talbotype was not so rapid, nor were the pictures so strong.

Mr. Bell explained, in answer to questions, that the specimens in question (which were produced and handed round) were taken with Marion's simple salted paper, and that they were waxed before being developed.

Mr. Burgess observed that even if Fox Talbot had gained his action his patent could have been eluded by using the bromide of potassium, according to Mr. Berry's process, the agent used by Fox Talbot being iodide of potassium.

The Chairman suggested that the photographic art would be found especially useful in obtaining the correct dimensions of the skulls of great men, in taking charts of their heads.

Mr. Corey thought it would be of equal value in all scientific researches where correct representations of specimens were of invaluable service.

Mr. Bell said a member of the Society had been making some experiments recently with glycerine as an agent for the reception of iodide and bromide of potassium, and the time of exposure in the camera was found to be comparatively small compared with the wax-paper process, and the specimens could be waxed subsequently. The time of exposure was about three minutes, and the views taken on this class of prepared paper were remarkably sharp; the images appeared to be received more on the surface of the paper.

Mr. Foard observed that two or three experiments with glycerine had been reported.

Mr. Bell: The glycerine is mixed with alcohol, in which it is perfectly soluble. There is a remarkable clearness about the pictures by this process.

Mr. Corey exhibited a "clip" for the papers, of simple construction, being composed merely of two slips of glass with the ends slightly turned in, held together by two elastic bands of vulcanized India-rubber.

The Chairman read a letter which had been addressed to the editor of the *Photographic Journal*, in which it was suggested that cotton might be dissolved in nitric acid, and precipitated in a powder by the addition of water. This powder would be soluble in sulphuric acid, when wanted, and would be portable, not being explosive.

The Chairman inquired whether any gentleman could throw light upon this experiment.

Mr. Corey: Mr. Howard placed it in my hand. On the face of it, the result does not appear very probable. The gentleman sent the letter in good faith I suppose, as he gives his name and address; but that has not always been a voucher.

Mr. Burgess: It appears to be written in a curious spirit. I should say that cotton was not soluble in nitric acid.

Mr. Frank Howard said he had made some inquiries, and had found there was some doubt on the matter. His own impression, on reading the letter, was, that the writer had been misinformed, as he did not conceive that cotton was soluble in nitric acid. A gentleman to whom he spoke thought it might be so; and he had asked Mr. Burgess to make some experiments.

Mr. Burgess: I could not make gun-cotton with nitric acid or sulphuric acid; but others have done it.

Mr. Foard was not prepared to say that cotton would not be soluble in nitric acid.

Mr. Burgess replied that if they got the nitric acid mixed with muriatic, or any other acid, so as to produce a compound, there was no doubt the cotton would be soluble; but he had always used the purest nitric acid, and had not succeeded. He was sorry to say there was too great a desire on the part of some persons to mislead photographers, as he always found that they could do wonderful things that no other person could. The letter just read appeared to be written in the same spirit as the memorable one of a few weeks ago.

Mr. FOARD thought it was very probable that a person might make a successful experiment, while his friend, to whom he might have described the process, would fail.

Mr. BURGESS: A great many failures are, no doubt, to be attributed to the chemicals. You go to a druggist one day, and buy chemicals with which you get a splendid result; you go again two or three days afterwards, for the same chemicals, but what you are supplied with are not the same at all; and hence you fail.

The CHAIRMAN: It is quite possible this letter may have been written in good faith.

Mr. FRANK HOWARD: Nitric acid would burn the cotton—would destroy it; but whether it would dissolve it was another thing. Perceiving by a fierce discussion in the London Photographic "Notes and Queries" that there were many conflicting opinions on the subject, one gentleman stating that he had used bromide with success, and another declaring it to be of no use; a third announcing that if he had used iodide with it he would have obtained certain results. Amid these contradictory statements he thought it advisable to bring this matter forward for discussion.

Mr. FOARD observed that it would be of great value if they could obtain collodion in powder that would be easy of solution and readily used: for transmission to foreign countries it would be very valuable.

Mr. COREY said he had received an earnest appeal from Mr. Hele, of Plymouth, requesting the Liverpool Photographic Society, in combination with others, to forward calotypes, daguerreotypes, and anything connected with photography, for exhibition at a meeting to be held in St. George's-hall, in that town, on the 25th of this month, on behalf of the Patriotic fund. Such a deserving member as Mr. Hele ought to receive their most energetic co-operation; and he trusted the professional members of the society, as well as amateurs, would be able to send forward specimens, which would be carefully used, and returned when the exhibition closed.

The CHAIRMAN and other members signified the pleasure they should have in aiding the laudable object of the meeting.

The CHAIRMAN called upon Mr. Corey to read the first paper announced for the evening.

Mr. COREY: Mr. Berry, who is not here, has transmitted the manuscript for me to read. He entitles his paper "*The Chemical Combinations and Decompositions produced in the Collodion Process.*"

"As I hope to make the principles involved in the collodion process plain even to those who may have no practical knowledge of chemistry, I shall not render the demonstrations abstruse by the application of symbols, and the use of the theory of equivalents, but endeavour so to simplify the matter, that "he who runs may read."

Let us consider the simple relations existing between the collodion and the nitrate of silver bath. First the nitrate of silver.

Pure dry crystallized nitrate of silver consists of

	Nitric Acid...	54
	Silver.........	108
	Oxygen	8

Making one equivalent or combining proportion of nitrate of silver.

When I use the terms pure and dry, I mean that there shall be exactly those quantities of acid, silver and oxygen present, and consequently there is no free nitric acid, water, or traces of other metals almost universally present in the cheap nitrate of silver of commerce. This pure nitrate dissolved in distilled water in the proportion of 30 grains to each ounce, shall be our normal silver bath. We proceed now to the chemicals used in sensitizing the collodion, and their effects on the silver bath.

We will examine a few of those most commonly in use, taking for granted that each specimen shall be chemically pure.

Iodide of Potassium	Iodine	126
	Potassium ...	40
Iodide of Sodium	Iodine	126
	Sodium	24
Iodide of Ammonium ...	Iodine	126
	Ammonium...	17
Bromide of Potassium	Bromine	78
	Potassium ...	40
Bromide of Sodium	Bromine......	78
	Sodium	24
Bromide of Ammonium...	Bromine......	78
	Ammonium...	17

We will now examine the effect produced by the addition of one of these salts to the silver bath, and we will take as an illustration Iodide of Potassium.

If we add a solution of Iodide of Potassium to Nitrate of Silver, a lemon yellow precipitate falls, which is

Iodide of Silver	Iodine	126
	Silver	108

and there is formed in the bath, by what is called double decomposition,

Nitrate of Potash	Potassium	40
	Oxygen	8
	Nitric Acid	54

which being soluble in water remains dissolved; and if, as in the case before us, the silver bath was neutral, it will remain so, as the quantity of potassium liberated from the iodide will exactly counterbalance the nitric acid evolved by the decomposition of the silver salt.

In this manner also if we use iodide of sodium we should, in place of nitrate of potash, have nitrate of soda in solution; so also iodide of ammonium will produce nitrate of ammonia.

Suppose again we take the bromides, we should have bromide of silver deposited, and nitrate of potash, soda, or ammonia, in solution in the silver bath.

We gather from the foregoing that if we commence with a pure silver bath, and to it add pure bromides or iodides, the silver bath will remain in the same neutral state until at length, every particle of silver being eliminated, nothing shall remain in the bath but a solution of nitrate of potash, soda, or ammonia, no matter whether the decomposition be effected by aqueous solutions, or the more subtle form of sensitive collodion; but it necessarily follows that the action of the silver bath will become defective as a photographic agent long before its absolute exhaustion.

We must now consider the effects produced by the addition of pure Iodine or Bromine to the silver bath.

It will be obvious that we have now only one base, *i.e.* the silver to be acted upon, and there is no potash, soda, or ammonia to combine with the nitric acid liberated from the silver salt; and as silver, like man, cannot serve two masters, but must leave one and cleave to the other, so where iodine is the element used, the nitric acid is evolved from the nitrate of silver, iodide of silver is formed, and the bath becomes more acid at every such addition; the same relative action exists with bromine, and of course with the same results.

It is plain, therefore, to demonstration, that the use of iodine or bromine in their pure state must be fatal to the uniform and continuous productions of satisfactory photographic effects.

It remains only to describe the effects of a compound sensitising solution: take for example a mixture of iodide and bromide of potassium. The effect on the bath will be that a mixed precipitate of iodide and bromide of silver will fall, and an alkaline nitrate will remain in solution.

We now arrive at the production of a sensitive collodion, and here I beg to record my conviction, formed from a somewhat lengthened experience, that no miraculous powers are possessed by the solvents of gun cotton, or by ethyle, methyle, or any other mysteriously named compound, radicals or conservatives; but that we must explain the wondrous rapidity of the collodion process by the almost infinite divisions of the particles of the insoluble silver compound that is the recipient of the image.

I therefore esteem the sensitive coating to be merely in a state of extreme division, and the cotton pulp, which gives it the due tenacity of adhesion, as nothing more than a most excellent article to hold these infinitessimal atoms in the most favourable position to be acted upon by light.

We have said that our normal silver bath was perfectly neutral, and we shall find that if we take pure iodides or bromides to sensitize our collodion, (providing always that our gun cotton, æther, and alcohol be perfectly free from acid), that on the application of a developing agent to the plate on its emergence from the bath, and without the intervention of actinic influence, it will blacken all over, unless the developer be very acid, so that the addition of a minute quantity of nitric acid, to a neutral bath worked with a colourless iodized collodion, is absolutely necessary.

There is, however, a condition in which it is possible to use a pure neutral silver bath, and that is where, from acidity in the gun cotton or æther, or the presence of aldehyde, an acid reaction is set up in the collodion, which liberates a minute portion of iodine or bromine, as the case may be; in these cases negatives of great intensity may be produced by development with pyrogallic acid, providing there be a sufficient quantity of chemicals in the collodion to produce a negative sensitive surface, as it is impossible to produce a strong printing negative with the half tones fully developed, when you have those opalescent films used for the production of what may be called photographic phantoms—the positive collodion pictures."

The theory and practice of development of latent images will form a separate paper in our next number.

The Chairman observed that Mr. Berry's very interesting paper had opened up a wide field for discussion. Every person working the collodion process must have noticed great changes to take place from time to time in the bath, and when so much depended on the bath it was very necessary to keep its condition as much as possible the same. It was of the utmost importance that they should know pretty nearly the chemical constituents of the bath itself, and the changes it undergoes. After using the nitrate of silver bath some time he had found it to change colour, and that negative pictures, instead of having the transparency which they had at first, acquired a certain opacity, with a better half-tone and less intensity in the black. No doubt other persons had experienced the same results. This showed that the sensitiveness of the bath might be altered and entirely deranged by chemical change, produced merely by the interposition of the successive pictures. Mr. Berry's paper opened out a wide field to persons working collodion to state their experiences. He observed that there had been a discussion before the London Photographic Society, as to acid baths differing essentially from the neutral and alkaline. He had worked with all three, and had found no difference. He did not think it mattered at all whether the bath were acid or alkaline.

A Member: If the collodion is acid you may use an alkaline bath.

The Chairman, in reply to Mr. Corey, said he had used a neutral bath supplied to him by Mr. Berry, and had found a great difference in it after working; when saturated with silver he found that it would work with much greater rapidity, so that he could take a picture in one third the time, with much greater softness, and much more even half-tones.

Mr. Bell thought that every one used a greater excess of acid in the solution.

A Member: Mr. Hardwich advocates the use of the neutral bath.

Mr. Bell: Mr. Foard's experience is contrary to that.

Mr. Foard: The subject was amply ventilated in the London Society, and the result was, that though a great number of persons believed the neutral bath was better than either the acid or the alkaline, there were also a great number who believed that there was no difference in the actual result, if the condition of the bath remained unchanged. The general objection to an alkaline bath is the great cloudiness it produces in the pictures.

Mr. Bell: I have destroyed a vast number of baths after taking a few pictures.

Mr. Burgess: If you take a new bath you will not obtain a satisfactory result unless you get it something like neutral. If you continue using it a long time, you then likewise fail; but if you allow the bath to stand two or three days, you will perhaps take splendid pictures again. I have so frequently been bothered in that way that I now keep two baths, which always keep in working order by being used alternately. I have one prepared by Thompson's formula. It worked very well, but I took it home, and in consequence of being carried through the atmosphere, it caused me some failures. I then made another of nitrate of silver and water alone. It worked very well. After allowing Thompson's to settle two or three days, I tried it again, and here are two or three results taken with the same collodion as, and within two or three days of, the failures. Mr. Berry says it is almost impossible to obtain good positives and good negatives from the same collodion. I have done so, and here are the results (producing several negatives and positives). I had some old collodion which had gone very red, I did not like to add silver, but tried zinc. And here (exhibiting a bottle) is some old collodion restored by cyanide of potassium. You will notice the intensity of these pictures, all taken by the same person, with the same collodion, in the same bath, and producing negative and positive pictures. They were all taken within a few days of each other, the time of exposure varying from 15 seconds to a minute, the weather being very dull. I found the addition of zinc to the collodion a very great advantage. It was old collodion which I thought useless, having been made nearly six months. I have not yet had time to print from them.

Mr. Foard: What Mr. Berry would seem to imply is, that the same collodion would not give good positives and good negatives. These are very good; but I think you may get a stronger negative by more variety.

Mr. Burgess would not wish to have strong negatives, as they make very bad pictures. They got a very white face, and the lineament of the picture was nearly destroyed. If the picture was to be painted like Mr. Foard's, a strong negative might be preferable, but if he wished the portrait untouched, he would not desire the negative a shade stronger than those he had produced. He did not think the weather affected the working of the bath for any length of time; but he had found the use of two baths a very considerable advantage. If they chose a neutralized bath, they would obtain a great improvement by the addition of a little acid to the developing solution. The great object was to obtain a good negative and a good positive from the same bath, of course using different developers.

Mr. Corey: Do you find that you can work as quickly with zinc as with cyanide?

Mr. Burgess: No; I was referring to the use of bromide, not cyanide, so that I cannot say whether cyanide is a better accelerator than zinc. I just put in a piece of zinc. I had tried silver, but had not found much advantage from it.

The Chairmam had tried cyanide of potassium in solution with other materials, and had obtained unsatisfactory results; but he had attributed the failure to the other materials. He could not say what would be the result with cyanide alone.

A Member observed that he had been using iodide of iron, but although it accelerated the picture, it produced a deposit in the silver bath which was very inconvenient, as it spotted the pictures.

Mr. Burgess thought, for an instantaneous picture nothing could be better than Maxwell Lyte's process, with 200 grains of nitrate of silver. The bath was so apt to be destroyed by any other means, especially by iron, that it wes better to use some such mode as Maxwell Lyte's.

Mr. Corey next read a paper by Mr. Higgin; but before doing so he impressed upon the members of the Society, and indeed on all amateur photographers, the importance of adhering strictly to one distinct branch of the science. They could not hope to excel in all; and it was only by adhering strictly to one routine that they could arrive at perfection. Mr. Higgin had conferred a great benefit on the Society by thus studying one branch, and by laying before them the results he had elicited by continuous experiments. Hitherto they had no correct data as to the time of exposure, and the time required for developing. Thus if a picture had been exposed a short time, it would take a long time to develope, and *vice versa;* and by this certainty they obtained more finished pictures, and more of those half-tones of which Mr. Frank Howard so much approved. Mr. Corey then proceeded to read Mr. Higgin's paper, circulating specimens as he proceeded, eulogising some of them, as having all the intensity of collodion.

"*On the Application of Mr. Townsend's Process to Un-waxed Paper.*"

"Being impressed with the conviction that by the Talbotype process, much delicacy, beauty, and softness is obtained, especially in foliage, which cannot be found in pictures taken by the waxed-paper process, and seeing how desirable it would be to combine if possible, the advantages of both processes, I have been led to endeavour to apply Townsend's waxed-paper process, to plain unwaxed paper, and beg to submit to the Society the results of the experiment, hoping that if any advantages are deemed to have been gained, those who have more time at their disposal than I have, and who are better able to investigate the subject, may be incited steadily to pursue the endeavour to produce a paper that will keep sensitive for several days or weeks, and at the same time give all the perspicuity obtainable by the collodion process, with its rapidity of motion.

Before exhibiting to the meeting the pictures I have taken, I must beg of the members to look at them only as negatives, and not as pictures, they are merely experiments, and I have not tried to obtain perfect and pretty pictures.

The negative of St. Ann's Church, Birkenhead, is taken on Turner's Talbotype paper, treated precisely as if it had been waxed-paper, and prepared and developed by Townsend's wax-paper process, omitting only (and that by mistake) glacial acetic acid in the developing solution. The time occupied in developing was about ten minutes; the exposure was 30 minutes, three days after having been made sensitive. The weather was cold and clear, with tolerably good sunlight. There was a very high wind at the time, and my camera stand being rather unsteady, a confused picture was obtained; it is however, an intense negative.

The negative of the steeple of St. Nicholas, marked A., is taken on Turner's paper, prepared by Townsend's process, thus slightly modified, the paper was floated on the sensitising solution, and was not washed afterwards; the picture was developed with one drachm of aceto-nitrate solution, to ten ounces of gallic acid solution, and the time occupied in developing was 30 minutes; the exposure was 30 minutes without sunshine, five hours after making sensitive.

The negative of the same subject, marked B., is taken on Sanford's paper, prepared at the same time and in the same way as the preceding paper, and developed with the same solution; the exposure was 40 minutes, five hours after being made sensitive, and the time occupied in developing was 45 minutes. There was no sunshine during the time this picture was being taken.

The negative of the same subject, marked C., is taken on Canson's paper, prepared and developed as the two preceding pictures. Exposure 30 minutes, developed in about 5 minutes, taken with a strong sun shining at the time. This picture was perhaps over exposed, and might have been a good picture if exposed only 10 or 15 minutes.

The advantages which appear to me to arise from the application of Townsend's process to plain unwaxed paper, are:—

1st.—That by a more simple process than that of the Talbotype or Calotype, a paper is obtained which gives pictures possessing all the beauty and softness obtained by the Talbotype process, (and not obtainable by the waxed-paper process,) which will keep sensitive for many days: for after keeping the paper three days I have not been able to discover any diminution in its sensitiveness.

2nd.—Economy of time and money. The paper appears to me to be quicker in its action, shorter exposure seems to give a more intense negative, and much time is saved in developing. I exhibit a wax-paper negative (D) in which the very same solutions were used as were employed with the plain paper negatives just shown; the exposure was 60 minutes, without sunshine. E, also a wax-paper negative, prepared with the same solutions, the exposure of which was 30 minutes, with strong sun for six minutes, remainder of time cloudy, with sun breaking through at intervals. The other two wax-paper negatives were taken in September, with a strong sun all the time; the exposure of F was 15 minutes, the exposure of G was 20 minutes.

The saving in money arises from the much smaller quantity of silver solution required for developing, and from the paper, as it appears to all, being less liable to the occurrence of blots and spots.

And thirdly, I may mention that it is not required to wax your paper until you know you have a negative worth the trouble."

That, observed Mr. Corey, was very important; for if they had to buy all their paper, they knew how expensive it was, and how grievous, when they gave no result. A very great argument in these observations was, that they would be able to form some idea of the result before commencing operations. He thought the thanks of the meeting were especially due to Mr. Higgin, for the care he had bestowed upon his experiments; and for himself, he was exceedingly pleased that one of their own members had brought forward a matter of so much importance to them all.

In reply to the Chairman, Mr. Higgin stated that some of the papers were floated on the bath, and others were immersed. He thought it was best to float them, as the backs of the pictures were by that means kept clean.

The Chairman: The chief advantage is the great saving of time which it effects.

Mr. Bell exhibited some pictures taken by Townsend's process modified.

Mr. Higgin observed that he used the same solutions, but substituted un-waxed paper. He found the picture developed rapidly if he used acetic acid, recommended by Mr. Townsend. It developed more quickly than he could well control it, and he therefore diminished the quantity.

The Chairman: It developes much more rapidly when the paper is unwaxed than with waxed paper.

Mr. Higgin: Yes; this (exhibiting one) was taken with Canson's paper. I took some with Whatman's paper and got beautiful definitions—much finer than with any other paper; but I could not get them transparent afterwards, owing to the sizing in the paper. It was some very old paper, made in 1845 I think. I prefer Turner's paper, though Sanford's seems to be very nice.

Mr. Bell: I have always found grains in the wax-paper I have used.

Mr. Higgin: I am satisfied that you get a better picture by using plain paper instead of the waxed.

Mr. Bell thought the red tone of one of the negatives evidenced too long an exposure.

Mr. Higgin did not think he had properly washed the colouring matter out of that picture.

Mr. Corey: It is not always the best negative that gives the best positive; Mr. Sheridan's experience proved that fully.

Mr. Higgin: Yes; some of the worst negatives, produce the best pictures. The negative of the exquisite view of a round tower in Ireland, exhibited by Mr. Sheridan, was a dirty black picture, apparently worth nothing; but it produced the best print.

Mr. Corey: And a very fine negative may produce a very inferior print.

Mr. Higgin (holding a negative in his hand): This would have been better if it had been developed a quarter-of-an-hour longer.

Mr. Bell: That is no difficulty; you can do so now; you may develop at any time, and to any extent.

Mr. Higgin was not aware of that.

Mr. Bell intended to make some further experiments with the bromide process. The papers he had now had been kept three days, and at the end of that time they were not available. That was the disadvantage of bromide paper.

Mr. Higgin: After keeping mine three days I have not been able to discover any diminution of their virtue.

Mr. Bell: Spontaneous decomposition takes place.

Mr. Higgin: I have some paper beyond that age which still retains its sensitiveness. There seems to be a good deal of difference in Turner's paper; where I have got one picture sharp, I have not been able to obtain others: some are covered over with black spots, and others do not seem very sensitive. I got some at another shop which seemed to act very well indeed. Both were Turner's paper, and both were used precisely the same way.

Mr. Frank Howard, in proposing a vote of thanks to Mr Higgin for his excellent paper, observed that Mr. Morecroft attributed many failures to the paper which was used, rather than to the mode of operation; for a long time that gentleman used one particular manufacture, and never had a failure, while, with another batch of paper, he could not get a single satisfactory specimen, although he used the same chemicals and bestowed the same care: the fault was entirely owing to the paper. He (Mr. Howard) was asked to get him some paper when he went to London, but Mr. Horne declined to let him have any, because he had none in stock which he could recommend. A manufacturer had undertaken to supply paper to photographers, and he believed Mr. Corey had received some for the purpose of making experiments. The more this matter was discussed, and the more practical suggestions were made on the cause of failure in the paper the better, as the manufacturers could not otherwise be made aware of the peculiar qualities required.

Votes of thanks having, by acclamation, been given to Mr. Higgin for preparing, and to Mr. Corey for reading the paper, and those gentlemen having responded, the meeting adjourned.

LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, December 7th, 1854, P. W. Fry, Esq. in the chair.

Mr. F. Hardwich read a third portion of his papers upon "*Positive Printing*," in which he gave formulæ for the different solutions which he had found to work the best.

Formula No. 1.

Solution of perchloride of iron.	1½ ounce.
Hyposulphite of soda	8 ounces.
Water	15 ounces.
Nitrate of silver	80 grains.

The hyposulphite of soda is first to be dissolved in 13 ounces of the water, the nitrate of silver in the remaining 2 ounces. The perchloride of iron is then to be poured into the hyposulphite by little and little, stirring all the time. The addition of the iron salt strikes a fine purple colour, but this soon disappears. When the liquid has become again colourless, which it does in a few minutes, add the nitrate of silver, stirring briskly. Perfect solution will take place without any formation of black sulphuret.

This colouring and fixing bath will work well twelve hours after mixing; but it is better still at the end of a few days.

In this, the chloride of iron was obtained by diluting common hydrochloric acid with an equal bulk of water, and boiling two ounces of it for a quarter of an hour with 150 grains of the red oxide of iron—the precipitated carbonate of iron of commerce.

Formula No. 2.

Common iodine	1 drachm.
Hyposulphite of soda...	8 ounces.
Water.....................	16 ounces.
Nitrate of silver.........	50 grains.

Dissolve the nitrate of silver in 2 ounces of the water, as before. Then from the half pound of hyposulphite of soda weigh carefully 2 drachms. Dissolve this in 2 ounces of the water, and throw in the iodine; agitate the vessel until the whole of the iodine has disappeared. If, after the solution of the iodine, the liquid remains *colourless*, there is a slight excess of hyposulphite of soda; in that case, cautiously add a little more iodine until *a brown tint* is perceived. Then pour off at once so as to avoid an excess of iodine further than is necessary, and add

Nitrate of lead*......... 1½ drachm,

* The *nitrate* of lead answers better than the *acetate* of lead recommended in the first paper; when the latter salt is used, acetate of soda is formed in the liquid, which appears to possess the property of dissolving a portion of hyposulphite of lead, and possibly also of iodide of lead.

previously dissolved in 2 ounces of the water. The addition of the nitrate of lead causes an abundant yellow precipitate of iodide of lead; after this has settled a little, throw the whole upon a filter and allow it to drain quite dry; then pour what is left of the water upon it, in order to wash out the tetrathionate as much as possible, and after it has all run through, add, first, the hyposulphite of soda as before, and then the nitrate of silver.

FORMULA No. 3.

Nitrate of silver.........	3 drachms.
Hyposulphite of soda...	4 ounces.
Water......................	8 ounces.

Dissolve the nitrate of silver in 2 ounces of the water; then from the whole quantity of hyposulphite of soda weigh out 2 drachms; dissolve this likewise in 2 ounces of the water, and the rest of the hyposulphite of soda in the remaining 4 ounces. Then, having all the three solutions close at hand in separate vessels, take the nitrate of silver and pour it suddenly into the two-ounce solution of hyposulphite. Immediately a dense white precipitate of hyposulphite of silver is formed. Agitate the contents of the glass rapidly The decomposition soon begins; the mass is changed first to a canary-yellow colour and afterwards to orange-yellow. When it appears to be passing from orange-yellow into brown, pour in the four-ounce concentrated solution of hyposulphite, which will complete the decomposition suddenly; a part of the precipitate is dissolved, and the remainder becomes perfectly black. After filtering away this black sulphuret of silver, the solution is ready for use.

The colouring powers of a bath prepared in this way are not very active, certainly less so than Formula No. 1; and as it is a somewhat expensive process, it is alluded to at the present time more from the scientific interest attaching to it than from any other reason.

The point to which the attention of the meeting is directed is this, viz. that after the separation of the black matter the solution corresponds precisely in its character to "an old hypo-colouring solution," and also to a colouring solution prepared with tetrathionate.

In all three cases the same characteristic acidity *without milkiness* is perceived, and also a similar tendency to form crusts of sulphuret of silver upon the sides of the bottle, from which he argued that the nature of the substances in the three baths must be the same. His baths might be used either acid or neutral according to the effect the operator wished to obtain. He would neutralize a bath by prepared chalk, shaking it well and filtering or straining off. He then gave the following hypothesis to account for the effects of the colouring bath:—that a *superficial production of hyposulphite or tetrathionate of silver* first takes place, and that this salt is afterwards *blackened* by decomposition in the usual way. Tetrathionate of silver and hyposulphite of silver resemble each other so closely, that it does not matter which of the two salts we suppose to be concerned in the change.

He then described various experiments to support his views, and concluded with some remarks upon the necessity for additional precautions in washing and mounting photographs, that the decomposition of the metallic surface, which formed the colouring medium, should be arrested at the right moment, and not allowed to recommence. He thought this process of photographic printing admitted of further improvement.

A discussion followed, in which the Chairman and Mr. Fenton said that they had always found the paper turn yellow when they used the salts of iron.

Mr. Hardwich said that no fear of this need be entertained if the bath was kept neutral, and to each ounce three or four grains of nitrate or chloride of silver added. In order to obtain black and white tints he recommended printing on ammonia-nitrate paper, with a larger portion of salt than usual, in order to produce ammoniacal chloride, instead of ammoniacal oxide of silver. He believed the present tendency to increase the quantity of the nitrate of silver, and diminish the salt in sensitising, was not beneficial, as it was the chloride, and not the nitrate of silver, which gave sensitiveness to the paper.

Mr. Knight described a new implement registered by him, under the title of the Cosmorama Stereoscope, or Stereoscopic Cosmoramic Lens, in which, instead of the two small semi-lenses, there was one large one, which was rendered Stereoscopic by cutting an ordinary plano-convex lens in half, removing more or less of the opposite outer diameters, and then transposing the pieces so that the original centre of the lens became the two sides, and the outer edges were brought together. The advantages obtained by this arrangement were an increased facility for viewing as one the double pictures; only one adjustment was necessary for all sights, viz. increasing or diminishing the distance between the lens and the double pictures.

Mr. J. Williams next read a paper on "*Pyrogallic Acid*," in which he described the nature and mode of preparation; and also suggested the chemical changes which took place in its manufacture from gallic acid. He said the name was not satisfactory, as it implied the necessity of the use of fire, while in fact the same acid could be found in a natural state in various substances, one of which was the pericarp or husk of the walnut.

The Secretary communicated to the Society that the Council had engaged the Gallery of the Old Society of Water-colour Painters, Pall Mall East, for an exhibition of Photographs, to be opened early in January, and to be continued until the end of March.

The Meeting was then adjourned until the 4th of this month.

Familiar Instruction.—No. 10.

"Con tutto core."

Nearly all the world are photographers; or, if that assertion be too comprehensive, at least we may say that so much of the world as is composed of scientific or enterprising persons, are gradually acquiring a taste for the art in the same ratio that its useful application and newly discovered wonders are day by day unfolding themselves. The practisers, whether amateur or professional, are constantly, therefore, increasing. To the former class, particularly those who have a taste for the picturesque and beautiful—and who that takes a camera in his hand for any useful purpose has not that taste—every project or device that will render his multifold apparatus more compendious and portable, will be valuable, and considered with interest. The wonderful success, attested by the plaudits of the large mass of intellectual observers assembled at the soirée of the British Association, when the photographs of the moon were exhibited, expanded to enormous dimensions—the negatives from which they were reflected having been enlarged from small specimens, many of these, too, having been magnified from originals still more minute, and this, too, without any sensible diminution of definition or detail—has induced us to devote a small space to the consideration of repeating transparent photographs, whether on a large or small scale. Unquestionably to the peripatetic photographer the power of enlarging will be of the utmost importance. We have reported in No. 6 of our Journal, under this head, that that pains taking and tasteful amateur, Mr. McInnes, has gone forth armed only with an apparatus of diminutive size, and produced most perfect specimens, with never-failing despatch, on a minute scale. These, at leisure, with the convenience of all his chemicals, baths, and washing apparatus, and dark closet to his hand, he has reproduced, in all their pristine beauty, upon an almost illimitable extent. By this process he has also obtained the advantage of diminishing that hardness, that harsh contrast of mere light and shade, that want of blending of the brighter and darker rays which are technically called half tones, and which produce so much harmony in a well managed picture. Collodion pictures are remarkable for their extreme minuteness of detail, and its excess at times becomes a defect: but when toned down and softened by enlarging, they become less crude and severe; and by that toning down are deprived of some of that needless detail which fatigues the eye, rendering photographs too much of that order designated by painters as pre-Raphaelite, decried and deplored by them.

Thus we have seen that a camera of the smallest size, capable of taking only what is called a medium or sixth sized plate, which, with baths for exciting and developing, can be packed in a small carpet bag, are all that are requisite for out-door work; bearing in mind that proto-nitrate of iron must in this primary stage be chosen, as the developing agent, for that only will admit of being repeatedly used. Having obtained a rather deep or overdone picture, when dried and varnished, it must be placed in a frame that will be secure in the groove of the camera, where the dark slide is usually fixed. This must be placed at an open window, if the process is to be executed by day, but if by night it must be exposed to a strong Argand burner of gas, or moderator lamp placed before a large and very convex lens, in the same manner as the condenser of an oxy-hydrogen microscope, so that its rays, or those of the sun at the window before-mentioned, are transmitted through the photograph to be copied; the brass tube of the lens of the camera is now to be inserted into the orifice of a very large camera, from which the lens has been unscrewed: and that no extraneous and injurious lights may enter, a deep covering of velvet or other impervious material spread over it, and the moveable back of the larger camera so adjusted that a perfectly sharp representation will be thrown from the transparent negative or positive at the farther end on the focussing glass, or what is preferable in this case, a piece of ordinary glass with white paper fixed in front of it. A collodion film, on a glass plate of any size, may be sensitized as before, and when placed in the dark slide of the larger camera, and exposed the usual time, a very deep-toned negative, if developed according to the usual principle, may be obtained. Nor need we confine ourselves to the limited extent of a camera for our reproduction; an entire room may be so darkened as to become in itself a camera, and a picture thereby be copied in all its original fidelity of actual life size. In fact, the only restraint to the almost indefinite enlargement will be the means of preparing the material, whether glass or waxed paper; for could baths be procured of sufficient size, a gigantic image might be effected. To accomplish this extraordinary enlargement make choice of a room having a window facing the sun's course, to which a dark shutter must be accurately fitted; in the centre of this a hole must be cut, answering to the size of the original photograph, and in the front of this a square box about the depth of the average focus of the lens to be employed be firmly fixed; the lens being screwed upon a hole cut in the bottom of this box, the room itself becomes a vast camera, and if a sheet of white paper be held in the course of the rays transmitted by the lens, the image will be perceived upon it, in like manner as it would be through a ground glass slide. Wherever the sharpest focus is detected, there a prepared plate is to be placed, and exposed the usual time, and developed as usual. Whatever size may be required may be obtained by removing or advancing the lens nearer or farther from the original; just as approaching or retiring from the object acts upon an ordinary camera. An attic having a skylight might in like manner be adapted, by means of the dark shutter, and a table capable of being raised or lowered to receive the sensitive plate. Many other expedients will, no doubt, suggest themselves from these observations.

Mr. Atkinson has devised a most excellent contrivance for a form of expanding camera which admits of being extended to a focus of six or eight feet, with a proportionate enlargement of the proposed copy. An upright frame is fixed with a sliding motion upon a horizontal board of any length; and all light is excluded by an impervious cloth being suspended over cords, strained by means of pullies. As he has been remarkably successful in completing enlarged copies, he will readily afford information to all who may require practical hints on the subject.

A field of enormous reproduction is here offered to the enterprising photographer, admitting of changes, alterations, and even improvements beyond all calculation; for not only does it afford opportunity of repetition upon collodion plates, but also albumenized glass, calotype, wet paper, waxed paper, and all the other known recipients of photographic representation. And it admits of correction and emendation, as, for instance, the prototype may be perfect in all its parts except an accidental breaking or blotting in the back-ground; or a feebleness in that back-ground may render the outline of a figure or portrait imperfect or only faintly visible, when the chance of obtaining another picture may have passed away for ever. Though we are far from advocating the doctoring or touching up of negatives, occasion may render this most desirable. The smoke of a candle or other blackening may hide many defects, and the photograph be reproduced in all its desired beauty. So also microscopic objects, pictures of large assemblies, sculptures, hieroglyphics, and many other occult mysteries, which, from the diminutive character of the originals, are almost invisible to the naked eye, may be infinitely augmented in their wondrous fidelity by enlargement. So, on the other hand, maps, atlases, plans, and even deeds and copies of music that might be thought too bulky or too voluminous to be stored in any quantity, having been condensed and concentrated by the usual process of photography, may be again brought to light and life, enlarged and made legible on every fitting occasion.

Since the above was in type, the subject was debated at the last meeting of the Society, and Mr. Foard mentioned the expediency of putting a concave mirror outside of the window, to condense the rays through the negative.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—I enclose a few observations on "Economics in Photography," if you think them worth inserting in your Journal.—I remain, yours sincerely,

MONTAGU MARRIOTT.

Economics in Photography.

Much has been written on this subject, but the instructions given have been hardly sufficient for the learner, or, in fact, for any one not possessing a tolerable knowledge of chemistry.

The only substance worth saving is the silver employed in various forms, and the value of this is very considerable when Photography is carried out upon a large scale. If economy be systematically practised, 90 per cent. of the silver used may be recovered. For this purpose two receptacles ought to be provided, one for liquids, the other for all pieces of waste rag, blotting paper, filters used in the different processes, and also all spoiled proofs.

The best thing for liquids is a coarse, well glazed, stone-ware pan or jar, at the bottom of which some good sized pieces of zinc should remain, and a small quantity of common salt be added from time to time. Into this all liquids containing silver should be thrown, such as gallic acid, pyrogallic acid, and sulphate of iron used in developing, cyanide of potassium and hypo, used in fixing, and all water used for washing. The chloride of iodine and zinc will decompose all these solutions in a very short time, leaving a considerable sediment at the bottom, consisting of metallic silver, with a little imperfectly reduced chloride. As the liquid accumulates it may be decanted off and thrown away. It is better to let this process go on for some months, as the trouble of reducing is the same for a small as a large quantity. The silver which accumulates on the zinc should be brushed off from time to time. When it is wished to reduce the silver the liquid should be poured off, the zinc removed, and the residium, with the ashes from the next process, well washed, first with dilute sulphuric or hydrochloric acid to remove any iron, and afterwards with water. It is then to be thrown on a filter and dried.

The dry papers, rags, &c. should be burnt to ashes in a ladle or on an iron plate, over a fire with free access of air, and added to the wet residium as before mentioned. The next process is melting the silver in a crucible, with some carbonate of soda. This is not by any means so easy as has been represented, and it is almost impossible to perform the operation at an ordinary fire, even with the assistance of bellows. If the use of a chemist's furnace cannot be obtained, the best plan is either to get a refiner to melt it down or dispose of it at once to him, and so save further trouble. If, however, the silver has been melted it should be dissolved in dilute nitric acid (using as little acid as possible), evaporated to dryness, weighed, dissolved in distilled water, and filtered for use; it is not necessary to crystallize it. This should be done in the open air, or under a chimney with a good draught, as the fumes are very injurious. This nitrate of silver may be used in the wax-paper process or for printing, but will not answer well for collodion, as it is next to impossible for any one, not an excellent chemist, to prepare an article equal to that produced by the first firms; and for the collodion process nothing but the purest nitrate of silver should be used. It is always better, if possible, to keep to any one maker whose chemicals are of superior character, as it ensures greater uniformity in the results.

If it is wished to reduce a bath which has become inefficient, it may be done in the moist way without melting; the silver should be precipitated in the form of chloride, by the addition of a solution of common salt as long as any precipitate is found; this should then be well washed and placed in a Florence flask, with some pieces of zinc, and water slightly acidulated with sulphuric or hydrochloric acid. The flask should be often agitated as the decomposition is imperfect unless all the particles of chloride come into contact with the zinc, this should be continued for a considerable time after the colour is completely changed, the metallic silver should be then well washed several times, the last in distilled water, and dissolved in dilute nitric acid and treated as before mentioned. There are about 305 grains of pure silver in every ounce of nitrate, worth about 3s. 5d., so that calculating the silver recovered at 90 per cent. it would amount to about 3s. 1d, for every ounce of nitrate used.

Montpelier-square,
London, 5*th Jan.* 1855.

To the Editor of the Liverpool Photographic Journal.

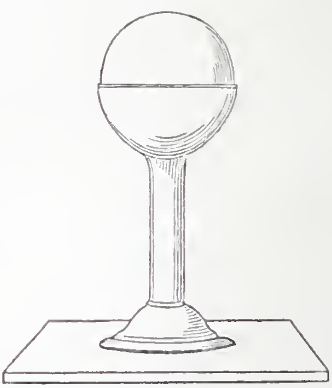
Sir,—I use a pneumatic plate-holder of my own construction which is very simple and effective, and which any person may make at a cost of sixpence. Take a piece of gutta percha and soften it in boiling water; roll it between the fingers, leaving a ball at either end for trumpet mouths; then work through it a piece of wire, coated with oil, and let it remain. Hollow out the balls into trumpet-mouths. When one end is sufficiently large, heat it before the fire, and insert one of those India rubber air balls into it, pushing the wire into the hole of the ball to keep the passage clear; press the gutta percha on the sides of the ball with the fingers, which require to be oiled to prevent the gutta percha from adhering to them. Let it cool, then pull the wire out. Heat the other end and press on a plate of glass so as to make the edge of the mouth perfectly smooth. The edge of the end to be applied to the plate should be about half an inch broad to make it hold securely.

As the above is so easy and cheaply made you may deem a description of it worthy of insertion in your Journal.—I remain yours,

J. FARMER.

Edinburgh, 29*th Dec.* 1854.

PLATE-HOLDER.



To apply it, the top of the ball is pressed down, and the end of the tube placed on the plate. The pressure on the ball is then removed, when it expands, and the plate is held securely. To detach it, the ball only requires to be pressed again.

Communicated by Mr. Corey.

Charles Corey, Esq.

Sir,—We beg to thank you for your bringing M. Marion's frame to the notice of the members of the Liverpool Photographic Society, and are most grateful for the trouble you have taken in giving the necessary explanations for its use.

We have just received another frame with some alterations, which greatly improve its simplicity: instead of two there is but one screw to push forward the sensitive sheet close to the glass, and the sheet is held fast by a piece of the portfolio entering a notch at the bottom of the frame, instead of a binding screw as in the former.

We remain Sir,
Your obedient servants,
Pro A. Marion & Co.
CH. DESCHAMPS.

152, *Regent-st., London,*
January 5*th,* 1855.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 2.—FEBRUARY 10, 1855.

We have received a copy of a valuable journal published in New York, which has reached the 18th number of vol. VI., from which we extract some remarks upon relative weights and measures, to which we have frequently directed attention, but not had time to prepare for our readers; and which we now have the pleasure of quoting from our transatlantic coadjutor. Photographic literature appears to be active.—We hail the appearance of a younger brother, in the shape of a *Dublin Photographic Journal,* born on the 1st of January; and a promising child it is, though rather small in size; not but what it occupies sixteen pages of closely printed matter, in 8vo. form, and published at threepence. The paper is thinner than we dare exhibit in England, but we must admit that the matter does great credit to the Dublin Photographic Society, with which it is connected. This Society was established on the 6th December last, Lord Otho Fitzgerald being appointed President, who has promised to read a paper, "On the Operative Obstacles of the Amateur Photographer," at the next monthly meeting, which will probably have passed before this reaches our readers, though we may not be able to report it. The subject is a good one; and from the address of Lord Otho Fitzgerald, which appears in the first number of the *Dublin Photographic Journal,* we expect to find it very well handled. From the report of the first meeting, we find that Mr. James Robinson read them an interesting paper "On the Universal Applicability of Photography;" and that Sir J. Coghill read a paper "On the Collodion Process," which led to a valuable discussion on the relative merits of that process in comparison with waxed paper. The interests of the former have been much advanced by the discoveries and practical operations of Mr. Maxwell Lyte, Messrs. Spiller and Crookes, Mr. Shadbolt, and Dr. Mansell, who appear, between them, to have perfected a process which is instantaneous in operation, and admits of almost indefinite delay between the operations of sensitizing, exposing, and developing; so that plates may be prepared before-hand, no matter how long, and developed on the return home, no matter how distant, from the scene selected for operations. Mr. G. R. Berry has also been giving his attention to this subject, as will be seen by our report of the proceedings of the Liverpool Photographic Society; and little else would appear requisite to place the collodion process before all others, except to obviate the weight and fragility of a number of pieces of glass, by the fulfilment of the promises made by the introducers of collodion, that the film should be speedily removable from the glass, so that one or two plates of this material should suffice to take any number of views. On this branch Mr. M'Innes is very hopeful, but he was not prepared to exhibit some interesting specimens at the meeting of the society, as was expected. Mr. Higgin continues his experiments on the adaptation of Mr. Townshend's waxed-paper process to unwaxed-paper, and with most successful results. The albumen process, as detailed by Mr. Mayall, does not appear to be likely to prove very attractive. The complicated operations, and the length of time required for various parts of the process, place it at great disadvantage with either the collodion or paper processes. Two practical operators in France, where they work more satisfactorily with albumen than we have done, report that they have been able greatly to simplify the operations and to increase the sensitiveness: but their modes are not yet made public.

The Exhibition of Photographs, in London, was not opened with the *eclât* which we were misled into stating in our last number. The Queen did not open it, but Prince Albert attended the private view. It is, we understand, a good exhibition, and we hope to be able to give a notice of it from the pen of a very competent critic.

It has been announced in *Notes and Queries* that Mr. Fox Talbot has abandoned all further proceedings against Mr. Laroche, or in support of his patent, and that he does not intend to apply for a renewal. This is confirmed by a statement that has reached us from an authentic source; and we may now congratulate our readers that all impediments to the working of this Art, and thereby promoting further discoveries, are now virtually removed. We may also call the attention of our readers to the case of Mr. Laroche, who has fought a battle, the gaining of which will benefit others, but has left him in a very straitened condition. We shall be happy to promote a subscription in his behalf.

GLOSSARY
OF
TECHNICAL TERMS USED IN PHOTOGRAPHY.

Section IV.

CHEMICAL TERMS.

The nomenclature or terminology of chemistry at present is founded on Dr. Dalton's "atomic theory," which is constructed on the hypothesis that bodies combine in certain quantities which are called "atoms," or "chemical equivalents;" that a single atom of one substance will combine with one, two, or more atoms of another substance, but will not combine with intermediate quantities—as in Mr. Hardwick's papers, which appeared in our pages in the report of the London Society's proceedings; the hyposulphite of soda contains one atom of sulphur relatively to the other ingredients, a dithionate two atoms, a trithionate three atoms, and a tetrathionate four atoms relatively to the single atom of soda, &c. With the view to obviate long descriptions, various modifications of the terminations in the names of acids, alkalies, and salts have been adopted, as sulphur*ic* acid, containing relatively three atoms; sulphur*ous* acid, containing two atoms of oxygen; nitr*ic* acid, containing five; and nitr*ous*, containing four atoms of oxygen.

Sulph*ates* and nitr*ates*, are so called when obtained by sulphuric and nitric acids.

Sulph*ites* and nitr*ites*, when obtained by sulphurous and nitrous acids.

Proto-salts, as proto-sulphate or proto-nitrate, when oxygen and the base are in equal quantities.

Per-salts, as pernitrate, when the oxygen is in its maximum proportion.

Super-salts, or *bi*-salts, as super-acetate and bicarbonate, when the acid is in excess.

Sub-salts, when neutral.

The relative strength of many substances can only be estimated by their density, which is registered or described by their "specific gravity"—*i. e.* their weight relatively with water as 1000. Thus the same bulk of alcohol and of water will weigh relatively 769 and 1000; as spirit imbibes moisture, or is diluted with water, its specific gravity increases, the alcohol or spirits of wine of commerce being about 835.

COMPARISON OF WEIGHTS AND MEASURES.

Practitioners ought to be aware, when attempting to follow proportions as given in books published in Britain, that their pint measure contains the volume of 20 f. ounces at a temperature of 62°; while the New York pint contains only 16 such ounces at a temperature of melting ice, or 32°; so that, while little appreciable difference exists in the ounce, the New York pint is equal to four-fifths of the British.

The following miscellaneous information may be of service to some in comparing quantities, as given in different works, and to whom the requisite tables may not be accessible when needed. The grain and ounce of Troy and Apothecaries weight are the same:—

WEIGHTS.

Grain Apoth.	=	0·0648	grammes Fr.
Ounce ,,	=	31·102	,
,, Avoir.	=	28·346	,,
Drachm Apoth.	=	3·888	,,
Gramme	=	15·4340	grains Apoth.
Decigramme	=	1·5434	,, ,,
Centigramme	=	0·1543	,, ,,

		Lb.	*Oz.*
Killogramme	=	2	3½ Avoir.

MEASURES OF CAPACITY.

		Cubic Inches.		*Fluid Ounces.*
Litre	=	61·028	=	35·79
Decilitre	=	6·02	=	3·57
Centilitre	=	0·610	=	0·35
Millilitre	=	0·061	=	0·03

MEASURES OF LENGTH.

Metre	=	39·37 inch.
Decimetre	=	3·93 ,,
Centimetre	=	0·39 ,,
Millimetre	=	0·03 ,,

Cubic inch of water at 32°	=	252·45 grains.
,, ,, mercury ,,	=	3425·35 ,,
Fluid oz. water	=	437·50 ,,
,, ,, measures	=	1·73 cubic in.
1 f. drachm	=	54·68 grains.
1 pint (New York)	=	27·68 cub. in.
1 oz. bromine	=	2½ f. drachms.
1 grain Troy or Apoth.	=	1·097 gr. Avoir.
1 lb. Avoir.	=	7000 Troy grs.
1 ,,	=	7680 of its own grs.

The drachm Avoirdupois is never used except in weighing silk.

Pendulum vibrating seconds at New York } 39·102 inches.

In weighing solids, few weights are really necessary if they are properly assorted; nothing less than half a grain is likely to be useful, and the series following will weigh any quantity from the half grain to two thousand one hundred and ten and a half grains, by differences of only a single grain.

The numbers are in grains, but the same principle may be carried out with any other denomination, whether ounces, pounds, or tons.

½, 1, 2, 3, 6; 10, 20, 30, 60; 100, 200, 300, 400; 1000, &c.

The artist should be provided with not less than three glass measures—one of a pint, graduated to ounces—one of two ounces, graduated to drachms—and one of two drachms, graduated to minims.—*Humphry's Journal, New York.*

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The twelfth monthly meeting of the session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 6th February. The chair was occupied by James Newlands, Esq., the President of the Society, and there was a large attendance of members.

The Chairman opened the proceedings by observing that at the December meeting of the Society, a subject of great importance was brought forward, viz., the non-payment of subscriptions by certain members who continue to receive all the benefits conferred by the Society. This, he was sorry to say, was increasing. The council, to whom the subject was referred, had deliberated upon the matter, and had arrived at a recommendation which would be submitted before the annual meeting next month.

Mr. Forrest presented to the Society two positives printed by gaslight, by Mr. Atkinson; after which he produced a box or receptacle of novel construction, for the preservation of preserved plates.

Mr. Corey repeated his proposition with respect to the distribution of a card of the meetings at the commencement of each session, in lieu of issuing monthly notices.

Mr. Forrest seconded the proposition.

Dr. Cauty proposed as an amendment, that the subject be referred to the annual meeting.

Mr. Atkins seconded the amendment.

On the question being put to the vote, the original motion was carried by a majority of 11 to 7.

Mr. Corey announced that he had received copies of the *Dublin Photographic Journal*, commencing with the new year, and containing an article of considerable importance; and also a copy of the New York *Humphrey's Journal*, which was interesting to the Society as containing a considerable quantity of matter quoted from the *Liverpool Photographic Journal*, as well as some interesting original matter by Mr. William Ross, whom England had the honour of claiming as one of her own children. He had likewise received from M. l'Abbe Moigno, who appeared to retain a lively recollection of his visit to Liverpool during the meeting here of the British Association, regular copies of the *Cosmos*, in one of which there was a very important communication, which he (Mr. Corey) read, and which will be found in another part of the *Journal*. Mr. Corey next read a letter he had received from Mr. Burbey, on the preparation of gun-cotton, which will be found in our Correspondence. While the letter was being read, Mr. Berry made the experiment of its solubility, which was eminently successful. At the last meeting of the Society (continued Mr. Corey), he read a communication from Mr. Hele, containing an urgent appeal on behalf of the Exhibition of Photographs at Plymouth, in aid of the Patriotic Fund. Thanks to the kindness of Mr. Foard particularly, with the assistance of other friends, he was enabled to send seven dozen photographs, which were thus alluded to in a newspaper he had received from Mr. Hele:

"The collection of photographs were much increased in value through the liberality of the Photographic Society of Liverpool, who kindly lent them a large number. They have to thank Mr. Hartnup, of the Royal Observatory, Liverpool, for the loan of the valuable photographs of the moon."

Mr. Corey read a short paper entrusted to him by Mr. Higgin, describing some further improvements made in the mode of taking negatives upon unwaxed paper, as explained in the last number of this *Journal*. Mr. Higgin has been experimenting most successfully; and notwithstanding the late gloomy and severe weather, the report of his labours was profusely illustrated with specimens of a superior character, possessing the sterling value of being endorsed with all particulars relating to them, such as time of day, length of exposure, state of weather, amount of sunshine, if any—for one very successful picture was taken in five minutes, with snow and sleet falling the whole time. The papers were all parts of one sheet of Turner's paper, all iodized and made sensitive at the same time, and were all exposed in the same camera, and the first four on the same day. Some of them were prepared, excepting the waxing of the paper, according to Mr. Townshend's plan, but unquestionably the best for clearness of the whites, sharpness of outline, and amount of detail, the finest were prepared according to Mr. Higgin's own process, which we subjoin.

Turner's paper immersed for not less than two hours in the following solution:—

Iodide of Potassium	15 grs.	Sherry colour.
Bromide Calcium	6 ,,	
Free Iodine	1 ,,	
Distilled Water	1 oz.	

Drained and dried. Made sensitive by immersion in the following bath for about five minutes.

Nitric Silver ....30 grs.
Acetic Acid ....30 minims.
Water .... 1 oz.

After draining from this bath, immerse in water, and wash for a minute or two; blot off, and dry for use. Developing solution:—Solution of gallic acid with addition of 1 drachm aceto-nitrate to every 10 ounces.

Mr. J. A. FORREST produced several photographs taken on Canson's paper, before being waxed, by Mr. Clements, of Scarborough. They were much admired, some of the negatives being remarkably sharp and vivid, but the impression of the members seemed to be that their value was in some degree diminished by having the skies blackened out. Mr. Forrest thought the exposure had been about six minutes.

Mr. FOARD read the following admirable paper on "*The Connection of Art with Photography*:"—

"Progress always precedes definition. We traverse a country before we can map it out. The traveller, or the conqueror, or the poet, respectively, in their various domains, achieve conquests over unknown regions; and those who follow in their path are content to trace out and divide the newly-acquired territory. They have carried their standard further into the infinite, and planted it there. It is for those who succeed them to estimate the value of the lands their leaders have annexed. We, like the Romans under Cæsar, have passed over to a *terra incognita* in science; and it is perhaps not too late for us to define our possessions, and ascertain their capacity for improvement—their actual position and resources. At present we known little of the ground we have invested. Whether, to drop allusion, we have met here as a scientific or an artistic society,—whether this society can be termed a philosophic, an artistic, or a scientific society,—whether Photography is a science, an art, or a business, or what is frequently, but erroneously, termed a mechanical art, two ideas incompatible,—or whether it is one of the fine arts, or an imitative art, or a profession.

"I am afraid some apology is due to you, Ladies and Gentlemen, for my choice of subject, as well as for the lack of interest in the matter I may be able to lay before you this evening, when it is contrasted with the more scientific information usually supplied at the meetings of this Society. The time of the year may perhaps be urged as an excuse for the consideration of matters of less interest and import than would be desirable for description in the press and heat of a summer campaign.

"Although it may benefit us little to know whether we are members of an artistic or a scientific body, and may benefit our photographic results still less, still it is of importance that we should understand what reference photography bears to art, and wherein it falls short; because, where the fox's skin fails, we may patch it with the skin of the lion, as well as embellish it, *even where it is sufficient*. The noblest portion of the united intellect, of all ages, has paid its tribute at the shrine, and to the glories of art. We may, perhaps, by borrowing some of its attire—as "fine feathers make fine birds,"—increase our own splendour of appearance, and so cut a better figure. We yet stand Peri-like—disconsolate on the threshold of a new discovery—in a sphere hitherto silent, and as sacred from the approval of man as the distant stars. What has been already accomplished has been achieved with rapidity—with that rapidity peculiar and appropriate to a people who rule, like Prospero, the Infernal Powers—who travel by steam—who write by lightning and paint by the sunbeam. What has to be done has to be considered and weighed, and it is best that, like the Trojan Fugitives, we do it in the sunshine. We know in the person of one of our members that we are reviled, if it be art, and scandalously used,—that we are told we cannot draw, and that we not only are not satisfied with giving the truth, but also give considerably more, viz. the unpleasant truth; but the art, a science of our adoption, is also generally, or at least frequently, maligned or ill-used. We have been told, and not alone by Mr. Howard, that photography enlarges the hands, distorts the figure, fixes the eye with a stare, gives houses as though they were in an earthquake, falsifies perspective, makes the shadows hard, obtrudes the accessories, and gives every tree in a landscape, and every button in a waistcoat, with as much pertinacity as if it were the only button or the only tree in existence. These vices militate sadly against its artistic character, if they be true, or are substantial charges. But, in addition to them, there is a belief that they are incurable; an opinion prevalent that a photograph is always at its best—that all photographs of the same object taken under similar circumstances are the same—that the process by which photographs are taken is as simple as tree shaking, and that we have only to shake the tree, and, as in the old nursery ballad, down falls the baby—our child of the sun—from the tree top. Contrasted with which opinions may be given those of persons who believe that the process never can fail, that a photograph must be like, and of those persons who, like a writer in the *Illustrated London News*, of the 27th ult., in an article on the Photographic Exhibition, lays it down with great gravity, and as a fact he has after much difficulty just established, retaining, at the same time, a personal doubt in the matter, that Photography is not likely to supersede Art, which proposition is as astounding and novel as that Queen Victoria is Queen of England ; and he then goes on to state that it is the handmaiden to Art, which is in the sense of the French waiting-woman who sometimes ventured to box her Russian mistresses' ears, as narrated in the *Englishwoman in Russia.*

"Now, what photography can do, and what photography does do, as a rule, are widely different matters, as wide indeed in their way as what art can and does do. What art may achieve, and what it does do, in the way of poonah painting, lithographic prints, sign boards, tea trays, and family portraits, is rather an extensive field. The question of art or no art, art or its antithesis, mechanics, as regards photography, is involved in it. We cannot achieve perfection in a day ; and it is just as fair, pending our progress, to say that photography always enlarges the hands, always makes its buildings tumble down, always makes its extreme lines converge, as it would be, to take the sign-boards of England, or the tea-trays, as an exposition of its status and capacity in the arts. To take the majority of family portraits, of that kind which grace the chimney, the altar-place of every well-to-do Englishman, who, as one narrated to me, likes "a ihle painting cos it looks like a picter." In this style, in gilt frame £5, what do we find, — a table with a gentleman leaning his hand, or something so intended, on it, his face looking as though it came into the world at any rate not more than half made up, and the other half was some time in coming, and when it did come did not fit; the skin as much like leather or paper as flesh and blood ; the figure as wooden as a figure-head ; the limbs perfect dissected members, that might be dead bones in Ezekiel coming oddly together. Or if it is a lady—a lady who has curls like sausages, and who beyond having a sage look, has fingers that look like spring onions. But this is not proof against art, but against the observer of it. And it would be as fair to say that this is art, and that it is always thus, as it is to say that photography is always unpleasant—always invariable and crude. Photography has its faults, and its weak side. And so has art. To trace these more particularly, and ascertain where its garments fall short, and where it loses by contrast with the dignified dress of art, it would perhaps be the simplest and easiest course to take a specific operation, and show wherein art would do it better than photography, and wherein worse, settling first what we mutually understand by art. Art, in a dictionary I possess, is defined "as a system of rules serving to facilitate the operation of certain things." Now my belief is that it is just the opposite of this ; it is what in human affairs cannot be reduced to system, but which gives opportunity for the display of individual ingenuity or intellect. Painting is an art ; not because it enables men by certain rules of drawing, composition, and colour, to make pictures—because this is the mechanical portion—but because it enables them to do so after their own fashion,—with what energy and power God has invested them withal—what they set about, displaying but only in the proportion in which they evidence ingenuity or taste, or the resources of a superior or individual intellect in their work. The man who paints only what he has been taught, is not more an artist than a door painter; he has been taught a more difficult kind of painting, it is true, and he may have acquired it ; but unless he develope originality in its treatment he is not an artist. The artistic portion of a work—its valuable portion—is precisely that portion which cannot be imitated. A being imitated, unless by an equal or superior intelligence, loses its value. It deals with an infinite neglect, and must be in one not prepared to meet with infinite emergencies. Thus the art of healing lies hid in the breasts of great men ; the science may be taught. I take it that art, as may be inferred from its derivative primitively-meant power, and that science implies knowledge, as contrasted with it. Now it is this reliance in intellect—this excellence imparted by intellect—this last derangement in overcoming difficulties that form the peculiar characteristics of what are termed the fine arts, sculpture, painting, poetry, music, the drama, &c. The philosophic Greeks, who embodied their philosophy in fable, by way of enunciating their belief that these arts so originated in intellect, and vested rather in individual resources than on transmitted knowledge, enshrine them in the form of Minerva, their tutelary goddess, and made her of miraculous birth, springing ready armed into the world ; the joint offspring of mind and pending will, as born from the brain of Jove, their ruling deity. A birth precisely that of art in the persons of Eschylus, Shakspere, Dante, Alfieri, Cervantes, Moliere, Giotto, Cimabue, Sir Joshua Reynolds, &c. Now, admitting this last named person an artist, supposing we imagine him in the exercise of his vocation, telling him to paint a portrait, in emulation with a photographic operator. He will take as a person well known by fame to all of us—his intimate friend, Dr. Johnson. The process in photography you will admit, is simple enough. The doctor sits down, the lens is focussed, and the picture is taken; such light as was necessary to the result was allowed to fall on the face; the picture had so long an exposure; if the chemical preparation was right, the picture has succeeded. How does Sir Joshua proceed? He has observed that mental peculiarity exhibits itself in action; that the mind fashions in some way or other the outward form of man; if it does not fashion it to itself, that it chafes against it like the sea, and modifies and alters it; that every peculiarity of temperament, every calibre of intellect, aye, almost every gust of passion, registers itself in some form or other, if we have only genius enough to trace it; that a man's energy, as predominating characteristics of any kind influence his every act, his gait, his trick of speech, his carriage, and the developement and expression of his limbs; that a man's hands, his chest, his back, are as much a part of his intellectual developement as his forehead; and the philosopher who said "show me the man's back and I will tell you his character," was not speaking regardless of truth. Knowing these circumstances, his first care, were it a stranger he was painting, would be to ascertain the pecnliarities of his subject, guage his powers, because he knows, bringing it home, that of fifty persons in this room, no two would sit, or eat, or drink in the same manner, or do anything exactly like their neighbours; and that it would be destructive not only of the character but of the truth of a picture to place his sitter in a position foreign to his habits: and that would be not only inexpressive of his individuality, but unnatural. Having arrived at a conclusion on the point of character, he would attempt to arrange the position with reference to it, and make it as far as possible indicative of the subject's general manner rather than of an occasional habit, and of manner as the exponent of character rather than on its own account. For instance, in this picture of Dr. Johnson, it is known to most of us that one of the most strongly-marked traits in the character of the great lexicographer was his disputativeness—this desire to wrestle and throw a man in argument, as his uncle, the bear ward and wrestler, had done before him. The painter might have represented him in argument, or exercising his benevolence—an almost eqnally prominent trait—or he might have, as he was a literary man and a genius, done his best like many other artists to make him look distinguished,—serve him as Romney served Cowper, made him fling his head round and sit like a hero, trying his best to look like a man of genius and sensibility after the Romney manner. But, instead of this, what has Sir Joshua done? He has, whether with art or not yon can determine, placed him in a position—in which, more than another perhaps, we have a key furnished to his vehemence—a force of intellect—to that vehemence arising from the rush of great forces rather than of mere passion, as it would be evinced in disputation—preserved his literary character, and placed a manuscript in his hand; and the doctor, half blind, peering at it, reads with the same eager vehemence, the same avidity that he ate, drank, wrote, and debated—the same intensity, the same fervour, amounting almost to severity,—indeed he wears Mr. Macauley's magnificent description of his person, habits, and appearance, in his Essay on Boswell's Life. The position determined, with this end in view, which no consideration of its difficulty wonld allow the artist to forego, he would proceed to arrange the costume, first with respect to form, and then with regard to colour. As an artist, he knows that just as certain chords in music produce pain, certain chords pleasure, gratifying the ear—he is aware that certain combinations of lines, or certain harmonies of hue, a certain prevalence of tone similiar to the prevailing melody, in a musical composition, are necessary to elegance and delight. These he concerts with reference to the position already settled; if they are compatible, well; if not compatible, the difficulty has to be met and overcome, either by the better disposition of the figure, or by the introduction of accessories, or by some legitimate artistic artifice or device. These preliminaries settled, the subject is placed, the best side of his face or the longest side being selected, that the shorter may be seen in perspective, if the term may be used, under a peculiar aspect of light and shade; so that not only fine effects of contrast may be produced, and the character of the picture intermixed, but that the light might fall more prominently and distinctly on the noticeable parts of the portrait's face and figure, and on the best lines of the composition. And, were this his only consideration, he has ample scope for vindicating his intellect, and asserting his capacity and talent; for in the arrangement and management of light and shade lies the entire merit of some of our greatest painters. As an instance, I may mention Sir John Raeburn—one of the chief, if not *the* chief portrait painter of the English school—whose works evinced so great a knowledge in this particular as to stand pre-eminent in it. His works exhibit a wonderful vividness and intensity of variableness, which appears, on an examination of some of the best of them, to proceed entirely from the arrangement of light on the face, every muscle, every hollow, every line being indicated by light, and its corresponding shadow, rather than by the mere drawing of the form. Again, by the mere arrangement of light, a man's face may be entirely altered in expression and character, as any one may see for himself by standing before a glass, putting a light, say of a candle, first above his head, then beneath, then behind it, and again on either side, watching the effect, and he will find his picture entirely altered. Nor is this all. A benign and altogether placid countenance might be rendered even offensive by a certain position of light on the countenance; and a set of diagrams might be readily prepared, calculated to show, from one face of the same form, almost every expression of which the mind is capable, by merely altering the lights on and about it. In a corpse, for instance, the shadows under the eyes are interrupted, those about the mouth deepened, &c. But, after the light has been arranged, the artist's main labour—which chiefly answers to our process of photography, and which therefore I will not go into—only commences. He has to seize on the happiest and best expression; to depict most carefully, with what energy and truth he can command, the more subtle lineaments of the face, its modelling; to draw with freedom and ability the dresses and less valuable parts of the picture, with a due feeling of their subordination, and make equally the general character and the detail like ; throwing over all, as far as is consistent with integrity, an air of elegance and refinement, devoid of any exaggeration of any kind, but wearing an air of nature and of truth. All this he has to do, while he so approves himself master of his art, and of its mechanical functions, that it shall appear to have cost him neither labour nor thought, being, *as mechanical*, unworthy of him. Adopting so far the *ars eclare artem*—the art to conceal his art—that the picture shall appear to have been painted without effort—in parts almost by a blow—with the grace and command of a god descending to his work, rather than of petty man labouring to accomplish it.

"Now, from this necessarily imperfect and defective attempt to trace out in an artist's work the principles or considerations which have influenced him in its progress, we may cull what little moral there is, and claim some inferences, perhaps, which may be of practical use to us. There are of these, among others—1. That the term *like*, when applied to an indefinite agent, becomes likewise indefinite. An expression of a fact may be like, but it may be the lowest expression of that fact notwithstanding. A caricature is like, so is a tea board, so, may be, is a profile cut in black paper. They may be all something like the objects they are intended to represent in the eyes of some persons, very like in the eyes of others, very unlike to the discernment of many. The fact being, that you may have a likeness which degrades and a likeness which elevates its original, and who is to decide? Which is the more truthful, as it is called? For, when you come to canvass, you will find that certain persons incline to one and certain persons to the other. There is a story about art in illustration of this: of a painter who, for some nobleman in love, painted his inamorata, and gave mortal offence by not painting it nearly beautiful enough; but whose fortune was subsequently made by a gentleman who twelve months after his marriage discovered a marvellous and somewhat flattering likeness of his wife accidentally in a shop, painted by the same artist. Now, without being so ungallant as to say that this story is untrue, I can only say that it is very natural; and if the opinion of one person may be swayed or altered by affections, or by a particular state of mind, how much more may we suppose ideas of likenesses, influenced by temper, intellect, and taste, of altogether opposite minds. I have known debates arise as to the value of a resemblance, when the picture was a mere head, and that head a photographic one. How much more may we suppose them naturally to ensne, when admitting the likeness—admitting *that* as a fact, we deny that the fact is the whole truth. But you may have, and do have, it may be contended, in the photographic process, the truth, the whole truth, and nothing but the truth: that I cannot admit."

[*The remainder of this Paper will be given in our next number*—Ed. L. P. J.]

On the proposition of Dr. Cauty, seconded by Mr. Forrest, a vote of thanks was by acclamation accorded to Mr. Foard, for his interesting, admirable, and comprehensive paper.

Mr. G. R. Berry read the following paper on "*The Theory and Practice of Photographic Developements*," illustrated by a series of the most interesting and novel experiments we have ever had the good fortune to witness:—

"If we take a polished silver surface, and expose it to the vapour of iodine, bromine, &c. (as in the Daguerreotype process) in the dark, and expose such prepared plate to the action of light in the camera for a very short time; the luminous image has effected such a change in the prepared surface, that on the application of the vapour of mercury, a visible image is developed, the white parts being formed by the dense aggregation of the mercurial globules, and the varying shades by a differential quantity of such globules—the blacks of the picture being represented by the polish of the plate. This is the hidden or invisible image, and its development, as in the Daguerreotype.

"A visible image is developed by light alone on the sensitive silver plate, but the process is so much prolonged that it is not available for practical use. We will pass on now to the collodion and paper processes, and endeavour to trace the contrasts and coincidences of the two systems.

"1. The collodion.

"In preparation this is the very converse of the former—instead of a metallic silver surface—and upon that surface depositing iodine and bromine. I say depositing, for we are unable from analysis to say how far a chemical combination is thus effected; but that some chemical change is produced there is no doubt. In the collodion we have, we will say, iodide of potassium, and this being poured on a clean glass plate, and partially dried, is plunged into a solution of nitrate of silver. The chemical reactions involved in this part of the process were discussed in a former paper. We have now, instead of the metallic silver, overlaid with iodine and bromine, a pulpy film impregnated with iodide, and perhaps bromide of silver in a state of infinitessimal division, each atom retaining a portion of nitrate of silver; and this is the sensitive coating which, like the metal plate, is capable of receiving this mysterious invisible impression, to be rendered visible in this case by a reducing chemical agent called a developing solution, instead of a deposit of metallic mercury.

"It is a problem well worth solving, to demonstrate what is the primary action of light or actinism on our sensitive surfaces.

"It has been asserted that in the Daguerreotype there is a true chemical combination effected between the silver and the non-metallic elements, that the action of light reduces more or less completely the bromo-iodide of silver, and that this variable reduction enables the mercury to apply itself with corresponding variation to the reduced silver surface.

"This theory accords most conveniently with the developing processes used with collodion and paper, and we may be allowed to assert, with some degree of confidence, that the actinic force exerts a certain reducing action upon the sensitive film, and which, though so slight as to be invisible to our eyes, and inappreciable to the most subtile chemical analysis, has effected such a change that a reducing agent, (that is, a developing fluid,) is enabled to track over the path of the pencil of the sun, and fill in, in varying intensity, the marvellous picture evoked by light itself.

"What is a developing solution?

"There are certain bodies known to chemists that have the power of reducing some of the combinations of silver to the metallic state; such reduction depending also upon the particular condition in which the silver compound is placed.

"There have been patents taken out by different persons for depositing silver in its brilliant metallic form on the surface of glass, and many beautiful objects may be seen in the shop-windows of this town that have been produced by one or other of these processes: I may notice two or three of these. One was to mix an alcoholic solution of the essential oils of cloves and cassia with an ammoniacal solution of nitrate of silver; another was a solution of gun-cotton in caustic potash, and an ammoniacal silver solution; and a third, grape sugar with a similar silver solution. In all these cases, if the ammonia had been omitted, light would have effected the reduction of the silver by giving impetus to the reducing agent. And to come home to our own more familiar developing compounds,—viz. the proto salts of iron, gallic and pyrogallic acids, &c.—if we use these to collodion, or to paper prepared with an ammoniacal silver bath, or mix these with ammonia previously to pouring them on the sensitive surface, the whole will be immediately blackened, without the intervention of light. I will take, as an illustration, a collodion plate, and having excited it, I will mix the pyrogallic solution with a few drops of ammonia. You see, the plate is blackened, just as if it had been exposed to sunlight. So then our developing agents and sensitive surfaces must, to be available for our use, be placed in such relative conditions that the silver shall be reduced only upon those portions of the plate upon which light has imprinted the latent image.

"We will now investigate the rationale of the paper processes; and the same results of chemical deposition are arrived at in the different paper processes, by one method or another, as obtained in the collodion process. A combination of silver with a non-metallic element is diffused over the surface of the paper, with also a varying proportion of nitrate of silver: in the calotype, depositing a surface of iodide of silver, and on that pure washed surface applying a solution of gallo-nitrate of silver, to be used either wet or dry. This is the original process of Mr. Talbot, and is the most complex of all in manipulation. The wax paper process, reduced to its simplest and by far its best and most useful limits, is a very close approximation to collodion. In it the wax-paper is immersed in an iodizing solution, dried, and without the incidental washing of the calotype, is at once rendered sensitive in the silver bath, the supplemental ablutions being in a great measure dependent on the durability and amount of sensitiveness required in the excited paper.

"It was discovered first, I believe, by Mr. Shaw, that if a Daguerreotype plate, which was sensitized and impressed with a latent image, was again placed over the iodine box, that the image was obliterated, and the plate ready to receive another impression. The application of this fact to practice has been an incalculable boon to Daguerreotypists, as it enables them to coat their plates in the light, and watch the progress of the operation until the particular shade of colour they desiderate appears.

"We have here a means of comparing the changes induced by light in the different photographic processes. 1. The silver plate, coated with iodine and bromine loses the image impressed by the veriest breath of its exciting chemicals, and is ready for a fresh exposure. This, I think, is an argument that no real atomic combination of iodide and bromide of silver is effected, and a few experiments with collodion will place this in a stronger light. We will take a plate of glass; collodionize and excite it in the usual manner. We will wash it in water, to remove the free nitrate of silver. We will then expose it in the camera. We may again plunge it into water, or even a solution of iodide of potassium, and replace it in the camera, exposed to a fresh object, and then, on the application of the pyrogallic solution, mixed in the usual way with a small portion of silver, we shall evolve both the images impressed. They will be quite uninjured by the rough usage they have undergone, and are in every respect equal to what they would have been if manipulated in the usual way. How much more stable, then, must be the effects of light on the collodion film, formed of definite chemical combinations, to that of the Daguerreotype, where no atomic combination can be detected? May we not, then, attribute the greater fixity of the image on collodion and paper to the determinate combinations of the chemicals employed, and also, perhaps, to the presence of organic matter.

"Seeing, then, the indestructability of the latent image once printed on the collodion film, let us take advantage of the facts evolved by our experiments. It having been proved that the collodion film which has been washed is as available as before; query, Would the washed film be sensitive if it were tried? M. Gaudin has proved that it is, and many photographers have corroborated his statement.

"If it be asked, why, if these things are so, the process has not come into general use, I will answer, from the result of my own experiments, that it is a difficult matter to wash and dry a collodion film so equally that on development no striæ or clouds appear; and further, that the sensitive surface being so very bare, the influence of the atmosphere soon effects such changes, that the impression is worthless when obtained. Let us, however, keep this one fact before us. The film washed from the silver solution retains its sensibility. Another idea that is evolved from the consideration of the foregoing phenomena is this, we have a sensitive surface that will act wet or dry. Can we not preserve it uninjured? We are able to do so; and now we have to trace the solution of the problem partially or wholly by different experimenters.

"Messrs. Crookes and Spiller introduced a concentrated solution of nitrate of zinc to be used in conjunction with a portion of nitrate of silver; it would appear they considered the dampness of the plate to be essential to its sensibility to light, and therefore used a neutral nitrate very soluble and delinquiscent to ensure the continuous moisture of the film. I apprehend that neither the nitrate of zinc nor that of magnesia have been perfectly successful; in fact they do not possess the properties essential to command success, inasmuch that though the syrup like fluid would never dry, yet it forms a very precarious covering to defend the collodion surface from atmospheric influence, and under some chemical conditions would be fatal to the production of vigorous proofs.

"Messrs. Lyte and Shadbolt have been very fortunate in their respective processes in the use of honey, consisting as it does, (if pure,) almost entirely of grape sugar, (itself a powerful reducing agent.) Mr. Lyte uses grape sugar in combination with nitrate of silver, to exalt the sensibility of his plates; while Mr. Shadbolt deprives his plates of their silver, and uses grape sugar as a protective film to shield the collodion from atmospheric change; and as we have demonstrated by our experiments that the re-immersion of the plate in the silver bath is not absolutely indispensable, this is the most economical as well as the most durable process, inasmuch as by it we can save from 60 to 70 per cent. of the silver used in the ordinary process."

In answer to a question, Mr. Berry observed that he had taken images with dry as well as with damp collodion. The silver surface was merely protective while they were damp, they could work just as well without the silver surface as with it.

Mr. Foard asked whether it was possible to take a picture after the plate had been taken from the bath and dried, and if it might developed by moistening it two or three hours afterwards?

Mr. Berry replied in the affirmative; instancing a picture which he had himself produced recently, by following that process, and which had been dried about four hours before it was developed.

Mr. Foard: That would enable a person to work in the open air.

Votes of thanks were unanimously recorded to Mr. Higgin and Mr. Berry, for their excellent papers, and also to the latter gentleman for the interesting and valuable experiments which he had submitted.

Mr. Berry said the best proof of their thanks would be to take up the matter of his paper, and work it out fully.

The Chairman having announced that the annual meeting of the Society would be held on Tuesday Evening, the 6th March, the proceedings terminated.

LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, January 4th, 1855,—Sir W. J. Newton, V. P. in the chair.

After the election of several members,

Mr. Wilkinson described a method of instantaneously opening and shutting a camera.

Mr. Mayall read a Paper "*On the Albumen Process on Glass.*"

After a description of this substance, as obtained in purest quality and greatest quantity from white of egg, (whence its name albumen, from *album ovi*), and its two conditions, soluble or uncoagulated, and insoluble or coagulated, he said, that secret investigation gave the following analysis of its component parts:—

Carbon	53·5
Hydrogen	7·0
Nitrogen	15·5
Oxygen	22·0
Sulphur	1·6
Phosphorus	0·4
	100·0

It will not keep in its moist state longer than six hours in summer, though in winter it may for forty-eight. It should therefore be used immediately after mixing with the chemicals. Mr. Mayall coats as many as twelve dozen plates at a time, which he puts away in boxes, fifty plates in each, until required for use. The present paper was confined to the process for taking negatives; the only difference however for taking positives being the substitution of chloride of sodium for bromide of potassium. He gave a recipe for cleaning the glass, of which he prefers the new patent plate; and in manipulation, recommends the "habit of placing the face towards the wall, and into the boxes with the face towards the left hand."

Tie up bales of cotton the size of a small hen's egg, and with the following solution—

Alcohol	30 parts.
Strong liquid ammonia	10 ,,
Water	40 ,,
Tripoli	30 ,,

Rub the plates, one after another, hard and evenly, as in cleaning daguerreotype plates; then more gently, and rear them up to dry; reverse their position, so as to dry the upper ends; wipe the edges and back with a clean ball of cotton, and then with a third ball of cotton polish off their surface; dust the back and edges, and put them into a dry clean box till you are ready to albumenize them, which must be done the same day. For this operation great care must be taken in adhering strictly to the following proportions, as too much iodide or bromide of potassium will crystallize on the albumen, and cause spots. The saturated solution should be made in distilled water at 60°. Mr. Mayall has given his quantities in *grammes*, for no reason that we can discover, and it will be more convenient to most of our readers if we give them in grains.

450 fluid grains of Albumen,
$7\frac{1}{2}$,, sat sol. Iodide of Potassium,
$1\frac{1}{2}$,, sat. sol. Bromide of ditto,
1 ,, water,
1 drop of Caustic Potash.

Pour these into a wide-mouthed half-gallon bottle and shake up till it is filled with white foam. This will take ten minutes. Then let it stand for six hours in a cool place. Decant into a tall glass measure, widest at the bottom, one hour before it is used. Pour on, as with collodion, enough to cover the plate well; hold it level; then suddenly turn it down vertically to allow the excess of albumen to drain off into a glass dish, covered with moistened muslin: wipe the edges on the muslin for eight seconds; then on a wet sponge, similarly covered with clean muslin, for eight seconds; and then pass on to the drying box, which must be perfectly level. The plates will take three days to dry; they must then be put into boxes, and kept in a dry place. They will retain their properties for a month.

To preserve the drainings of albumen, and to prevent the formation of air bubbles, Mr. Mayall places the glass dish, which is perforated in the centre, over a funnel, in a filter support, through which the liquid trickles down into a glass pint measure.

A few hours before silvering, the plates require to be exposed, like a daguerreotype plate, to the vapour of iodine for four minutes, till the albumen acquires a yellow tinge. This is to correct an alkaliness in the first preparation, which is useful in making the albumen more limpid, but prejudicial to photographic effect.

Nitrate bath :—

Water	1500 grains
Nitrate of silver	150 ,,
Glacial Acetic Acid ...	150 ,,

Leave the plate in one minute and a half, then plunge it into a bath of distilled water, and afterwards wash the face with distilled water, and the back with plain water, and rear it up to dry in a place free from dust.

Renew the nitrate bath for every hundred plates by adding—

Nitrate of silver	30 grs.
Glacial acetic acid	20 ,,

Water to make up the original quantity.

Again pass the plates over the vapour of iodine for half a minute before placing them in the camera, and expose from thirty seconds to ten minutes, according to circumstances. If required to be very quick, and to be used immediately, plunge into a bath of gallic acid one part, to water 10 parts.

To develope:—Run distilled water over the plate, and then plunge it into a flat dish containing half an inch in depth of three parts saturated solution of gallic acid, and one part water, to which eight drops of the following solution has been added—

Water	400
Nitrate of silver	30
Acetic acid	40

"shake it about; fill the dish with plates and continue to shake about; and add, every hour, eight to twenty drops of the last solution, until the image is fully developed. The operation may be continued with safety for three days (!) if necessary, though it is best to complete the developing in twelve to sixteen hours(!) Wash well and rear up to dry."

A quicker mode of developing, but it endangers the half-tones, is with—

Water	300 grs.
Pyrogallic acid	1 ,,
Glacial acetic acid..................	5 ,,
Formic acid	1 ,,

This will develope in half an hour; and if the weather be warm, in less.

Fix with hyposulphite of soda, 10 parts to water 100.

It having been resolved that the thanks of the Society be given to Mr. Mayall for his valuable communication, the meeting was adjourned until the 1st March.

The Anniversary meeting was held on the 1st February.

Life Size Photographs.—According to notices in the American Photographic Journal, which we have received, there are two parties who are taking photographic portraits the size of life, and finishing them in oil. One announces that his are the only genuine or "real life size" photographs, because they are taken direct on the canvas, instead of being taken on paper and pasted on canvas to be painted over. The other announces his as an "important discovery" which has been patented in Europe.

EXHIBITION OF PHOTOGRAPHS AT SUFFOLK-STREET, LONDON.

The London Photographic Society have opened a second exhibition of works in Photography, amounting in number to 654. Collodion, Talbotype, aud waxed paper furnish nearly all the examples. Mr. J. Auderson exhibits a few from albumen. The well-known names are all there. Mr. Sedgefield, Mr. Townshend, Mr. Owen, Mr. Ponting, Dr. Diamond, Sir W. Newton, Mr. Cundell, Mr. Feuton, Mr. Rosling, Mr. Bedford, Mr. Hennah, Mr. Mayall, Mr. Buckle, Mr. Shadbolt, Mr. Hardwick, Mr. Llewellyn, Mr. Archer, Mr. Sanford, Mr. Tunny, Mr. Delamotte, Mr. Thompson, Mr. H. Tylor, Mr. H. Cook, Mr. Robertson, Mr. Laroche, Rev. Mr. Marshall, Mr. Waring, Mr. Tenison, and Mr. G. Hilditch, the Count Montizon, Messrs. Bisson, *freres*, &c., &c. Mr. Sherlock and Mr. Hennah exhibit several photographs of "Clouds," taken on collodion; and amongst the usual variety of subjects there are copies by Herren, Lutze, and Witte, from three cartoous, by Kaulbach, designed for frescoes executing on the great staircase of the new museum at Berlin. Although the front of the catalogue describes the Exhibition as of Photographs and Daguerrotypes, we do not find oue specimen of the latter mentioned; but we find the same want of precision in the descriptions of which we had reason to complain last year, as calculated to deceive the uninitiated. We find, No. 14, "Studies in Portugal," *Calotype*, Hugh Owen; No. 15, "Chateau de Cossiguy," *Talbotype*, W. A. West—as if the Talbotype and Calotype were different processes. This occurs throughout the catalogue; and, emanating from such a source, this confusion should not be permitted. By the kindness of an experienced correspondent we are enabled to give the subjoined notice of the exhibition.

Upon first entering the room, the visitor particularly, if at all acquainted with the manipulatiou and mode of obtaining photographic pictures, cannot but be struck with the amount of labour that has beeu bestowed upon this interesting branch of art. The catalogue enumerates nearly 700 different subjects, and as these are only a few of the best that each exhibitor has done, we may naturally suppose a room ten times the size would not contaiu all that could have beeu sent. Many will say, and with truth, that more thau one-half of those now huug might have remained in the portfolios of the photographers; but as very many are produced by persons who have no opportunity of comparing them with the more successful until exhibitions of this kind take place, we can but be glad to see the productions of all brought under one roof. At the same time, we cannot but think, it would be much better that an understanding should be arrived at as to the period at which these exhibitions shall be held, for complaints have reached us of the short notice given of the present one, and hence the difficulty that many have experienced in doing justice to their productions. To this cause we must attribute the loss of some of the most successful of the last year, for in looking through the catalogue we see several well-known photographers are not contributors this year.

Collodion uudoubtedly takes the lead, for although we have many very beautiful productions from paper, they are not equal to the former, and we much question if a very short period will not make it as superior in the depicting of laudscapes as it is now that of portraits. In saying this, we would not wish it to be thought that we disparage paper, far from it, for it is capable of producing very beautiful results; and to those who have not the means of taking with them van or teut to develope in, it is almost the only substance that we can have recourse to for holding the sensitive bodies.

Amongst the collection are some very beautiful and interesting microscopic specimens by the Rev. Mr. Kingsley, well worthy the attention of those interested in that science.

A great improvement is visible in the printing of photographs, and we would advise all cultivating this art to pay the utmost attentiou to this branch, for many very excelleut pictures are spoilt from the careless manner in which they are printed.

Upon the whole, we are much pleased with the Exhibition.

PROCESSES.

Salted Collodion.—Herr L. G. Kleffel suggests the addition of six drops of chloride of sodium to oue ouuce of iodized collodion; shake the mixture for five minutes, and let it stand for twenty-four hours; filter through thiu blotting paper or doubled muslin before use. He says it will greatly increase the sensitiveness of the collodion; it will also in a great measure restore the sensibility of deteriorated collodion.

Dr. Woods has also repeated his recommendatiou of the use of salt in the preparation of collodion, as a preliminary to the salts of iron; but he prefers the use of chloroform instead, as it does not thin the collodion too much. He mixes

Proto-sulphate of iron	40 grs.
Iodide of potassium	24 „
Common salt	6 „
Alcohol	2 oz.
Strong water of ammonia	3 drops.

The salts are rubbed up together, added to the alcohol and ammonia, and put into a bottle containing some pieces of iron wire, to keep the iodide of iron in the state of a *proto*-salt, which is essential to the well working of the process, for which reason he abandoned æther, which he originally advocated; and he urges the necessity of using the mixture of the iodide of iron and collodion immediately after it is made, as collodion very soon alters a proto-salt into a per-salt of iron. This, however, may be recovered by the addition of a drop of proto-chloride of tin.

To one part of the solution of iodide of iron and alcohol, as given above, he adds three parts of collodion, and to each drachm of this mixture he adds three or four drops of saturated solution of common salt in alcohol, or one or two drops of chloroform. If the iodide of iron or the salt should precipitate any of the cotton, add a little æther to the collodion. The chloroform always precipitates a small quantity, but it is quickly re-dissolved. Dr. Woods, contrary to Mr. G. R. Berry, is of opinion that the office of the collodion is more than a mere vehicle for the other materials. He thinks it exercises a chemical influence, which is increased as it approaches decomposition.

"It would seem as if the weak chemical actions which take place are allowed to do so more freely by the care with which the gun cotton can be removed (separated?) from the æther."

Preservation of Collodionized Plates in an Excited State.—Mr. Shadbolt appears to have been acting upon a suggestion made by M. Gaudin, which we printed page 135 of our first volume, that as the nitrate of silver is the cause of deterioration of excited collodionized plates, a remedy may be found in "well rinsing the plate in distilled water, replacing it in the bath a few minutes before developement." But Mr. Shadbolt adds a small portion of the excited bath to the distilled water for his "washing bath:—About 1 oz. to 20 or 30 oz. of distilled water." He records the success of his process in *Notes and Queries*, stating that he "excited and preserved six plates for small stereoscopic negatives, and had no opportunity of using two of them till four weeks afterwards. They need not be developed till twelve hours after exposure, yet the result is most satisfactory, being perfectly dense pictures, and most evenly developed."

Mr. Shadbolt does not agree with Mr. Maxwell Lyte as to the necessity for adding nitrate of silver to the syrup. He considers that it materially interferes with the keeping qualities of the process; but Mr. Maxwell Lyte's object was to obtain a higher degree of sensitiveness, and he introdueed "the nitrate of silver to prevent unequal developement." This, however, Mr. Shadbolt says, is unnecessary, and he appeals in evidence to "eight pictures which he has sent to the Exhibition in Suffolk-street, London." He also omits the alcohol from the preservative syrup—confining it to equal parts of *pure honey* and *distilled water*.

Dr. Mansell, who has been experimenting with this process, has discovered that after the syrup has been on the plate for a short time, it separates into two layers; an outer one which remains soft and hygrometric for a long time, and is soluble in cold water; and an inner one, a compound of syrup and nitrate of silver, which is insoluble in cold water. This, after one hundred and fifty hours, adheres to the collodion like a varnish, and no amount of washing in cold water will remove it. But he has dissolved this inner film by steaming, and thus added an important element of success, which Mr. Shadbolt has fully endorsed as the perfection or completion of his process. Dr. Mansell developes as follows:—"On removing the plate from the dark slide, immerse it in the one-grain bath for five minutes, to remove the outer syrup; drain it, then hold its collodion side downwards over the steam of boiling water, poured into a flat pan, for about ten minutes, holding the plate four or five inches from the surface. The syrup will be seen to dissolve, and may be easily run off the plate. Allow the plate to drain and cool, then wash off the remaining syrup by pouring distilled water gently over it. Drain, and pour on pyrogallic acid, and after a minute or two, when the collodion is well impregnated, pour it off into a glass containing twenty-five minims of a ten-grain solution of nitrate of silver, and immediately pour the mixture over the plate. The image comes rapidly out, and may be developed as usual to any extent." He suggests that with some kinds of collodion, or in very cold weather, it may be advisable, before using the pyrogallic acid, to pour over the plate a weak solution of silver, or to mix some with the pyrogallic in the first instance; but he has not found it necessary.

Mr. Maxwell Lyte's Method of Preparing Grape Sugar Syrup.—Take one pound of best white starch; mix this in one piut of distilled water, cold, so as to form a thin paste; then mix, in a china-lined saucepan, or glass or porcelain vessel, two quarts of distilled water and one ounce of sulphuric acid; make this boil, and add little by little, stirring all the time, the starch paste; boil this for fifteen minutes, and then pour it into a large bottle, so as just to fill it; place this bottle in a saucepan filled with strong salt and water, make the whole boil, and keep it boiling for twelve hours; the bottle must be well corked. Pour the liquid thus produced into a basin, and add whiting to it as long as effervescence ensues; then strain it through a linen cloth, and having filtered it through animal charcoal, evaporate to one pint and three quarters. Then add five grains of nitrate of silver, and one ounce of alcohol, and place a lump of camphor in the bottle. The nitrate of silver must not be added till the syrup is quite cold, and it must not afterwards be exposed to the light more than can be possibly divided.

Albumen Process.—We learn from *Cosmos*, that M. Beaulavon, of Broglie, (Eure), has discovered a mode of mauipulation which renders albumen excessively sensitive, and will preserve its sensibility for eight days. The editor says, that bearing in mind the clearness, the delicacy and richness of the details, and solidity of the works of MM Soulier and Clozard, on albumen, he is very anxious to hear of some means of giving to that "incomparable" substance, the sensibility of collodion, and he is happy to hear that he will ouly have to wait a few days for it, M. Beaulavon having promised to transmit it.

On the Size of Lenses.—A "Wrangler" of Cambridge appears desirous of emulating the fame of a "Graduate of Oxford," in making plausible statements on matters with which he has no practical acquaintance. His letter, which (with illustrative diagrams) appeared in the *London Photographic Journal*, has been taken to pieces by Mr. Grubb, of Leinster-square, Rathmines, who is, we believe, the originator of the instrument for measuriug the field of view, introduced to our Society by Mr. Sheridan, and Mr. James Robinson, on the 10th October, and reported page 133 of our first volume. We have been favoured by Mr. Chadburn with the following comments on the discussion. The professed object of "the Wrangler"—diminishing the weight of lenses—every photographer will appreciate. But Mr. Chadburu says:—"I have seen the correspondence in the *London Photographic Journal* between "a Wrangler" of Cambridge, and Mr. Grubb; that I think Mr. Grubb is right, aud that "a Wrangler" is wrong, both iu his remarks and diagrams even to single lenses, and that they do uot apply at all to achromatic oues; that if the curves of a lens are iucorrect for one of large diameter, they are so for a small oue, though the defect will not be so palpable. I read my paper upon the formation of lenses before the Society to correct some false theories which had crept into some members' heads upon the construction of lenses. Most young photographers and astronomers think that a spectacle eye is as good as any achromatic lens. Now it is thought because a diaphram is used before a large leus, that one of the size of the diaphram will do as well. A diaphram is not used before a lens to cut it down, (to reduce its size), but to cut off excess of extraneous rays from other objects or general diffused light; and should be of different sizes to accommodato different intensities of light, the same as the iris of the eye. When a lens requires correcting with a diaphram, it is placed inside the tube, and is fixed. A large picture can be taken with a small lens, but the time of exposure will be longer in proportion to its reduced diaphram, and its required length of focus."

New Method of Preparing Paper for Positives.—M. Tribouillet, a chemist of celebrity, has published, in *Cosmos*, a uew method of preparing paper similar to the waxed paper. He says, to 100 parts alcohol, above 36 or 38 degrees of Cartier, (equivalent to about 825 degrees of our scale, therefore very pure,) either by itself or mixed with a certain quantity of benzoin, or rectified spirits of wine, add 12 or 15 parts of colourless or very pale castor oil, mix in this limpid solution about 1½ or 2 parts of iodide of potassium or ammouium powdered; add also, if you like, the bromides of the same salts, or iodide of silver, or any other known photogenic agent. After the complete solutiou of all these substances, filter, if not perfectly clear, theu pour into a porcelain dish; plunge the papers for some minutes in the dish, when the absorption will be found to be immediate. Suspend the sheets by the corner, and, when dry, render them sensitive by the ordinary silver bath. The castor oil has given to M. Tribouillet results more satisfactory than ceroleine. It offers besides the following advantages:—1st, It very much simplifies the manipulations; 2ndly, It is very cheap; 3rdly, Its great solubility in alcohol enables it to combine in very great proportion, and renders the paper so transparent as to dispense with after-waxing; and, 4thly, It is so easily dried that it may be afterwards exposed to the highest temperature of the most ardent sun without the proofs being stained. M. Tribouillet, in the preparation of the paper negatives, follows the plan of M. Le Gray, only replacing the wax with this paraffine or olefiant material, on which the chemical agents have but little action.

Photography in Colours.—Some time since a correspondent enquired whether Mr, Hill had published his process of obtaining photographs in the natural colours. We find that he has not yet perfected the process.

Devon and Cornwall Photographic Society.—A conversazione of this Society took place on the evening of the 25th of January, in the St. George's Hall of Plymouth, in aid of the patriotic fund. Through the instrumentality of our indefatigable correspondent and enthusiastic photographer, Mr. Hele, a number of works in photography from the members of our Society, including Mr. Hartnup's photographs of the moon, were contributed, and attracted a great deal of attention. Some of Maxwell Lyte's "instantaneous" reproduction of "clouds" and "ships" were also much noticed: but the greatest curiosity exhibited is said to have been a microscopic portrait of Mr. Marshall, of the Bank of England; similar portraits of Mr. Shadbolt and Dr. H. H. Letheby. They were about the 400th part of the life size—to the naked eye not larger than pins' heads. There was also a photographic panorama by Mr. Robertson, five feet long, of a subject peculiarly interesting at this moment, and peculiarly appropriate to the occasion,—Constantinople and Scutari, with many of the Guards variously occupied at the hospital. All the distinguished persons in the neighbourhood, and from some distance around, contributed by their presence to the object of the meeting, and it was so successful as to add £40 or £50 to the Patriotic Fund.

Focussing Tube.—Mr. B. Jones of Cheltenham, suggests a tube very similar in construction to Mr. Robinson's instrument for measuring the field of view, (Vol 1, p. 133) as a substitute for the focussing cloth, which is so inconvenient. One tube would probably suit both purposes.

Photo-Lithography.—MM. Garnier and Salmon, of Charteris, have promised to send to *Cosmos* an account of a new method of producing lithographs by photography, which differs entirely from that of M. Niépce de St. Victor, and Mr. Fox Talbot, only adhering to the use of iodine.

Photography in Germany.—While there are many talented operators there, yet this vast empire cannot boast a Photographic Society But if it be not cultivated as a science, it is judiciously applied to the utilitarian principle; for we learn there is a photographic branch of the imperial printing office at Vienna, in which the art is used with other graphic branches to a great extent. There have been exhibited objects taken from nature, copies from busts, bas-reliefs, pictures, and maps, the latter, both diminished and enlarged, and many entomological specimens, magnified by the sun microscope; some of these too taken of the size of seventeen and even twenty inches. We shall be glad to see the time arrive, as it eventually must, when the same impulse will be given to it here.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—I think if a few of your members who find a difficulty in the making of a soluble gun cotton will try the enclosed recipe, they will remove that difficulty, as I am in the habit of making a great quantity, and have not had a failure since I commenced with the recipe. I enclose you a small sample, which you will have the kindness to try:—

10 drachms sulphuric acid (by measure).
$1\frac{1}{2}$ oz. nitrate of potash, finely powdered.
40 grs. fine carded cotton.

I put the sulphuric acid in a Wedgwood mortar on the hob, close to the fire, then add the nitrate of potass; when dissolved I add the cotton, and immerse it well for seven minutes, then wash it until no trace of acid is left.

Would you have the kindness to inform me what is the best developing solution for obtaining a nice white back ground, likewise the best screen to use. By so doing you will greatly oblige.

Yours respectfully,

J. BURBY.

113, *Ridgway-street, Manchester,*
January 23rd, 1855.

[1. Either proto-nitrate or proto-sulphate of iron. 2. Use a bright blue screen if you want white backgrounds.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir—in the albumen process of Mr. Mayall, given in the *London Photographic Journal* of the 22nd inst., there is a question which I should be glad if you would answer me. My reasons for not asking the editor of the London Journal are:—1st. Because your Journal will be published nearly a fortnight before the next London Journal. 2nd. Because you seem more obliging than your contemporary; for in eleven queries appearing in the last number of the London Journal, there is only one civilly answered, and that is the one appearing under the name of "Lux." The remaining ten are told to look for themselves, or answered by some other uncivil answer: and any one paying any attention to the matter will see that that is the usual method taken by the learned (?) editor of that Journal.

In Mr. Mayall's process mention is made several times of saturated solutions, but what is meant by the term "saturated solution?" Is it as much as can be dissolved in water? That answer may do when the article is a solid substance, but it will not do when it is a liquid?

The question may be counted frivolous by those who are better photographers than myself, but I think it is a subject not generally understood by learners and young photographers, and it is for the benefit of that class and myself that I now address you.

In his remarks on cleansing the glass, Mr. Mayall recommends *tied* cotton-wool balls to be used about the size of an hen's egg. I think it will be found that when so used it will be very inconvenient and troublesome, and the strings used in tieing the balls may, if used unskilfully, scratch and damage the plate. Too much care cannot be taken to avoid scratches. I would suggest that swan's-down cotton, or what is called in America Canton flannel, be used instead of cotton, and in the same manner, with the woolly side towards the plate. It is used by Daguerreotypists for cleansing their plates, and in my opinion is far superior to cotton wool. It should be used cut, in small square pieces.

The process is very carefully given by Mr. Mayall, and he deserves the thanks of his fellow-photographers for publishing it instead of keeping it to himself, as some photographers most ungenerously do, thereby retarding the progress of the art. Great stress is laid by many parties upon photography being simple, but let not any person be deceived thereby; it is quite the opposite, for one day you may experience success, whilst the next day you will not be able to get a picture, although using the same chemicals, and operating precisely in the same manner. To understand the process thoroughly, years of practical experience and careful reading are requisite. We constantly see advertisements for sale of apparatus from parties who, when they come to the difficulties, are obliged to give up and sell their apparatus.

I dare say that many photographers, and especially travelling ones, are very much troubled with their bath if it contain alcohol; for when not in use it must be covered up, or the working of the bath will be very uncertain, arising from the volatility of the alcohol. The plan generally followed is to pour the bath into a bottle, and keep it tightly corked, and one corner of the bath is generally altered for this purpose, but it is a very bad plan. A quantity of the bath is generally wasted every time whilst pouring it into the bottle. The plan that I follow is to place my bath in a box, with a tight-fitting cork. I always keep the box covered except when I want to sensitize a plate, when I open the box, immerse the plate, and close the box again. The dipper should be as short as possible, otherwise a large box will be required. A small box is the best; the plate can be dipped easier, and it is more convenient for travelling. Of course the box must not have any holes in it, or the light will enter, and make the bath useless. Where the box is objected to, the bath might be carefully covered at the top with several thicknesses of stout paper, and tied tightly with string. It will answer the purpose quite as well, but it will be a little more troublesome to remove and make fast again.

I remain, Sir, yours respectfully,

NINETEEN.

Manchester, 29th January, 1855.

[Yes. The only instance that occurs to us in which the term is applied to a fluid is bromine, of which water will only take up a certain relative quantity.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I cannot help noticing the mistake which many appear to have fallen into as to the effect of acetic acid, in developing wax paper and other negatives. Instead of assisting, it greatly retards, and this action is so strong with faint and feeble ones, as sometimes nearly to obliterate them, whereas if developed with gallo-nitrate only, they might produce tolerable pictures: if Mr. Higgin, or any of your readers will make a simple experiment, he will soon be satisfied of the truth of this.

If a negative, exposed to a moderate heat, be cut in half and developed, one part with gallic acid and a small quantity of nitrate of silver, the other with gallo-nitrate of the same strength, to which a good dose of acetic acid has been added, it will be found that the half without acetic acid developes much better and quicker; if on the contrary the negative has been over exposed, the acetic acid will be found of service in reducing the activity of the gallo-nitrate; but the action of developing liquids varies much with the active power of the light, so that what will answer for one climate or season, will not do for another; the process remaining in all other respects the same.

I once succeeded with a wax paper negative in the manner recommended by some of the French writers, by gallic acid only, but I never could repeat the experiment; it was a landscape taken in a bright light with a double lens, but others I took at the same time with a single lens and longer exposure, it would not develope enough to print from with the same treatment. However, I do believe this treatment may occasionally be practicable when the light is very good and the atmosphere pure, but it would be certainly quite the exception to the rule in this country. I believe that every photographer who wishes to distinguish himself, must carefully adapt the time of exposure, and the nature of his developing solutions, to the scenes and atmosphere he has to operate in. I remain, Yours sincerely,

MONTAGUE MARRIOTT.

Montpelier Square,
London, 6th Feb., 1855.

Erratum.—Vol. II. page 12, first column, seventh line from top, for "Chloride of Sodium," *read* "Chloride of Iodine."

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 15.—MARCH 10, 1855.

We have been so over pressed with interesting matter this month, that we have been obliged to postpone the remainder of Mr. Foard's Paper, &c., and to be very brief in our address. The weather is opening rapidly, and the photographers are prepared to take full advantage of the change. We expect great results, both as regards the mechanical and chemical advancement of the art.

The Dublin Society has made a most promising commencement; and if the members carry out their proposed course of operations, the knowledge of photography will be extensively diffused by their exertions.

ANNUAL MEETING OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY.

The Annual Meeting was held in the Society's Rooms, at the Royal Institution, on Tuesday, March 6th, Mr. Frank Howard in the Chair, who, after a few observations on the object of the meeting, requested the Secretary to read the report.

Mr. G. R. Berry then read the

Annual Report, 1854-5.

In bringing the second session of this Society to a close, the Council are able to congratulate the members on the distinguished position which Liverpool Photography has taken during the past year. At the congress of *savants* of all nations, which took place at the opening of St. George's Hall, in this town, the enlarged Photographs of the Moon, in various phases, exhibited to the British Association, attracted the admiration of all beholders. The positive photographs on collodion, produced in Liverpool, are instantly recognised by their great superiority to those produced elsewhere. The most successful operators are ranked amongst our own members.

By the verdict in "*Talbot* v. *Laroche*," the professional photographers have been released from all interference by Mr. Fox Talbot. It will become them to show the advantage to the art, on which they have dwelt, as the result to be anticipated from the removal of restrictions by patent rights. To the non-professional members, the Society is greatly indebted for their exertions to render the monthly meetings not only interesting, but practically useful, and conducing to the advance of the art. Some of our members have left us for distant parts, but carrying with them such favourable recollections of the meetings, that we may expect their valuable assistance, as corresponding members, to continue the attractions of the ensuing session. Mr. Sheridan, to whom the Society is obliged for a large amount of gratification and practical information, has gone to South America. Our Vice President, Mr. Newlands, has gone to the Crimea.

Fortunately for this Society, a full and accurate report of its proceedings is published without any expense to the Society, a few days after each meeting, whereby distant members are kept constantly acquainted with what is going on, and are enabled to take part in the discussion of the topics important to photographers, such as those which the Council have endeavoured to bring forward. It will be the less necessary to enter into particulars in this report; but the Council point with satisfaction to the papers which have been read before the several meetings:—

"*On the Chemistry of Silver*," by Dr. Edwards.

"*On the Glass and Paper Processes*," by Mr. Foard.

"*On the Chemistry of Iodine and Bromine*," by Mr. G. R. Berry.

"*On the mode of preparing Collodion Cotton*," by Mr. Burgess.

"*On the Modified Calotype*," by Mr. Davies.

"*On the relative advantages of the Collodion and Paper Processes*," by Mr. Wood.

"*On the Action of Light, so far as it affects Lenses and the focus of Lenses*," by Mr. CHADBURN.

"*On Mr. Townsend's Wax-paper Process*," by Mr. G. R. BERRY.

"*On Collodion Transparencies and Enlarging Photographs*," by Mr. McINNES.

"*On the Chemical Combinations and Decompositions produced in the Collodion Process*," by Mr. G. R. Berry.

"*On the application of Mr. Townsend's Process to Unwaxed Paper*," by Mr. HIGGIN.

"*On the Connection of Art with Photography*," by Mr. FOARD.

"*On the Theory and Practice of Photographic developements*," by Mr. G. R. BERRY.

To greet the British Association, on their holding their meeting for the second time in Liverpool, the Council got up an Exhibition of Photographs of an interesting character, which was at the commencement very well attended; but unfavourable circumstances—the excitement of political affairs, and the depression of trade—appear to have interfered with its ultimate success in a pecuniary point of view. The rooms which the Society had in Lord-street, were objected to as not having sufficient light, and the Council had the opportunity of securing others at the back of the Royal Institution, in a much better situation, and with a much better entrance. These rooms have been modified for the Society, at the expense of the Committee of the Royal Institution. A glass room with dark closets has been provided; but the same circumstances which interfered with the receipts from the Exhibition, coupled with the dulness of the weather, and its unsuitableness for photographic purposes, appear to have prevented the members making as much use of the rooms as it was hoped they would have done. The expenses of the Society have been increased by the higher rent which we have to pay for the rooms prepared for the convenience and gratification of the members; and the state of the accounts with the Treasurer will call for the attention of the members. The deficit is increased by the non-payment of a large number of subscriptions.

The TREASURER then read his balance sheet, showing a balance of £25 due to him, and certain liabilities under which the Society were lying to various tradespeople; and stating that arrears of subscriptions from members remained outstanding to a large amount, which he had hitherto in vain endeavoured to collect.

Mr. HIGGIN moved that the report be adopted.

Mr. CAUTY moved that the report and the accounts be referred to a committee to investigate. He believed that he spoke the feeling of the great body of members, that the affairs of the Society had been very much mismanaged.

Dr. THOMSON seconded that motion.

The Rev. T. BANNER begged to ask whether the parties who held the offices of Secretaries to the Society were paid anything for their services?

Mr. G. R. BERRY: Not a farthing.

The Rev. T. BANNER could not conceive what could be the objection to two Secretaries, or any number; if a dozen gentlemen would give their services to the Society, the Society would only be so much the more obliged to them.

The amendment was then put to the meeting, and lost by a large majority, the mover and seconder only holding up their hands for it.

Dr. THOMSON moved that the accounts be audited.

Mr. CAUTY seconded the motion, which being put, the mover and seconder again stood alone; and against it, the Chairman, after reckoning eight out of a much larger number of hands, said he need count no more, for the motion was lost.

The report was then adopted, and the accounts passed.

The CHAIRMAN then urged on the meeting the consideration of the position of the Society. In everything but finances the Society was in the most satisfactory condition, and by acting in unity, so as to strengthen the Society's hands by enlisting new members, and getting them to pay up their subscriptions—inducing them to make use of the operating rooms, and thus make some return to meet the expenses incurred on their behalf—he had no doubt they would soon be able to make these matters straight as regarded future years, and to meet the present deficiency a voluntary subscription in aid might be invited. (To Mr. CAUTY, who was leaving the room)—He hoped Mr. CAUTY would not leave them just when they were about to proceed to business, lest it should be thought he was only solicitous respecting forms.

Mr. CAUTY bowed and left the room.

Dr. THOMSON enquired if nothing could be done to obtain the payment of the arrears due to the Society?

The TREASURER had had a collector engaged in vain for some time, yet he was a collector of rents from some cottage property, and very well qualified.

Mr. Saddler requested to be furnished with the names of the members who had not paid, and he thought he could obtain payment. Collectors were not always admitted. He had been successful before, and might succeed again.

Mr. G. R. Berry said that the letters in the newspapers had had a most prejudicial effect; several resignations of memberships having been sent to him since the letters had appeared, and they were held to justify the nonpayment of arrears.

The proposal to alter the subscriptions for the ordinary members was abandoned after some discussion, and the terms for the use of the operating rooms fixed at half-a-guinea per annum, or half-a-crown per month, and two guineas for the private dark rooms, with lock and key.

The following list of officers for the ensuing year was then proposed:—

President.
The Right Hon. the Earl of Ellesmere.

Vice-Presidents.
James Newlands, Esq. | R. B. Preston, Esq.
J. Hartnup, Esq.

Treasurer.
Christopher Bell, Esq.

Joint Secretaries.
J. A. Forrest, Esq. | G. R. Berry, Esq.

Corresponding Secretary.
Chas. Corey, Esq.

Council.

J. McInnes, Esq.	Thomas Inman, Esq.
J. B. Edwards, Esq., Ph.D.	Thomas Higgin, Esq.
Henry John Cauty, Esq.	J. T. Foard, Esq.

ASSOCIATES.

Frank Howard, Esq.	Sylvester Samuel, Esq.

The Treasurer and Secretaries having requested to be relieved of their offices, which had exposed them to such attacks,

The Rev. T. Banner trusted that after the feeling shown by the meeting as to the injustice of those attacks, the Secretaries and Treasurer would not abandon the Society just when it wanted most help.

Expressions of similar opinion arising from several parts of the room, the Treasurer and Secretaries consented to remain at their posts, and to do the best to carry the Society through its difficulties.

Mr. Higgin begged to propose a vote of thanks to the Secretaries and Treasurer for their services, and their consent to continue in their offices.

Mr. Keith seconded the motion, which was carried by acclamation.

The meeting then terminated.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The first monthly meeting of the third session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 6th March. The Chair was occupied by Mr. Corey.

The Chairman, alluding to the annual meeting of members held that afternoon, said it had been contemplated to make many changes, but the officers remained nearly the same. One of the proposed alterations was the increase of the annual subscription. This proposition was seriously canvassed, and all its bearings carefully weighed and considered. The result was a determination to retain the original amount of subscription. In arriving at this decision, it was felt that it was incumbent upon all the members to be prompt in their payments, and to do all they could for the interests of the Society, by inducing their friends to become members. Photography was now widely spread, and was not only pursued as a means of scientific amusement among private families, but had taken an important position amongst the arts, many of which had been greatly indebted to it. Under these circumstances it was a matter of regret, and no less of reproach, that their balance should be somewhat against the Treasurer. He merely called their attention to this fact, being convinced that the mere mention of it would induce them to use all their endeavours to relieve the Society from such a position, by bringing to its aid a large number of new subscribers. The Chairman then proceeded to state that one of the new regulations had reference to the new operating rooms belonging to the Society, which, for the convenience of those members who, from necessity or inclination, only applied themselves occasionally to the practical study of the art, would be let monthly, at the rate of half-a-crown per month, instead of yearly. The terms were so liberal, that he thought many would be induced to subscribe to the rooms, and thus afford an additional source of revenue to the Society. In conclusion, the Chairman stated that it had been wished by some that the minutes of each meeting should always be read at the succeeding meeting, and he would therefore now call upon the Secretary to read those of the last meeting.

Mr. Berry thought it would be well to put it to the meeting whether the minutes should be read or not. The objection to their not having been read had only been made by two individuals.

This course was adopted, and as no one proposed that the minutes should be read, it was evidently the unanimous opinion that it was unnecessary to do so.

The Chairman called attention to the fact that Mr. Laroche, in resisting the claims of Fox Talbot, had incurred legal expenses to the amount of £500, and as he had laid himself under this heavy pecuniary responsibility for the benefit of photographers generally, a subscription had been opened to aid him in discharging the liability. At present only £105 had been received, leaving a balance of £395 still owing. He thought it was incumbent upon all interested in photography to assist with their subscriptions, no matter how small, for it was by small amounts that the aggregate was raised.

Mr. Berry observed that at the last meeting he stated that if there were any objections to be raised against his system of preparing photographs, he should be glad to meet them. He now repeated that if any one had tried his principle, and had failed, he was prepared to explain the cause of such failure, if the experimenter would detail his mode of working.

The Chairman: I have tried myself several times since, and am fully confirmed in my good opinion of it.

Mr. J. A. Forrest, by the aid of the black board, explained his process of enlarging photographs from pictures taken with a small camera, and making copies from positives by gas-light. They might work with a one-gas chandelier, increasing the power of the light at will. They might, in fact, almost increase it to the power of daylight. He engaged, by this process, to take enlarged copies of the photographs of the moon, exhibited at the meeting of the British Association, from three to six inches diameter.

Some allusion having been made to Mr. Atkinson's process of working, that gentleman observed, that any one wishing to see its operation, might do so by calling at his shop, where he was always glad to explain the principle.

The Chairman: I am very glad you have announced your obliging offer. No one has succeeded in obtaining better results than yourself.

In reply to the Chairman, Mr. Atkinson said the negatives from which he copied were stereoscopics, $3\frac{1}{4}$ by $2\frac{1}{4}$; and he had magnified to the full-sized plate. The pictures lost nothing by enlarging: they retained all their sharpness.

Mr. Berry observed that honied collodion-plates were excellent for all interior views; for if half an hour was not sufficient to receive the impression, they might take an hour, or even a week, if an hour or a day was not sufficient. He believed they might take pictures in the dark soon.

Mr. Bell said he had kept a honied plate a fortnight before using it, but the impression was not good.

Mr. Berry: It was the fault of the developing, if the impression was there.

Mr. Bell: I attributed the faintness of the impression to the fact, that the plate had not been preserved from the action of the atmosphere.

In reply to a question, Mr. Berry said, if the operator use pyrogallic acid he should take care that it was very acid, or the image would come out very weak indeed. When it was fully out, he should pour a pyrogallic solution on it, and then put it in the silver solution, by which means they could intensify the plate to any extent. Before developing he washed the honey off; but he believed that Dr Mansell's plan of steaming it off was best.

Mr. Bell had tried that plan (steaming), and the coating of honey came off more evenly, but it made the plate warm and made it difficult to pour on the pyrogallic solution. They must allow it to become cold, and moisten it afterwards.

Mr. Frank Howard then addressed a few observations to the meeting on "*The present position of Photography.*"

He had noticed the extreme antagonism of certain photographers, and regretted to find it too frequently accompanied by some bitterness of spirit, so that the question itself was frequently lost sight of in the personal discussion. The question whether bromide added to the iodide was of any use, had been discussed at considerable length in *Notes and Queries*, between the Rev. J. B. Reade, Mr. Leachman, Mr. Maxwell Lyte, and he thought Dr. Diamond, and the most positive contradictions were brought forward: one gentleman insisting that the bromide disappeared and left no trace behind, and the other persisting that it remained and did good service. Surely a question of fact like this might be settled among the practical members of the Society. Then again, the question of small lenses instead of large ones. He need not insist on the advantage of the former in point of expense and portability, as well as other properties alleged to belong to them; but the point-blank denial between Mr. Sutton, who had acknowledged to be "the Wrangler," in the *London Photographic Journal*, and Mr. Grubb, of Ireland, to whom, through Mr. Robinson and Mr. Sheridan, they were indebted for the small instruments for measuring the field of the camera, relative to qualities which it would be supposed could be easily settled by experiment, had led to strong expressions that were only calculated to conceal the object of the discussion, by directing the attention to the disputants. Mr. Grubb had denied all the "Wrangler's" calculations and demonstrations, and had subsequently read part of a paper on the subject before the Dublin Photographic Society. But Mr. Sutton is by no means satisfied with the statements or arguments of Mr. Grubb. Surely this was a matter which some of their practical friends could solve the difficulty by experiment, on behalf of amateurs who had not yet become operators. He for one was waiting till some of these points were decided; till the railroad was laid down from Balaclava to Sebastopol, before he commenced, and he had no doubt many others were in the same state of hesitation with himself. Another point of doubt arising now was, whether the iodide of silver was the sensitizing ingredient, or whether it was not rather a chloride which was the active power. Again, in a little book called Heliochromy, or painting in colours by light, he found it stated, that hydrogen was the essential element; another photographer said that it was oxygen that was of service; while Dr. Edwards, in his last paper, would seem to urge that it was nitrogen that the photographers were most indebted to. Surely experiment might decide the question.

At the Dublin Society very interesting papers had been read by Dr. Lover and Mr. Gilbert Sanders on the feasibility of taking photographs by the reflected light of gas, as the latter expresses it "not the hydro-oxygen or electric light—but by the light of gas of other lamp-light." Mr. Sanders said that "he did not practice photography as a photographer; he merely used the art as an assistance in the examination of plants and other similar objects; or for the purpose of copying rare and expensive prints and drawings in natural history; and as night was the only time he could spare for such purposes, he was obliged to do the whole of his work by gas-light. There were others who, like him, must avail themselves of those hours which they can steal from sleep to pursue their favourite studies, and though not walking in the same path with him, were as desirous, or more so perhaps, to use photography as a means to an end, and would be glad to have the power of working by artificial light." Mr. Howard fully concurred with Mr. Sanders; and this brought him to another point, to which he was anxious to direct the attention of the Society: that for making photography as useful as possible. As to its applicability to the Fine Arts, he might be permitted to read them the opinions of Mr. Leslie, the professor of painting to the Royal Academy in London, as to the probability of photography being so successful in portraiture, as to supersede the fine arts. He tells us that—

"Photography confirms what has always been felt by the best critics, that '*fac-simile* is not that species of resemblance to nature, even in a portrait, that is most agreeable: for while the best calotypes remind us of mezzotint engravings from Velasquez, Rembrandt, or Reynolds, they are still inferior in general effect (chiaroscuro) to such engravings; and they thus help to show that the ideal is equally a principle of portrait painting as of all other art, and that not only does this consist in the best view of the face, best light and shadow, and the most characteristic attitude of the figure, for all these may be selected for a photographic picture; but the ideal of all art depends on something which can only be communicated by the mind through the hand and eye, without any other mechanical intervention than that of the pencil." In another page he tells us that Wilkie delighted in arranging *tableaux vivants* of Vandyke's portraits and other fine pictures, for the amusement of his friends; but "the draperies stubbornly refuse to fall in lines as fine, or in masses of light and shade, and colour as broad as in the picture imitated; the unimportant throughout the composition obtrudes, and the important often conceals itself; and though here and there exquisite beauties may appear which no art can rival, yet even these are apt to be out of place in the general arrangement, and the whole imitation has always far less of that great essen ial—breadth—than we find in the particular picture imitated. —Photography may tend to relax the industry of inferior painters, but it may be hoped and reasonably expected that it will stimulate the exertions of the best; for much may be learned from it, if used as a means of becoming better acquainted with the beauties of nature, but nothing if resorted to only as a substitute for labour. I have alluded to its value in enabling artists to possess fac-similes of expensive engravings; and the reader will have noticed that I have availed myself of its assistance in illustrating some of my remarks on Rembrandt."

Thus they found a corroboration of the opinions he had frequently expressed to them, that it was not as a substitute for the fine arts that photography could hope to live. If devoted principally to portraits, or merely used as an elegant amusement, it would suffer the lot of all other fashionable amusements, and would be thrown aside for some novelty, as the quadrilles had been pushed aside by the waltz and the polka. But if they made photography practically useful, its very utility would preserve its existence; and for this purpose and with this object, he had been induced to urge on their attention the settlement of the questions he had alluded to that evening. The *indispensable* size of lenses was most important. The value of bromine and the agents on which we had really to depend for sensitive properties, were circumstances calling for immediate examination, and well worthy the consideration of the Society.

In the course of an interesting discussion, Mr. Foard thought it was not desirable that they should work by candle-light, so long as they could get plenty of good daylight. With regard to the process of working by artificial light, he was of opinion the larger the amount of light they got on the picture the better, provided it was well balanced. Some thought that they might have too strong a light, but he did not think it possible. The great difficulty was in diffusing the light equally on all parts of the picture; he had tried the effect of electric light, and although the face was good, the shadows were so intense that the picture was a very painful one.

Mr. Atkinson: I made an experiment this week with 100 burners, which enabled me to produce a portrait in eight minutes, but the result was very unsatisfactory. The collodion seemed to have dried under the excessive heat of the 100 lights. Still the portrait would have been thought good when photography was in its infancy.

The Chairman: You should have tried honey upon the plate.

Mr. Atkinson had thought of that. On Thursday evening he was going to make an experiment with a sunlight, 60 burners, using a parabolic reflector.

Mr. Howard referred to what Mr. Sanders had done, and read a passage from the Proceedings of the Dublin Society—see page 36.

After some further observations, a vote of thanks was, by acclamation, accorded to Mr. Howard, and the meeting adjourned.

LONDON PHOTOGRAPHIC SOCIETY.

Annual General Meeting, February 1st, 1855,—Sir W. J. Newton, V. P. in the chair.

The Chairman addressed a few remarks to the meeting, of which the following were the most important.

"It may not be uninteresting to add, that during the *very hot weather* in September last I was in the country, and was surprised to find that I failed in everything I did for three or four days, when practising my usual process. I tried several experiments; and when I left out the gallic acid altogether (my No. 2 in the first Journal) and substituted distilled water (equal parts of Nos. 1 and 2), I succeeded as usual. The conclusion, therefore, to which I have arrived is, to leave out gallic acid, in exciting for the camera *during very hot weather*, for the future."

A report from the Council on the progress of the Society during the past year was read, of which the following extract gives all that relates to photography in general:—

"The monthly meetings have fully maintained their interest and popularity during the past and current session; many valuable papers have been presented; and so numerous and important were the communications offered to the Society last summer, that the Council were compelled to summon an Extraordinary Meeting after the termination of the regular season. A high value is placed by photographers on the opportunity for demonstration and practical illustration of processes afforded by the meetings of the Society. The Council have much gratification in recalling to the recollection of the members the services rendered to the photographic public in this way during the past year, especially by Sir W. J. Newton, Mr. Shadbolt, and Mr. Mayall.

"They are also glad to be able to refer to important progress made in the "*science*" of Photography.

"Mr. Hadow's investigations upon collodion were most valuable,—perfectly explaining many facts which had previously appeared to be anomalies, and pointing out a mode of always obtaining certain and similar results in its manufacture.

"The papers by Mr. Hardwich upon the action of the hyposulphite bath in colouring paper positives, were original and interesting, enlightening us where we had scarcely any accurate knowledge, and thus substituting reason for empiricism; he is still engaged upon the subject, and will have another paper ready for your next meeting.

"Two entirely different methods have been brought before you, of preserving collodion plates in a sensitive state for a long period: the one by Messrs. Spiller and Crookes, the other by Mr. Shadbolt. The Council need not point out to you how desirable an object this is to attain; but they would recommend you to try carefully both plans, so as to ascertain which is the most certain and simple.

"It is from investigations such as these that photography must, in the main, expect advancement and improvement, and in no sphere can the Society be more useful than in making them public and encouraging their continuance; and those who turn from the more alluring path of mere practical photography, from the delight of manufacturing faithful pictures of nature, to the abstruse and difficult questions of science connected with the art, deserve the gratitude of all of us."

After some discussion, it was proposed by Mr. Pollock, seconded by Mr. Shadbolt, that this meeting do now adjourn, and that a special general meeting be called at an early period to pass such laws as may be deemed suitable for the Society.

The meeting then adjourned.

DUBLIN PHOTOGRAPHIC SOCIETY.

General (Annual) Meeting, January 3, 1855.

The First General Annual Meeting of this Society was held, in accordance with the rnles previously adopted by the Council, at the house of the Royal Dublin Society, Kildare-street,—Lord Otho Fitzgerald, President, in the chair.

After passing certain verbal alterations in the laws, and extending, till the 1st of April, the period for the admission of new members without entrance fee, the Meeting was resolved into the Monthly Ordinary Meeting for January.

Second Ordinary Meeting, January 3, 1855,—Lord Otho Fitzgerald in the chair.

Dr. Lover exhibited some interesting photographs adapted to the purposes of the lecturer, produced by artificial light, and illustrated his manner of producing these by several successful experiments, from which he obtained pictures, using the transmitted light of an ordinary gas-lamp. These experiments Dr. Lover prefaced by the following addcess:—

"Photography in all its branches, daguerreotype, collodion process, or vitrotype and Talbotype, a paper process, is essentially a practical art, based on purely chemical principles, and, therefore, a Society called Photographic should deal with practical illustrations at their meetings, so that members ignorant of the process, should learn something of our deeds of darkness. On taking a general survey of the London Photographic Journal, it will be admitted that their time at meeting was generally spent in discussions on new points. We must all agree that such discussion is most important, but it should not be made exclusively the business of the evening; the addition of a practical lesson would tend to make the Society a Photographic School which would induce many members to join, and those lessons should be given regularly by a corps of volunteers from the Society; this part to be taken in rotation. Among the practical lessons, we could profitably see such subjects as preparation of collodion, calotype paper, &c.; the collodion process performed by artificial light, &c.; microscopic objects copied by artificial light, &c.; exhibition of portable tents; management of camera, &c.; chemistry of photography. In this way all tastes would be gratified; the advanced member would be indulgent, while his less-informed fellow-member was learning the first principles of the science; and the tyro would then listen patiently while the rest of the evening was devoted to the examination of more advanced chapters. In this way we may steer between Scylla and Charybdis; and let us not be deterred by the fable of the painter, who, in attempting to please everybody, pleased nobody."

Dr. Lover next proceeded to illustrate the various degrees of actinic power possessed by the several prismatic colours, which he had stained on the radii of a circle of glass, the white giving the greatest intensity of action; the blue next in order; the red and orange less; and the yellow, green, and black, little or none. He had found great advantage from the application of photography to produce enlarged pictures of microscopic objects suited to the oxy-hydrogen lantern, for the purpose of illustration in lectures. He also begged to point out a pleasing brown tint which he obtained for his glass pictures by use of what was generally known as "Donovan's Solution," a mixture of the iodides of mercury and arsenic, which was to be applied to the plate after it had been treated, as recommended by Mr. Archer, with bichloride of mercury.

In answer to a request from a member, Dr.

Lover gave the following formula for negative collodion :—

Collodion (without alcohol)	2 ounces.
Alcohol	3 drachms.
Saturated solution of iodide of potassium in alcohol........................	2 "
Chloroform	6 drops.
Bromide of cadmium	6 grains.

Mr. Gilbert Sanders exhibited specimens of photographs taken by gas-light, and, after some preliminary observations (quoted p. 33), said—" I have just laid on the table some positives I have taken at night from Dr. Harvey's Phycologia Britannica, the *quarto edition*. You will observe that all the microscopic characters are as faithfully and as strongly given as in the original plate. These collodion pictures required about five or ten minutes' exposure in the camera; the more delicately drawn figures took the *least* time. There is also a nice copy from one of the wood cuts in the Illustrated News, taken in eight minutes, and two copies of photographs of Mr. Robinson's Donnybrook Fair, and the new buildings in the College—the latter one is a very good picture. I also lay on the table, for the inspection of the Society, a few pictures and negatives taken by gas-light in one minute, using the object-glass of a microscope for a lens. The photographs are greatly magnified pictures of the originals, which are barely visible without the aid of a magnifier; the ciliæ surrounding the joints of some of the minute fronds are quite visible to the unassisted eye. I find no difficulty whatever with the microscopical pictures; I can get twenty of them in one evening; the greater portion of the time is taken up in arranging the specimen on the glass slide.

" In every instance now before you I used only the ordinary collodion; indeed, some was at least four months iodized, and had been laid aside as quite unfit for day-light work. My developes were the proto-sulphate of iron with nitric acid, and pyro-gallic with acetic acid. No dark room is necessary, as the diffused light of the apartment will not injure the sensitized glass plate. I collodion, dip, photograph, and develop, without rising from my chair.

" Now, although I say I find no difficulty with the microscopical pictures, I have only attained a limited power on large-sized prints, in consequence of the difficulty of getting a sufficiently powerful light which shall be free from spots, *i.e.* of uniform intensity over the whole surface of the print. I have succeeded in making very fair negatives in five minutes, from prints about eighteen inches long, by the aid of a gas lamp I have just constructed. I do not succeed in taking portraits, though I get unsatisfactory pictures with very long sittings. Still I hope that even that branch of the art may soon be done also by gas-light.

" To the naturalist, who must seize every opportunity to get the very best and quickest drawings of his specimens, photography is a most valuable aid, and, perhaps, more so to the algologist than to any other. The perishable nature of his idols forbids his keeping them long in an undried state. Many algæ commence decomposition within a very short time of removal from the sea; few will keep in perfection from afternoon till morning. The power of obtaining at night faithful microscopic pictures of the treasures we procure during the light of day will reveal to us facts heretofore passed over in the hasty examinations occasioned by the desire of doing as much work as possible before the plants decay."

The thanks of the Meeting were then voted to Dr. Lover and Mr. Sanders, who had so greatly contributed to the interest of the evening, and the meeting was then adjourned.

Third Ordinary Meeting, February 7, 1855,—Lord Otho Fitzgerald, President, in the chair.

After some observations on the transmission of photographs to the Amateur Exhibition for the Patriotic Fund,

The Secretary stated that the Council had unanimously adopted the resolution proposed by Mr. Grubb, which he then read—" that the Society, desirous to mark its sense of the advantages it derives from the privilege of holding its meetings at the house of the Royal Dublin Society—Resolves :—

" 1st. That all gentlemen, members of the Royal Dublin Society, becoming members of the Dublin Photographic Society, shall be admitted free of entrance fee.

" 2nd. That the several professors of the Royal Dublin Society be elected honorary members of the Dublin Photographic Society."

The following papers were read, viz :—

M. Angelo Hayes, A. R. A., " *On Photography, and its relation to Fine Arts*," in which he said, although an admirer of photography, he was not prepared to claim a place for it amongst the fine arts; but he thought it would conduce to a knowledge of drawing; and if it did nothing more than extinguish "those abominations," black profiles, it would have done good service, It would assist the painter, because it did what he had to do—

"see natural objects as if they were flat." He did not think the "distortion" complained of was a defect in photography, so much as a want of appreciation of the effect of perspective. He felt that his own eye was being corrected in this respect by photography. It would also be of great use to artists, in obtaining accurate transcripts of objects which would otherwise take a great deal of time. He referred to instances where it had been of great use to himself in this way. For this purpose he would recommend collodion positives. He gave his opinion on what would furnish the best back grounds for heads, and decidedly condemned any attempt at adding colour. "When an engraving is coloured it is vulgarised, so is a photograph."

Thomas Grubb, M.R.I.A., "*On Camera Lenses, their Corrections, &c.*," in which—after some allusion to the proposal of the "Wrangler," Mr. Sutton—he defined the distinction between the actual field and the angular field of view—meaning by the latter so much of the 360 degrees of the horizon as the lens will include; and on the knowledge of which, he contends, must in some measure depend the judgment of the qualities of a lens. These he states to be flatness of field—squareness of field—correction of spherical aberration and of dispersion—and correction of coma in lateral pencils. He gives methods of testing these, of which those relating to the two first are rather for makers of lenses than for the artistic photographer, as an accurate eye will detect whether the definition is equal in all parts of the field, and whether square objects are distorted. For the third, he suggests bringing some small, bright light into focus, and moving the lens within and without the focus. "If this bright image expand with a firmer margin within than at an equal distance without the focus, it is under-corrected for spherical aberration, and slightly over-corrected for colour; as all photographic lenses should be. If any colour be visible, it should be merely a slight fringe of blue within the focus, or red without." For the coma, he proposes a similar test, bringing the object to the extreme of the field. On one side the image will expand more than on the other: the one side to a gibbous form; on the other, to a form like a comet with a short tail.

George Sharp, A.R.A., "*On the Advantages of Photography in the Reproduction of Old and Valuable Etchings, &c.*"

James Robinson, "*A Description of a Recent Photographic Excursion during the Snow.*"

Of the two latter Papers we have not yet received any report.

ON PAPER FOR PHOTOGRAPHIC PURPOSES.

We have been favoured with the following remarks, by F. Townsend, Esq., "*On the quality of Paper required for Photographic purposes, more particularly for the Wax-paper process.*"

PART I.

One of the most frequent objections raised against the wax-paper process, has been the great difficulty of getting uniform sharpness, delicacy, and evenness in the negatives; to describe which, such terms as gravelly, sandy, granular, cribriform, gritty, &c., have been applied. The peculiar appearance exhibited by a negative which is designated by any of these unpleasant terms, has been variously laid to the presence of the wax which is said to cause an unequal distribution of the ingredients, and unequal decomposition to the quality of the paper, to the management of the nitrate bath, and to the temperature, &c. The same appearance is not unfamiliar to those who practice the ordinary calotype process, and many calotype negatives on Whatman's paper exhibit it strongly. I have for some months past been making experiments in order to discover the merits of these various opinions; and those who are in the habit of making such kind of experiments, know the labour required, and the difficulty of arriving at any certain and practical results; but I venture to lay before photographers the conclusions to which I have been led, in hopes that it may clear away some of the cobwebs of the wax-paper process, and guide others to still further discovery respecting the quality of paper required for the negative purpose.

I have myself at different times fancied I had discovered in the method of waxing, in the proper arrangement of the nitrate bath, &c., the elements of failure or success; these opinions, however, I have outlived, and come to the unqualified opinion that all depends upon the character and quality of the paper. The papers I have experimented upon, are, papier Rive, various samples of Canson, papier Saxe, Marion's papers, (supplied a year ago, and those at present in the market,) two kinds of German papers procured in Germany, the makers' name unknown to me, Turner's papers, and paper of another English make. De Canson's paper I have found to vary much as regards sharpness and delicacy; some is excellent, others abominable; but it always keeps well after being made sensitive, and remains clean in the gallic acid bath: papier Saxe I have found more uniform in quality, and good;

but I can only speak of one batch which I procured last year. Papier Rive is also good, and very equal in its results; it is always fairly sharp, and it keeps well. Marion's positive paper, supplied a year ago, gives very good results, keeps remarkably well, and exhibits great clearness and sharpness; the same paper now sold is tolerably good, though I think not equal to the old, but I have not tried it sufficiently as yet; the negative papers sold as negative by the same maker, do not satisfy me in their results. The German papers, spoken of above, gave only moderate results (they were sized with starch). Turner's paper gives uniformly greater delicacy, sharpness, and evenness, than any of the foreign papers, and keep perfectly in the gallic acid bath. The other English paper spoken of, exhibits similar characters. Hence, the English papers are more to be depended upon than the Foreign; and the question naturally follows, should they not then be universally used in preference?

It is known that one great difference between the Foreign and English paper is, that the former are sized with starch, the latter with gelatine; now starch receives the wax more readily, and the paper is capable of being rendered more sensitive when thus sized; gelatine resists the wax, and renders the paper less sensitive. I have frequently used the papers of various makers unwaxed, and found them to answer well if used soon, but there are disadvantages, as it will not keep so long sensitive, the paper becomes very tender, rendering the manipulation difficult, and there is not uniformly the same delicacy and sharpness. I have succeeded in waxing the large sized paper of Turner, and the other English paper I spoke of, but with some difficulty, by soaking it in wax for twenty minutes or half an hour, kept at the temperature of boiling water; an effectual method is to soak the paper in hot water, and hang it up to dry, after which it will take the wax more readily; but there is a danger of injuring the paper, as it becomes so very tender. Mr. Higgin, whose paper was read at the last meeting but one of the Liverpool Photographic Society, says he has found Turner's paper, when unwaxed, keep well three days sensitive; I have found both the French and English papers keep as long, and probably, as Mr. Higgin suggests, it may keep still longer. The results obtained by the process I have published are so certain, that provided the waxing can be effected as readily before as after the paper is prepared, I should certainly always prefer using it waxed.

I will now venture a few remarks on the difference between the Foreign and English make of papers. If examined by a magnifier or microscope of moderate power, the negatives taken on Foreign paper frequently exhibit in their texture long coarse fibres, while I have not remarked these in the English paper; these fibres are more easily seen in a negative which has become dirty in the gallic acid. The Foreign paper is undoubtedly made of coarser and longer fibres, and I have found this coarseness in some degree rectified, and the paper cleaned in developing when previously soaked in a solution of gelatine; and it would be interesting to take the size wholly out of a piece of English paper, imprint a negative upon it, either sized again with starch, or altogether unsized. I have not as yet chemically tested papers, but I cannot help thinking some Foreign substances may be introduced into the French papers, which impair their use for photographic purposes. I hope still greater attention may be given to this subject by photographers, and I trust these remarks may call forth further enquiry.

Before concluding, I beg leave to address a few words to the practical photographer, who may ask, What practical conclusions may be drawn from the above for his especial benefit? My answer is, If you have Foreign paper, decidedly use it waxed, and papier Rive, papier Saxe, and perhaps Marion's thick positive paper, are more to be depended upon than Canson's, though some of the latter is excellent: if you require certain and great delicacy use English paper; Turner's is always to be depended upon: if required to keep long, wax it if possible; if to be used in two or three days, it may be used unwaxed; of course if used unwaxed, it will be necessary to wax it when the negative is finished, and before printing. To those who practice experimentally, and also to paper manufacturers, I would urge an accurate enquiry as to what constitutes the difference in quality and mode of preparation between the Foreign and English papers sold for photographic purposes, as I am inclined to suspect it is the character of the paper rather than of the size, upon which photographic excellence depends.

PART II.

"*On the preparation of paper for negatives by the wax-paper process;*" being notes to a former paper, on the Wax-paper process.

It is to me a source of great pleasure and satisfaction to be able to say, after the experience of another year, that the process given in my paper, "On the wax-paper process," published in the *London Photographic Journal*, has continued to furnish me most satisfactory results, and both to hear and to witness that in other hands it has proved equally successful. The peculiar qualities which I advocated for it last year, I can again most confidently assert to belong to the process; such are, great delicacy and brilliancy, good half-tones, sensitiveness, good keeping qualities, non-solarization, sensitiveness to the green rays, and, with care, absolute certainty. I have repeated many of my former experiments, and made several others, all of which convince me that with good paper, whether English or Foreign, the simple ingredients,—distilled water, iodide and bromide of potassium, and free iodine—produce the best results; and that no advantage is obtained by the use of any other of the ingredients frequently added. The only alteration which I have myself adopted, is the reducing of the proportions generally. In the use of what I call for brevity sake, the 600 grain solution for iodizing (viz. that given in my published paper), I have often found the blacks of the negative too intense, and I now use either a 400 or 300 grain solution, the other ingredients being reduced in proportion. Using the bath thus weak, there is more harmony, and as yet I have discovered no tendency to solarization. The paper keeps also longer and developes cleaner. I have always found two hours quite sufficient for soaking the papers in iodising, provided the wax be pure; black wax should be used, and it may be procured very excellent in quality at Brecknell and Turner's, in the Haymarket; Mr. Berry has advised three or four hours soaking, but should there be any fear of greenness of surface, the smallest quantity of solution of gelatine added to the bath, will prove an effectual remedy. I have found it quite sufficient to soak a piece or two of Turner's paper at the same time that others are soaking, and this done once will secure a good working condition of the bath.

The exciting solution may also be reduced in strength; and a 30-grain, a 20-grain, or even a 15-grain solution be used, as best suits the intentions of the photographer; the weaker the solution the longer the paper keeps, and the less intense the negative as a general rule; where much brilliancy is required a strong solution may be used, but where the contrasts of the picture are great, a weaker solution is more adapted. If the paper is required to be kept very long the acetic acid may be doubled, *i.e.* if a 20-grain solution is used the formula would be—nitrate of silver, 20 grains; acetic acid, 40 minims; distilled water, 1 oz.

The plan I now usually adopt, as the most expeditious and certain method of exciting, is as follows:—Take two dishes, one containing the exciting solution, the other the distilled water; sensitise two pieces of paper together in them both, and let them soak 8 minutes, taking care the papers float *freely* in the solution, and are well covered with it; after the lapse of 8 minutes place them in the second bath containing distilled water, and leave them, while you proceed to excite two more; when these are also excited, place them in the bath of distilled water with the others, and go on in succession with the rest of the papers to be rendered sensitive, until all are found together in the distilled water; now 8 or 10 minutes after the last papers have been transferred to the distilled water, pour off the latter and pour in fresh, shake the papers about in the dish in order to separate them perfectly, and allow the water to pass freely among them, and let them soak in this fresh water during 10 minutes or a quarter of an hour, when they may be blotted off for use. Pursuing this plan much time is saved, and two dishes only are required; but for beginners, the preparation of each paper separately and the use of three baths is more certain. If they are to be kept beyond three days give them a third washing with fresh distilled water. I think the plan advocated by Mr. Berry, though excellent for small papers, and when only a few are to be prepared, would be a rather dangerous one to adopt universally, as there is great danger when there are many papers, and these are of a large size, of an unequal chemical action. The two points to be borne in mind, both in the exciting and after washing, are—that the whole area of the paper shall be sufficiently and equally acted upon, and it is the better to ensure this, for I find there is no danger of over-exciting or over-washing, a fact which I mentioned in my former paper, and which I have never seen mentioned in any work on photography, the contrary being generally stated. The rationale is, that owing to the large quantity of iodide and bromide of potassium in each paper, the exciting bath soon becomes saturated with iodide and bromide of silver, without affecting the papers sufficiently to be detrimental. In the case of the collodion plate it is different, in using a new bath; for the film contains so small a portion of iodide of potassium that the whole iodide of silver formed would not be sufficient, or anything like it, to saturate them both.

It has often been asked whether so large a quantity of aceto-nitrate as 1 drachm to the 4 oz. of solution of gallic acid is necessary? For the beginner it is generally better to give exact proportions and methods of proceeding, that they may not become bewildered by having too great liberty of choice, or too much to attend to at a time; for after working with exact formulæ for a while, experience will soon suggest the necessary modifications; but those who are adepts know that if perfection is aimed at, it is necessary frequently to diverge from the beaten track and to suit the method of proceeding to the character of the subject and effect desired; thus the formula of 1 drachm of aceto-nitrate to 4 oz. of gallic acid is a good medium proportion; but it is by no means necessary to adhere strictly to this quantity at all times; half will frequently produce a better result: it is better also to add it in 2 or 3 small doses, instead of mixing the whole together in the first instance. The paper should never be put into the gallic acid until some aceto-nitrate is added.

I will conclude by alluding to the use of other bromides in the place of bromide of potassium. There is a difficulty in procuring the bromide of potassium pure, and out of 5 or 6 samples I have received from different shops, only one proved free from alkalinity. This led me to the determination, some months back, of trying other bromides; but Mr. Higgin has been before me, and advocates the use of bromide of calcium. I do not know whether it is the opinion of that gentleman that it is superior to bromide of potassium, but such seemed to be the opinion of some, and I must express my conviction that though bromide of calcium will produce good results, yet bromide of potassium produces negatives *quite equal in delicacy and quality;* and paper prepared with it has the advantage of keeping, which is not the case if bromide of calcium is used. I have lately taken very excellent negatives upon paper prepared a month. I am convinced that the delicacy and sharpness of negatives, taken on good paper containing bromide of potassium, cannot be surpassed; and my own experience leads me still to advocate its use.

Since writing the above, I have made the following experiment, which further persuades me that the excellence of paper for photographic purposes depends as much on the preparation and quality of the fibre as on the size contained:—I took a sheet of Turner's paper, and extracted as much of the size as possible, by pouring upon the paper, and soaking it in, boiling water; I then halved this paper, took one half, and also a piece of thin hot-pressed blotting paper, and sized them both with starch (not strong), and iodized them; I simply iodized the other half of Turner's paper together with another piece of blotting paper; the four papers were then rendered sensitive and exposed together in the camera, and the result was, that Turner's paper had lost little, if anything, in delicacy or sharpness by the extraction of the size, nor was there any superiority exhibited by the piece sized with starch. The piece of blotting paper which had been sized was very slightly superior to the unsized piece, and neither were impressed with a picture exhibiting any delicacy or sharpness. I am sorry I did not gelatinise a piece of the blotting paper.

OBSERVATIONS ON THE CHEMICAL POINTS AT ISSUE IN THE TRIAL TALBOT *v.* LAROCHE.

BY J. BAKER EDWARDS, PH. D., F.C.S.

(From a communication made by the Author to the Literary and Philosophical Society, Liverpool, February 19th, 1855.)

THE summing up of Lord Chief Justice Jervis in the above case, as reported in the current number of the *Art Union*, displays a high degree of legal acumen and careful deliberation on a very difficult and involved question, rendered none the less so by a goodly array of scientific witnesses on both sides of the question. Much of the evidence, however, was set aside by the view taken by the Court of the legal points at issue, which so narrowed the question as to leave the duty of the jury comparatively light. The patent of Mr. Fox Talbot claims the application of gallo-nitrate of silver as a sensitizing agent to paper previously prepared by known processes (viz. by iodide of potassium and nitrate of silver), and the same compound to be applied after exposure, to develope the latent image; and finally the use of bromide of potassium as a fixing agent. This is the whole of the claim as narrowed by the judgment of the Court, whose opinion was that a more liberal interpretation of the claim would infallibly vitiate the whole by attempting to patent a principle rather than a process.

The claim set up by the plaintiff under his patent, however, extended to the use of salts of silver, developed by reducing agents, and fixed by solvents, which, if substantiated, would embrace all past and present discovery in the art. And in supporting this view with special reference to the collodion process, he affirms that collodion is a mechanical equivalent for paper, and that pyrogallic acid is a chemical equivalent for gallic acid, while the use of cyanide of potassium, or hyposulphite of soda, instead of a soluble bromide, is but a substitution of one known solvent for another.

Now the Court admits that "chemical equivalents are infringements of patents," and says, "if you think that pyrogallic acid is a chemical equivalent for gallo-nitrate of silver, then as the defendant has clearly used it to develope, he is guilty of this infringement."

The question is not whether pyrogallic acid is equivalent to *gallic acid* alone, but whether it is a substitute in the process for gallo-nitrate of silver, which he essentially uses as a sensitizing agent first, then as a developer.

The view taken by the Court is this :—

1st. The collodion or paper coated with iodide and nitrate of silver, is disclaimed by Mr. Talbot in his specification: he says, "I take the prepared paper"—even then admitting that the prepared collodion be equivalent to the prepared paper, he has no claim to it.

2nd. Pyrogallic acid cannot be considered as a chemical equivalent for gallo-nitrate of silver, inasmuch as it cannot be employed as a sensitizing agent, for it produces immediate decomposition of the silver bath; besides it is proved in other respects to be of different chemical composition and properties to gallo-nitrate of silver.

This decision was enough to close the question in a legal point of view, as it defines the term "chemical equivalent" *in a legal sense*, which of course leaves it quite open to further litigation, showing the impropriety of the use of scientific terms with a constricted and empirical construction attached to them.

Apart from the legal merits of the case, the question opens up an interesting field of scientific enquiry, and as far as we can trace it, the collodion process affords more points of contrast than of comparison with that patented by Mr. Fox Talbot, and these I will endeavour to present.

The first proposition was that paper and collodion are mechanical bases for the reception of precipitated salts of silver, and only differ in the minuteness of the division of the particles so precipitated.

Objections.	
Salts of silver are most readily reduced in presence of organic matter. Iodide of silver, pure and dry, is scarcely affected by light, while nitrate of silver is decomposed in the presence of organic matter alone. Pure paper, *i.e.* one form of Lignine, (C 24, H 20, O 20,) would probably yield uniform results; but manufactured paper, from size and extraneous matter, varies, hence some makers are preferred to others, and Messrs. Hunt and Towson obtained positive images on one kind of paper of Whatman's, which they never succeeded in obtaining from any other paper. The minuteness of precipitation is more affected by the strength of the solutions employed, than by the rate of absorption of them. Were the rapidity to depend on the minuteness of precipitation, it would be an inverse ratio to the strength of the solutions, which is not the case; and we should expect albumen to be equally sensitive with collodion.	Gun cotton and gun paper are new substances produced from cotton and paper, and not mere modifications of the latter substances. By the removal of hydrogen, the elements for the production of paper no longer exist in the proper proportion, nor can paper be reproduced from gun paper or from collodion. The sensitiveness of collodion is greatly affected by the condition of the solvent, which therefore cannot be considered inactive in the process. A considerable proportion of spirit greatly increases its sensitiveness, but absolute alcohol decreases it. The alcohol and cotton both suffer decomposition by keeping, the former becoming oxidized at the expense of the latter, and the tenacity of the collodion is reduced.
The sensitiveness of paper is increased by gallic acid and acetic acid or ammonia in the bath, as aids to reduction; and paper merely iodized in a neutral bath, is least sensitive.	Collodion is impaired in sensitiveness by the substances which promote that of paper, viz. gallic and acetic acids. It is most sensitive in a neutral bath.

Query: How can the sensitiveness of collodion be accounted for? *Ans:* By observing its composition and properties. When starch is treated with strong acids it is decomposed. *Hydrogen is abstracted and replaced by nitrous acid*, and the same decomposition takes place in different proportions when weak or strong nitric acid is made to act upon cotton, flax, paper, linen, or sawdust, and thus three compounds are produced as follows :—

From starch, by strong nitric acid,

C 24, H 20, O 20—H 2 $\times$ 2 No. 4 = C 24, H 18, (2 No. 4) O 20
Xyloidine.

From lignine, *i.e.* cotton, flax, paper, &c. by mixed acids,

C 24, H 20, O 20—H 3 $\times$ 3 No. 4 = C 24, H 17, (3 No. 4) O 20
Collodion Xyloidine.

From lignine, by strongest nitric acid,

C 24, H 20, O 20—H 5 $\times$ 5 No. 4 = C 24, H 15, (5 No. 4) O 20
Pyroxyline.

We thus see that gun-paper contains nitrous acid, one of the most readily decomposed substances we know, equally ready to throw off 2 eqs. of oxygen, and be converted into NO 2, or on the other hand to absorb oxygen and form NO 5. We may judge then *a priori* that it is a substance very prone to decomposition, but we need not depend on supposition. We have the direct experiments of Dr. Gladstone to prove that of these compounds, the first is the most ready to decompose, which it does spontaneously, leaving a gummy mass, and yielding NO 4 as gas. Still further he finds that the second compound, the one we employ for collodion, also suffers spontaneous decomposition, *but especially if it be kept in the light*, the result being similar to the foregoing. The third substance, pyroxyline, (explosive gun cotton), is much more stable, and does not decompose under ordinary conditions. These experiments I can confirm from my own observation, and, coupled with the fact that the sensitiveness in some measure varies with the solvent, we have ample grounds for assuming that the reactions involved depend largely on collodion itself, as a reducing agent.

With respect to the developing agent, the attempt was made to assume that pyrogallic acid was a mere modification of gallic acid, that it was in fact gallic acid sublimed by heat, and exalted in properties. But the fact stands otherwise—the modification includes the loss of carbonic acid. And its properties as an acid are more than doubtful; nor are they intimated by the name, which refers rather to its origin than its properties, and simply means, "from gallic acid by fire." Now it is an analagous body to other substances obtained from organic acid: and I know not why its name should not conform to that analogy, in which case it would be called "gallone," thus:—

Gallic acid C 7, H 3, O 5,	By heat lose	CO 2=C 6, H 3, O 3,	Pyrogallic acid or *gallone*.
Acetic acid C 4, H 3, O 3,		CO 2=C 3, H 3, O	Pyroacetic acid or *acetone*.
Benzoic acid C 14, H 5, O 3,		CO 2=C 13, H 5, O	*Benzone*.
Butyric acid C 8, H 7, O 3,		CO 2=C 7, H 7, O	*Butyrone*.

The chief difference practically between gallic and pyrogallic acids as reducing agents, is in time and energy; the reduction by the former being gradual, so that the intermediate stages of oxidation are gone through ere the reduction is complete, the latter at once reduces the metal as a black deposit. But the process is by no means dependent on the use of pyrogallic acid, as known to most Liverpool photographers; reduction by strong iron solutions, answers the same purpose, or weak iron solutions, the deposit being further strengthened by salts of gold, or mercury, or iodides, or sulphides of the alkalies, involving reactions and manipulations quite inapplicable to any paper process. The deposition of silver in a white granular condition by iron, forming positive images, is certainly a process beyond the provision of any paper patent; and the fixing agents now in use, are, as certainly, an advance in knowledge since the date of that specification. Hence my conclusion is, that while most photographic processes have one object in view, viz. the reduction of silver from its salts, and in pursuance of that object apply known principles of chemical science in the choice of reducing agents; nevertheless, whether in principle, manipulation, agencies, or results, no two processes of the art can be found more widely independent of each other, or more strictly bound within their respective limits, than the Talbotype and the collodion processes.

Working on dry Collodion.—From the *Cosmos*, we receive a process by *M. le Capitaine d'artillerie Caron*, for working on dry collodion. For this purpose he employs chloride of silver instead of iodide, the former being as sensitive when dry as when wet; and he says it is very superior to collodions preserved moist by sugar, honey, mucilages, or salts, which are also objectionable on account of the dust. To 100 cubic *centimetres* (query *centilitres*, 35 fluid ounces), he adds 10, 12, or 15 drops of chloride of iodine; and coats the plate of glass; plunges it into a bath of nitrate of silver, "15 e." (query, grains); washes it in common water, and lets it drain and dry; in damp weather it may be dried at the fire; but this is not necessary. After exposing in the camera, he again plunges the plate in the nitrate bath for some seconds, and developes with pyrogallic acid as in the wet process. He uses

Pyrogallic acid	1 part.
Water	300 ,,
Acetic acid	10 ,,

He fixes with cyanide of potassium. The editor of *Cosmos* reports favourably of the process, from experiments made by M. M. Duboscq and A. Tavernier.

Ceroleine Processes.—From the same we learn that M. Stéphane Geoffray proposes to substitute *ceroleine* for alcohol in the preparation of collodion, which he says will give more body than in ordinary collodion, and will resist the baths, washings, &c.

CORRESPONDENCE.

We are indebted to a valuable correspondent for the following "glance at the London Exhibition of Photographs":—

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—Having recently visited the Exhibition in Suffolk-street, and made a few observations not recorded by your correspondent in the last number, I beg to submit them to your notice. My impression on entering the room was, that the wall space was smaller and less advantageously presented to the eye than in the building occupied last year; the space is extended by central cloth covered screens, but the point of view is thus restricted, and the general effect rather crowded; moreover, the pictures are many of them placed so near the ground as to forbid careful examination. A striking feature in the general survey is the number of large photographs—life-size portraits; of these, several by Mr. Laroche deserve the highest praise, being well shaded, free from distortion, and from that coarseness of texture and prominence of minutiæ which usually detract from the merit of large portraits. These are paper prints from collodion negatives. A few melancholy looking collodion positives appear, both small and large, and in one of the latter a friendly Liverpool face is unmistakeable, though not flattered. No collodion positives at all approach in delicacy, colour, and finish, the productions of our Liverpool operators.

Copies of arms from Windsor Castle by Mr. Thurston Thompson, waves and clouds by J. D. Llewellyn, plants by F. Bedford, photographic romance by R. Fenton, Fountains Abbey by De la Motte and Cundall, are excellent prints from collodion negatives, and prove that this process has great capabilities for the tourist, notwithstanding the difficulties which embarrass the inexperienced. Many paper negatives, however, stand unrivalled. The six views by Mr. B. B. Turner, in Talbotype, none can fail to admire; and Mr. Sanford maintains his success with the waxed paper. In the latter process, however, the most remarkable specimens are those taken from the microscope by the Rev. Mr. Kingsley, the whole of whose collection from collodion and waxed paper negatives are exquisitely delineated, and appear to me the most successful, especially of semi-opaque objects, that have yet been taken. A curious result is obtained by Mr. O. J. Rejlander, in which a group is made up in one print from five distinct negatives, but the edges of each have by some ingenious management been so shaded in, as to give no clue to the composite natnre of the picture; the grouping is very natural, and the effect good.

In contrast to the excellent, Mr. J. C. Bourne has a few muddy views in Russia, by Talbotype, which give one an equally unprepossessing idea of the place and the process. While Mr. Rosling's collodion positives make one long to give him an arm through the streets of Liverpool.

The *chef d'ouvre* still remains to be noticed, by Bisson Freres, Paris. It is an excellent print from an albumen negative, of the entrance to the library of the Louvre. It is 28 in. by 20½ in., the largest glass picture I have seen, and perfect in every respect. I learned that it was taken by a Lerebour's 4 in. single lens, 24 in. focal length, so that we may hope for increased size as the art progresses, within the limits of *a moderate expense*, which is a desideratum our English opticians at present fail to appreciate.

The albumen process although so successfully handled by our gallant neighbours, appears to make but little progress in the favour of our own countrymen; nearly all the specimens are of foreign production. Of daguerreotypes, a few in the stereoscopes were all I could discover, which I take to be a "sign of the times."

I trust we shall soon see our walls in Liverpool again well covered, believing we have excellent materials in the north, and that all such collections promote in a high degree the advancement of photographic art. I am, yours truly,

Liverpool, Feb. 23rd, 1855. J. B. E.

To the Editor of the Liverpool Photographic Journal.

Sir,—Enclosed are specimens of photographic copies (positives) of some of the beautiful crystalline particles of snow which fell during the last winter, and which the friend who communicated them to me stated were obtained *directly* from the identical crystals. Query—By what arrangement or manipulation were the negatives obtained?

On January 31st and February 8th of the present year, the whole of the snow showers of those days in this locality were composed of crystals equally beautiful and more complicated than these specimens, and I would gladly have obtained photographic copies of them, but the practical difficulties seemed insurmountable. First, it seems necessary to be an open air operation—this, in the midst of a snowstorm, with a keen N.E. wind, is one formidable difficulty; then to arrange them in the regular order in which this specimen exhibits them, and arrange a microscopic apparatus for obtaining them of this enlarged size (these are from twice to thrice the diameter of the natural crystals) is another difficulty, since one would be dealing with so untouchable, fragile, and quickly-melted a material. There are many other difficulties will occur to any one thinking or the matter, such as their transparency, which would refuse a negative impression; so that it appears to me my friend must have been mistaken in supposing them taken *directly* from the original crystals; they were, in all probability, first accurately *drawn* by hand (white on a black surface), and then photographed. But this destroys a great part of their interest, and gives them no greater value than (what is common enough) engraved representations of these exceedingly beautiful objects. Is my conjecture correct?

L.

[We should scarcely think so.—Ed. L.P.J.]

MAYALL'S ALBUMEN PROCESS.

To the Editor of the Liverpool Photographic Journal.

SIR,—Although I do not think that many will be tempted to follow Mr. Mayall's process, yet some may be inclined to try it, as albumen, doubtlessly, possesses many valuable properties, and gives unsurpassed results in practised hands. I may perhaps be allowed to point out that the formula as given in the *Liverpool Photographic Journal* for February is incorrect. The integer gramme having been objected to, grain has been substituted. but without consideration that some of the quantities were thereby reduced to less than one fifteenth of Mr. Mayall's, which are given for 144 plates (I believe half size, $6\frac{1}{2}$ by $4\frac{3}{4}$); the quantity of caustic potash has been left the same, so that the proportion of that ingredient would be fifteen times as great as intended, which would, I think, prevent any possibility of taking a picture by this process. I annex tables of the quantities, as in the original communication, translated into English grains.

PREPARATION OF THE ALBUMEN FOR 144 PLATES.

Albumen........	450 fluid grammes	=	16 fluid oz. nearly.
Sat. Sol. Iodide of Potassium	$7\frac{1}{2}$ weigh. „	=	116 grains.
Sat. Sol. Bromide of Potassium..	$1\frac{1}{2}$ „ „	=	23 grains.
Solution of Caustic Potash	....		1 drop.
Water............	1 gramme	=	15 grains.

NITRATE BATH.

Water	1500 grammes =	53 fluid oz. nearly	
Nitrate of Silver	150 grammes =	1543 grains =	$3\frac{1}{4}$ oz. troy nearly.
Glacial Acetic Acid	150 grammes =	1543 grains =	$3\frac{1}{2}$ oz. fluid nearly.

Renew the bath for every 100 plates with

Nitrate of Silver	30 grammes =	463 grains =	1 oz. troy nearly.
Glacial Acetic Acid	20 grammes =	308 grains =	$3\frac{1}{4}$ oz. fluid nearly.

Water to make up the original quantity.

The quantity of acetic acid in the nitrate of silver to be added to the developing bath is just double that given in the *Liverpool Photographic Journal*, viz.

Water	400 parts
Nitrate of Silver	30 parts
Glacial Acetic Acid	80 parts.

In bringing these formulæ from grammes into the weights and measures usually employed, I have been obliged to discard small fractions, but these are so minute as not to be of any importance.

I believe that it would be of very great service if photographers would adopt some uniform system of weights and measures, and it would conduce much to accuracy if everything were weighed—a matter easily managed by balanced capsules. In this case we should have one set of weights, whereas now we use troy, avoirdupois, and fluid ounce, sometimes without being able to discern which is intended.

In looking over the valuable table of weights &c. in the *Liverpool Photographic Journal* for February, I notice that the oz. avoirdupois is stated to be divided into 480 of its own grains; now this is a division never practised, the only grain used (except in weighing) being the troy grain. The avoirdupois drachm contains $27\frac{11}{32}$ grains.

I presume Mr. Burby's questions relate to collodion positives—the best whites I have seen have been produced by

Water	1 oz.
Proto. Sulphate of Iron......	10 grains.
Nitric Acid	1 or 2 drops.

The exact quantity of the latter ingredient is only to be discovered by experiment, as it varies much with the actinic power of the light: if an excess be used the silver will be precipitated with metallic brilliancy, and the portrait in this case can only be seen, like a daguerreotype, in certain lights. I have tried different backgrounds, but I think the most pleasing are those produced by using a blanket placed *out of focus*, on a piece of brown self-coloured drugget.—I remain, yours sincerely,

MONTAGUE MARRIOTT.

8, *Montpelier Square,*
London, March 5, 1855.

Supposed Errata—Vol. 2, page 26, col. 2. 17 lines from the bottom, for "positive" *read* "negative;" 10 lines from bottom, for "benzoin" *read* "benzine."

Errata—Vol. 2, page 28. col. 2. 33rd line from top, for "to a moderate heat" *read* "a moderate time"; same col. 17th line from bottom, *dele* "it."

[Unfortunately, owing to the absence of one of our most experienced coadjutors, a greater number of errata than usual escaped correction. The error of "positive" for "negative" occurs in the French, and it was intended to suggest that a mistake had been made by the printer or transcriber, as the process evidently refers to the production of a negative photograph: the converse error of "negative" for "positive" occurs at the latter end of the description, The error of substituting "grains" for "grammes" in the description of Mr. Mayall's albumen process, arose from overlooking the "drop" of caustic potass, in abstracting the formula; and it was not discovered till too late to add the relative quantity in grains, for which we are this month indebted to our valuable correspondent. The 40 for 80 is a printer's error, for the correction of which we are also obliged to Mr. Marriott. We trust our apology will be sufficient for the errata in his own letter. The last word in "Mr. Maxwell Lyte's method," page 26, should be "avoided" instead of "divided," and Mr. Townsend's name has been spelt wrong throughout.—ED. L. P. J.]

ANSWERS TO CORRESPONDENTS.

In reply to our complimentary correspondents we can only return our thanks, and say that we trust we shall continue to deserve their preference as a practical Photographic Journal.

J. PRICE.—The black spots may arise from dust on the plate before or after coating with collodion. or dust or any other particles in your dark slide; no cleanliness can be too great; or they may result from minute fractures in the film of iodide of silver.

F.—Your collodion has too little cotton in it. Dr. Edwards has not delivered any lectures yet.

CHROMO.—It is difficult to define the appearance of a good negative; for what appears the best, does not always print the best, which is after all the only satisfactory test. When looked through, the tints should be what the artist calls solid: the highest lights of the densest body, and the tints graduated to the darkest parts, which should be quite transparent. It should *reflect* the appearance of an overdone positive, and therefore should be left a little longer than if for a positive, perhaps half as long again; but this must depend on your collodion, lens, and atmosphere.

VANDYKE will find a 30 grain nitrate bath the most convenient, as retaining its properties better than any other proportion; and he had better leave out the acetic acid from his developing bath.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 16.—APRIL 14, 1855.

We hail the existence of a thriving Photographic Society in Bombay, numbering more than 100 members, well supported by the government of the presidency, and armed with a *Journal* to report its proceedings and publish communications from practical amateurs of the art. Two numbers of very promising appearance have been forwarded to us, containing some highly interesting suggestions for the application of the art to the records of truth, in the branches of natural history, antiquities, physiognomical character and costume, which the Editor justly observes would be invaluable in England.

"Sensible of the value and importance of a medium for the publication of the proceedings of the Society, the Council have lost as little time as possible in getting up a Journal." The first number is principally taken up with proceedings. The second number, published on the 15th February, contains descriptions, with diagrams, of a dark slide for carrying a number of papers, and shifting them by means of rollers, without opening; and a portable tent, of convenient character, both the contrivance of Capt. H. J. Barr, the President of the Society.

Mr. W. H. S. Crawford gives a wax-paper process modified to suit the climate, "the various processes recommended by practitioners in England, each and all present some serious obstacle to the Indian amateur."

An Exhibition of Photographs has taken place at Bombay, in the Town Hall, which was filled with a varied and highly interesting collection, and was very fully attended. The press gave good support, and the results were very satisfactory. One of the most remarkable specimens produced there was a stereoscopic photograph, by Capt. Biggs, of the Bombay army, of the lying in state of the late Commander-in-chief, Lord Frederick Fitzclarence, which took place in a room 70 feet by 30 feet, and the only light that which was admitted through two doors, of ordinary size, at the opposite end to the situation of the remains. The exposure was one hour and twenty minutes. Capt. Biggs had had a very handsome and valuable photographic apparatus presented to him by the Court of Directors of the East India Company, with Ross's single and double lenses, adapted to take photographs 15 inches by 12. This is a judicious piece of liberality on the part of the Directors, and they are with equal judgment availing themselves of this accomplished photographer's skill in the endeavour to obtain *fac-similes* of the caves and rock temples of India.

There is a Photographic Society also founded at Norwich, of which we have heard a brief, but satisfactory account.

Mr. W. Manning Fellows has suggested to the advocates of horizontal baths, that they should be made double, one inclined at an angle to the other, like the sloping back of a chair; the solution being poured into the flat part, and the plate put into the inclined portion, reversing their relative positions, will cause the liquid to flow evenly and swiftly over the plate, and it will be taken off with equal evenness and facility, by restoring the bath to its original position; and the plate can be much more readily subjected to its operation, and removed, than in any other form of horizontal bath. Mr. H. Brown suggests the form of the common iron mercurial pneumatic troughs, with a well at one end, from whence the solution is floated over the plate, and to which it is returned: but it does not appear to us so effective as that proposed by Mr. W. M. Fellows.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The second monthly meeting of the third session was held in the rooms of the Society, in the Royal Institution, Seel-street, on Tuesday evening, the 3rd inst. Mr. Frank Howard in the Chair.

The Chairman said that the meeting was held there to enable the Society to decide whether they could dispense with the charge for the room in the front of the building, the state of the funds of the Society being such as to suggest the greatest economy compatible with the advantage of the Society. The accounts of the Treasurer had been audited, and a balance found due at this time of about £30, while liabilities were outstanding on account of the removal from Lord-street, and fitting up the operating rooms above, and expenses connected with the Exhibition, to nearly £100 more. The subscriptions to be received from members would place the Treasurer in some funds, to enable him to meet pressing demands; but it should be remembered that these receipts were applicable only to the expenses of the current year. It was obvious, therefore, that they should be as economical as possible; and he urged upon members the advantage of subscribing to the operating rooms, which had been declared by Dr. Edwards to be the best photographic operating rooms in Liverpool. These extra expenses, it should be borne in mind, were entailed by expenditure which, it was to be expected, ere long, would pay an interest to the Society.

Mr. Berry, Hon. Secretary, then proposed some new members of the Society, including Capt. Inglefield, R.E., of Chester, (brother of Capt. Inglefield, R.N,, who has rendered his name famous as the discoverer of the North West Passage); and offered to read the minutes of the last meeting, or any portion of them, if it was the wish of any member present.

The Chairman stated that it was arranged at the earlier meetings of the Society, that the minutes should not be read, inasmuch as they were generally laid before the public in a very extended form shortly after the meetings had taken place; and especially as they were fortunate enough to have a great deal of new and interesting matter constantly before them every evening. If any gentleman who might not have attended the previous meeting, was anxious that the minutes, or portions of them should be read, of course the Secretary would comply with the wish, though it was considered wholly unnecessary. In his own opinion this was a great improvement on the *regime* of most "learned" Societies. Those which had very little matter to bring before their members, might find it very useful to fall back upon the extended "minutes."

Mr. Corey called the attention of the members to some letters which he had received. Mr. Cauty having made some objections as to the mode in which the business of the Society had been conducted, he was proposed and elected at the general meeting, 7th March, as a member of the Council, that he might have an opportunity of correcting his mistake. In reply to the announcement of his election, he wrote to say that he could not serve, and had resigned his membership Subsequently, Mr. Cauty had made use of some extraordinary language in the public prints, against which he, (Mr. Corey,) begged leave to protest. Dr. Edwards had also written a letter, which had appeared in the preceding day's paper *(Albion)*, in which he said:—"I wrote to the Society, &c. * * * and have not received a reply." The only letter received from Dr. Edwards, was in reply to a letter requesting him to read a paper that very evening. Dr. Edwards wrote:—

"In reply to your favour of this morning, I must decline reading a paper to the Photographic Society on the next evening of meeting, as I expect to be in London, and my time is too fully occupied just now to allow me to undertake any fresh engagements. If however, on some future occasion I can be of any use to the Society, in this or any other way, I should be glad to offer my services; and although I have seen it my duty to retire from its membership, I sincerely desire to see the Society in a flourishing condition."

Some conversation then ensued on the question as to whether it was necessary to ask a member whether he would serve on the Council, before he was elected. The Chairman explained that all members of a Society, unless otherwise regulated by law, must stand upon an equality; and whether it was looked upon as a duty or a privilege, all members must be equally bound to serve, and equally entitled to be elected. It might be expected that if any member should be able to give good reason, or show sufficient cause, or as a matter of private feeling, request to be exempt, the Society would release him, but the Council would have no power to do so.

Mr. Corey stated that Lord Ellesmere having been put in nomination as President of the Society for the current year, he had written to his lordship requesting his consent, and had received the following reply:—

"My services are at your disposal, but you will perhaps allow me to suggest that my son, Lord Brackley, being an active photographer, would be a more rational choice on the part of your Society."

On the suggestion of Mr. COREY, it was resolved by acclamation, that Lord Brackley be elected President of the Society, and that the Earl of Ellesmere be respectfully requested to allow his name to placed as Patron of the Society.

The CHAIRMAN called upon Mr. BERRY to make his promised observations and demonstrations on the result of his experience of Mr. Shadbolt's process; upon which he read the following paper:—

"*On the results of working Mr. Shadbolt's process.*"

"At the conclusion of my last paper on the collodion process, I referred to the use of honey, first by Maxwell Lyte in combination with nitrate of silver, as an accelerator; and also by Shadbolt, with water only, as a preservative. My impression that in this latter process the honey performs merely the part of a varnish to shield the sensitive film from external influences, is in no way shaken by the results of nearly two months investigation.

"Although I follow out Mr. Shadbolt's process in all its details, I will give my own *modus operandi* as an explanation of the experiments I am about to exhibit.

"I collodionize the plate in the usual way, and excite in the ordinary 30-grain bath. When properly excited, I remove it into a washing bath of water, containing not more than two or three grains of nitrate of silver to each ounce. I leave the plate in this bath while I am preparing a second for the 30-grain silver bath; and when I have immersed it, I take the first plate from the washing bath, and having drained it, pour on the solution of honey of a thin consistence, and place the plate in a glass box to drain, and thus in rotation any number may be prepared. When they have ceased to drip, I remove them to the dark slides or dark box.

"I use a very thin solution of honey in preference to a dense one, because, 1st, it will effectually preserve the sensibility of the plate at least seven days; and, 2nd, that although not used until the expiration of that time, no steaming or soaking is required previous to developing the impression, nothing more being necessary than to dip the impressioned plate into the washing bath for about half a minute, and it is ready for the evolution of the image.

"I prepare the honey solution, as follows:— Take genuine solid honey one part; distilled water two parts, both by weight: dissolve with a gentle heat, and filter through bibulous paper.

"I do not find that the removal of the film of free nitrate of silver by the washing-bath, and the application of the syrup, at all affects the sensibility of the plate; and I am convinced that after keeping some days it becomes more sensitive than when first excited. I now come to the development of the image.

"After having re-dipped the plate in the washing bath as before mentioned, I place it on a levelling stand, and pour on a solution of pyrogallic acid, not stronger in any case than one grain to the ounce of water, mixed with not less than 10 minims glacial acetic acid. The image will immediately begin to appear, and when the whole is developed and perfect in all its details, I add a few drops of a 30 grain silver solution to the pyrogallic developing fluid, and again pour it over the plate. By this means negatives of any amount of intensity may be obtained, as you see by the specimens I have developed before you this evening.

"When, through often using the washing bath, it becomes too much imbued with nitrate of silver, the results are vitiated, and it is necessary to dilute with distilled water, until the primary strength is obtained."

In the course of the paper Mr. Berry coated several plates with collodion and with honey; and also developed two negatives before the meeting, one as described above; the other he developed with the pyrogallic solution, and when the whole of the details were out, but weak, he cleared the plate with cyanide solution; and after washing poured on the developing solution mixed with nitrate of silver, and the negative speedily became as intense as the other.

In reply to Capt. INGLEFIELD, Mr. BERRY stated that he filtered his honey; the proportion in which he used it depending entirely on the thickness of the honey: if the honey was thin they might use it half-and-half; if thick, one part honey to two of water. All honey had the same effect, and he was almost inclined to think that syrup made from sugar would do; its only effect, in his opinion, being to shield the film from the action of the air. If they had a weak negative, they could intensify it at any time by the process he had explained. There seemed to be no limit to the intensity which the process would produce. He preferred the cyanide of potassium to hyposulphite of soda; though it would doubtless affect the half-tones if they did not take care: it was a very good servant, but a bad master. He always made up his solution by guess, using a piece about three parts the size of his thumb to a pint bottle.

The Rev. J. Porter having asked which Mr. Berry thought best, Mr. Shadbolt's method, or Mr. Maxwell Lyte's; he replied that if they commenced with Mr. Shadbolt, and worked a little with the same honey, over and over again, they would end with Maxwell Lyte; the silver being gradually mixed with the honey. The use of honey was simply the introduction of the keeping properties of the wax-paper process into the collodion.

On the proposition of the Rev. T. Banner, a vote of thanks was by acclamation accorded to Mr. Berry, for his interesting observations and experiments.

The Chairman then called upon Mr. Bell to favour the members with his observations on the relative value of large and small lenses; it was a subject on which considerable interest had been excited by recent discussions; and especially important to travelling amateurs.

Mr. Bell read the following paper, "*On the comparative results of using large and small lenses;*" exhibiting in illustration a number of highly interesting photographs, taken with different lenses:—

"As requested by Mr. Howard at our last meeting, I will detail a few of my experiences in the matter of lenses, a subject which has occupied my thoughts for many years, and which I am convinced has a wide field open for researches by the optician, chemist, mathematician, and last, not least, for those who like myself do not possess the knowledge of those sciences by which from theory they would deduce facts, but who can contribute their quota of experience on which theories may be built up. The question now mooted by Mr. Sutton, as to whether an equally effective picture may be produced by the use of a small and simple meniscus lens, as with a large and expensive combination, is one of so much importance to amateurs, that I consider all such should give their attention to it, as, should it prove to be the case, and to a certain degree I think when you look at the specimens which I shall have the pleasure to submit to you, and compare them with others taken under precisely similar circumstances with a lens three times the size and ten times as cumbersome, you will admit that the difference in actual field covered and image produced, is more than compensated to the amateur by facility of transport, and portability of the different portions of the apparatus. My time has been too fully occupied to admit of my devoting sufficient to the procuring of specimens such as I should have liked to exhibit, but there are enough to show what may be done, and I hope before the present season closes to submit to you far more perfect works.

"Nature and Truth are the two subjects with which we have to deal, and the more of the latter quality we can impart to our representations of the former, the more successful, I hold, will our efforts prove. We will leave to the poetic painter to fill into his picture imaginations pleasing indeed to the eye, and gratifying to the taste; and we will thankfully accept from him hints for our study of the different positions from which Nature may be transposed to our paper; but Truth on the whole must be our motto; and I suppose it may be laid down as an axiom that the more of light we can obtain, the more of truth will be the result: this I shall not attempt to controvert, but as it would appear to disprove my arguments in favour of smaller lenses—because we know that from a large lens more light is thrown into our camera—I would suggest that as it is not the amount of visible light on our ground which produces our results, but the intensity of the chemical rays of light, a field is open in which the optician may study how to arrange his work, that there may be an equality of these from different diameters; nay, he may be able to prove that they are more intense from smaller diameters.

"The present lens $1\frac{3}{8}$ inches in diameter, 9 inch focal length, was one of a pair of spectacle glasses purchased by me in Mexico, in 1840 or 1841. My first love—and to all appearances now likely to maintain the position which constancy of affection merits—like that "course" which the poet sings about, has had its vicissitudes; at one time discarded, yea, abandoned; for when I left that country I left it behind me, and had even entirely forgotten and cast off the once-loved subject, photography, not then so named, or so much talked of or thought about; but a friend among his heaps of rubbish found my old boxes, and kindly brought them home with him, and again I found myself in possession of a toy in whose enjoyment I had passed so many happy hours. My old love revived, and under various combinations, and alone, this lens has been my favourite. Its fellow was taken charge of by my friend, but whether he gave the same care to it that I did or not, his impressions were not so good, neither do I think it had the capacity which this has proved to possess. My size of field was limited to the size of plates that I could procure, so that I came to the conclusion that it would not cover more than a $\frac{1}{4}$ plate size. Latterly, I saw somewhere that the field may be covered to an extent of 3-5ths of the focal length of the lens, and I increased the size of my camera to a half plate; finding that the sharpness extended quite to the edges of this, I have made one now 9×7, and on this the size of field can be distinctly perceived; could the whole view be included in the circle you will perceive that it might be the size of the focal length, which if the extreme edges were cut off, would reduce the size to rather more than that stated, 3-5ths, (3-5th of 9 in.$=5\frac{4}{10}$) viz. $6\frac{1}{4}$ inches; but I may mention that the opening I then used was $\frac{3}{4}$ in. at the extreme end of this tube, which gave sufficient distinctness even at the edge of the sized paper I was then using. My first efforts being quite successful, I naturally concluded that a larger size would produce better results, and procured from England larger lenses, one indeed 6 inches in diameter, and of proportionate thickness; these were all operated with, but from some cause or other discarded as not equal to the first; the only combination which has at all interfered with the simple lens has been that with which I produced these exquisite little pictures, 1 inch square, a double convex placed in front which reduced the focus to 4 inches, and the size also in proportion, yet every thing is as distinct as in the larger views, and the distance comprised is not less than 100 yards, while the mountains in the distance are in one instance five, and in the other nine miles off. I had one in which houses at the distance of five miles were plainly to be distinguished. These (a number of lenses on the table) of all sorts and shapes and sizes, have been tried; there are three I think of the same diameter and focal length as this, whose results are very different; indeed with one of them, which gives a most perfect visual focus, I cannot obtain other than a blurred proof. I find on examination that one side is thicker than the other; now this must, I conclude, affect the chemical rays, although not interfering with the visual ones, to a perceptible extent. I shall grind it down if possible to an even thickness of rim, and prove it again. With these of a greater diameter, viz. 2 and $2\frac{1}{4}$, I have produced very passable pictures in the centre of the field, but owing I suppose to the thickness of the lens, the exterior of the proof has shown an aberration to a considerable extent, and I find the small one actually covers a larger surface than those of greater diameter. Now these are points which require rules to prove; probably an optician would have been able to tell you why these things are so. We have been considering up to this point, the different sizes of simple meniscus lenses; but I now show you a negative taken with a single achromatic, $3\frac{1}{4}$ inches diameter, 16 inches focus, and diaphragm $\frac{3}{4}$ inch, time of exposure 4 minutes, wax paper size 9×7, and one taken with my small lens at the same time $1\frac{5}{8}$ diameter, 9 inches focus, $\frac{3}{8}$ inch diaphragm, and unfortunately I made a mistake of one minute, and gave it 5 minutes exposure, size of proof 9×7; you will observe quite as much definition, quite as much absence of aberration, and more subjects introduced into the field. Of course the proportion of size of the objects is less, but these latter are quite enough to prove a very pleasing reminiscense of any locality to the tourist. Reflecting on this view, I came to the conclusion that my lens would cover a field square the size of the focal length of lens, I therefore placed the diaphragm nearer to the lens and diminished its size one-half say to $\frac{3}{8}$ inch, and my first proof was quite sufficient to convince me that I had not erred in the conclusion come to. It is not many weeks since a few of our enthusiasts loaded ourselves and friends with cameras, tripods and portfolios, and found ourselves, some of us with aching arms, on the top of Wallasey Hill; the Old Church inviting our attention, the gusts of wind threatened our apparatus, and in reality our portable legs trembled; I was the least cumbered, as you may judge for yourselves by the sight of this machinery, weighing altogether 3 ℔. Unfortunately, I thought, fortunately I may say, I had not looked at the exposed position I had taken, and *one minute* after I removed the cap, my slender stand was blown over. I had purposed exposing 5 minutes as I did with this subsequent one, and when you consider I had not then actually determined on the chemical focus of my paper position, I think the result is pretty fair. After developing all the pictures I took that day, I thought I would waste the one only exposed a minute, and to my surprise I perceived it commence as quickly as any of the others had done; you perceive I might have developed it a little more with advantage, but I have not yet attained proficiency in paper manipulation, nor do I understand the point at which the developing ought to be stopped; I find the processes afterwards exercise much more influence than we generally attach to them. Here are negatives taken on Marion's waxed paper, iodized with a preparation of my own—

Townsend's formula,
How's ditto,

and exposed some 5, some 15 minutes, and I have come to the conclusion that it does not much signify what the proportions are of the different salts. Here you have some taken in paper soaked in a mixture of all the iodizing solutions I have been experimenting on for the last twelve months; as I know the constituents of each, and took the precaution to measure how much there was of each, if any one wishes to have a similar wash I shall be happy to furnish him with the information. But to return to the subject of small *versus* large lenses. If we can combine in a negative the sharpness of definition with extent of view, I think the relative size of a picture, after you pass a certain size necessary for producing effect, a matter merely to be considered in a different point of view, and that is bounded by the facilities you possess of transporting your instruments. I do not contend for the superiority of a small view over a large one, but I think a sufficiency of effect may be produced by a small lens, and that the advantage is gained by the portability which a small lens apparatus possesses. Another point of advantage is the possibility of nearer approach to an object when using a small lens; this view taken this morning before breakfast, during the fall of snow, which, as you may imagine, darkened the sky and gave a leaden hue to the atmosphere, although not exhibited as a view, but to show how much can be included in the field, was taken at less than half the distance I was obliged to go to get the entire steeple of the church into the same sized field with my large lense.

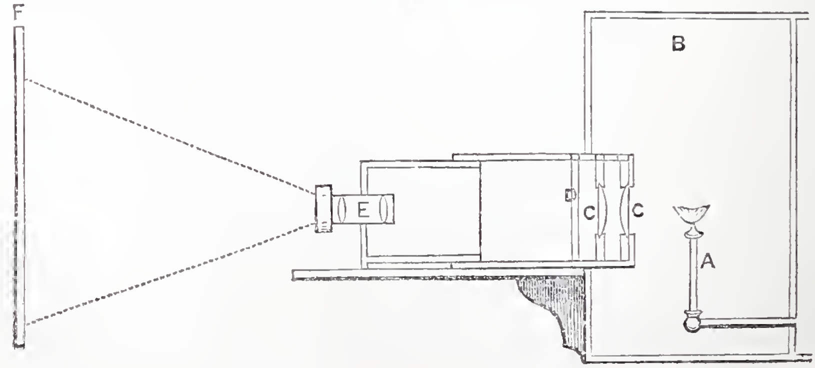
"No one can be more aware than myself of the surface manner in which I have treated this subject, but when I undertook the task, I thought I should have been able to procure some better proofs to base a few more scientific reasons on for my advocacy of small lenses, but you must be aware that in this business town, no one can command his time, especially when a change of wind and weather causes a day or so to be lost either by clouds, fogs or mists, especially if E. winds prevail, preventing operations, and causing shipowners to be anxious to get their vessels away, and I think those who are continually at work on this science, should help us a little more.

"Here I would wish to say a word or two to those among us who are able to assist us in council, and to make our labours a little lighter; capable a number among us must be of giving information, and of getting up a paper on some of the points, instructive and entertaining, which the study and practice of our beautiful art brings to our consideration. And now we are meeting in our own rooms, let us be more free in our communications. Come forward and volunteer your assistance. If you want a subject suggested, we will give you a dozen, and let us have a ready and willing response to our call. Shall we single out individuals. and set you a task for three succeeding meetings? We would rather have volunteers, for we cannot know your individual turn of mind, and you might feel restricted by us. Let us feel more that we are mutually associated for our mutual benefit; and do not let all the work fall on a few willing hands.

I will not detain you longer; something of more interest, because something more practical, is to follow. If I have led any one to think on this subject, and he brings his ideas into work, I hope he will give us his results; mine have been but poor compared to those we have been in the habit of seeing, but they lead me to conclude that better will be produced in that good time we all have heard is coming."

A vote of thanks was accorded by acclamation to Mr. Bell for his interesting paper; and great admiration elicited for his very ingenious portable camera, of which we must defer the detailed description that it deserves.

Mr. Keith then exhibited and explained his arrangement for enlarging photographs by gas-light.



A. Gas burner.

B. Box to confine the light.

C. Two plano-convex condensers, with their curved surfaces inwards.

D. Frame to receive the negative.

E. Lens.

F. Prepared paper or glass to receive the positive image.

Having lighted the gas burner, push the whole apparatus into the box B, until a well defined disc of light is thrown upon the screen F, then introduce the negative at D, which must be of a size proportionate to the condensers, and focus upon the screen; remove the screen, and replace it with a prepared paper, or glass plate. One advantage of this method is, that the negatives need not be very intense. The time of exposure will of course depend upon the sensibility of the material employed.

By removing the screen F to a greater distance, the picture may be enlarged to any extent.

After a brief discussion, Mr. Keith was presented with the thanks of the Society, and the meeting adjourned.

Mr. Maxwell Lyte's Finishing Operation for Photographic Prints.—When the proofs are dry take a piece of soft flannel, and dip it into a solution of white wax 1 oz. and Venice turpentine 6 oz., diluted with spirits of turpentine to the consistence of cream; rub this over the print, which should be attached to a card to give it the requisite solidity. This operation gives a soft polish to the surface, and like a varnish brings out the force of the shadows, and the minute details. It has other advantages which we have not space at present to particularise. In conclusion, the card is cut to the size of the photograph, and mounted in the usual way.

Mr. Townsend has written to correct some expressions in his paper, which at the time we could not quite comprehend. Black wax, p. 39, should have been read "block" wax, and "greenness" in the same sentence, should have been "greasiness" of surface. That the papers should be sensitized in "the bath" would probably be understood; but in the description of the rationale, p. 40, it was not quite so obvious that the reading should be saturate "the bath," instead of "them both." He did not mean to say (p. 38,) that the foreign paper was "cleaned," but "cleaner" in developing, when previously soaked in gelatine.

LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Meeting, March 1st, 1855,—Sir W. J. Newton, V.P., in the chair.

M. Negretti read a Paper "*On the Albumen Process*," which he illustrated by developing some plates before the Society. After eulogising albumen as a photographic material, he excused his following so close on Mr. Mayall's paper on the same subject, by saying that the mode of operation about to be described differed in some important points from that of Mr. Mayall. After insisting on the necessity of good, clear and clean glasses, he said that they estimated good large eggs each to contain 30 grammes of albumen; he used 10 at a time, preferring to make it fresh when wanted, and considering 300 grammes (about 9 oz., 5 dr., 9 gr.) sufficient to prepare at one time; for which he would recommend a "Berlin evaporating basin with a small lip," and a wooden or silver fork. To the albumen put 1 per cent. of iodide of ammonium or of potassium, and 20 per cent. of distilled water, and beat it into a thick "hard" froth, which will take about a quarter of an hour. Then cover the basin with a clean sheet of paper to keep out the dust till required for use. He preferred not to decant it, because the albumen poured out of the basin has to force itself through a thick crust which forms on the surface, and is thus filtered. It is poured on like collodion, and if not spreading evenly, a glass rod will assist. Drain off first at one corner then at another; then reverse the position of the plate and let the albumen flow back over the plate; then reverse again and let it flow half-way; then give rotatory motion for seven or eight seconds, and put it into the drying box, and shut up till the next plate is ready. Sensitize in solution the same as Mr. Mayall's. A horizontal bath, (or such as Mr. W. Manning Fellows has recommended for a developing bath, see p. 45.) After causing the solution to flow evenly and uninterruptedly over the plate, let it remain in the bath about 40 seconds, when it should have a "nice light blue tint." Wash well immediately in distilled or rain water until all greasiness of surface is removed, and place it in a large box, having some blotting paper at the bottom to facilitate draining. It is more sensitive while wet, but otherwise should not be put into the dark slide till quite dry. To develope: take a saturated solution of gallic acid heated to 80° Fahr., pour on and spread rapidly over the plate by means of a brush of soft camel's hair, about an inch long in the hair. Let it remain about one or two minutes, then pour off part and add to it some 2 per cent. nitrate solution, which must be instantaneously mixed with the gallic acid by the brush. If the image does not show itself, pour off the whole solution, and begin again with the gallic acid, and repeat the operation over and over again, until the result is satisfactory; wash, and fix with hyposulphite of soda, as for collodion: cyanide will destroy the albumen.

To albumenize a plate, a plate-holder is necessary; and he recommended a tapering stick with a cup at the broad end, round the rim of which some gutta percha has been melted. This being warmed over a spirit lamp and pressed against the back of the glass, will hold it sufficiently to allow of the rotation required. For positives this rotation is required to a greater extent and with more rapidity, so as to thin the coating of albumen.

The drying box should be well dried, and all dust most carefully avoided. The development should be as quick as possible, but not accelerated by greater strength of nitrate solution.

Mr. Mayall said that the use of large plates was an improvement, and the mode of coating them was superior to his method. The mode of developing was also superior to anything that he had seen; but he thought that the albumen process would soon give way to the dry collodion process, which he had used without any difficulty whatever. He was preparing a paper on the subject, which he hoped to have ready for publication in the next month's Journal.

Mr. Shadbolt was glad to hear of Mr. Mayall's success with dry collodion, but it had hitherto been found to develop unevenly, and to be wanting in intensity.

The meeting terminated with a vote of thanks to M. Negretti.

At a meeting of the Bombay Photographic Society, Dr. George Buist, in suggesting the Flora of India as a subject for the members' practical efforts, remarked that "he had never seen a picture intended to represent a view in that country, which had not a cocoa-nut tree depicted most prominently, and seldom any of other descriptions, as if India could boast of no others: let a few pictures of the exquisite scenery about Bombay be sent home to dispel the fallacy." He advised each member to take a single tree or shrub, and thus, conjointly, make a complete collection.

THE CONNECTION OF ART WITH PHOTOGRAPHY.

By J. T. Foard, Esq.

(Continued from page 19.)

"You have the truth up to a certain limit in every instance. You have the entire truth in certain cases, and you may have the elegant truth—or at any rate the attractive truth—in very many and in almost all. In all you ought to have a certain degree of fidelity; but you may fail, and fail very lamentably in this: and proceeding with our deductions and comparisons of the artistic with the photographic processes, we may perhaps ascertain why. You cannot deal with an infinite subject by a merely mechanical process. You cannot reach the stars by any long shot; therefore you cannot deal with the subtleties of expression and character commensurately in every case; but you may do your best intelligently to do so—intelligently to apprehend character in individuals—intelligently to apprehend the character of a landscape, and then do your best to render it with exactitude. In all cases of simple copying from flat surfaces—in all cases where you cannot dispose your light and shade, and the subject may be brought strictly parallel with the face of your lens, you may command the entire truth. You may go further and say even, that in all cases of still life, colour being absent, in copies of sculpture, statuary, bas-relief, &c., you may, by the exercise of taste in the arrangement of light and shade, obtain literal accuracy. And you may have the attractive truth frequently by taking a landscape or a person at their best, with their most felicitous look; in the latter case by disposition of the dress, position, and light and shade, with care and design to an end. You may moreover do it, and do it without sacrificing integrity, by management of the lens, by selecting the point of view with a circular object, by elevating or depressing the lens within certain limits, and by its special adaptation to the work in hand. And you may fail in obtaining any exactitude by either overtasking your lens, or by positive defects in your mechanical appliances or chemical combinations. If the face of the lens, for instance, deviates in a slight degree from parallelism with the object to be copied, that object presenting a flat surface, error will be the result. Again, if more than the heart of the lens be employed to the same end, unless the lens is one of peculiar fineness, the outer lines will be found very incorrect from the natural curvature of the lens, and the whole image will be distorted.

"I am aware that in these difficulties I am pointing out only probable defects; but as they are defects constantly arising, frequently seen,—I desire to anticipate any objection that may be raised on this score,—because I know that such defects are not inherent in photography, but are defects arising from want of Art, from a want of knowledge of even the elemental principles known in painting, and because I know that photography can and does rise superior to them; because I know that if these principles were adopted, results widely different would be obtained, and the national character in photography redeemed. It is true, however, that, as in sculpture, mechanical difficulties interfere with photography that the Art of painting is not subject to; that, compared with the resources of Art proper, those of photography are limited, and that the practitioner is, in some sense, 'dancing his hornpipe in clogs.' This, however, is not a depressing circumstance, but one that should prompt him merely to make himself master of his situation, and as truthful and perfect a translator of nature as he can be. If we analyse his special difficulties we shall find that he cannot adopt a position betraying action, except of a very limited kind; that he cannot raise the hand of his subject as in declamation; that he cannot always adopt the most artistic light, but that he must have, regardless of consequences, a certain amount of light necessary to his purpose, and to the excellence of his mechanical result; and that this amount may, if care be not exercised, materially damage the artistic character of his labours, influence the expression, and affect considerably the likeness; that he has difficulties in his materials to overcome of a technical kind; that by a certain feebleness of light the chemical effect of his picture is vitiated; that often when the light is at its best his chemicals are at their worst. Again, that he has to overcome the appearance of stare given by fixing the eye long in one position, which preservation of stillness is, however, essential to the process. That there are, to arrange his difficulties in order, two distinct species of excellence to be attained, and that in pursuit of them the process, like the practice of painting, naturally divides itself into two separate and distinct parts, the one mechanical the other artistic: the one having to do with the excellence, (by which I mean more particularly the truth and beauty) of the photographic result; the other relating to all that could give value or add to the character of the resemblance in an artistic sense. To the first or mechanical portion of the process] belong, 1st, tone—2nd, intensity—3rd, sharpness—4th, brilliancy, or what the Americans call chemical effect. To the second or artistic portion belong, 1st, position, with reference to grace, character, action—2nd, arrangement of light and shade—3rdly, the adaptation of the power of the lens with reference to the object. First then, of tone. Both in the daguerreotype and in the paper-process, tone is what is in artistic phraseology meant in part by warmth of hue; but it also includes the character of solidity, which is peculiar to photography; with this the lens has something to do—but with the best adapted lens something more is required, viz. such a combination and arrangement of chemicals with a view to an end—such a nice adjustment of proportions in the parts of the process that a certain warmth and depth of colour, combined with a certain lustre and perfection of detail in the black parts, and a clearness and depth in the white parts, shall ensue. In the daguerreotype this is obtained by hitting precisely the largest amount of iodine and sensitive that will suffer entire chemical change or decomposition by the light to which it is exposed. If less than the intensity of the light could act on is applied to the silver plate the whites are termed solarized, the picture is hard and sudden in its transitions, and the blacks have an irony or collodion positive caste. Next, intensity. This is the quality of vigour—a picture may be intense without tone, and vice-versa. This quality is partly dependent on the light, partly on the lens being perfectly achromatic, and its refractive aberration being amended, and partly on the adjustment of the chemicals. Next, sharpness—which depends on the lens and its arrangement, and on the excellence of the camera itself, and also on the light, which affects the detail; the brighter—other things being equal—the light, the more intense the sharpness. To my non-photographic auditors I would mention that sharpness is a term adopted from the art of engraving, and means minuteness of detail in rendering fine lines, and giving them a razor-like keenness of edge. Next, brilliancy—which is a quality apart from the brilliancy imparted by vivid light, and is a quality confined to the daguerreotype. It is referable to a very perfect mechanical preparation of the silver plate, which, apart from affording intense blacks, gives full play to the chemicals to work with their natural vigour, unimpeded by extraneous substances of any kind. It is this quality of brilliancy, added to the superior purity of their atmosphere, which being more dry than our own, vastly facilitates the operation of polishing and enhances the lustre, which the American pictures possess in so eminent a degree. These are the mechanical qualities necessary to be combined to form a perfect photographic result; for it must be recollected that every shot we fire is aimed at perfection—at a standard of excellence, and when we fall short, we suppose ourselves to fail; and these are the qualities ordinarily considered necessary, alone, and that are supposed to comprise all that is excellent in a photograph—all the qualities, as a rule, American daguerreotypes ever possess. To these are to be added, I am of opinion, as being of even greater value, the attributes of the second or artistic kind, which we have already alluded to; viz. 1st, position—2nd, arrangement of light and shade—3rd, adaptation of the lens to position, &c. First, position. This is in all cases to be determined by the character, temperament, or age, or by all of these considerations united, of the subject. It should on no account be accidental when it can be prevented, or when any key to the particulars can be obtained. At the same time, while keeping character predominant in its consideration, it should maintain a due regard to elegance and grace. It should avoid straight lines and angles of any kind in the figure itself, as far, of course, as is practicable. Make its groups pyramidical, having the taller figure in the centre, or even carrying out the external lines by accessories, keeping before it the constant consideration that curved lines of any kind are preferable to straight lines, and that a waved or sinuous line is the best, and that a composition that falls altogether within a regular mathematical figure—either a right angled triangle, or an Isosceles triangle—is the best. Next, with regard to the arrangement of light and shade. These should be so far determined as, if possible, to fall, keeping the artist's standard before us, on the best lines of the composition—on those lines which are most important and most elegant in themselves, and which are able to impart the most pleasing character to the picture—on these, and on the best features of the face, and that not with too much intensity, lest it destroy some portion of the detail, but with due contrast with the shades. That it never be allowed to fall wholly or with strength from above, lest the shadows, from the nose under the chin, eyebrows, cheekbone, &c., be exaggerated, but rather from one side and elevated, with not too great intensity, but in fact as we see it fall in all the finest pictures of the great masters, Sir Joshua Reynolds, Raeburn, Vandyke, Velasquez. At the same time that intensity is of value, in heightening the effect, in photography, it cannot be proceeded with too far, lest the detail in the shadows suffer; and due care should be devoted at the same time to the relief of the figure, with the intention of making it appear as round and as solid as possible. As an instance of how far this apparent solidity may be obtained by shadow properly distributed, I may allude to the French photographic print of the Crucifixion, which most of us have seen exposed for sale in the print shop windows, each of its figures appear to stand out almost as vividly as if they were raised; but at the same time the operator seems rather to have had an eye to the photographic effect, than to that of rendering, or as far as possible interpreting, the artist's idea, who would probably in copying the alto-relief himself, have arranged the light on it differently; not that I would detract from its merit, which is very great. To illustrate this point, I intended bringing with me to-night a bas-relief of Mr. Noble's, with some photographic copies of it in various lights, but was prevented by the light being so bad to-day, in Manchester, for the purposes of printing. Next, with reference to the adaptation of the lens to the position, a point which, when not observed, brings us within the lawful criticism of the artist, and is, with the truthful rendering of the object as to form, one of the most important considerations in the whole process. This is the general rule respecting it: that unless any object placed before a lens fall within the same plane, or so nearly within the same plane, that its deviation shall form but a slight proportion to the mean distance of the lens from the object, and unless this plane be parallel with the face of the lens, the object so copied will be in some way distorted, and the truth of the transcript will be impaired. As instances; in a portrait, if the hands are advanced they will be enlarged; if the elbow is allowed to retire unduly, the thick portion of the arm will be materially reduced, and the nose even will be thickened if a very large head is effected with a short focus lens. Beyond this the lower portions of the figure, the projecting limbs, or parts of limbs, in a stout person will be enlarged, unless proper precautions are adopted. Now for the sake of correct drawing, this want of adaptability in the lens necessitates one of two things, either that the figure shall be placed bolt upright in a portrait, which would be incompatible with elegance, or that such an arrangement shall be made either in the lens itself or in the position of the sitter as to bring the entire figure, or at any rate the most important parts of it, into the same plane. The use of a long focus lens, or of a lens with a large diameter, ground specially, or used with a stop with a view to meet this difficulty, enables us ordinarily in practice to overcome it successfully, and it is merely a question of tact or ingenuity for the rest, so to bring the figure into a not inelegant position in the same plane. From what I have now very imperfectly, and with very little connection, sketched out, it will be evident that the photographic operation is not necessarily either a simple one, or devoid of art. The same remarks apply to landscape photography; but I have confined myself chiefly in my allusions to portraiture, as being that branch with which I am best acquainted. Neither can it be considered a science, because no fixed rules can be laid down for the guidance of an operator in every emergency. Nor does it attain to the dignity of a fine art; because the fine arts proper deal more especially with creation, or, as philosophers have denied the correctness of the word creation, with combination—combination as it is evinced materially in the silk worm, which spins from its own body and from its food combined, an altogether different and novel material, infinite in its beauties, uses, and means of application. This does the great artist. Out of the types of existence he sees around him, digested in his own brain and lit up by his own fancy, tinged with every hue of his temper, imagination, and feeling, he evolves the creatures of his mimic world. Thus, while disavowing anything like a possibility of rivalry, or even a possibility of comparison for photography with the art of painting, I claim for it certain special virtues and excellencies neither to be despised nor underrated, sufficient ever to make us grateful that we have fallen on an age in which something more than an approximately truthful resemblance of great men and monuments, may be laid before us for our study and contemplation when the originals are not at our command. I claim for photography distinctly the quality of truth, of accuracy; this has been denied to it because it is not always true; but I claim because it might be always true, and exceptions are not the rule, nor ought we so to consider them. I claim for it also the quality of truth in its large rather than in its restricted sense, in drawing and modelling the human face, and the power, when properly handled, of conveying with more literal fidelity and exactitude than is possible to art, the figure, the face in their respective integrities, and the power of more perfectly representing than any other mode of portraiture can pretend to, the human form divine. Where it fails in truth, it fails not in itself, but in its application, and the failure is in those who apply it. It bears the same relationship to the fine arts that mathematics bear to poetry—that conversation bears to vocal music—that plain prose bears to rhythmical or epic narrative. And although there is such a thing as bad prose, as indifferent conversation, and an erroneous deduction, it by no means follows that a prose narrative may not be as substantially true, nay that it may not be more substantially true, and is likely to be more substantially true, than a poetic one. Art has beauties and powers that it cannot lay claim to, and vices that it can just as little ever light on. Art is not truth—it pre-supposes more than the truth, something very like the truth, with something more added. We say of Shakspeare that he was the most truthful of artists, and consider this great praise. We say that what he did was like nature, but were we to say that it was only nature, we should talk great folly. Yet could we conceive him possessing less truth and the same art, he would appear to us less grand and wonderful than he does. His great glory is, that he concealed his art. That the marvellous philosophic treatise of Hamlet appears to us so simple and natural, so true to nature, that a child may admire and be gratified with it. Just so do we look on a picture of Howard's, of Hilton's, of Jackson's, of our own school, and see in it neither the time spent, the ingenuity, study, and intellect lavished—so great that few men of their time could attain to it—all hidden and concealed by their apparent and simple truth. The means were hid in the end. So do we see nothing in the simple pictures of Shakspeare but their reality, while there lies concealed in them the glories of art, of our own country, and of the human race. His men die reciting speeches in blank verse; this can scarcely be considered according to nature. Yet we say how natural. The fact being that it is art, and looks like nature, mocking us by its art.

Art is not truth: it often falls into grave errors—not errors simply of its application, but into inherent errors. It has to tell its story with the tact of a story-teller; not simply the truth, which is a more simple mode, but with humour and effect. Just as a bad story-teller injures his narrative—as a little man will make a great man look little in his narrative—does art, in attempting to improve its subject, often injure it. Notwithstanding the fact that art not founded in truth is a violation of art, and has no claim to the title, it often deviates from its path; and for this reason photography is of value to artists—it enables them to see the actual as it is; not that they may copy it, but that they may improve on it. Artists fall into certain exaggerations and mannerisms from not referring constantly to nature; they paint conventional green trees, thatched houses, old mills, and scantily attired females, by rule and measure. In process of time this rule becomes vitiated, just as French, spoken without occasional reference to its source, might be supposed to become tinged in an Irish school in due course with a slight dash of the brogue. Photography enables us to correct this by comparison: it brings us back to the fact which painters often seem to ignore in looking at nature—that a hand open should cover the face; that a mouth should be bigger than a button hole; that a shadow cannot be represented by a dab of red or green, or bitumen; that care and accuracy of detail are compatible with breadth and force; that what is frequently considered vulgar, or little, or low in art, is not actually so; that grandeur does not lie in affectation; that artists often paint not only their countries and their minds, but even their peculiarities of person and style; that just as Lawrence made all his portraits gentlemen—being himself a gentleman—and Haydon made all his pictures coarse, vulgar, and obtrusive, some men paint their own mouths, or a particular mouth, or a particular set of shadows, a particular species of reflected light, a particular arrangement of the drapery in every picture, to the violation of artistic propriety and the offence of common sense.

"In conclusion, having already I fear trespassed much more than decorum would warrant on your time and patience, I may remark that the mind of man which struggles after the infinite, cannot be, and ought not to be, satisfied with the mechanical parts of an operation, or with the result mechanically attained, when the artistic one is within easy access. It may accept printed oil pictures, photographs, backed up with oil colours, coloured lithographs, &c., but not by any means to set value on them. The smallest tracing evidencing mind, the merest sketch of a great master, is of infinitely more value to correct taste than ever so gaudy a display of colour. That, acknowledging mechanical excellence in photography as a great and very desirable end, it should not be considered the sole end in our efforts in any shape; and to apply it, that this Society should cultivate, especially in its views, in its pictures, copies of statuary, &c., a proper artistic appreciation and excellence, a proper selection of material. "For selection," said Fuseli, the great lecturer on Art, "is the invention of the landscape painter, that it should endeavour by every means in its power to stimulate the resources of optical sense, as the most probable source of further improvements; keeping in mind the fact that the human eye is yet but imperfectly imitated in science, and that what has to be addressed to the eye and to its criticism, in conjunction with mind, should be based as far as possible on its requirements, and should be adapted to its delight."

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—In your first volume, page 137, you mention that Mr. Carr has invented a small apparatus for drying albumenized glasses by steam; might I ask you to give a description of it. If you could also give me some idea of how Mr. Carr proceeds, or Mr. Ferrier, I should be obliged. I learn also that the negative should be developed with pyrogallic acid and iron; if you could give the strength of these solutions I should also be much obliged. Very fine pictures can be got by this process, but I find it troublesome, and have ventured to trouble you with the above questions which I hope you will soon answer, and oblige, yours obediently,

Bombay, A READER.

15th Feb., 1855.

[Mr. Carr has not published his process. Mr. Mayall and M. Negretti are both pupils of Mr. Ferrier, and probably proceed in nearly the same way. Mr. Mayall's process appeared in our Journal for Feb., page 22—M. Negretti's, in the present number. The "drying box" has wooden slides between the plates; these, and the box itself being previously dessicated by heat, assist the operation by absorption. —Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I should like to know if the photographs taken by gas by Mr. Sanders, as described at page 36 of the March Journal, were by an ordinary light, or by means of a strong reflector. There is no difficulty in the latter case with prints and well defined objects, provided a powerful reflector be used to throw a bright white light *equally* upon the plane of the picture. Perhaps some of your contributors can say how far they have succeeded with the living subject.

I have frequently found a black dust upon the plates after all the processes are completed in the ordinary way by collodion. From what cause does this arise? From the sensitizing solution not being powerful enough, or from some other cause? 30 to 35 grains was the bath used.—Yours, faithfully,

EDINENSIS.

[1. We cannot say. 2. One of the mysteries of the art not yet accounted for.—Ed.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 17.—MAY 12, 1855.

The prominent subject of the day, connected with Photography, appears to be the printing operation. Mr. Hardwich has been following up his researches into the chemical causes of certain effects; and in the investigation of the influence of the salts of gold on the colouring bath, as compared with that of the hyposulphite of soda, has furnished some unexpected facts; yet he is still of opinion that the colouring properties are more dependant upon the sulphur than the gold, though some portion of that metal is distinctly traceable on the photograph and in the bath. The question of fading is intimately connected with that of printing, and imputed by some photographers to the sulphuret of silver, which Mr. Hardwich considers the principal colouring material. But another point of view is pressed upon our attention by the remarks of experienced practitioners — whether the necessity for overprinting, and subsequent reduction of colour, as in the usual plan, may not introduce the elements of decay, which are occasionally counteracted by the nature of the paper or some accidental circumstance unnoticed by the operator. The necessity for well washing out the hyposulphite of soda is always insisted on, but it seems to be more necessary in some cases than in others. Mr. Sheridan, it will be remembered, said at one of our meetings, that many photographs were spoiled by overwashing, and excited some controversy thereby; though, we believe, our practical member, Mr. G. R. Berry, confirmed that opinion. Mr. Pollock calls for investigation into the fact—"do positives fade?" when properly printed—as he had exposed specimens in his room to sunlight for two years without being able to perceive the slightest change. On the other hand, all those exhibited in the Crystal Palace, "fairly exposed, with the light of heaven above, had faded; and he never knew a photograph so exposed that had not faded." The facts undoubtedly demand the first attention. The discovery of the nature of the disease would probably suggest the means of cure. The large or small lens controversy is still going on; but the dispute at present is too much confined to facts for us to give much space to it. It will be seen by the report of the meeting of the Liverpool Photographic Society, that another of our members, Mr. Corey, has contributed some facts as to the efficacy of a small meniscus lens. As, with the fading of positives, the facts should be settled first, and then a remedy sought for any defect in convenience or practical utility. Mr. Sutton throws out a doubt as to the advantage of a flat field in every case; and says that he has found advantage in the sphericity when taking a view in which the lateral objects are much nearer than the centre. It confers, as he imagines, the greater length of focus which the near objects require, without interfering with the focus of the distance in the centre.

> "Can such things be,
> And overcome us like a summer cloud
> Without our special wonder?"

Mr. S. T. Goddard, an optician, has entered the field, and recorded some facts for which we must endeavour to make room. He admits that theory has done very little to decide the question. A plain achromatic lens, with its flat side towards the object, diameter 2¼ in., focus 12½ in., gave the best marginal definition on the right when all the lens was covered excepting a small portion at the right-hand side. The left margin of the picture was best defined when all the lens was covered excepting a small portion on the left-hand side, near the edge. The middle of the picture was best defined by all being covered excepting a small central opening. An achromatic lens slightly concave on the flint towards the object, diameter 2½ in., focus 18 in., gave the same results as the first. An equally double achromatic lens (dense flint), 2¼ in. diameter, 12½ in. focus, with the flint lens outward: the results were the same in character, differing only in the amount, as the preceding. The form of this lens was evidently worse as a landscape lens. An achromatic meniscus lens, 14 in. focus, 3¼ diameter, with its concave side to objects, with a stop, ½ in. diameter, 4 to 5 in. in front of lens, gave the best picture.

We do not know whether our friends across the channel have died, but they certainly have "made no sign" so far as we are concerned, neither the *Dublin Photographic Journal* nor the *Cosmos* having reached us for some time. Whether this be the fault of the Post-office or arising from other circumstances, we have not been able to ascertain.

Our members are resuming their activity, and fully sustain the reputation of Liverpool for collodion positives. It would be invidious to single out names. A provoking instance of the combined advantages and defects of the collodion process has recently occurred, and was mentioned by Mr. Higgin at the meeting of our society. A highly satisfactory photograph of the deck of a ship crowded with visitors was obtained, and almost as soon lost by the fracture of the glass.

We must call the attention of Photographers, especially amateurs, to the advantages held out by the operating rooms of the society, and the modification of the terms, made to suit those who may remain only a short time on their visits to Liverpool. They will find facilities for carrying out this interesting pursuit, and means of instruction by the interchange of ideas with other operators, which are unrivalled here or elsewhere.

Photographs of the Sun.—Sir John Herschel has published a letter to Colonel Sabine, in which he urges the daily use of photography in preserving the appearance of the sun, especially with a view to a register of the variation of the spots.

"If large spots are to be photographed specially with a view to the delineation of their forms and changes, a pretty large object-glass will be required, and the whole affair will become a matter of much greater nicety; but for reading the daily history of the sun, I should imagine a 3-inch object-glass would be ample.

"The representations should, if possible, be taken daily, and the time carefully noted. As far as possible, they should be taken at the same hour each day; but in this climate, a clear interval, occurring when it may, had better be secured early in the day.

"Three or four observations in tropical climates, distant several hours in longtitude, (suppose 3, 8^h distance in longitude,) each recording at, or nearly at noon, would, when the results were assembled, keep up a continuous history of the solar disk. The image should be focussed on the eye lens, drawn out somewhat beyond the proper situation for distinct vision, and always to the same distance, to ensure an equally magnified image each day. By this arrangement a considerably magnified image of the sun, and also of any system of wires in the focus of the object glass, may be thrown on the focussing glass of a camera, adjusted to the eye-end of a telescope, and the place of each spot mapped down and its size measureable on a fixed scale."

Caution to Photographers.— Escape from Poisoning.—Mr. G. W. Greatrex and his nephew had a narrow escape from poison yesterday. It appears that a man employed on the premises had by mistake emptied a jug of cyanide of potassium into the filter. Mr. Greatrex, early in the day, drew a small quantity from the filter to drink, and thought nothing of it at the time, but complained of illness, with sickness of stomach. At about five, his nephew used it to make some coffee, and drank a considerable quantity. He, too, shortly after complained, the symptoms agreeing with those of his uncle. Antidotes were at once procured, and thereby further ill effects were obviated. Had they drank the whole of the coffee the consequences might have been serious.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The third monthly meeting of the session was held at the Society's Rooms, Seel-street, on Tuesday evening, the 8th May. The chair was occupied by Mr. Dawson.

After the election of members and private business, Mr. Forrest exhibited a very beautiful picture of the moon, selected out of the large number taken last year by Mr. Hartnup and himself. It was one of the finest of the specimens, and was to be sent to the Paris Exhibition.

Mr. Corey read the following letter which he had received from Viscount Brackley, upon the subject of his lordship's appointment as President of the Society:—

Burnud, Chobham, Surrey, April 18th, 1855.

Sir,—My father, Lord Ellesmere, has forwarded to me your letter to him, by which it appears that the Liverpool Photographic Society have done me the honour of electing me their President. I am much obliged to them for the compliment, and the only hesitation I have in accepting the office, arises from a fear that the extremely weak state of my health will prevent me from executing its duties satisfactorily. I hope however that the Society will make allowance for any physical inability on my part; and if I can attend their meetings, I shall have great pleasure in doing so.

I take great interest in the delightful art, and have practised it occasionally for my own amusement for some years; but I am afraid not with much skill or success. I remain, your obedient servant,

C. Corey, Esq. BRACKLEY.

A letter was then read from Mr. Shadbolt to the Editor of the *Liverpool Photographic Journal*,—(it will be found in its place in the Journal)—referring to the interest which had been taken in his minute pictures exhibited at Plymouth. Two of these, a portrait (understood to be that of Mr. Shadbolt himself), and the other, the first page of the *Liverpool Photographic Journal*, were exhibited. They required examination through a microscope, with a magnifying power of 90 diameter, to be appreciated.

A letter was read from an Edinburgh correspondent of the *Journal*, asking the reason of the black dust appearing upon plates after all the processes were completed. Mr. Bell supposed it was the oxide of silver which caused the dust.

Mr. Forrest displayed two very beautiful copies of Landseer's "Peace" and "War," by Mr. Keith; as well as two pictures which he had taken from negatives during the only hours which were available to him for experiments, namely in the morning between six and seven o'clock.

Mr. G. R. Berry exhibited a series of portraits and pictures prepared for the stereoscope, taken by Mr. Shadbolt's process.

Mr. Higgin described a new and very ingenious camera which had been constructed by Messrs. Abraham & Co., and the advantages of which he explained to the members. It was principally intended for the paper process, but could be used for the collodion as well. The apparatus is fastened with a lock and key, so that after the picture had been taken the camera could be laid aside; in the lid was a compartment for prepared paper; and thirty or forty pieces of prepared paper could be carried about without the necessity of the operator going into a dark room to change his papers. At the side of the instrument was a sleeve composed of black cloth, and at the top was a plate of yellow glass, to allow the operator an opportunity of inspecting his own movements, the hand being introduced through the sleeve. At the bottom of the apparatus was a circular plate (of wood), which could be moved so as to take in any portion of the view which might be desired. Mr. Higgin warmly praised the ingenuity of the apparatus, and the care with which it had been constructed by Messrs. Abraham & Co. He also exhibited a positive from a negative taken of the launch of the "Labuan" steamer on Saturday. The spectators of the launch were requested to stand still during the operation of taking the photograph, the signal being given by a bugle. A print was taken from the negative, and was laid before the chairman, at the *dejeuner* which succeeded the launch, and about one hundred copies were subscribed for in the room. But, unfortunately, the glass, which had been heated highly, was accidently broken at Messrs. Abraham & Co.'s.

Mr. Corey then exhibited and described a very simple camera of his own construction, the lens of which was a meniscus lens which had cost only 3s. 6d. The question had been raised by Mr. Bell, whether small lenses were not capable of producing nearly as great results as large ones; and Mr. Corey said his experiments with this apparatus had satisfactorily solved this question. The whole affair was exceedingly simple; the camera itself, independently of the stand and lens, having only cost 2s. 6d.; though Mr. Corey confessed, in answer to a question, that he would not engage to construct another for that sum. He would be happy, however, to show it to any who were desirous of copying its manufacture.

The thanks of the meeting were voted by

acclamation to Mr. Higgin and Mr. Corey for their exhibitions.

Mr. Corey then read the following Paper on *The Wax Paper Process*, which he illustrated by performing very successfully all the operations of iodising the paper, making it sensitive, developing and fixing, and describing them as he went on. He developed two photographs which had been taken that morning, and fully realised the effects he anticipated, one turning out very satisfactorily, the other less so, in consequence of the camera having been agitated by the wind.

"The object of this, and every Society of this description, is, or should be, for the exercise of that unselfish and brotherly feeling amongst the members, that the experience of everyone should be for the benefit of the whole; and that those who from greater facilities, more extended knowledge, or more practical appliances, can make progress in the working of the art we all profess to admire, should extend to those who do not possess such opportunities, the result of their application.

"With the utmost intelligence that the human mind can possess, and with a peculiar aptitude to conceive a subject on the one hand, and an equally remarkable property of imparting it on the other side, still all must admit, especially those who have followed this capricious study, that no description, however lucid in its details, however patiently it may be dwelt upon, or however attentively it may be considered, can in anywise communicate such accurate knowledge as the once beholding the different stages of the process, or will so thoroughly impress it upon the mind of the student.

"I trouble you with this exordium as my excuse for offering to you nothing theoretically new. The intention of the most active of the members is to thoroughly ground the other portion of the Society in the arcana of the art. Our enlightened friend has illustrated the more recent and more intricate branch of preserved collodion plates; but as paper has many admirers, both from its portability (and under some circumstances), greater certainty, and greater facility for storing the result of successful operations, it has been thought desirable that the manipulations of this portion of photography should be the subject-matter of our attention this evening, and I purpose to shew you the method from first to last, commencing with the iodizing of the waxed-paper, proceeding to sensitize, and eventually developing pictures that have been exposed during the day.

"The primary or iodizing solution was, as most of you know, encumbered by its first admirers with a host of chemicals, which, like the prescriptions of the doctors of the olden time, were little suited to the ease, or by their multifarious properties, so oddly jumbled together, that they only hindered each other in their effects, or served to puzzle the practitioner, who vainly strove to recollect them. Modern intelligence has altered much of this; and be it observed, that the wonderful progress this art has made, causes it to appear, by the radical changes that have taken place, rather the work of generations than only the improvements of a few years, nay, I might almost go the length of saying only a few months. Waxed-paper had been hardly tried by this time last year in this town, and now by many it is exploded, and considered obsolete.

"The forms have been much simplified, and resolve themselves into that of Mr. How, and that of Mr. Townsend: the former still retaining much of the old complexity, leaving all the simplicity, with equal certainty, to the latter. Because of that simplicity, and because the changes are more marked in their stages, we will select that for our experiment. There are many methods of waxing the paper, but they will not admit of demonstration here, and we are told by Mr. Berry and Mr. Higgin, that it is better to procure a good negative first, and wax the paper afterwards; but this makes the difference between waxed-paper and calotype; no difference according to the latter successful gentleman, but a great difference if we desire to prepare papers ready for a journey, or to keep by us till a fair opportunity offers of exposing them. We will therefore make choice of paper ready waxed for us, and I regret there is not more certainty in that which is so prepared, for it varies I find almost as much as Jeremiah's figs, the good is very good indeed, the bad, too bad for the best operators.

"This is some of Canson's; what I shall after sensitize is Marion's; more certain, but too expensive for unskilful hands. As the time requisite for developing is greater than I could trespass on your attention, I will inverse the order of proceeding, and develope as far as the exposure will admit, two papers taken this morning.

"Practice has enabled me to determine, as I think, the cause of the gravelly appearance, as it is technically termed, of many calotypes and waxed pictures. When the exposure has been sufficient, either from length of time or amount of light, the whole of the silver representing the blacks in the negatives is speedily acted upon by the agent we use to bring out our design; leaving what we wish to remain white or lightly shaded, unacted upon by its influence; this unchanged silver is quickly dissolved by the cyanide or hyposulphite, afterwards used to clear it; and a vivid representation rewards our pains; but when from too short an exposure, the pregnant silver is too lightly acted upon, we then, in despair, attempt to force it out by prolonged development or increased chemical action; the whites are then stained, and an imperfectly transparent image is the consequence. In conclusion, I must offer a word of apology upon behalf of those of us who come so frequently before you as chief actors. Envious tongues have accused the few energetic members of being too ready to thrust themselves forward; the reverse is, I assure you, the fact; there is a mine of intelligence in the main body of the members, a large amount of experience, if we could persuade them to impart it; but an unlucky timidity holds them back; and in utter despair of otherwise procuring you an amusement at our monthly meeting, the same persons are obliged to draw again and again upon their resources, fearing each time you may be tempted to say, "something too much of this."—I am greatly encouraged, however, by a letter I have received, and must blow our trumpet by reading a passage to you.

"I received your favour, and do intend to remain a member of the Liverpool Photographic Society, and beg to assure you that that Society has done more, and is doing more, to further the science of photography, than any other Society in existence, inasmuch as its members are so kind as take the trouble and bother of manipulating in the very presence of its members, which is scarcely done, or very little done, by any other Society."

"Now, thanking you for your attention, I will not keep you longer from more novel matter."

Mr. Corey, in the course of his experiments, took the opportunity to caution his hearers against allowing any air bubbles to form on either side of the paper, and this too in all the stages of the proceedings, as it is by them that the white spots are produced; and he reminded them of the necessity of frequently agitating the dish, and also of separating and turning the papers again and again. He also dwelt on the necessity of perfectly washing after the sensitizing of the paper; whether they were to be washed once or twice was of little importance, so that the ablution was perfectly performed; for, as the sensitive salt —iodide of silver, formed by the iodizing and sensitizing—was produced by a double decomposition, from the iodide of potassium and the nitrate of silver, this could not be effected without the formation of another salt, viz. nitrate of potassa, as explained in Mr. Berry's paper, page 4, vol. 2. This salt is highly detrimental to the action of the light; and to get rid of it, frequent agitation in water is indispensable. For this reason, doubtless, Mr. Sheridan had dwelt upon the need of adding fresh nitrate of silver with acetic acid to the old sensitizing bath at every fresh time of using it. Mr. Corey also explained that glacial acetic acid was not absolutely requisite; for he found the same effect produced by the ordinary acetic acid of the shops. But the latter being only one-fourth as strong as the former, four times the quantity is required. As the glacial acetic acid was 7s. per pound, and the common but 10d., this was a great recommendation.

At the conclusion of the paper, which was received with applause and thanks, the members adjourned to the next room, in order to view an experiment, conducted by Messrs. Foard and Berry, in producing pictures by the instantaneous action of the electric spark. The room was darkened. Upon the table was a very large machine, from which, being set in motion, electric discharges were made opposite a circular plate or card with printing upon its surface. By means of a small camera, an image of this card was taken by the electric spark; and with a view further to show the instantaneous manner in which the image was produced, it was taken with the card revolving rapidly: the result of these experiments could not be ascertained that evening. This was, however, of little consequence, as the main object was to develope the mode of operation. It has since been discovered that, from the damp state of the atmosphere and the effect of the breath of so many spectators, the flashes from the electric spark were not sufficiently vivid to produce the desired impression. Mr. Berry will repeat the experiments with such precautions as will ensure success at the next meeting.

Dr. Woods' Collodion Process.—Dr Woods, of Parson's Town, has published an explanation of part of his process, which had not been hitherto found successful in other hands. The saturated solution of salt should be made with alcohol, instead of water: he continues satisfied with the use of iodide of iron.

LONDON PHOTOGRAPHIC SOCIETY.

Ordinary Monthly Meeting, April 5th, 1855.—The Right Hon. Sir Frederick Pollock in the Chair.

After an address from the President on the general objects and advantages of photography, and some private business, the Hon. Sec. referred to the Exhibition of Photographs intended to be held at Amsterdam, of which such short notice was given, that the council had decided that as a body they could not send any specimens. The 20th of April was the last day for receiving photographs from foreigners.

Mr. F. Hardwich then read a paper "*On the use of Salts of Gold in Photographic Printing*," with the view to ascertain whether their mode of action was the same or similar to that which he had described in his previous papers on the hyposulphite bath.

He hoped to be able to prove that the use of gold salts in photographic printing was different in many essential particulars from their gilding action in the daguerreotype.

After describing certain experiments, he concluded that the *quantity* of gold present in the bath is of minor consequence, as compared with the state in which it is associated with the other elements, and that the hyposulphite of gold is not the salt upon which the efficiency of the solution principally depends.

All the rules for working the old hypo-bath apply also to the bath prepared with gold. You increase the energy of the process by raising the temperature a few degrees, or by adding acetic acid; whereas by washing off the nitrate of silver from the surface of the print before immersing it, or by adding a portion of any iodide, a depressing effect is produced.

The questions are: How is the colour produced? and is it due entirely to a deposition of metallic gold without any formation of sulphuret of silver? After describing other experiments to ascertain the facts, he suggested that the *rationale* of the action which takes place is this—an unstable salt of gold containing sulphur is placed in contact with reduced chloride of silver, which has an affinity for sulphur: under those circumstances the structure of the compound is broken up, and sulphuret of silver, sulphuric acid, and metallic gold are the result.

He had endeavoured to prove that the various processes of colouring the photographic proofs, are analagous in their mode of operation; that although a deposition of metallic gold may modify the tint, it is not the sole cause of its production. It was said that the sulphuret of silver fades by gradual absorption of oxygen, and that therefore it is absolutely necessary to colour in other ways. If it could be shown that the composition of the deposit is identical with a *proto-sulphuret* of silver, this argument might possess more weight; but it is evident that this is not the case, that the colouring matter consists principally of reduced chloride of silver, with a mere *film* of gold or sulphur, or both. The analysis indicates more than four-tenths of a grain of silver, but only *five-hundredths* of a grain of metallic gold.

Also, if this theory of the cause of fading were correct, it is evident that the proofs should invariably fade, whereas it seems that some of them are lasting, whilst others are not. In conclusion, he would recommend those members of the Society who employ gold to try Mr. Sutton's formula; and in this he thought that Mr. Pollock, in conjunction with whom he performed the experiments, will bear him out.

An interesting but desultory discussion took place between Sir W. J. Newton, Mr. Shadbolt, Mr. Pollock, Mr. Henuah, and Mr. Harding, chiefly upon the question of the fading of positives, and the feasibility of a method of fixing which would not require over-printing. Mr. Shadbolt proposed to remedy some of the results of over-printing by applying a weak solution of bromine to the picture when in a moistened state. This will produce a soft surface of bromide of silver, and a gradual lightening of the whole surface takes place. It is then to be subjected again to the hyposulphite bath. He had by this means restored several pictures which he had thought entirely gone, and he had never found it fail. He recommended the solution of India-rubber instead of paste for mounting photographs. Mr. Pollock recommended glue mixed with sugar. Mr. Vignoles had used powdered gum arabic dissolved; but he thought Mr. Shadbolt's suggestion very interesting and useful. It was quite new to him. Sir W. J. Newton only objected to the smell of the solution of India-rubber. Mr. Shadbolt said that this material and mode of mounting would also prevent a plagiarism or appropriation taking place, which had been complained of in *Notes and Queries*, that some one had attempted to take negatives from the correspondent's positives. This would be effectually prevented by the India rubber, as the print could not be removed from the card, or if it were, it would be perfectly impervious to light.*

Mr. Vignoles thought it would be churlish on the part of any one to object to negatives being taken from positives. Sir W. J. Newton had succeeded in obtaining a negative from a positive, by super-position, the original negative having been injured. Mr. Vignoles had been assisted by a professional photographer in obtaining from old positives brought from Russia, negatives on collodion, which were some of the most beautiful things of the sort that he had seen: these had been taken in the camera, not by super-position. Mr. Pollock stated that Mr. Piazzi Smith, the astronomer, at Edinburgh, had caused an American daguerreotype of the moon to be copied and enlarged on another daguerreotype plate, which was a very great improvement on the original in distinctness and detail. Mr. Shadbolt did not think that there was anything wonderful in that. A picture that is slightly over-produced has all the details, but the shadows are brought out so prominently that they kill the lights. By judicious management of the time in copying the picture, you could get the lights and prevent the shadows becoming so deep as in the original.

On Photographic Printing.—Mr. How, whose wax-paper process was so favourably introduced to the notice of our members by Mr. Sheridan, has published a short essay on the production of positive proofs, illustrated with a number of diagrams, explaining the mode of manipulation; which is calculated to be very useful to the beginner: it was read before the chemical discussion society. It describes the preparation of albumen, the mode of coating the paper, the method of salting, and rendering sensitive; the use of the pressure frame; fixing, and mounting for which he recommends thin glue or isinglass, when the photograph is to be secured all over; but when to be fastened round the edges only,—the solution of India-rubber, which has many other conveniences besides the facility of removal from the surface of the mounting board, or the photograph.

* We fear our friend Mr. Shadbolt has suffered a *lapsus linguæ* to escape him. The solution of India-rubber will not resist heat. A warm iron, or holding to the fire will dissolve it, and the photographs can be readily dis-mounted; after which, a piece of cold India-rubber will entirely remove the solution either from the photograph or the card. This is one of the advantages of the material, for a faded or injured photograph can be easily removed from the mount and the card cleaned for another specimen; moreover, the negative might be taken with the camera instead of by super-position.—Ed. L. P. J.]

PHOTOGRAPHY FOR LADIES.

From a Correspondent.

The practise of the process involves the use of the following implements. The camera with its slides; glass plates, gutta percha or porcelain baths and dishes, tripod stand, &c., the whole of which will of course be most gladly selected and presented to our fair pupils by their Photographic husbands, brothers, &c., as a peace-offering.

The different chemicals required are, sensitive collodion, nitrate of silver bath, washing bath, solution of honey, developing solution, pyrogallic acid, acetic acid, spirit of wine, and hyposulphite of soda.

Although it is not to be supposed that ladies will trouble themselves with the preparation of these various necessary articles, yet we propose to give the formulæ, that they may, by having them thus prepared, always attain the desired results.

1st.—The sensitive collodion. Almost every Photographer has his own particular form for collodion, and very many of them may be equally efficient; for brevity's sake we will quote one only, not as being the best of all, but as being very efficient for the purpose required.

Bromide of cadmium	16 grains.
Iodide of Potassium	6 ,,
Æther	10 drachms.
Spirit of wine	6 ,,

Gun cotton, a sufficient quantity to produce the requisite thickness of film.

2nd.—The nitrate of silver bath. The strength of solution required is 30 grains of the dry crystallized nitrate to each ounce of water.

3rd.—The washing bath. This should be only five grains of the nitrate to each ounce of water.

4th.—The solution of honey. This may be prepared of various strengths. Perhaps the best is one part by weight of honey to two parts water.

5th.—The developing solution:—

Pyrogallic acid	1 grain.
Glacial acetic acid	20 drops.
Water	1 oz.

Mix and filter if necessary.

6th—The clearing solutions:—

Hyposulphite of soda	2 oz.
Water	4 oz.

Dissolve.

Hyposulphite of soda is recommended in preference to cyanide of potassium in consequence of the poisonous properties of the latter. One ounce of the ordinary cyanide clearing solution, containing as it generally does 10 or 12 grains of the salt, would, if taken, produce instantaneous death.

Having thus given the formula for the different chemicals employed, the instructions for their use and all other necessary details will be given in the next number of your Journal.

Dry Collodion.—Pending the publication of Mr. Mayall's process for using dry collodion, Mr. Hill Norris has given forth two formulæ which he says have been very satisfactory in their results in his own practice. As we understand his statements, they are these:

TO PREPARE THE COLLODION.

Rectified æther	5 drs.
Absolute alcohol	3 ,,
Soluble cotton	5 grs.
Iodide of potassium dissolved in 5 drops of water	5 ,,

Roughen the edges of the glasses to the extent of a 16th or 8th of an inch and coat with the collodion in the usual way; then immerse the plate for five minutes in a 36 grain solution of nitrate of silver perfectly saturated with iodide of silver; wash well for ten minutes in distilled water and rear up on blotting paper to dry, with collodion face outwards, in some dark place free from dust. This is for positives. For negatives, an additional operation is required; before drying, the ordinary pyrogallic developing mixture must be poured over it and drained off. The exposure in the camera varies from five seconds to a minute. To develope a negative; damp the surface in a weak bath of pyrogallic acid and then wash slightly in distilled water, after which pour over it a small quantity of the 36 gr. solution of nitrate of silver. If positives are desired, immerse the plates, after exposure, in the 36 gr. solution of nitrate of silver and develope in the usual way with pyrogallic acid or sulphate of iron. Or; prepare collodion with

Æther............................	5 drachms
Alcohol	3 drachms
Soluble Cotton	4 grains
Iodide of Cadmium	4 grains

Sensitize in a 20-grain nitrate of silver bath saturated with iodide of silver; allow it to remain fifteen minutes; wash well and dry. After exposure immerse the plate in the 20 grain nitrate bath for five minutes, and then into the 36 grain bath for thirty seconds. Develope with pyrogallic acid solution containing 2 drops of nitric acid to each ounce of fluid, or with weak iron solution, *e. g.* 8 grains to the ounce of water.

Waxed Paper Process.—This process, since Mr. Townsend's simplification, has greatly advanced in public favour; and various schemes are brought forward to make it even more simple or less expensive. Besides Mr. Higgin's inversion of the process—photography first, and waxing afterwards—the reduction of the strength of the nitrate of silver bath to such a point as to obviate the necessity of washing after sensitizing, is attracting much attention. If for immediate use, washing may be dispensed with in Mr. Townsend's process; but if the papers are required to be kept, which is one of the great advantages of the waxed-paper, that gentleman advises washing. An anonymous photographer suggests that a 5, 6, or even 10 grain nitrate bath may be used, and the paper remain in good condition for five or six days, and probably longer if shut up from both air and light. He adds a little tartaric acid, which our experienced member, Mr. McInnes also prefers to the acetic acid, and filters his bath through animal charcoal. He developes with a saturated solution of gallic acid, without the addition of nitrate of silver. He suggests to the travelling photographer to have packets of nitrate of silver of 30 grains each, sufficient for 6 ounces of water, and the tartaric acid in like proportionate quantities, weighed out, and that then he will be independent of every thing else but a single glass dish, a six or eight ounce phial, some animal charcoal, clean water, and plenty of blotting paper. But we are anxious to see some attention directed to the waxing of the paper, which is sold at a high price.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—I see it stated in your report of the annual meeting of the Liverpool Photographic Society, as follows, viz:—"* * * and the terms for the use of the operating rooms fixed at half-a-guinea per annum, or half-a-crown per month; and two guineas for the private dark rooms, with lock and key."

In regard to this, will you kindly answer the questions on the third page in your publication for next month, and oblige,

G. FARNER.

Liverpool, March 20th, 1855.

1st.—Are the rooms let to members of the Society only, or to the public promiscuously?

2nd.—Is a camera provided for the use of operators, and, in general, what instruments are provided in these rooms?

3rd.—Must the operators supply themselves with chemicals, plates, &c.?

[1st.—Only to members. 2nd.—All necessary instruments, if a sufficient number subscribe. 3rd.—Subscribers must find their own chemicals.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—You will oblige by informing me through the medium of the Journal, whether upon taking a view in the country by the camera, the development and fixing of the picture can be deferred until I return home: (say two or three hours.)

I am, sir, your obedient servant,

Liverpool, March 31st, 1855. A BEGINNER.

[Yes. See Mr. Berry's paper on Shadbolt's process, in the last number.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I have heard in some quarters that there is a Society about to be established among the lady friends of photographers, to be intituled, an *Association for the suppression of Photography at home and abroad.* I conceive that the aversion of our fair friends has arisen mainly from the curious patterns printed upon our wristbands, shirt fronts, and oft times also upon table linen, towels, carpets, &c., while at the same time they have been prevented from enjoying the active practice of our fascinating art by a laudable horror of black fingers and spotted dresses, incident to the use of that horrid nitrate of silver. It has occurred to me that surely from among the various improvements and simplifications in photographic manipulations so rapidly evolving every day, a satisfactory process may be arrived at in which the objectionable discolorations shall be avoided, and ladies be able to avail themselves of the camera and its marvellous productions without incurring any risk of stain or injury to either hands or apparel. With all due submission, I lay before them the following* mode of working Shadbolt's process, and trust that by practising it themselves, and realizing its cleanly properties, all opposition to photography may be abandoned; and by their tact, judgment, good taste, and delicacy in manipulation, they will shew us how we may arrive at the most satisfactory results, without in any way compromising the purity of our raiment or our skins.—I am, Mr. Editor, yours truly,

DARK SLIDE.

* We have considered our correspondent's communication of so much value and interest, that we have given it a place on the 63rd page of the Journal.

To the Editor of the Liverpool Photographic Journal.

Sir,—I should like to know if the photographs taken by gas by Mr. Sanders, as described at p. 36 of the March Journal, were by an ordinary light, or by means of a strong reflector. There is no difficulty in the latter case with prints and well defined objects, provided a powerful reflector be made to throw a bright white light *equally* upon the plain of the picture. Perhaps some of your contributors can say how far they have succeeded with the living subject.

I have frequently found a black dust upon the plates after all the processes are completed in the ordinary way by collodion. From what cause does this arise? From the sensitizing solution not being powerful enough, or from some other cause? 30 to 35 grains was the bath used.—Yours faithfully,

EDINENSIS.

[1.—We have not heard directly from Mr. Sanders, but are informed that a strong reflector was used. 2.—Incomprehensible. May not our correspondent be deceived by minute holes in the collodion film appearing like black dust. It will be seen by the report of our meeting, p. 59, that Mr. Bell thought it might be oxide of silver. Another photographer has suggested that it might be sulphuret of silver.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—Having observed that you noticed in a recent number of the Liverpool Photographic Journal, with apparent interest, the exhibition at a soirée at Plymouth, of some of my microscopic portraits, I enclose one for your acceptance; together with a minute copy of the front page of one of your own journals, thinking you may like to exhibit them at the next meeting of the Photographic Society. The photographs should be viewed by a microscope as transparencies, and the light from the mirror reflected from a lamp with a ground glass slide. A power of about 90 diameter will enable you to read the journal over.—I am, dear sir, yours very truly,

2, *Hornsey Rise*, GEO. SHADBOLT.
Middlesex, April 25th, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—I send you Dr. Diamond's method of making "*the most sensitive collodion.*" I have never seen it in your columns and it may be useful to your numerous readers.—Yours respectfully,

Manchester, 28th April, 1855. NINETEEN.

Dr. Diamond's Collodion.

The Collodion made from the Swedish filtering paper or the papier Joseph is preferable, from the much greater ease with which it is used.

If slips of either of these papers be carefully and completely immersed for four hours in a mixture of an equal part (by weight) of strong nitric acid or nitrous acid (the aqua fortis of commerce), and strong sulphuric acid; then *perfectly* washed so as to get entirely rid of the acids, the result will be an entirely soluble substance. About 100 grains of dry paper to a pint (20 ounces) of æther will form a collodion of the desired consistence for photographic purposes. If too thick, it may be reduced by pure æther or alcohol. However carefully this soluble paper or gun cotton is prepared, it is liable to decompose; even when kept with care. I would therefore advise it to be mixed with the æther soon after preparation, as the simple collodion keeps very well.

To make the sensitizing fluid—Put into a clean stoppered bottle, holding more than the quantity required, so as to allow of free shaking, six drachms of iodide of potassium and one drachm of bromide of potassium—wet them with one drachm of distilled water first, then pour into the bottle ten ounces of spirits of wine (not alcohol), shake frequently until dissolved. After some hours, if the solution has not taken place, add a few more drops of water, the salts being highly soluble in water though sparingly so in rectified spirits; but care must be taken not to add too much as it prevents the subsequent adhesion of the collodion film to the glass.

A drachm and a half to two drachms, according to the degree of intensity desired, added to the ounce of the above collodion, which should have remained a few days to settle before sensitizing, I find to act most satisfactorily; in fine weather it is *instantaneous*, being, after a good shake, fit for immediate use. If the sensitive collodion soon assumes a reddish colour it is improved by the addition of one or two drops of a saturated solution of cyanide of potassium, but great care must be used as this salt is very active.

[As this formula of Dr. Diamond's has never appeared in the pages of our Journal, and as we have constant applications for the best form of Photographic collodion, we are induced to give a portion of our space for its insertion.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—Not having been able from the constant mist in which we Londoners have been enveloped during the whole spring, to take any photographs, I have found time to make a few experiments on printing; and although I have not worked out some of the points as fully as I could have wished, yet, as your time for publishing draws near, I forward a sketch of the process, thinking some of your readers may like to try it. As to the "vexata questio," which now occupies, to a great extent, the photographic world, "Gold *versus* old Hypo," I agree with neither party, as I think the principle is unsound; as both processes require very much over-printing, and are of very uncertain stability. I believe the best *modus operandi* will be found to be either the old negative process, or one founded upon it. The latter I propose. It has many advantages: the printing may be done with an amount of light totally insufficient for the usual chloride papers; there is more certainty of a good result, as the intensity may be carried as far as wished in the development; and the pictures are believed to be much more permanent. I will now describe the process I employ. I dissolve

Iodide of Potassium ....36 grs.
Bromide of Potassium ....12 „
In distilled water...................... 2 oz.
Add to this, Albumen of fresh eggs... 4 „

and shake well in a large bottle and leave it to subside for 4 or 6 hours. I pour a quantity of this mixture into one of the shallow glass trays described in the L. P. J., Vol. 1, p. 44; upon this I float the papers until they cease to curl up and lie perfectly flat. I may observe that in placing the paper on the albumen it should be held by two opposite corners, which should be brought nearly together; the middle of the paper then placed on the albumen, and the corners gradually lowered until the paper touches all over: if this be done carefully there is no risk of air bubbles. It should then be raised gently by one corner, or two *on the same side* if large, and laid over a rod, towel horse, chair-back, or line on which some clean blotting paper has been placed, in such a manner that the superfluous albumen shall have as short a distance as possible to run. The great advantage of the rod, or similar contrivance, is, that the albumen has only half the distance to drip which it would have if pinned up, a matter of some consequence, as it is very apt to dry irregularly. When dry, the paper should be ironed between blotting paper, taking care not to use the iron too hot. (Nitrate of silver coagulates albumen, but I think not so well as the hot iron.) After this, I float it for 4 or 5 minutes upon a solution of nitrate of silver, 30 grains to the ounce, with about one-sixth acetic acid, and again hang it over the rod to dry; it is then ready for the printing frame. The time of exposure varies so much from the difference of the negatives, that it is difficult to fix a time, except by experiments, but from 2 to 10 minutes of a north light, not sun, is about the range. To develope them, I have a piece of plate-glass standing in a large dish upon three wooden levelling screws, which I find very convenient; I pour some water on the plate, and lay the print back downwards upon it; then tilt it, holding by the edge, until the superfluous water flows off into the dish; I then pour a small quantity of a saturated solution of gallic acid and a few drops of acetic acid on the print, and spread it with a glass rod; it will immediately begin to develope, and in most cases will not require any more nitrate of silver than that already on the paper; but if tardy in developing, a few drops should be filtered on to the paper, and spread with the rod. When sufficiently developed, it should be placed in a large pan of clean water; the glass plate and rod should be well washed, in readiness for another proof. It should be borne in mind that the development for positives should not extend much beyond 15 minutes, as, if a much longer time be allowed, the paper will often become discoloured; this will also be the case if great care be not taken to keep everything very clean, and always to filter all nitrate of silver used in any of the paper processes immediately before using. After the proofs have been some time in water, they should be placed in hypo of moderate strength, rendered slightly acid to test paper by acetic acid. When the iodide is removed, they should be washed for 12 or 24 hours. I use Canson's negative paper which answers I think better than the positive, and the strongest commercial acetic acid, which costs, retail, 10d. to a 1s. per pound.—I remain,

Yours most sincerely,

M. MARRIOTT.

8, *Montpelier Square,*
London, May 7th, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—Could you answer a question in the next number of the Journal, on albumen.

Why do cracks appear in a film of albumen during development, especially towards the close?

My plates were 9 + 7 in size, prepared according to Negretti's recipe, except that not having a drying box, they were dried before a gentle fire, according to Ross and Thomson's old plan. However, the glasses were clean, evenly coated, and had a "nice blue" when taken from the nitrate bath, and washed. They were developed with saturated gallic acid, with a little aceto nitrate added, some with the gallic acid at 80°, others with it cold. The views came out gradually, and in about three quarter of an hour to an hour, with the cold gallic acid were fine vigorous negatives. But out of five plates, there were three which had cracks, exactly as if one had scratched three or four lines with a pin point, each line from two inches to three or four long. I think they appeared towards the close of the development. The glass plates had been most carefully cleaned, and as the albumen had been prepared at different times, it seems as if it were some contracting effect of the gallic acid upon the film. At all events, any hints as to a remedy would be gratefully received by your obedient servant,

AN AMATEUR.

[Most probably the coating is too thick, and therefore cracks in the drying, though so imperceptibly that they are visible only when they are torn open by the contraction consequent on the subsequent drying, —Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I should feel greatly obliged if you could afford me some information, in the ensuing number of your Journal, respecting the condition of the positive I enclose. It is, as you will more particularly see by holding it up to the light, penetrated by some dense opaque substance, to the complete ruin of the picture. Can you tell me the cause of the occurrence of this defect; the means of preventing it; and if possible its remedy when it appears. It is an annoyance to which I have often been subject, and for the explanation of which I have looked through several treatises on the art, as well as through both theLiverpool and London *Photographic Journals*, but without finding even an allusion to the matter.

The specimen I send was a piece of Whatman's paper, dipped in a solution of Sal Ammonia, 15 gr. to the oz. of water, and washed when dry with a nitrate of Silver solution, 60 gr. to the oz. of water. Shortly after being printed and immersed in the Hypo Solution (solution made in common water) it assumed the opaque mottled appearance which I am desirous of accounting for, and preventing.

I am, Sir, your obedient Servant,

QUERIST.

Sittingbourne, Kent,
April 28th, 1855.

[The solution of hyposulphite of soda is too weak, instead of being strong enough to thoroughly dissolve the silver, whereby it may be washed away, it only decomposes it, leaving it in the form of a sulphuret of silver which enters into the body of the paper and causes the stain.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Having observed that you kindly offer to give information to amateurs in the art of photography, I avail myself of this offer, and shall feel much obliged if you will favour me with answers to the following questions, and tell me how the drawbacks complained of are to be remedied:—

1st.—Some of my collodion plates give the pictures taken thereon the appearance of *a line engraving:* what is the cause of this?

2nd.—The collodion plate is sometimes filled with minute holes, which makes the paper positive appear as if sprinkled with black dust.

3rd.—Sometimes the plate has very small black spots on it, often in a conspicuous part of the picture, which completely spoils that which would otherwise have been good.

4th.—Should chloride of gold and silver dissolve in distilled water? I made a colouring bath after a receipt of Long's, filtering it as directed; but I found that the chlorides remained undissolved in the filter. I enclose my card, and with best wishes I remain, Sir, your obedient servant,

April 27th, 1855. R. S. D.

[1. & 2.—The cotton forming the collodion must be of a bad quality. 3.—This arises either from dust on the plates, or particles in the collodion. 4.—Chloride of gold is readily soluble in water; chloride of silver is soluble in solution of hyposulphite of soda.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—If you would be kind enough to inform me in your next publication, what is the best developing solution for positives; and also how to make a varnish transparent for collodion pictures, you will greatly oblige, yours truly,

St. Paul's Square, JOHN WINDUS.
Liverpool, March 28th, 1855.

[Developing Solution:—Sulphate of iron, 15 grs.; Nitric acid, 2 drops.; Water, 1 oz. The best varnish of a common character is ordinary pale lacquer. A superior sort is made by dissolving amber or gum dammar in chloroform.—See p. 98, Vol. 1.—Ed. L.P.J.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 18.—JUNE 9, 1855.

With this number the experiment of issuing an illustration is renewed. The great difficulty occurs in getting a requisite number of positives printed in time, and with sufficient care to ensure their not fading away, or changing colour. We have had an unexpected demand for the illustrated number, to which the interest taken in the subject, Speke Hall, has, no doubt, contributed. The negatives were taken by using Mr. Shadbolt's process; and are a very satisfactory proof of its value. The plates were prepared three days previously, and were exposed in the camera three quarters of a minute and 1¼ minutes. The weather has been very unfavourable for printing: and the time has varied from three quarters of an hour to half a day to obtain a print.

The subject of printing, and the question of whether the positive photographs must always fade, has been taken up in London, by the Photographic Society, who have appointed a committee to investigate the matter; and a circular has been issued, to which we have drawn attention in another page. But we must be permitted to express some surprise that it should have reached us in an indirect manner. There has not been a single copy of this circular, from which the committee propose to collect a multitude of facts, sent either to the Liverpool Photographic Society, to this Journal, or to any individual member of the society, or any photographer in Liverpool, that we are aware of. Are we so completely unknown? Has Liverpool, during these storms been blown across the Atlantic, without our knowing it? We have just received a number of "*Humphrey's Journal*," from New York. Are the Liverpool photographers ignored by their London brethren? Was the photograph of the moon exhibited in St. George's Hall only moonshine? This commencement does not augur very well for the mode of conducting the enquiry. The circular was issued on the 21st of May, and in these days of railroad travel and electric telegraphs, has not reached this town, two-hundred miles distant, on the 9th of June; nearly three weeks.

An appeal has been made by one of our members, who resides at Devonport, for contributions of photographs, in aid of a Bazaar for the benefit of the *Royal British Female Orphan Asylum*, the particulars of which will be found in the report of the last meeting of our society.

The number of "*Humphrey's Journal*" to which we have referred, fully bears out our estimate, from the first number we received, of the able manner in which it is conducted. There is a carefully written paper on the *foci* of lenses, and the loose method of speaking of "the focus for parallel rays," in preparation for an explanation of the mode of using the *megascopic camera* to enable operators to take photographs life-size. The author, Mr. W. Ross, denies the existence, for any photographic object, of any focus for parallel rays, and shows that while rays will pass direct and unrefracted through the centre of the lens, from all parts of the object before it, the radiating rays from those parts falling upon the other portions of the lens are refracted to form an image where they intersect the direct rays from the extreme boundaries of the object, which pass through the centre of the lens. As regards the question of large and small lenses, he says, with most photographers, that of "two lenses of the same focal length, that of the greatest diameter will give the brightest image," on account of the greater number of rays from the object connected and refracted by the surface of the lens to form the image. But then there are other circumstances entering into the question, whether the "brightest image" is always the best for photographic purposes. Too much light is sometimes mischievous, and destroys graduation of tint. Mr. James Campbell has contributed a paper on "Static Electricity," which he conceives, and we think justly, to have considerable effect on the photographic processes. "That a positively excited state of the atmosphere, compared with a clear sky, renders the actinic rays more energetic, seems to be generally admitted by scientific men. It is said also that insulating positive electricity from a Leyden jar on the back of a daguerreotype plate, accelerates the process. This I have never tried, but I have often rendered the plate positive by the battery with good effect. It is also said that on the approach of some thunderstorms, when the air is highly excited, photographic impressions can be taken more rapidly than usual, and with less light." This would seem to indicate that the presence of oxygen was beneficial to photographic operations. Mr. Mayall says that the presence of hydrogen is required to keep iodised collodion in working order, and Dr. Edwards considers nitrogen the essential element. They are all evolved in electric and galvanic action. What effect have they on each other? Is their mutual action or reaction of any benefit to photographic action. Mr. Campbell thinks that the solution of the question whether actinic rays impart magnetism to steel, they affect the magnetic needle, would assist in determing whether actinism had any connection with electricity. On which it may be observed that in the electro or rather galvano-magnet, either end of the horse-shoe may be made the positive pole, by connecting with it the wire from the positive pole of the battery; and here again we have oxygen connected with the positive action. There are other instructive matters in this Journal which we have noticed elsewhere.

Our Dublin friends are still silent; and *Cosmos* has "not a word to throw at" photography. *La Lumiere* is rather more communicative; and we expect soon again to be hearing of our active friends at Bombay.

Mr. Townsend, in addition to his valuable communication on paper for photographic purposes, states that he has taken a first-rate negative on Turner's paper, unwaxed, which had been kept sensitive in a warm room for ten days, and he feels certain that it would have kept longer. It had been iodized in a solution of 300 grs. iodide, 100 grs. bromide of potassium, 2 grs. iodine to 40 oz. of water: 30 grain bath, and washed twice.

ON THE PERMANENCE OF POSITIVE PRINTS FROM PHOTOGRAPHS.

The London Photographic Society has appointed a committee "to consider and report upon the question of the fading of positive photographs upon paper." It consists of Dr. Diamond, Mr. Delamotte, Mr. Hardwich, Dr. Percy, Mr. H. Pollock and Mr. Shadbolt; with liberty to add to their number. A preliminary sum of £10 was voted, and a donation of £50 from Prince Albert acknowledged, to meet the expenses of the enquiry. The committee propose to report upon the evidence that can be collected, with regard to photographs which have already been printed for a long time; to ascertain whether there are any which appear to be quite unaltered by time; and wherever it is practicable to find out the methods by which they were prepared; also, to conduct a set of experiments, carefully preparing photographs by different means, and exposing them under various circumstances, in order to ascertain what methods combine in the highest degree the essential qualities of permanency and beauty.

Mr. H. Pollock, who acts as Hon. Sec., has issued a circular, requesting information respecting photographs known to have been printed more than five years, and to have them sent for inspection, with any account that can be furnished as to how the printing was performed; what paper was used; how they have been mounted or preserved; to what light they have been exposed, and what change has been observed. The committee also ask for four unmounted copies from some one negative of each photographer, "printed in the manner they consider best," that "the durability of the photographs of numerous skilled manipulators" may be tested.

Photographs like Line Engravings.—We have been favoured by Dr. Thomson with an instance of a photograph assuming the appearance of a line engraving (referred to by our correspondent R. S. D. last month). In the present case the appearance is the result of the action of Gaudin's varnish on the collodion, which was arrested at this point by drying at the fire. Another photograph was allowed, as an experiment, to remain under the action of the varnish undisturbed, and was entirely effaced. In the specimen he presented to us the appearance is that of very fine lines closely ruled diagonally across the plate, as if by Lowry's machine; the perfect regularity is very remarkable. Dr. Thomson attributes the effect to some defect in the collodion.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The third meeting of the third Session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 5th June. Mr. Corey occupied the chair, and there was a fair attendance of members.

The Chairman desired, before the business of the evening was commenced, to call attention to the peculiar position in which the Society was placed, owing to the backwardness on the part of members in coming forward to give their photographic experiences; in consequence of which the whole weight and responsibility of providing instruction and amusement at the monthly meetings fell upon a few shoulders. They did not shrink from this; but it was found that unless other members would furnish papers for discussion they should be obliged to bring the Session to a close for a time. He should regret to make this what it had already been called, "a Berry Society," for in doing so he feared they should bury their poor friend Berry. That gentleman came forward kindly on the present occasion to fill up a gap, it having been found impossible to procure the obliging offices of any one else.

Mr. J. A. Forrest: Frequently after running about from place to place endeavouring to coax members to give a paper, I have been obliged to apply to Mr. Berry.

The Chairman having stated that Mr. Forrest was prepared with a motion of adjournment until the first Tuesday in October, impressed upon the members the fact that each had it in his power to afford instruction to the Society, for not a day passed in which, in the course of their manipulations, some extraordinary result did not occur, which, if adduced at the ensuing meetings, would initiate what might be a very interesting and important discussion. For instance, he had noticed one peculiarity which other gentlemen to whom he had spoken on the subject, had never perceived. Every form of holder he had hitherto used left a mark on the collodion film; and what was still more remarkable, when he poured the varnish on the other side, another mark was exhibited. The holder he used was an India-rubber bottle, with a glass tube covered with India-rubber; (described as Mr. Berry's pneumatic plate-holder, Vol. I, p. 142.)

The Chairman next drew attention to the state of the Society's affairs, as shown by the report just issued, exhibiting a considerable deficit, which it was essential should be removed. With this object the Council had headed a subscription, and they earnestly solicited the co-operation of all the members, who, for their own sakes, should do what they could to relieve the Society from the debt under which it laboured. He was sure it would hereafter be a matter of congratulation with all to have placed the Society in a better position than it at present occupied.

Mr. Forrest observed that even if the Society should close the Session until October, the operating rooms, which were ready at any time, would always be open to members. Believing all the Chairman had said as to the necessity of adjourning for some lengthened period unless more labourers came to the reaping, he moved "that the Society have a recess from the present time until the first Tuesday in October, as customary with other Societies."

Mr. Stevens seconded the proposition.

Mr. Thomas believing that such a course would bear disastrously on the prosperity of the Society, moved as an amendment, "that the subject be deferred for discussion until the next monthly meeting, by which time members would have duly considered the importance of the step."

Mr. Berry seconded the amendment, which on being put to the vote, was carried.

Several members were then proposed, after which

Mr. Berry read a letter from Mr. Edward Knight of Manchester, stating that a number of photographic amateurs, being anxious to form a Society on similar principles to the "Liverpool Photographic Society," were desirous of being furnished with a copy of the rules, and with any other information which might be of service to them. In complying with the request, he had, in the name of the Society, held out the right hand of fellowship to their Manchester friends, wishing them good speed in their labours. He would now request their attendance in the adjoining room, where he had an electrifying machine in readiness for the purpose of endeavouring to take photographs by an electric spark. Since the last meeting he had obtained several impressions while the wheel was in rapid motion.

The experiment was then tried, and was partially successful; but from the same cause, as on the last meeting, the exhaustion of the air by the numbers of persons present, the force of the electric spark was not sufficient to give a full representation. But enough was done to shew, that under favourable circumstances, every thing that was promised could be performed.

On returning to the lecture-room,

The Chairman read the following appeal from the Secretary of the Royal British Orphan's Asylum, at Devonport:—

Devonport, 31*st May*, 1855.

Sir,—As a member of the Photographic Society, I beg earnestly to solicit your kind assistance in forming a Photographic Stall at the approaching Bazaar in aid of the Orphans whose fathers have fallen in the present war.

I enclose a prospectus of the Institution, with the list of candidates for the last election, by which you will perceive how national it is in its character, and how deserving of support, especially at the present crisis. I have the honour to subscribe myself,

Your most obedient Servant,

L. TRIPE, Hon. Sec.

By an accompanying prospectus, it appeared there were as many as 72 candidates, only one-third of whom could be admitted. He thought the object of the bazaar was one deserving of their support; and gentlemen who would kindly contribute specimens as contributions of the Society, might place them in the hands of Mr. Bell, who would forward them to Devonport.

In reply to Captain Inglefield, Mr. Berry stated that by Maxwell Lyte's process, he could take objects in motion. For instance, in taking a brig in the river, if he caught her on the pitch, he obtained a sharp impression.

Capt. Inglefield. Did you ever try a horse galloping?

Mr. Berry: No. But I have taken a man with both legs off the ground, jumping. I will engage to take the image if I can get the sun on the object.

Capt. Inglefield: The difficulty with a horse galloping is in putting the cap on the camera.

Mr. Berry: I use a spring, which displaces and replaces the cap instantaneously.

Mr. Berry then read the following paper "*On Photographic Printing and Fixation of Photographs*": —

I have undertaken the subject of printing for two reasons: the first is, that through the diffidence of our many talented members, not one would come forward with a paper for our present meeting; and I fear we should have had—what the Society of Friends would call it—a silent meeting.

Our members generally know but very little of the dilemmas the office-bearers of the Society are almost monthly placed in; and I am sure, if they would release us, and take our places for only three months, the trial would so soften their hearts to the miseries we endure, that they would, month by month, come forward with such a profusion of excellent and practical dissertations that our troubles would cease, photography would advance with giant strides, and Liverpool, besides being the first port of the empire, or of the world, would also become the very centre of photographic progress. For myself, I appear before you with very mingled feelings. Of course I am, and ever have been, proud of the honour you have done me, from time to time, by so favourably receiving the very imperfect communications I have laid before you; but I painfully feel that those who are not acquainted with the difficulties of our position, may very well suppose that I am actuated by egotistic motives: I leave those who know me best to judge if it is so, and am sure they will acquit me.

The other reason I have in producing this paper, is more to the point. Photographers are well and painfully aware, that the perfect preservation of the tone and colour, as well as vigour, of paper positives, seems the exception and not the rule; and so great has the evil become, that the London Society have established a committee—I apprehend somewhat like the Sebastopol enquiry—to search out the causes of waste and failure; moreover, Prince Albert has given them solid cash to the amount of £50 in aid of their funds. Unfortunately for us, the Prince does not belong to our Society.

As a photographer of some experience in misfortunes, I would commence the subject by a word of warning and advice to those who intend pursuing the investigation, which is this: Do not commence your experiments by introducing a great variety of new processes and modes of operating; for if you do, you will infallibly fall into a host of false deductions, from specious theories that will lead you further from the realization of your wishes than you were when you began.

I purpose this evening to give some illustrations of different modes of printing, and then, as far as our present knowledge goes, the safest rules for fixing the prints.

We will commence with the paper and its preparatory processes; and here our subject divides itself into two branches—plain salted paper and albumenized and serumized papers.

As the albumenized paper appears at present to have supplanted the plain, we will examine it first. The modus operandi appears to be, first to dissolve some chloride, such as chloride of ammonium, potassium or sodium, in a certain portion of water, and with this mix intimately some white of egg, the quantities varying according to the degree of face desired on the paper.

From the striæ visible upon the surface of most albumenized papers sold ready prepared, I imagine the fluid is poured on the paper levelled on a flat surface, and distributed by a glass rod.

It is imperatively necessary that the silver solution used with these papers be merely nitrate of silver, dissolved in water only. An ammoniacal solution would dissolve out the albumenized surface. It appears also that the albumen mixture, salted with a bromide, will not answer; for, from my own experiments, although the impression is very rapidly produced, yet it seems impossible to produce a black tone. We will suppose an albumenized paper is properly prepared and sensitized; it has some peculiar advantages over the plain paper, viz., it will keep sensitive without discolouration for a week: it is very economical in working, as it absorbs a much smaller quantity of the silver solution than the more bibulous plain paper; again, it certainly gives a finer surface definition of the impression than does the other. But are these advantages real? do they extend to the durability of the fixed photographs? and may not some of the failures complained of be traced to its use? I have no positive evidence that this is the case; but from the chemical composition of albumen, I should judge that it would militate against the endurance of the photograph. There is also another serious mechanical evil resulting from its use: the surface is rendered almost impervious to moisture by the coagulating action of the nitrate of silver; and no matter with what precautions we endeavour to wash away the residuary hypo-sulphate, enough will remain—should the photograph at any future time be exposed to moisture, assisted as it would be by the decomposition of the albumen—to effect the destruction of the picture.

We will now examine the results produced on plain paper, and I think, for all practical purposes, we shall derive advantages not to be obtained by the use of albumen.

If we take a solution of bromide of potassium, 16 grains to 1 ounce of water, and salt the paper with it, and excite with an ammoniacal silver solution of not not less than 70 grains to the ounce, we have a paper far more sensitive than the other, and I think, with suitable precautions, more stable and satisfactory when fixed.

We now arrive at the fixing process, and with permission I will read extracts from "*Hunt's Treatise on Light*," which, I think, with some modifications, are important and useful. I commence at page 201 of the 4th revised edition: the remarks apply equally to the albumenized and non-albumenized processes:—

"Of all the fixing agents, the hyposulphite of soda is decidedly the best. This was first pointed out by Sir John Herschel, who also recommended that it should be used warm in some cases, which was the plan adopted by Mr. Fox Talbot in the improvements of his calotype process.

"To use the hyposulphite of soda with effect, there are several precautions necessary. In the first place, all the free nitrate of silver must be dissolved out of the paper by well washing. The photograph being next spread on a plane surface, is to be washed over on both sides with a saturated solution of the hyposulphite of soda. The picture must then be washed, by allowing a small stream of water to flow over it, at the same time dabbing it with a piece of soft sponge, until the water passes off perfectly tasteless. This operation should be repeated twice, or, in particular cases, even three times. The hyposulphite of soda has the property of dissolving a large quantity of several of the salts of silver, but particularly of the chloride, with which it combines, forming a triple salt of an exceedingly sweet taste. This salt is liable to spontaneous decomposition, accompanied with separation of silver in the state of sulphuret: hence the necessity of freeing the paper, by washing, of every trace of it, the sulphuret of silver being of a dirty brown. It might appear that the use of warm water would more effectually cleanse the paper, but it often occasions the immediate formation of the sulphuret of silver.

"Some operators prefer leaving the picture in a bath of the hyposulphite of soda for some time, and then removing the salt by simple immersion in water, frequently changing it. The advantages of this appear to be, that the surface of the paper is not disturbed by any rubbing action, or by the mechanical action of water flowing over the surface. For fixing the calotype pictures, Mr. Cundell, to whom we are much indebted for improvements in this particular process, recommends the following mode of manipulation:—

"'The picture, or as many of them as may be, is to be soaked in warm water, but not warmer than may be borne by the finger; this water is to be changed once or twice, and the pictures are then to be well drained, and either dried altogether, or pressed in clean dry blotting-paper, to prepare them to imbibe a solntion of the hyposulphite of soda, which may be made by dissolving an ounce of that salt in a quart of water. Having poured a little of the solution into a flat dish, the pictures are to be introduced one by one; daylight will not now injure them: let them soak for two or three minutes, or even longer if strongly printed, turning and moving them occasionally. The remaining unreduced salts of silver are thus thoroughly removed by soaking in water and pressing in clean blotting paper alternately; but if time can be allowed, soaking in water alone will have the effect in twelve or twenty-four hours, according to the thickness of the paper. It is essential to the success of the fixing process, that the paper be in the first place thoroughly penetrated by the hyposulphite, and the sensitive matter dissolved; and next, that the hyposulphite compounds be effectually removed. Unless these salts are completely washed out, they induce a destructive change upon the picture; they become opaque in the tissue of the paper, and unfit it for the operation of being copied single.'

"Much has been said and written about improving the *tone* of the picture by the use of old hyposulphite of soda, and of the hyposulphite in which chloride of silver has been dissolved. My own experience, which is corroborated by that of many of the most successful photographic artists in England and on the continent, convinces me that in aiming at peculiarity of tint by these methods the permauency of the photograph is injured. I have pictures, produced by different artists, fixed after this method, and scarcely one of them remains free from change.

"The object is to remove all the chloride or iodide of silver; and to secure this, as much hyposulphite of soda as possible should be *uncombined* with chloride or iodide of silver in the solution.

"The hyposulphite being formed, it has to be dissolved out of the paper, the fibres of which hold it with a strong capillary force; and it is only by very long continued soakiug that all can be removed. The slight mechanical aid afforded by dabbing the surface of the paper with a soft sponge well filled with water, greatly accelerates the removal of the salt; and when the paper ceases to *taste sweet*, we may depend upon the permanence of the photograph.

"The hyposulphite of soda has been used for almost every photographic process, from the facility it affords for removing the silver salts."

"Dissolve in a bottle hyposulphite of soda, 1500 grains; filtered water, nearly a quart. In another bottle dissolve 75 grains of nitrate of silver in a wine-glass or two of water; when well dissolved, you add to it a saturated solution of chloride of sodinm, until the white precipitate ceases to fall; allow it to repose a short time, and then decant a clear liquor, and gather the precipitate of chloride of silver, which you dissolve in the other bottle of hyposulphite of soda; by means of this solution you obtain directly black tints upon the picture. The older the hyposulphite of soda is, the better; when it gets thick, you must add a fresh solution of hyposulphite alone, without the chloride of silver, the old containing an excess, which it has taken from the proofs already immersed iu it. You must not filter it to take away the deposit, but only let it repose in a large bottle, and decant the clear liquid for use, leaving the sediment to be re-dissolved by fresh solutiou.

"By leaving the proofs a longer or shorter period iu the bath, you can obtain all the tints from the red to the black, and clear yellow; with a little practice, you will be sure to get the tint you desire. You mnst not leave a proof less than an hour in the bath for it to be sufficiently fixed, and it can remain three or four days to obtain the sepia and yellow. By heating the hyposulphite of soda I accelerate the operation; but we must not theu leave the proof for an instant to itself, as the rapidity of action is so great, that the picture might be completely effaced.

"By adding to the precediug solution about one fluid ounce of liquid ammonia, I obtain pretty bister tints, and very pure whites. The English paper is exceedingly good for these tints.

"I obtain also fine velvet-like tints by putting the photograph (when taken ont of the hyposulphite of soda) upon a bath of a salt of gold, using 15 grains of the chloride of gold to one pint and a half of distilled water."

"When the proof is the colour you desire, wash it in several waters, and leave it two or three honrs in a basin of water, until, touching it with the tongue, you perceive no sweet taste—which indicates the presence of hyposulphite of silver: then dry it by hanging it up, and it is fiuished. The bath may contain as many proofs as can be conveuiently placed in it.

"Experience has shown, that however beautiful may be some of the tones given to a photograph by the methods recommended by M. Le Gray, these are obtained with some sacrifice of permanency. Many choice productions prepared by this photographer, which I have had but for a few months in my possesion, are showing indications of decay: the change taking place first at the edges, and gradually creeping over the whole picture.

"The following fixing processes are rather more curious than useful: they were first indicated by Sir John Herschel, from whose memoir on *The Chemical Agency of the Rays of the Solar Spectrum*, I quote:—

"'By far the most remarkable fixing process with which I am acquainted, however, consists in washing over the picture with a weak solution of corrosive sublimate, and then laying it for a few moments in water. This at once and completely *obliterates* the picture, reducing it to the state of perfectly white paper, on which the nicest examination (if the process be perfectly executed) can detect no trace, and in which it may be used for any other purpose, as drawing, writing, &c., being completely insensible to light. Nevertheless, the picture, though invisible, is only dormant, and may be instantly revived in all its force by merely brushing it over with a solution of a neutral hyposulphite, after which, however, it remains as insensible as before to the action of light. And thus it may be successively obliterated and revived as often as we please. It hardly requires mention that the property in question furnishes a means of painting in mezzotinto (*i.e.* of commencing on black paper and working in the lights), as also a mode of secret writing, and a variety of similar applications.'

"There is a remark which ought not to be omitted in regard to this part of our subject, viz., that it makes a great difference, in respect of the injury done to a photographic picture by the fixing process, whether that picture has been impressed by the long-continued action of a feeble light, or by the quick and vivid one of a bright sun. Even supposing the pictures originally of equal intensity, the half-tints are much less powerfully corroded or washed out in fixing in the latter case than in the former."

I have now a modification of the washing process, which will I think tend greatly to the permanent fixing of the proofs, and greatly accelerate that tedious process; it is simply this:—place the photographs in a vessel of water, taking care they float freely; allow a stream of water to flow on the top, and insert a small syphon into the bottom to constantly carry off the gradually weakening solution of hyposulphite of soda and silver as it separates from the paper; thus in half an hour every trace of hypo may be removed from many proofs; and I believe, that with these means photographs may be obtained of any desired tone, which will be permanent and enduring.

I hope that what I have asserted will not be taken for abstract truth, but that members will now raise objections, and put queries that shall afford discussion now and experiment hereafter; give us formulæ and data from which we may, once and for all, produce pictures that shall endure so long as the paper upon which they are printed shall exist.

In conclusion, I beg to observe that the foregoing remarks have been thrown together under very disadvantageous circumstances, and that they are the result of labours, the time for which has been snatched from hours which should have been devoted to necessary rest and repose. I have now exhausted my resources for your amusement, and must positively decline to appear before you again for some considerable time to come.

Very many of you have funds of information and knowledge of which I am totally unconscious, and I do trust that many will come forward to carry on the interest of our monthly meetings, now that I am quite *hors de combat.*

Here (continued Mr. Berry) is a view of the Crystal Palace, in two halves. One was taken on a piece of albumenized paper, and the other on bromized paper. I gave the albumenized paper the advantage of having the thinnest end of the photograph to print from, notwithstanding which the bromized has gone ahead of the albumenized paper. It had the most work to do, and it has done it in the least time.

The Rev. Mr. Banner: Did you use the same solution with both?

Mr. Berry: One was a plain solution, with nearly 100 grains to the ounce, and the other an ammoniacal solution with 70 grains to the ounce. An outcry had been raised against the ammoniacal solution, which he thought was without real foundation. With respect to albumenized paper, he believed that one cause of failure was attributable to a small portion of the hyposulphite remaining in the paper, which, by the combined action of moisture and light, was converted into sulphuric acid, and formed sulphate of silver, which produced discolorations and faint impressions. If they took proper pains with the hyposulphite of soda, it could be used with success in fixing the photograph.

The Rev. Mr. Banner had frequently remarked, in printing proofs, a little black appearance when first put into water, which he had removed by a very fine camel hair brush, without spoiling the paper at all.

Mr. Bell suggested that before the next meeting, they should each take a subject, work it out, and bring the result, failure or success, before the members for discussion.

After some further conversation,

A vote of thanks was by acclamation accorded to Mr. Berry, and the meeting adjourned.

Stereoscopic Lockets.—S. F. Mascher, of Philadelphia, has taken out a patent for a locket containing two stereoscopic lenses and supplementary lids for pictures, so as to furnish the most conveniently portable stereoscope of any favoured friend. The lenses are hinged on one side, and the lids on the other, of a frame like that of a watch-case; and they shut up, one within the other, like the cases of a watch or locket: according to the specification, "it will also serve for a microscope and sun-glass."—*Humphrey's Journal.*

Effects of Temperature on Collodion. One of the difficulties in using collodion has hitherto been found in hot climates, in consequence of the film drying before the photographs could be taken. Whether this may be obviated by Mr. Shadbolt's process, we cannot say without experimenting: but, in the mean time, M. Van Monk-hoven, a Belgian amateur, has published a set of formulæ for preparing collodion to suit different temperatures, which vary only in the relative quantities of æther and alcohol to the thick collodion. In proportion as the weather gets warmer he decreases the quantity of æther, as the weather gets colder he increases the quantity. When the temperature is from 25° to 40° Fahrenheit, he puts to 90 parts of thick collodion

Æther (anhydrous) 80
Alcohol (99°) 70

With the temperature from 40° to 60°

Æther (60° to 64°) 70
Alcohol (94° to 98°) 80

With the temperature from 60° to 90°

Æther (58°) 60
Alcohol (90°) 90

In winter time, he insists on the necessity of the collodion being perfectly anhydrous to avoid the pictures being covered with holes.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary monthly meeting took place on the 3rd of May, Sir W J. Newton, V.P., in in the Chair. After some elections of members and private business,

Mr. Edwards read a paper describing a portable camera which he had been able to reduce to the weight of 2 lbs. 6 oz., and was, he thought, entitled fairly to be called a "pocket camera." It is a modification of one which he had previously exhibited, and consisted as before of "a metallic rod or tube half an inch square, which sustains at one end the plate box, and at the other the lens. Four wires from end to end sustain a black cloth covering which forms the body of the camera." He proposed to cut the lens to a square form, so as to get rid of what he considered the superfluity of weight and size in the circle. In lieu of a ground glass for focussing, the side of the plate box painted white, which forms the back of the camera, is used and viewed through an opening in the upper part of the cloth. The want of coincidence between this surface and the surface of the glass or paper on which the photograph is to be taken, is to be corrected by a graduated scale on the tube registering the movement of the lens. The wires can be released, the plate box turned round, we presume on a pivot, and a second view taken, after the wires and cloth covering are refixed. The legs weigh 2 lbs. 3 oz., and two glass plates 7 in. by 5½ in., weigh 9 oz., the total weight becomes 5 lbs., 2 oz.; the major part in the convenient shape of a walking stick. If used for the paper process, the weight will be half a pound less.

Mr. Mayall read a paper "*On the Dry Collodion Process*," in which, after some preliminary observations on the chemical action necessary to the production of a good collodion, and to keeping it in working condition, *i.e.* holding a certain amount of hydrogen, he gave three formulæ for exciting plain collodion:—

Iodide of cadmium............ 3 grs.
Chloride of zinc.............. 1 gr.

Or, Iodide of zinc................. 3 grs.
Bromide of cadmium......... 1 gr.

Or, Iodide of cadmium............ 2 grs.
Bromide of cadmium......... 1 gr.
Bromide of iron............... $\frac{1}{80}$ gr.
Bromide of calcium .... $\frac{1}{20}$ gr.

In the last it will be necessary to dissolve 1 grain of bromide of iron in 1 drachm of alcohol, and use 1 fluid grain of the solution Similarly 3 grains of bromide of calcium must be dissolved in 1 drachm of alcohol, and 1 fluid grain used.

Dissolve the chemicals in ½ oz. alcohol, and then mix with 1 oz. collodion.

The excited collodion will require to stand a few days to settle completely. Decant into a dry bottle, to avoid sediment.

For a sensitizing bath, mix thoroughly 1 oz. of albumen with 16 oz. of distilled water, and add 1½ oz. of glacial acetic acid. Shake and let stand for three hours, then add 1½ oz. of neutral nitrate of silver in crystals, shake and filter; let it stand twenty-four hours; then add 2 grains of iodide of potassium, and filter again. Coat the plate as usual, sensitize, and wash in a bath of distilled water for five minutes, and wash the back of the plate with common water. Set it to dry in a vertical position, in a place free from dust. It will keep three weeks. After exposure, develope with

Protosulphate of iron..	6 to 8 grs.
Distilled water	1 oz.
Glacial acetic acid	1 dr.

Wash, and fix with

Cyanide of potassium.........	1 part.
Water	20 parts.

It is about as quick as albumen in the camera. The albuminate of silver bath must on no account be exposed to daylight, nor the developing solution. Potassium and ammonium salts will do to excite the collodion; but it will not keep so long as with the metallic iodides.

The discussion on this paper was adjourned until the next general meeting.

Adhesive Composition for Mounting Proofs.—A valued correspondent at Plymouth has sent us the following receipt for an adhesive composition for mounting proofs upon card board, as there is too much reason to suppose that many photographs have been lost by the decomposition of the paste generally used; for if paste be not fresh made, it generally turns sour, the acid thus evolved lies dormant for a time, but surely and insidiously acts upon the chemicals by which the picture is produced. His receipt is—

Gum Tragacanth...........	1 to 2 oz.
Gum Arabic.....	2 ,,
Isinglass	1 to 2 ,,
Water	3 pints.

Dissolve and boil down to the proper consistence by a very gentle heat; add a little gum benzoin or sugar if you like.

ANTIDOTES TO POISONOUS CHEMICALS USED IN PHOTOGRAPHY.

We have been favoured by two correspondents with the following remarks on this important subject.

Sir,—I observe that the attention of your readers has been very properly directed to the poisonous character and properties of the fixing solution containing cyanide of potassium, which is now commonly used for collodion positives. Before the subject is dismissed, allow me to add a few remarks on the quality and properties of the salt in question; and to point out the best antidotes to this dangerous poison; which, fortunately, are within the immediate reach of every photographer. It is a curious and interesting fact, that while the combinations of hydro-cyanic acid with the alkalies, as cyanide of potassium, sodium, ammonium, &c. are equally poisonous with the free acid, the presence of iron completely neutralizes the physiological effect of the cyanogen, and produces compounds which are in no way deleterious to health; as examples, we have prussiate of potash, containing the elements of cyanide of potassium and cyanide of iron, a perfectly soluble salt without any poisonous properties; but which, by fusion with carbonate of potash, loses its iron and becomes converted into the cake cyanide of potassium, the very salt in question. Now, when prussiate of potash meets with a persalt of iron, it becomes converted altogether into per-cyanide of iron, losing its potash, and forming the insoluble precipitate known as Prussian blue: cyanogen has therefore considerable affinity, both for potassium and for iron; with the former, its properties are poisonous, with the latter, inert. When a proto-salt of iron is added to cyanide of potassium, cyanide of iron is formed, which is soon further converted into ferro-cyanide of potassium, *i.e.* prussiate of potash; and this, in presence of a per-salt of iron, becomes converted into per-cyanide of iron, *i.e.* Prussian blue. Now, our usual developing solution contains proto-sulphate or proto-nitrate of iron and free nitric acid, the latter producing a little per-salt in the solution; and if your readers will mix a little iron developer with the cyanide fixing solution, they will at once see an insoluble salt is produced, as they may possibly already have witnessed by incurring stains on their pictures when the iron has not been washed off before the cyanide has been applied. Therefore, my advice to any unfortunate photographer who is in danger of being "fixed" by cyanide of potassium, is, to have immediate recourse to his developing solution, well diluted; and if a little nitric acid be at hand, the addition of a few drops will improve the antidote. Should faintness be experienced, ammonia, (which the photographer has or should have always at hand,) should be diluted and taken abundantly, and affusion of cold water on the head and spine be then resorted to; such precautions should, however, not be relied upon to the exclusion of medical assistance, but being adopted without loss of time, would probably render that aid efficacious, which otherwise might arrive too late. Having thus anticipated the worst, I should be glad to relieve any unnecessary alarm in the minds of your readers, by assuring them that the danger of such an accident is less in my opinion than has been supposed. The pure medicinal cyanide of potassium is indeed a very powerful and dangerous salt, and has occasionally been used by extravagant photographers; but the salt in general use, cake or powdered cyanide of commerce, is comparatively a rough preparation, containing, besides cyanide of potassium, cyanate, carbonate, and often sulphate of potash, in varying but often very large proportion, and if the price and quality continue to depreciate in the rapid manner they have lately done, I think the public will be supplied very soon with a *very* harmless compound. From the fused cyanide properly prepared, the pure cyanide is dissolved out by boiling alcohol and then crystalised; this is, however, an expensive process, and unnecessary for the purpose of the photographer: the cake is therefore employed in the rough or fused state. This is a tolerably uniform product; but the cheap quality now extensively offered to photographers, is prepared with common pearl-ash in great excess, instead of pure carbonate of potash; the salt resulting, though very white, is very impure and of no particular strength, some having actually been offered at 9d. per lb., and as its solvent power is reduced in even greater proportion than its price, there can be no economy whatever in the purchase of it. Pure crystals of cyanide of potassium dissolve about half their weight of oxide of silver; the cake when well made will dissolve about a quarter of its weight; and the common kind varies extremely. In no art is it so essential for the purchaser of its necessaries to adopt a liberal policy towards the manufacturer of them, as in photography; for the perplexity, annoyance, waste and disappointment attending repeated failures and dirty pictures, which will surely beset the seeker of cheap chemicals, more than balances any trifling saving he may sometimes effect.

I am, Yours very truly,

J. B. EDWARDS, Ph.D.

Royal Institution Laboratory,
June 6th, 1855.

CYANIDE OF POTASSIUM AS A POISON.

By N. MERCER.

The poisons whose fearful energy depends upon prussic or hydrocyanic acid, have been studied with much interest by chemists and medical jurists, and, on account of their extraordinary power, have for a long time excited great attention; indeed there are few poisons which surpass them in the rapidity and certainty of their action, or the smallness of the quantity necessary to destroy life. Cyanide of potassium, the substance at present under notice, is composed of the metal potassium and the compound radical cyanogen, but when in solution it may be regarded as an hydrocyanate of potassa, or a compound of hydrocyanic acid and potassa; and being now extensively used as a fixing agent, I have thought that a few remarks on its properties as a poison, the symptoms resulting from its action, and the most approved antidotes to be resorted to, might be interesting and useful to photographers.

It acts as a poison through whatever channel it is introduced into the system—whether swallowed, administered in an injection, or applied to the abraded surface of the skin. Its effect upon the sound skin is a point not yet determined. The first question that naturally arises is, What quantity is required to destroy life? In the first volume of the *London Photographic Journal*, page 109, M. Gaudin states as a proof of the innocuous character of Cyanogen soap, that seven and a half grains of cyanide of potassium had been administered internally without inconvenience. Such a statement is dangerous and liable to mislead, for death has resulted from *three grains*. The case to which M. Gaudin alludes is noticed by most toxicologists, with the remark that the cyanide administered had been moist for some time, and also exposed to the air, the result being the destruction to a great extent of its poisonous properties; for cyanide of potassium when moist or in solution is decomposed by the weakest acids, even the carbonic acid of the atmosphere, hydrocyanic acid being evolved and carbonate of potassa formed. The following are the best authenticated cases of the effects of an overdose of this salt. Orfila relates an instance in which six grains were administered in a clyster, and occasioned the usual symptoms of poisoning by prussic acid, and death within an hour. A case is reported by Taylor, in which a man aged 30 died a quarter of an hour after taking a dose of a mixture containing fifteen grains; and another case has been published in which a French physician, ignorant of the dose, prescribed a medicine with three grains twice a day. Immediately after the first dose, the patient was taken ill, and died within three quarters of an hour. From these cases, (and others might be quoted,) it appears that a very small dose, probably under two grains of pure cyanide, is capable of producing fatal effects; and though the extent to which the commercial salt is sophisticated may render a larger dose of it necessary to destroy life, every precaution ought to be taken, not only in using, but also in leaving about, such a deadly and energetic poison.

The time at which the symptoms of poisoning commence is liable to great variation: when a large dose is taken, they may come on in the act of swallowing; but when the dose taken is not sufficient to prove fatal, the effects may be postponed for a quarter of an hour. The rapid action of a fatal dose has, to a great extent, prevented its mode of operation on the human subject being carefully observed; but there are many cases on record, in which the effects of a dose of prussic acid, not sufficient to kill, have been carefully noted. The person suffering has first experienced weight and pain in the head, with confusion of intellect, nausea and a quick pulse. Vomiting sometimes occurs, but it is more common to find foaming at the mouth, with a bloated appearance of the face and prominence of the eyes. The following case is a good illustration of the effects of an almost fatal dose. A physician, in the course of some experiments, swallowed a teaspoonful of prussic acid, and immediately felt confusion in the head, and soon fell down insensible with difficult breathing, a small pulse, bloated countenance, dilated insensible pupils and locked jaw; afterwards he had several fits of tetanus, one of them extremely violent; in two hours and a half he began to recover his intellect, and rapidly became sensible.

The proper treatment and best antidotes to be resorted to by a non-medical man, in cases of poisoning with prussic acid or any of its compounds, are the application of a stream of cold water to the head and spine, the inhalation of solution of ammonia, and the administration of the mixed oxides of iron, which, when they come in contact with a compound of prussic acid form the insoluble and harmless Prussian blue. A medical man should of course be instantly sent for; but pending his arrival, the affusion of cold water and application of ammonia to the nostrils should be persevered in, and the iron antidote, if at hand, administered. This, the most effectual and certain antidote, if administered in time, was first proposed by Messrs. Smith, of Edinburgh; it consists of a mixture of the proto and per-salts of iron and carbonate of potassa, and its efficacy depends upon the presentation of the iron salts to the deadly acid, in such a condition as to form the well-known Prussian blue. Into the chemical composition of Prussian blue, and the reactions which take place, we will not enter; suffice it to say, that the materials required for the antidote are proto-sulphate of iron, tincture of muriate of iron, and salts of tartar or carbonate of potassa; and the form in which they would be most conveniently kept by photographers is a modification of that proposed by Messrs. Smith.

Into a two ounce phial put 20 grains of carbonate of potassa, and fill up with water, labelling it—

> "Cyanide potassium, (Prussic acid,) antidote No. 1. To be given first."

Into another two ounce phial, put one drachm tincture of muriate of iron, and fill to the shoulder with water, labelling it—

> "Cyanide potassium, (Prussic acid,) antidote No. 2. Ten grains of proto-sulphate of iron to be added before being administered, and to be given immediately after No. 1."

The reason for not adding the proto-sulphate until the antidote is required is, that the proto-salts of iron have a great tendency to pass into per-salts, and as neither a per nor a proto-salt would be effective alone, it is most important to have them both present; and proto-sulphate of iron being in use in most photographic rooms, the form mentioned is recommended. The object of giving the carbonate of potassa first, is to decompose the iron salts and neutralise the acids liberated, when the prussic acid will immediately combine with the iron, forming the permanent and insoluble Prussian blue. No evil effect need be apprehended from the administration of the antidote; if no prussic acid were present, sulphate of potassa and chloride of potassium would be formed in solution, and an insoluble proto-carbonate and per-oxide of iron, which, if active in any way, would merely promote vomiting. The quantity of prussic acid the above will neutralise is equal to about fourteen grains of cyanide of potassium, much more than sufficient to destroy life, with a rapidity defiant of the most potent antidote; but if only a small dose has been taken, and these iron salts immediately administered, they would with perfect certainty prevent any fatal effects; every photographer is therefore recommended to keep them in his operating room at hand in case of accident.

7, Church Street, Liverpool.

Photo-Chalybeography.—Mr. Niépce St. Victor has promulgated a modification of his method of engraving on steel by means of Photography. He had not found the fumigations originally used quite satisfactory in giving sufficient resistance to the aqua fortis used in biting in, and he has found a remedy in substituting for the aquafortis, water saturated with iodine, at a temperature of 50° to 59° Fahrenheit, so that it has a deep rose colour, instead of stopping at an orange red. This is poured over the plate, and after ten minutes or a quarter of an hour is renewed, and so on from time to time till the plate is bitten in sufficiently. At the last, however, water slightly acidulated with nitric acid must be used, or the requisite depth will not be attained.

Stereoscopic Photographs.—The charm of stereoscopic photographs has naturally led to a variety of efforts at the most simple method of obtaining them. The eye is so easily deceived by this double appeal that it has been found difficult to decide what is, in the abstract, perfectly right. Hence so many discussions as to the distance which is required between the situations of the lens for taking the two views. Mr. Robert Dickson, M.R.C.S.E., has propounded a simple method of obtaining results which, though we cannot admit the correctness he claims for it, will, we have no doubt, produce sufficient illusion to make the imagination do the rest. It consists in fixing on a principal subject, and having taken one view with this on the right side of some distant object, to take the second view with this subject at the same distance on the left side of the distant object, the camera being turned on a pivot for this purpose.

Developing Fluid.—Mr. Lawson Sisson, who has long since devoted considerable attention to the subject, proposes for a developing fluid, for collodion positives:—

Protosulphate of Iron	6 parts.
Common water	248 ,,
When dissolved add nitrate of lead	$3\frac{9}{10}$,,

Stir it well till the decomposition is complete. Decant or filter, and then add acetic acid or bromic acid 12 parts. It will keep an indefinite time, and if poured on with care will never injure the photograph. He says, it produces beautiful tones if the manipulations are properly carried out.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—Can you inform me whether any particular collodion is required for Maxwell Lyte's instantaneous process, and if so what is the formula for its preparation? I have tried the process with ordinary collodion containing iodide and bromide of potassium, and find that though the honey solution does act as an accelerator, yet that it requires at least two or three seconds to give a picture intense enough for a negative with a single lens. In your notice of the process, at p. 109, vol. 1, formic acid is mentioned as being employed either in the collodion or in sensitizing: if that is the case, I should think the extreme sensitiveness should be ascribed to it rather than to the honey.

By answering the above question in your next number you will oblige, yours truly,

R. W. F.

P.S.—How long will a plate keep after being prepared for the instantaneous process?

Whitehaven,
May 29th, 1855.

1. [Mr. Maxwell Lyte has published several formulæ for collodion; but from the rather disjointed way in which they have been published in different journals it is difficult to say for certain which is the particular one. We imagine that there are few days in England in the course of the year, when the light would be so brilliant as instantaneously to produce a strong negative with a single lens.

2. The formic acid has been used in different developing fluids without any marked success.

3. The increased sensibility is to be ascribed to the mixture of honey and nitrate of silver, as an increased dose of silver certainly further accelerates the process.

4. Many days.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—Can you, through the medium of your next paper, give me a formula for a good negative developer for Hockin's collodion? also a positive developer to produce a good white, not metallic, and preserve half-tones? it will be greatly valued.

Honiton Gas Works, Yours, &c.,
May 22nd, 1855. W. E. HEATH.

[1.—The ordinary pyrogallic solution ought to be effectual. 2.—The addition of nitrate of potass in equal quantity with the protosulphate of iron will obviate the metallic lustre; a few drops of nitric acid must be added.]

To the Editor of the Liverpool Photographic Journal.

SIR,—Would you have the kindness to answer the following questions in your next number, and oblige yours respectfully,

CAMERA OBSCURA.

1st. What is the best form of camera for collodion views without a tent. I did not understand the working of the one described by you in your last as made by Messrs. Abrahams?

2nd. Is there any means of turning a picture developed with proto-sulphate into a negative, or is there any other developing solution applicable for negatives besides pyrogallic acid?

3rd. Can you suggest a remedy to prevent the bi-chloride mercury solution from rendering the film so rotten and detaching it from the plate. I have frequently lost good negatives through it, which is very annoying just as you have got all the trouble of your picture over and have a good one?

4th. Should the lenses of a double achromatic be both of the same focus, and also will the back one do for views by itself, the focus being 13 inches, and a ¼-plate lens covering about 9 inches when only the back one is used?

Manchester, June 4, 1855.

[1. If you use Mr. Shadbolt's or Mr. Maxwell Lyte's process, any camera will do. If you wish to develope without a dark tent, we fear there is no form quite satisfactory, though several will be found described and represented in the pages of our journal. Mr. Abraham's is principally contrived for paper.

2. Yes: by bi-chloride of mercury and ammonia as described in "Familiar Instruction;" or by a small quantity of a 3 grain solution of chloride of gold, and finishing with sulphide of ammonia: but the positives must be overdone to make good negatives. None satisfactory.

3. Yes: Dilute the bi-chloride of mercury in hydro-chlorate of ammonia instead of hydrochloric or muriatic acid. Dr. Diamond dissolves 2 drachms of bi-chloride of mercury and 2 drachms of chloride of ammonia in 10 ounces of water. He pours this rapidly over the face of the positive to be strengthened so that it may freely run across diagonally, and immediately after washes it well with water. This he says acts perfectly and with little danger of destroying the film.

4. No: the foci generally vary to a considerable extent; in Voigtlander's lenses to the relative proportions of two and three. The back lens will not do, unless of unusual form, in which case experiment should be made; the front lens reversed will do alone.—ED. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—I have a full plate lens by Lerebours and Secretan; it has a case of diaphragms; the case by itself has an opening 2⅝ in.; the small cap which keeps on the others, 2 in.; the next, 1½ in.; the smallest is 1¼ in. The optician from whom I got the lens, gave me no instructions how to use the diaphragms: if you would be so obligiug as to let me know when they ought to be used, and for what purpose. It is a double combination for portraits.

Yours respectfully,

Dundee, June 1*st*, 1855. DIAPHRAGM.

[The diaphragms are generally wanted for taking views. The aperture must be diminished in proportion to the increased light and distance.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—The following questions I intended to have sent in time for an answer in last *Journal*, but circumstances interfered, and I would now beg to trespass on your valuable time with them.

I have an achromatic lens, 3¼ inches diameter and 16 inches focus, for which I intend to make a landscape camera. Now, what I wish to know is this:

1. How much the focus will vary for near and for distant objects, so as I may know the *length* of the camera? and

2. What size of picture such a lens should take? and

3. How far from the lens should the diaphragm be placed?

As the season for photographing is pretty well advanced, an answer would be esteemed a great obligation by

Your very obedient Servant,

WILLIAM CALDWELL.

Glasgow, 148, *Gt. Nile-street*,
15*th May*, 1855.

[1. So little that you may make your camera the length of your focus, 16 in. 2. 1 foot by 1 foot 3 in. 3. The width of the lens is generally considered the proper distance, but it is one of the subjects under consideration, and alluded to in the notice of Mr. Sutton's remarks on lenses—see address in last number.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—As the Managers of the *Liverpool Photographic Journal* kindly offer to answer questions relating to the art, I shall feel much obliged if they will inform me of the best and quickest way to render a newly fixed silver bath (30 gr. to the oz. water) fit for use, so that in developing the picture it will not be enveloped in a "mist" or "fog." There are I believe, several ways of preventing this, such as adding iodide of silver to the bath, or iodized collodion, or nitric acid; but I want to know the best and simplest way to prepare the bath. Perhaps this information will be given me in the next number of the *Journal*, or by letter. Hoping you will excuse my troubling you on so trifling a subject,

I am, Sir, your obedient Servant,

2, *Elton-place, Parker's-row*, F. R. PHAYRE.
Gloster, May 30*th*, 1855.

[Good commercial crystallized nitrate of silver ought, when dissolved in distilled water, to yield a bath fit for use without any addition; either of the remedies proposed will have the desired effect. One of our members always dissolves his nitrate in common water, and asserts that the small portion of chloride and sulphate always present in such water, effectually prevents his baths from fogging.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—Will you be kind enough to inform me through your next month's number what is the cause of the blue appearance upon the light parts of my collodion positives, and that invariably at which end or corner of the plate the collodion is poured off at.

I am, yours, respectfully,

Wolverhampton, May 18*th*, 1855. F. S.

[Your collodion is probably too thick; add a little spirit of wine to dilute it. If not satisfactory send a specimen.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—In compliance to the suggestion of your correspondent in your last number, signed "Dark Slide," I herewith send you sketch of a very simple instrument for preventing the hands and linen being injured by the nitrate of silver when taking photograph pictures. The use of this little instrument has been to me a perfect preventative to the disagreeable effects arising from using the nitrate of silver upon the old plan. I have (I believe like other amateurs) destroyed a good many articles of linen, &c. in using the silver bath upon the old plan, but since using this instrument have altogether avoided the disagreeable consequences of the nitrate of silver.

This instrument I have named "the leech," it is simply made of gutta percha tube with a small stopcock. Exhaust with the mouth and shut the cock, the glass plate thus becomes so fastened that you may suspend 4 or 5 lbs.

* * * * * *

I am, Sir,

Your most obedient Servant,

JAMES NIMMO.

Edinburgh, May 22nd, 1855.

[We have been unable from pressure of matter to give the description of our correspondent's invention at length, and sketch sent with it. He is evidently not aware of Mr. Berry's pneumatic plate-holder, which is much more simple and manageable, being exhausted by compression and refilled by release. See p. 71.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Will you please to inform me, whether the addition of bromine to iodized collodion will set free iodine, by forming bromide of potassium. Whether the chemical focus of two meniscus lenses is $\frac{1}{30}$ less than the visual; and a good formula for positive collodion. I am, Sir,

Your obedient servant,

HENRY BRINSMEAD, Jun.

3, *Upper Grafton Street, Fitzroy Square, London, June 5th,* 1855.

P.S.—Seeing Mr. Higgins's misfortune, I beg to say I have printed from a cracked negative, by placing a piece of white paper in front of it.

1.—If too much bromine is added, iodine will be precipitated, and the collodion made muddy. 2.—The two foci should coincide. 3.—Three drachms of alcohol saturated with iodide and bromide of potassium, and 5 drachms of collodion.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Will you inform me through the medium of your journal if in the collodion process it is requisite to use two collodions, one for positives and the other for negatives, or will one serve for both? If it is essential to use both, will you give me the requisite formula for rendering them sensitive. I am using Horne and Co's. collodion, Newgate-street, London. Are you aware if it is suitable for both?

Yours obediently,

ENQUIRER.

Mill-street, Macclesfield, June 2nd, 1855.

[It is generally thought desirable, to use two collodions, though one of our practical friends prefers using positive collodion for both. The sensitizing bath will be the same in both instances.—Ed. L. P. J.]

Photography for Ladies.—We have to apologise for the correspondent who was to continue his "Photography for the Ladies;" the next portion requiring some wood-cuts, which could not be got ready in time for insertion in the present number.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

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The subject of positive printing is receiving a great deal of attention here and in France, where a Committee has been appointed similar to that existing in this country; but, instead of the communications being made to the respective Committees, to enable them to compare the facts and sift the evidence, each operator comes before the public, either by letter to some journal, or paper to some society, to endeavour to settle the question independently and antecedent to the report of the Committee, lest their individual merits should be obscured and overwhelmed amidst the multifarious contributions to general knowledge. This excitement has led, in Paris, to the proposal of a new, and the resuscitation of an old, mode of reviving faded positives, which we have transferred to our pages. M. Davanne, the projector of the new mode, has also been making elaborate investigation into the quantities of the various chemicals taken up and retained by the paper in the treatment it undergoes in the course of printing Mr. Hardwich had shewn that the whole surface of a sheet, 22½ inches by 17½, blackened throughout, yielded little more than 2-5ths of a grain of silver and 5-100ths of gold. But in this instance we did not hear how much had been taken up; that did not form part of Mr. Hardwich's enquiry. M. Davanne states that sheets which took up 31 grains of nitrate of silver, only retained, when completely blackened, about 1½ grains, the remainder, as he supposes, going off in the washings, &c. But this appears rather a question of economy than affecting the fading or permanence of the photographs. The paper tested in each case seemed to take up the same quantity of liquid, and a quantity of chloride of sodium relative to the strength of the solution; so that there did not appear to be anything akin to chemical saturation, except in the case of the nitrate of silver, of which, though 31 grains were taken up by each sheet of paper, the quantity converted into chloride of silver corresponded with the quantity of sodium previously imbibed, the rest remaining as free nitrate.

The discussion on large and small lenses continues, with more courtesy than it commenced, between Mr. Sutton and Mr. Grubb. Mr. Mascher, of Philadelphia, in a paper read before the Franklin Institute in that city, fancies he has incidentally set the question at rest in favour of small lenses, by the results of some experiments upon the distances which should be preserved between the two points of view for a stereoscope. Considering that this required to be more than the real distance between the two eyes, because the eyes of the camera—the lenses—were so much larger than human eyes, and that there must be a relative proportion between the size of the eyes and the distance between them, he began to reduce the aperture of his diaphragm, and finding certain advantages arise in sharpness and distinctness, he tried two holes $\frac{1}{60}$th of an inch in diameter and 2½ inches apart, and in 20 minutes, during sunshine, he obtained, *without* lenses, two stereoscopic views of a house, of very satisfactory character, on the same plate, without moving the camera. He refers to the distortion occasioned in small objects by viewing them with such monstrous eyes as lenses 6 inches in diameter, and the flatness given by thus assuming a power of seeing round a corner; and states that in one of his views—a street—taken without a lens, but through a minute aperture, the most prominent (nearest) object was only one foot from the camera, and the most distant a mile off, yet both equally in perfect focus. In conclusion, he suggests that we "should look to the perfection of small lenses, and chemicals that will work instantaneously even with them. The human eye produces instantaneous pictures." The parallel is daring and plausible, but we fear scarcely logical. The pictures produced by the human eye have no chemical effect to produce on the retina, but are as instantaneously effaced by closing the lids or turning away the eyes. But they are active and thoughtful photographers in America, and what secrets they may extort or coax from nature no one can predict.

We have received a file of *Humphrey's Journal*, which fully keeps up its character in able original articles on mechanical and chemical matters, and a judicious reproduction of European information. Mr. W. Ross has given some carefully prepared papers upon the effects of lenses, especially in relation to the megascopic camera, for taking portraits as large as life, and copying pictures on either a larger or smaller scale, or the same size; and one on the properties and preparation of acetic acid and the difficulty of obtaining it pure, in which he notices and gives a scale of the peculiar irregularities of density in proportion to strength, which were noticed by Mr. Mercer in the paper read at the last meeting of the *Liverpool Photographic Society*.

We have received a little *brochure* on the importance of the application of Photography to preserving pictorial records of the national monuments of history and art, by the Rev. F. A. S. Marshall, M.A., of Peterborough, with an appendix containing a practical description of the Talbotype process, as adopted and practised by the author during the last seven years. At the meeting of the United Architectural and Archæological Societies of the Archdeaconry of Northampton, the diocese of Lincoln, the county of Leicester, and the University of Cambridge, held in Peterborough in May last, the Rev. Mr. Marshall read this paper on Photography as applied to the preservation of pictorial records of objects of antiquity, and exhibited a number of views that he had taken of the city and cathedral of Canterbury, the abbey of Croyland, &c., and referring to the invaluable photographs of Paris published by M.M. Bisson Frères, he urged that it was a reproach to English professional photographers that they had done so little in the same direction. This paper, at the request of his friends, has been published, together with a remarkably clear and lucid description of the Talbotype process, which the author has found to be perfectly satisfactory in his own practice. The subject is one of the highest importance, and has been very nicely handled. But why will our reverend friend countenance the barbarism which meets us at every turn in modern scribbling, even in the *Times*: "The negative as it *lays*!" p. 24. Hens used to "lay" eggs, now ships "lay" in the river. Bottles may "lay" on the table: truth, we are told, lies at the bottom of a well—the English language seems likely to follow her, and will soon only be found in the "well of English undefiled." Mathews used to make us laugh at the American notion of "mahogany nutmegs," but we now see serious advertisements of "*iron* bronzes!"

At the moment of going to press we have received a letter from the Secretary of the Photographic section of the British Association, announcing an Exhibition of Photographs during their session to be held at Glasgow on the 12th of September. We have made room for the advertisement and these few lines, regretting that the time does not allow of our giving it a longer notice, to direct the attention of our readers to the call made upon their abilities.

We are still without any report of the Dublin Society.

Substitute for Acetic Acid.—M. Paul Gaillard states that he has substituted citric acid for acetic acid in the pyrogallic bath, and found it to work very well, while it is far more readily procured in sufficiently pure state. He uses 5 parts citric acid and 1 pyrogallic acid to 400 of distilled water.

Measuring the Height of the Clouds.—M. Pouillet proposes to measure the height of the clouds by photography. Two photographs taken at the same instant of time, at the distance of about one hundred and thirty yards, or three quarters of a mile apart, according to the height of the cloud, with an observer in the middle, to give a signal when a cloud of convenient shape and size approaches the zenith, that instantaneous photographs may be taken of it. The cameras are to be placed in a strictly vertical position. The cones which limit their respective plains will intersect, and where the circles cut, will describe a plain common to both. If the plain be serene with the exception of a small, well defined cloud, photographs may be obtained upon the fields of the two cameras, and will occupy a place on each, determined by the height and position of the cloud in the heavens; and by the displacement, as regards a central line on the collodion, the distance between the two optical centre and the principal focal length of the cameras, the height of the clouds may be calculated on the laws of trigonometry.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The fourth meeting of the second session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 3rd July. Mr. Frank Howard occupied the chair, and there was a good attendance of members.

The Chairman announced that the Photographic Society of Bombay had recognised the existence of, and complimented, the Liverpool Photographic Society, by electing its President, Secretary, and four of its members as honorary members of their Society. It was quite obvious that their acquaintance with the existence of the Liverpool Photographic Society originated through the *Photographic Journal*, which, though one or two persons had attempted to depreciate it, had done some service in eliciting this compliment, and from so considerable a distance. This should be duly acknowledged, and the names of members furnished to enable the Bombay Society to fill up their lists.

Mr. J. A. Forrest proposed that the following names be sent to the Bombay Society as the gentlemen on whom it was the wish of the Liverpool Society the proffered distinction should fall, viz: Viscount Brackley, President of the Society; Mr. Berry, the Secretary; Mr. Bell, the Treasurer; with Mr. Newlands, Mr. Corey, and Mr. Frank Howard, who, as editor of the *Photographic Journal*, which had been the means of bringing the Society under the notice of the kindred institution in Bombay, ought not by any means to be omitted from the list.

The resolution having been unanimously adopted,

Mr. Howard, for his own part, acknowledged the compliment, taking the opportunity of reminding the meeting that the *Journal* had been instrumental in aiding the cause of photography in other respects, their example in having a Journal of their own having been followed by the Dublin Society, while the Society at Bombay had also adopted a similar course.

Mr. Corey thought that the name of Mr. Forrest, as Joint-Secretary with Mr. Berry, ought not to be omitted from the list to be forwarded to Bombay.

Mr. O'Brien proposed a resolution to the effect that Mr. Forrest's name be added to the list.

Mr. Leithead, in seconding the proposition, expressed himself warmly in commendation of the *Liverpool Photographic Journal*. He had taken it from its commencement, and it was to that fact that any progress he had made was to be attributed. It had been of very great assistance to him.

At the suggestion of the Chairman, it was determined that the compliment paid to them by the Bombay Society should be reciprocated; and on the proposition of Mr. Harding, seconded by Mr. Forrest, it was resolved that Capt. Barr, the President of the Bombay Society, the Secretaries, and four other gentlemen to be named by the Bombay Society, should be elected honorary members of the Liverpool Society.

Mr. J. A. Forrest drew attention to some interesting experiments for the purpose of showing the practicability of transferring to paper the collodion film from a glass plate, if by accident it should be broken; and the facilities the process furnished for obtaining prints when otherwise a valuable impression might be lost. They would remember that at the last meeting he submitted for the inspection of members a specimen of collodion film transferred to paper from a glass plate which he had the misfortune to break. On that occasion Mr. Berry asked "cui bono?" and subsequent experiments were an effectual answer to that question. In March last, he took upon glass several negatives of the beautiful ruin at Lyddiart Abbey, which were afterwards by accident broken. One was entirely destroyed, and another was broken into two pieces. During the winter their excellent member, Mr. McInnes, had made a number of valuable experiments for the purpose of discovering an unfailing mode of transferring the collodion film. He (Mr. Forrest), taking advantage of Mr. McInnes's results, had had one or two lessons, and his very first attempt to transfer the film to paper had proved entirely successful. He did not mean to contend that it was at all necessary to transfer the film from sound glass; but in the case to which he had referred, the negative would have been utterly lost had the film not been transferred from the broken glass. Mr. Forrest then produced the transferred film on paper—the same that he had shown on the previous occasion—and an excellent print which he had that afternoon taken from it, though there had been very little sun during the day; remarking that it had all the sharpness of a glass negative. The transferred film and the print were then circulated among the members, and while they were being passed from hand to hand, eliciting remarks of approval from all, Mr. Forrest proceeded to show, by actual experiment, how the film was transferred. In the same manner as an operator would lay a coating of collodion, he placed upon the plate from which the film was to be transferred a coating of bleached shellac, dissolved in spirits of wine, and made about the consistency of collodion. He then added a second coating to the plate, prepared from a solution of shellac and water, with a little borax to enable it to dissolve, and having immersed a piece of white paper (any paper would do) in water, he rubbed on its surface a little of the latter solution with a brush, and finally placed it on the prepared plate, carefully rubbing it all over to expel the air from between the paper and the plate. He then let it remain until it dried, generally leaving it from night till morning, when he damped the back of the paper with a brush, lifted up a corner, and the paper came easily off, leaving the glass perfectly clean, and the film effectually transferred. On this occasion, however, he was obliged to dry the paper before the fire, which caused it to adhere to the glass, and the result was unsatisfactory. He guaranteed, however, that if any gentleman would make the experiment at home, leaving the paper to dry naturally, he would be successful at the first trial.

In answer to Mr. Leithead, Mr. Forrest stated that the bleached shellac could be procured from any druggist.

In the course of a brief discussion which followed, a general approval of the plan described by Mr. Forrest was expressed, its value in the case of an accident to a broken glass negative being especially acknowledged.

A vote of thanks having been given by acclamation to Mr. Forrest,

Mr. N. Mercer read the following interesting paper "*On Photographic Chemicals:*"

My intention in this paper is not to give any detailed and systematic account of the various chemicals used in photography, but merely to bring before the Society a few remarks on points connected with some of them, which I trust may be of interest to my fellow-members. As in all other chemical processes the article which directly or indirectly enters into most of our experiments is water—distilled water, and the varied results attending the use of different samples cannot have escaped notice. This generally arises, not so much from the presence of earthy and saline impurities, as from that of organic matter, from which contamination it is difficult to obtain water entirely free: not only is it often present from being kept in casks, but it adheres to it with great tenacity through the process of distillation, and is gradually absorbed by keeping even in glass vessels. Organic matter in the nitrate bath is frequently the cause of fogging, as was noticed in the *London Photographic Journal* some few months back. It obtains entrance there from the action of nitric acid upon the alcohol and ether of the collodion, and the best remedy for it is the addition of a little more acid, but when in large quantity it can only be counteracted by evaporating the bath to dryness and slightly fusing the residuary silver salt, when a small portion is reduced to the state of nitrate, the oxygen given off combining with and removing every trace of organic matter. The fused silver is then allowed to cool, dissolved in water, and when crystallized out is again ready for use. Complaints have been made of the action of gutta percha vessels upon the nitrate bath—a deposit of reduced silver, or discolouration of the bath, being attributed to their action—when in fact the real cause has been the presence of organic matter introduced into the water, or arising from the action of the acid upon the collodion film. The salts of silver and gold are peculiarly susceptible to the influence of organic matter, being reduced by it to the metallic state; as is well known, a solution of nitrate of silver in pure water is not affected by light, but in the presence of organic matter it is quickly reduced; the amount of reduction depending not so much on the quantity of organic matter, as on the affinity it has for oxygen. Pyrogallic acid is also decomposed, though what change takes place has not yet been determined, but it arises from its attraction for oxygen, which is so great that an alkaline solution has been proposed by Liebig for absorbing and determining the amount of oxygen in the atmosphere. The most delicate test for the presence of organic matter in water is chloride of gold, which gives a reddish brown colour to the solution, or throws down a red precipitate of metallic gold or the red oxide in combination with the partially decomposed organic matter.

It is now generally allowed by photographers that the presence of alcohol instead of æther in collodion is an improvement, both as regards its mechanical texture and photographic properties. An excess of æther produces a strong and tough film, easily removed from the plate, while an excess of alcohol produces a film tender and easily torn, but excedingly susceptible to the influence of light—an increased sensibility which may be accounted for by supposing that as the film is weak the light is able to penetrate more deeply. The addition of alcohol is thus an advantage, but great care must be taken that it is free from water, for its presence gives rise to many injurious effects, and has been the cause of prejudicing many persons against the use of alcohol. The texture of the film is altogether altered, and, instead of being smooth and homogeneous, is covered with small cracks, giving the appearance of net-work, breaking up the deposit, and especially interfering with the printing qualities of negatives. The presence of water therefore is often a source of annoyance and failure to the photographer, and I have thought it would be an advantage were he acquainted with a ready test for its presence. The best test for the quantity of water in either alcohol or æther is of course their density; but a readier test than taking the specific gravity, and one which will in a few minutes determine whether any water is present or not, is anhydrous sulphate of copper. Crystals of sulphate of copper are of a beautiful blue colour, but when the water of crystallization is driven off, they are reduced to a white powder, which, brought into contact with a liquid containing water, quickly absorbs it, and the blue colour is to some extent restored, as may be seen by adding a little to samples of hydrated alcohol and æther.

As far as economy is concerned there is at present no advantage, as at first might be supposed, in substituting alcohol for æther; but there is a Bill now before Parliament for allowing spirits of wine, mixed with ten per cent of naphtha, to be used for manufacturing purposes, duty free; and if the addition of such a small per centage of naphtha does not interfere with its photographic properties, which I hardly think likely, the cost of collodion will then be reduced.

Sulphide of ammonium or hydrosulphate of ammonia, is sometimes used in conjunction with bichloride of mercury for the production of negatives, and complaints have been made of its not being at all times to be depended on. When bichloride of mercury is poured upon the picture, decomposition takes place between it and the film of metallic silver; part of the chlorine of the bichloride is supposed to unite with the silver, forming chloride of silver, which combines with the chloride of mercury resulting from the reduction of the bichloride. When sulphide of ammonium is added to this compound, sulphide of mercury and silver result, and a good negative is produced. Sometimes, however, brownish-white curdy pictures have been obtained, and this I believe arises from the presence of undecomposed bichloride on the film; for though sulphide of ammonium throws down black sulphide of mercury under ordinary circumstances, when a dilute solution is employed a white precipitate may be obtained, caused by the formation of a white coloured double compound of bisulphide of mercury with some undecomposed bichloride. After whitening with the bichloride, therefore, the plate should always be well washed before adding the sulphur compound. Sulphide of ammonium should not give a white precipitate with sulphate of magnesia; if it does, it shows that free ammonia is present.

A concentrated solution of bichloride of mercury in hydrochloric acid has lately been successfully used for darkening negatives, in preference to the dilute solution usually employed. The proportions for making the concentrated solution are, two ounces of bichloride of mercury to one ounce of hydrochloric acid.

Glacial acetic acid is liable to, and does often contain, several impurities, not added for the purpose of adulteration, but incidental to the processes of manufacture. It is usually obtained by distilling together perfectly dry acetate of lead and fuming sulphuric acid: the acetic acid of the acetate, being liberated, passes over and is condensed, while sulphate of lead remains behind in the retort. The distillate always contains sulphurous acid (from the partial decomposition of the sulphuric acid), and frequently lead and sulphuric acid, which have been mechanically carried over with the acetic acid vapour. To remove these impurities, the acid is mixed with peroxide of manganese and re-distilled. The peroxide of manganese furnishes oxygen to the sulphurous acid, forming sulphuric and hyposulphurous acids, which entering into combination with the protoxide of manganese, are, with the lead, left behind. Sometimes it is prepared by exposing perfectly dry acetate of lead to the dry vapour of hydrochloric acid until the acetate appears damp throughout, after which the liberated acetic acid is distilled over. Hydrochloric acid is then liable to be present in the distillate.

These impurities are all easily detected: hydrochloric and sulphurous acids give a white precipitate with nitrate of silver; sulphuric acid a white precipitate with nitrate of baryta; and lead a black precipitate, or (when only in very minute quantities, a dark colour,) with sulphide of ammonium. A very delicate test for the presence of sulphurous acid is to add a few drops of protochloride of tin, and slightly warm; when, if much is present, a yellow precipitate will be formed; if, however, there is a mere trace, only a yellow tinge results; but the addition of a few drops of solution of sulphate of copper will cause a brown precipitate to be thrown down.

There is a very curious circumstance connected with the density of acetic acid. With most, if not all, other acids, the density bears an exact relation to the strength. In acetic acid however this is not the case, the density and the strength go on increasing till the specific gravity is 1·74, containing 79 per cent. of glacial acid; as the strength increases the density decreases, till it attains the highest point of concentration, when it has a specific gravity of 1·063; and we have two acids, both of the density 1·063, one containing however only 54 per cent. and the other 100 per cent. of glacial acid. We may determine which it is by observing whether the addition of a little water increases or diminishes the density.

The last chemical to which I shall allude is cyanide of potassium, which has frequently been referred to as adulterated to an enormous extent with carbonate of potash. Such no doubt is the case, but I merely wish to draw your attention this evening to the presence of sulphide of potassium, which I have recently found in a larger quantity than usual in several specimens of commercial cyanide. Being usually prepared from crude pearlash, which always contains sulphate of potash, the presence of sulphide might be expected, from the reduction of the sulphate by the cyanide; but I was certainly surprised, in adding a solution of nitrate of silver, to find that, instead of a white precipitate, a dirty brown one was produced, as you will see in the specimen before us. The best test for the presence of sulphide of potassium is nitroprusside of sodium which strikes a rich and most beautiful violet tint in the presence of alkaline sulphides.

The interest of this very valuable paper was greatly increased by a number of experiments in illustration of the various tests described by Mr. Mercer. Several beautiful results were warmly applauded by the meeting, especially the one showing the presence of sulphide of potassium.

The Chairman was sure the members were very much obliged to Mr. Mercer for giving them the benefit of his chemical experience in matters which, though apparently commonplace, were of all the most important. The peculiar character of water, even when distilled, was known by all photographers to exercise a considerable influence on the results of their operations. Mr. Morecroft had found it necessary to use an apparatus for the especial purpose of distilling water himself for carrying out his photography. Under these circumstances Mr. Mercer was entitled to their best thanks.

Mr. Forrest stated that Mr. McInnes had lately used citric acid and pyrogallic acid, instead of glacial acetic acid, with some very fine results. Its proportion was one grain of citric acid to one of pyrogallic. Perhaps Mr. Mercer would inform them whether citric acid was as liable to deterioration as the glacial acetic.

Mr. Mercer replied that the only deterioration which need be feared was in the presence of potash, which could be readily detected by giving a precipitate with any soluble salt of potash except the nitrate.

Mr. Leithead asked whether distilled rain water would not be best to use.

Mr. Corey: No, it contains too much ammonia. In fact the water supplied by the Corporation, when freed by filtration from the precipitate it first throws down, is better and answers every purpose.

The Rev. Mr. Banner had a simple means of distilling water by means of an ordinary still head, the steam running into a large bowl with a double case, the inner of which was filled with water. He always distilled rain water, and found it work very well.

In reply to the Chairman, Mr. Mercer feared that in the water to be supplied from Rivington, there would be a great deal of organic matter, and probably iron as well.

After some further discussion, a vote of thanks was unanimously accorded to Mr. Mercer.

Mr. Forrest exhibited an instantaneous photograph of Lord-street, taken that morning by Mr. Jones, of Church-street, in the twelfth part of a second. The moving figures in the street were pourtrayed with remarkable distinctness, and the most minute object was represented.

The Chairman said a gentleman wished to know how Mr. Jones measured the twelfth part of a second.

Mr. Jones replied that on the camera he used an elongated cap, with an aperture in the centre, which, by a simple contrivance he could close as quick as thought. He considered a good stride represented a second, and that moving his foot about an inch, as quickly as he could, gave him the twelfth part of a second. Simultaneously with the completion of this action he closed the camera, and the impression was taken. He used Mr. Berry's plain collodion.

Mr. Thomas reminded the members that at the last meeting a proposition, which he opposed, was made, to adjourn for three months. One reason why he had opposed such a course was on account of the ill effects such a course could not fail to have had upon their list of members, which, at all events, received some addition every month, and the consequent decrease in the probable amount of subscriptions. Besides, as yet no means appeared to have been tried to place the Society out of debt; and after thinking the matter over, he begged to suggest a plan from which he anticipated satisfactory results, viz.: that twenty of the practical members of the Society should be requested to provide a good negative of some attractive local subject, from which prints should be taken in the best manner, and exposed for sale, the proceeds being applied to the extinction of the Society's debt. If 50 prints were taken from these 20 negatives, and sold at 2s. a copy, he anticipated the realisation of a sufficient sum for that purpose. Besides St. George's Hall there were numerous objects of interest to strangers as well as to residents. He would therefore propose that a Committee be appointed to take the proposition into consideration, and to call upon twenty photographers, members of the Society, to furnish a negative each, and that the Committee also be requested to superintend the printing from the same. He did not think his expectations were extravagant when he said 50 of them could be sold. The other day he met Dr. Inman, who stated that he had no doubt many persons would take a set, and requested him to put his name down for 30s. He had also mentioned the matter to Mr. Abraham, who approved of the idea, and suggested that the prints be all of the same size. He had likewise mentioned the subject to Mr. Weightman, who expressed his approval, and stated that he should be glad to serve them as far as he could in the Architectural Society, though he hinted that Mr. Howard might be of more service in that quarter than himself.

The proposition was unanimously adopted, and Messrs. Foard, Berry, Newlands, Higgin, Lee, Forrest, Bell, Howard, and Thomas, were appointed the Committee.

Mr. Forrest paid a well-merited compliment to Mr. Thomas for the interest he had taken in the welfare of the Society.

Mr. Corey expressed his warm approval of the project, and stated that a number of negatives of a superior quality which he had in his possession, would be at the service of the Society.

The Rev. Mr. Banner suggested that the Mayor be requested to sit for his likeness, so that they might sell it.

Mr. Corey thought it would be a manifestation of corrupt principles for the mayor of an enlightened borough to be sold.

The Chairman observed that there would be no lack of subjects, and that judging from the eagerness which had been displayed to obtain copies of Speke Hall, given with the last month's *Journal*, if the subjects were well selected, there could be little doubt of a satisfactory result.

At the Chairman's request, Mr. Corey read an extract from a letter of Mr. Maxwell Lyte's:—

I have to tell you of a method I have found of recovering the silver from the waste hypo. The process given by M. Davanne, which consists in the addition of penta-sulphide of potassium (liver of sulphur), has the serious objection of causing a large precipitate of sulphur, which falls with the sulphide of silver, and is very annoying in the after-treatment; but the method I give is most simple and rapid, and has not the same objection. Take the old hypo, place it in a capsule or china-lined saucepan, and heat it to boiling; then add some *liquor* potassæ to the liquid (caustic soda answers just as well), and boil it for a minute or two; at the end of the time take out a sample of the liquid, filter it and place it in another capsule, heat it again and add a little more of the caustic solution. If the liquid again gives a precipitate, the whole quantity in the saucepan requires more liquor potassæ: when a sample thus tried gives no more precipitate, the process is finished, and the precipitate being separated by filtration and washed on the filter, is pure sulphide of silver; and being fused with a little carbonate of potass and nitrate of potass mixed, gives a button of pure silver.

Mr. Mercer agreed with Mr. Maxwell Lyte, and thought his process the most satisfactory.

Mr. Corey had found the use of china-lined saucepans very objectionable, and believed that the deposit of sulphur might be very easily roasted out.

Mr. Mercer thought it would be found very troublesome, and likely to interfere with the results; it was a very complex subject, and he should at some future time be happy to bring it before the Society. He was surprised that more attention was not paid to it.

The Chairman said that the Society would be obliged by Mr. Mercer doing as he offered, and after some further conversation the meeting adjourned.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary monthly meeting, the last of this session, was held on the 7th of June, Sir W. J. Newton, V.P., in the chair. He addressed some remarks to the meeting on positive printing, in which he stated that he thought the great secret lay in the addition of *gallic* acid to the usual positive process, by floating the albumenised or salted paper for five minutes over a weak solution—one drachm of the saturated solution to the ounce of distilled water—and letting it dry before floating on the nitrate bath. Another mode was by carefully brushing over the papers with a mixture of

Sat. sol. camphor in distilled water..10 ozs.
Bromide of Calcium ....10 grs.
Sat. solution of Gallic Acid ......10 drs.
Chloride of Sodium.............. 100 grs.

and two or three lumps of white sugar; shake up well and filter. After using this fluid, lay the papers flat to dry, and excite with a 60 grain nitrate bath. Or, the above may be used without the chloride of sodium, and a 12 grain aceto-nitrate bath for exciting. Do not expose to the sun for printing, but about half a minute after a slight change of colour takes place in the margin, develope by immersion in gallic acid—10 grains to 10 ounces of distilled water—finishing with aceto-nitrate of silver; or, a little aceto-nitrate may be added to the gallic acid from time to time, gently agitating the dish; fix by immersion in hyposulphite solution for 2 or 3 minutes; then in alum-water for half an hour, and change the water entirely two or three times. This method of printing could be practised in a moderate light and at any time of the year; and he felt convinced that the photographs would be permanently fixed, if properly cleansed from all redundant chemicals. He also recommended that every photographer should expose to the sun, as much as possible during the remainder of the year, a positive taken by each process, and to keep other positives from the same negatives (printed by the same processes of course and carefully noted) excluded from the light during the same period. He did not like the French papers, but much preferred Whatman's.

Mr. Pollock then read a letter from Mr Maxwell Lyte upon M. Davanne's method of extracting the silver from old hyposulphite of soda by the addition of penta-sulphide of potassium, to which he objected. (This letter was alluded to at the meeting of the Liverpool Society and discussed there. See last page.)

Dr. Perry read a short report from the Committee appointed to investigate the fading of positives, recounting their proceedings, and stating that up to that time, the Committee had not found any reason why positives should of necessity fade, but they were proceeding with the investigation and would be glad to have any communication on the subject.

Mr. Malone followed with a paper in which he detailed his experiences during ten or twelve years' practice of Photography. He had long been convinced that the usual treatment of positives was not sufficient, though in some instances it was successful. He suggested, after fixing in the usual way, the use of a strong solution of caustic potash heated to about 180° Fahrenheit, to be afterwards washed out, or perhaps chemically neutralised; but he had positives that had faded after the most careful treatment with hyposulphite of soda and other means. The subject was involved in perplexity. He used the caustic potash to remove certain sulphuric and chloric compounds, which he considered to affect the permanency of the photograph. He thought many photographs faded from the action of sulphuretted compounds in air which penetrated at the edges of the frames. To obviate this, he would use a plaster or cement containing some salt of lead, which had a great affinity for sulpher, round the edges, so that the sulphuretted air passing through should be deprived of its sulphur, and then be rendered harmless to the photograph. Dr. Faraday had preserved some very delicate silver work by having a lead compound placed so as to exclude the sulphur.

Dr. Perry could not agree with Mr. Malone as to the effect of sulphuretted hydrogen on photographs, though he was aware that in certain cases an excess of this material would cause fading.

Mr. Malone was quite convinced that sulphuretted hydrogen or sulphide of ammonia alone would not cause positives to fade; there must be some other unknown agent to work with it, and to discover that the attention of the Committee should be directed.

The discussion on Mr. Mayall's paper concluded the evening and the session, but this has not yet been reported.

The Society adjourned to November.

Photographic Registration of Meteorological Observations.—Mr. Crookes' wax-paper process has been adopted at the Radcliffe Observatory, Oxford, to record the meteorological registrations there.

ON POSITIVE PRINTING.

Mr. Sutton, whose formula for the use of the *sel d'or* has met with general approbation, and was recommended by Mr. Hardwich in his investigation of the chemical results of various processes, has written to express his opinion that Mr. Hardwich is in error to attribute the colouring principle to sulphur. He says, "I think that the entire colouring matter of any bath of *sel d'or* and hydrochloric acid is due to the presence of gold, and not at all to that of liberated sulphur;" and he suggests an experiment to prove that the colouring properties of the *sel d'or* are so powerful as to destroy a print, unless the hydrochloric acid be added to reduce its too energetic action under control. He thinks that "if the minute quantity of hyposulphate of soda which is associated with the hyposulphite of gold in the *sel d'or* were decomposed, the solution would become milky, and sulphurous fumes be evolved," whereas no such effects occur. He prefers an ammonio-nitrate to the simple nitrate bath, because the gold will be precipitated and wasted by any free nitrate of silver that may remain in the proof after washing, unless it be converted into ammoniacal oxide. He also declines the modification of his bath suggested by Mr. Pollock. He thinks that, except as a fixing agent, the less we have to do with hyposulphite of soda the better, and recommends all photographers to obtain one of M. Blanquart Evrard's *Melanges Photographiques* as a specimen of colour and printing. He says, he may be wrong in attributing to the oxidation of the sulphuret of silver the fading of positives when coloured in old hyposulphite baths, but he thinks the experience of all photographers has been that such positives very frequently, if not invariably, do fade. Justly attaching importance to facts, he urges attention to the present and future state of the photographs of the Crucifixion from a bas-relief by Justin, which have been for some time so popular. He says there can scarcely be a doubt that these have been coloured in an old bath, and that the coloured surface contains a great deal of sulphur. Any positives that he had ever coloured in that way had faded within two years, though always most carefully washed. Another photographer under the signature "X," has suggested that the washing is generally very imperfectly performed if the usual directions are followed; his method is—"Take the picture out of the hyposulphite, put it into a small dish, turn a tap of water over it to wash away all dirt, throw away the water, fill up with clean; let this stand five minutes; clean water again, let it stand a quarter of an hour; the same repeated, standing half an hour; now put it into a large pan, such as a foot-tin, with a large quantity of water; there let it be, agitating it occasionally for two hours, then two hours more with more clean water. Finally, if on paper not albumenized, two washings of five minutes each, with boiling water;* or, if albumenized, a quarter of an hour's washing with cold water. I don't think this picture will fade."

Removal of Hyposulphite of Soda from Positives.—This important object, M. Bayard states, may be completely effected by passing a glass rod over the positive. In support of his view, he submitted a sheet of paper soaked in a solution of carmine to repeated washings without removing the colour; but on passing the glass rod over it several times the colour was literally squeezed or pressed out: we think however a further test would be required to show that all chemical agency could be removed in the same manner.

The Revival of Faded Positives.—While every one on this side of the water is endeavouring to find some method of printing that shall not fade, MM. Davanne and Giraid have brought before the French Photographic Society a method of reviving faded positives by a deposit of gold on the surface, by means of the silver which they conceive remains in a metallic state on the surface of the photographs, whether red or yellow; this deposit of gold is then to be converted into chloride of gold, which will not be affected by the light. Immerse the positive in a bath of chloride of gold 1 drachm 12 grains to a pint and three quarters, rendered slightly acid by some drops of hydrochloric acid, and let it remain three or four hours in the dark, or for a few minutes under the sun's rays; but in the latter case care must be taken to prevent solarization. When strong enough transfer it for a short time to a hyposulphite bath, and then wash well.

M. Humbert de Molard thought that the process of MM. Davanne and Girard, though incontestibly good in other respects, would be too expensive, and he referred to a process of his own for reviving faded positives, which

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* I fancy the albumenized paper gets the whites made yellowish by hot washing.

had been noticed in M. C. Chevalier's pamphlet published in 1847. It required care and patience, but when well executed gave good results.

To ten parts of distilled water and one of cyanide of potassium add three parts of crystalized iodine in small portions as it dissolves, until it assumes a violet colour, then add a few drops more cyanide till it becomes a greenish white. Immerse the faded positive in about 6 oz. of filtered water till perfectly saturated; then lifting it up with one hand, add six, eight, or ten drops of the iodized cyanide solution, and stir it up for a minute; then again immerse the positive; the tone will immediately change, the red or brown shades pass to black, blue, and violet, and washing with common water will fix it. If the print has become yellow by the mismanagement of the hyposulphite of soda, the colour will not change until it has been subjected to the ordinary weak alcohol gallic acid bath, to which a drop of nitrate of silver has been added. Previous to which it should be left for several hours in a new bath of hyposulphite of soda, to which has been added a small quantity of the salts of gold of Gelis and Fordos.

On the subject of fixing positives, M. Molard objected to the use of hyposulphite of soda, to which he was inclined to attribute in a great measure the fading, recommending in preference ammonia diluted with five or six times its weight of water, as the best solvent of chloride of silver. In reply to the President, he said that the hyposulphite was too powerful, dissolving the sub-chloride as well as that which has been affected by the light. The ammonia leaves uninjured the smallest marks. His theory had always been to obtain the tone of his positives by a second operation with the various metallic chlorides, of which ammonia precipitates the colouring principles. After a first washing for a few minutes in ammonia, he proceeded to a second washing in *ammoniure d'or*. Whether it be Fizeau's chloride of gold, Gelis and Fordos's *sel d'or* or solution of gold in *aqua regia*, neutralised by chalk, the effect is the same. The wet positive should be placed in the dish, and about 3½ oz. of the solution of gold (1 part to 500 of water), poured upon it. In a short time, by continually agitating the dish, the deposit of gold takes place uniformly, and the tints proceed through the intermediate hues of Indian ink, sepia, &c. When it has reached the desired tone, fix by the iodised cyanide of potassium. His positives had remained unaltered for eight years.

The President having said that it was impossible to fix negatives and positives in the same manner, M. Humbert de Molard admitted that negatives could not be fixed by ammonia, as that would not dissolve the iodide of silver, but he thought the iodized cyanide of potassium might be applied to both. M. Belloc willingly admitted the superiority of fixing by ammonia, but the effect is injured if the paper is weakly or badly sized, as is the case with several French papers. The Saxony paper will stand very well, and takes very fine tones in the gold bath.

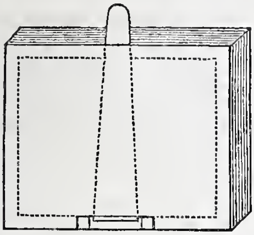
PHOTOGRAPHY FOR LADIES.

The manipulation involves the following operations:—cleaning the glass plate; coating it with collodion; rendering it sensitive in the nitrate of silver bath; removing the superfluous silver by soaking in the washing bath; coating with honey; &c.; these will be considered in their relative order.

First, cleaning the plate. If new, clean with a little whiting made into a cream with water, and rubbed on with cotton wool or clean linen rag; afterwards wash in water, and wipe dry; if the plates have been used, they merely require soaking in water to soften the film, which then may be easily removed by a piece of rag, and polished dry as before.

Collodionizing the plate. If the plates be small, that is, not larger than the half plate size, it is easy to hold them by one corner between the fore-finger and thumb in a horizontal position, and with the other hand pouring on the collodion in the centre of the plate, when by a slight movement of the wrist the collodion may be easily made to flow over the whole surface, the excess being poured back into the bottle by depressing the lower angle; when the film after a few seconds becomes tenacious, resembling partially-dried varnish, it is ready for the silver bath.

Sensitizing the plate. Place the collodionized plate upon the dipper of the bath, and gently plunge it below the surface of the liquid: there must be no hesitation in the movement or there will infallibly be streaks in the developed picture. When the plate has remained from half a minute to two or more minutes in the bath, according as temperature and the composition of the collodion may vary, it may be removed on the same dipper into the washing bath. When the plate is properly coated it appears of a pale primrose colour, and the surface free from streaks or apparent greasiness; otherwise it must be returned for a short time longer to the silver bath. Allow the plate to remain two or three minutes in the washing bath, then remove it, and while yet on the dipper pour on the solution of honey, commencing at the uppermost angle, and allow it to flow evenly over the plate, draining off the surplus into the bottle ; then introduce the plate, dipper and all, into the honied plate-box, of which the following is a section :



a *a*

The plate and dipper are shown by the dotted lines ; it will be seen that at the bottom of the box, made either of gutta percha or glass, there are two square rods of glass *a a*, sufficiently wide asunder to allow the dipper to pass between them, but yet so close as to arrest the passage of the plate ; it is thus easy by pushing down the dipper and inserting the point of a silver bodkin or even the point of a penknife between the dipper and the upper edge of the plate to separate them, and thus remove the dipper, leaving the plate with its face towards the back of the box, inclined at a slight angle, so as to prevent contact of the surfaces ; in this manner any required number of plates may be prepared and placed one behind another in the box. Of course the whole of the foregoing manipulations require to be executed in the dark room. The plates may be left in the box either until required for use, which may be extended to many days, or they may be placed in the dark slides in two hours after their preparation ; they will then be so dry that the dark slides will be in no way stained or swollen with moisture.

We now arrive at the exposure to light in the camera ; and for the time required to impress the luminous image on the sensitive plate no certain rules can be given, as every collodion, as well as every lens, has its own peculiar rate of working ; however the preceding directions have been given for the preparation of plates exclusively for views, and as views should be taken with single achromatic lenses of long foci compared with their diameters, the time may be roughly estimated from 15 to 16 seconds in bright sunlight, up to five or six minutes in dark weather.

The next process is the developement of the invisible impression. Having again returned to the dark room, the plate is immersed in the washing bath for some two to five minutes ; it is now ready for developement.

Place a tumbler or a wide-mouthed wine glass in the centre of a basin which must be so large that on placing the plate face upwards upon the glass the basin shall include the four angles ; now mix the developing solution, so that each ounce shall contain one grain of pyrogallic acid, and pour quickly over the plate so that every portion shall be covered ; the image immediately begins to appear. It is necessary to gently agitate the basin, so that the liquid on the plate shall be kept constantly in motion ; when the whole of the object is fully developed, mix with another portion of the developing solution some of the nitrate of silver bath in the proportion of about 30 drops to the ounce. By inclining the basin, pour off the greater part of the solution from the plate, and then, after levelling it, pour on the fresh developer, continuing the agitation as before, the image will soon greatly intensify, and, when sufficiently strengthened, wash off the developer by pouring clean water over the plate. The plate may now be handled without fear of staining the fingers, and by pouring over it the strong solution of hyposulphate of soda backwards and forwards, the yellow film will disappear and the image will be clear and sharp, the lights being represented by blacks and *vice versa*. Wash well with water and rear up to dry. The picture now only requires varnishing and it will be ready for the printing process, which, with the modifications of the process necessary for the production of portraits from life will be given in the next number.

Award of Medals to Photographers at Amsterdam.—*Cosmos* informs us that the international Photographic Society at Amsterdam, after a careful examination of a thousand proofs admitted to the exhibition, have awarded 15 silver and 25 bronze medals, and 11 "honourable mentions." Silver medals to MM. Aguado, Baldus, Bisson, Disderi, Lesecq, Millet, and Neigre, of France ; to MM. Claudet, Maxwell Lyte, and Count de Montizon of England ; De Minutoli, Lutte and Witte of Prussia ; Oppenheim of Saxony ; and Wagner of Holland. Fourteen of the bronze medals have been awarded to France, but we have not heard of the disposal of the others, or who have been "honourably mentioned."

Photography in Russia.—From a correspondent of *Cosmos*, "an ardent friend of progress," we learu that after Paris aud London (perhaps New York should have been excepted), there is certainly no capital that abounds so in photographs as St. Petersburgh. In the principal streets you count by hundreds the show-cases of portrait takers, who from the period of war, and the cruel separations involved thereby, are employed in thousauds. Generally these portraits, executed by hands more mercenary than skilful, are disgracefully retouched and coloured in a barbarous manner. Nevertheless among the number may be found some genuine artists: M. Alexandrowski for instance, whose reputation as a *portraitiste* has extended to Paris, and M. Bianchi, whose views may be seen and admired at M. Duziarro's in the Boulevard des Italiens are equal to any of the best we can see. The king or czar, however, of photography at St. Petersburgh, is M. Serge Levitsky, the pupil and protégé of M. Dumas; his portraits on glass are the most delightful that you can wish to see, he has attained the limits of an ideal perfection. M. Levitsky practices photography not only as an artist, but as a consummate *savant;* he is associated with M. Spacowski, who by chemical processes, analagous no doubt to those of M. Blanquart Evrard, obtains at all seasons, and without retouching, perfect positives. This young *savant*, who has studied, practised, and compared with infinite pains all the processes, has published in Russia a work on photography, which the correspondent of *Cosmos* promises to send to Paris translated into French. He says, among the first rank of the very numerous amateurs, we must place M. le Comte Sckowalof a very rich proprietor, who has procured all the most beautiful instrumeuts of Voigtlander, Ross, Chevalier, Duboscq, &c. The noble Count holds besides frieudly relations with all the celebrated photographers in Europe, pactises their methods, and carries out to completeness all their details, and to some extent transforms them into his own. His views and portraits are very fine; he has a magnificent collection of views of Paris, to which he is adding every day. M. Pissarewsky who educated himself at Paris, where he remained two years, has devoted himself to the reduction of topographical charts; it is a new application of photography; but with iufiuite care, assisted by the ingenious instruments of M. Levitsky, he has succeeded in reducing the largest surveys to a convenient size.

Caution to Photographers.—One of our most ardent operators, after contriving a "peculiarly convenient dark room," found his photographs constantly in a very unsatisfactory state, for which he could not account, till one morning the dish which caught the splashings from his nitrate bath, was covered with a black deposit, as uuiutelligible as his photographic failures. Due investigation proved this to be sulphuret of silver from the action of sulphuretted hydrogen on his nitrate, aud as he suspected was traceable to the gas-light, with which he had imprudently lighted his dark room. He immediately cut off the supply, has since worked ouly by the light of a caudle, and is no longer troubled by the unsatisfactory state of his photographs.

Application of Photography to Porcelain.—M. Lafon de Camarsac has communicated to *Cosmos*, a plan for the "transformation of photographs into iudelible pictures, coloured aud fixed." It appears to resemble the usual operations of painting on porcelain, though he also proposes to work on glass and euamel. The paper of the positive is consumed in the heat of a *muffle*, an euameller's oven, leaving the photograph on the porcelain, glass, or metal. These are coloured with enamel colours, aud burnt in. He operates on white or coloured bases. On the dark bases, the lights are formed by the reduced silver deposit, which obtaius a great brilliancy from the fire. On porceliau, white enamel, and transparent glass, the blacks are formed by the metallic deposit, which he afterwards treats with the salts of tin, the salts of gold, and of chrome. Auother method he proposes, is to cover the porcelaiu, glass, or enamel, with a sensitive resin, and, by means of a negative, to print a positive thereon, on which he works with euamel colours, to supply the place of the sensitive varnish, which is to be destroyed by the heat of the muffle.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—I am rather an enthusiastic would-be Photographer. My lot is cast far from city or town. Last summer I purchased a Lerebour's half-plate lens and camera, and with the aid of *Hennah's Collodion Process*, I practised in my leisure hours with varied success.

I have only lately learned there was a *Liverpool Photographic Journal*, and having got all the numbers but two or three, which I could not obtain, have derived much information from them. Seeiug your williugness to oblige, I offer no apology for troubling you, but would state that I am employed from six in the morning till six or eight in the evening, meal hours excepted, and when I have a little spare time it either rains or blows, or the small garden I practise in is deluged with a flood of light. I should like to attempt erecting a small house to operate in, where I could spend half an hour any time, if you would favour me with your opinion on the following queries:—

1. What is the least possible size that would suit my purpose? What length, width and height?

2. How much of it would require to be glazed? Would a window over the sitter and one at his side be enough?

3. What exposure is the best? Would you have the sitter to face north or east? Could a house sufficient for the purpose be made portable?

4. I have developed some tolerable pictures with 24 grains of iron, a drachm of water, and 4 m. of formic acid, using a 20 grain bath of nitrate of silver. You give a developer of 15 grains of iron in your last number. Should I use a 20 or 30 grain bath with it?

5. What strength of cyanide should I use?

6. I have not succeeded in making collodion for want of proper soluble cotton; when I have got it to dissolve, my collodion has always been milky like on glass, the positives hardly visible, though details correct. I should like to try Dr. Diamond's formula, as given in the last Journal. Would you tell me the proper filtering paper to use? I have some of the finest filters to be got in Glasgow, but cannot say if it is Swedish paper; please direct me.

7. I am annoyed with streaks on my glass positives, as if the film was not properly wetted, although I leave them purposely longer in my bath than I used to do. Is it any advantage to dip the plate in a silver bath after exposure, before developing.

8. I am not succeeding in making good negatives with chloride of mercury and iodide of potassium.

9. Could you tell me where Mr. How's *Essay on the production of Positive Proofs* is published, and which is favourably taken notice of in your last Journal. I am, yours respectfully,

J. B.

Johnston, June 6, 1855.

[1. Length 10 feet, width 8 feet, height 9 feet. 2. Glazed over three quarters of it. 3. Oppose to the north-east. We fear not, on account of the glass. 4. A 30-grain bath is most convenient. 5. 10 grains to an ounce. 6. No doubt it can be got in Glasgow. 7. Not for positives. 8. Use ammonia instead of iodide of potassium. 9. At Messrs. Knight's, in Foster-lane, Cheapside, London.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—The kind readiness with which you replied to my former query relative to faults in my photographs, encourages me to ask, amongst your answers to correspondents, for light on the following, which relates to positive paper. I use Marion's albumenized paper, and sensitize with a 90 gr. nitrate of silver bath; I pour about 1½ oz. or 2 oz. on a perfectly clean slab of glass, and can generally sensitize five consecutive sheets successfully, floating each about nine or ten minutes; but when I arrive at the sixth, (sometimes earlier), decomposition seems to have set in, and sheets like the enclosed are the result. I then return the remaining solution to a bottle, passing it through filtering paper with a spoonful of animal charcoal at the bottom (this does not decolorize it as the books tell us it will—why?) on attempting to use the filtered solution a second time, sometimes not one and never more than three pieces can be sensitized without the same mishief recommencing, at the same time the whole gloss of the albumenized surface disappears. In fact the larger part of the solution is thus rendered only fit to throw into the pan, from which at some future day of more leisure, its silver may be recovered. How is it the sensitizing is thus limited to so few sheets?

I shall be glad also to have another query answered relating to the sensitizing or exciting solution for waxed paper. I use 3 oz. of a 35 gr. solution: after sensitizing say eight or ten sheets, all I usually need at a time, I find some 2 oz. or more of this aceto-nitrate solution left. I have always been guilty of the extravagance of throwing this away (or at least turning it in the waste-recovery pan), but cannot this be made use of again and again? if so, with what precautions, and how long time may elapse before it becomes useless?

And now to disburden myself of all my photographic troubles, let me ask why, whilst in the sensitizing bath (all right before apparently), my negative collodion plates sometimes are irregularly marked (not by lines proceeding from hesitation in dipping), but so as to resemble pinnacled glaciers heaped on glaciers, the collodion being apparently partially removed or skinned off. I am Sir,

Your obliged and encouraged querist,

WHAT'S THE CAUSE?

[1. The paper does not appear to have touched the surface of the sensitizing fluid. We can only suppose that our correspondent becomes less careful after he has sensitized three or four papers. We do not imagine that the animal charcoal has any effect, but that our correspondent becomes more careful in resuming his operations and again relapses: the effect on the albumen we should like to see. 2. It may always be rendered effective by adding a quantity freshly mixed; a similar renewal may obviate the defect in the first case if it be chemical. 3. The evaporation of the æther is too rapid; more alcohol should be cautiously added to the collodion. See the notice of M. Monk-hoven's paper on the effects of heat in our last number.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I note your remarks in your last number respecting photographs assuming the appearance of a line engraving. Since I last wrote to you on this matter, I have found that the defect in my case arose from the thickness of my collodion: by the addition of a little æther and alcohol it has entirely disappeared.

I have made some collodion after Dr. Diamond's formula, given in your May number, and found that on dipping the plate into the nitrate bath, the film, after a second's immersion, became clear and ragged-looking, in patches as if the nitrate had acted upon it and eaten away the sensitizing portion of the collodion; by adding alcohol I put a stop to this unlooked-for calamity; but after exposing and applying the developer the coating came off in scales from the plate. Will you kindly tell me the cause of this? I may add that this collodion is not *quite* instantaneous. Apologising for this trouble,

I am, Sir, your obedient servant,

Huntingdon, R. S. D.

11th July, 1855.

[There is probably too much water in the collodion, either from the spirits of wine, or added for the purpose of dissolving the iodide of potassium: see Mr. Mercer's paper in this number.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I shall feel greatly obliged if you will allow me to ask, through the medium of your *Journal*, the following question:—

The cause of the appearance of little lines or rivulets running down the collodion plate; there are generally two or three, or perhaps half a dozen in a picture. I remain yours,

Birkenhead, DARK SLIDE.
July 3rd, 1855.

[It is difficult to answer without seeing the plate. The streams may occur from pouring off the developing fluid too hastily to look at the effect.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—As temperature has a deal to do with the working of the collodion process effectually, will you be so kind as inform me, through your next month's *Journal*, at what temperature the operating room should be to obtain satisfactory results, also if you do not think a room at 80° is at too high a one, and what would be the consequences, and oblige,

Wolverhampton, Yours respectfully,
June 22nd, 1855. F. S.

[There is some difference of opinion as to the results of heat; but for convenience of operating the room should be never less than 50° nor much more than 65°. 80° we should think too high for ordinary operators, but Mr. Berry does not object to it.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Allow me to make a few observations on two topics—Townsend's process, and the production of Photographs by the Electric Spark.

It is familiar to many of your readers that from having accidentally broken my washing dish I was compelled to sensitize and wash my papers in one dish, and, finding the process rather convenient than otherwise, I recommended it to others. The inventor of the process, Mr. Townsend, in a subsequent number of your *Journal*, alluding to the subject, said it might be practicable to thus treat papers of small dimensions, but he doubts the possibility of operating with large sizes. The papers I used were 13 inches by 12 inches, so I do not imagine Mr. T. would class them with the small sizes.

I again reiterate that I consider Townsend's process the best wax-paper one extant, from its great simplicity, its absolute certainty of action, and from its great comparative rapidity—all my best proofs being obtained in less than two minutes.

With regard to the other subject, your report of the meeting seemed to infer we had not succeeded in procuring satisfactory results; I beg to say I took one impression before the members, on the revolving disc, distinctly shewing the letters; and I exhibited several others taken under more favourable circumstances; and also a negative of a small portrait produced from the spark: these are now lying in the Society's rooms. I have one impression so intense that I have printed from it, and one of the prints is in the possession of the publisher of your *Journal*.

I shall be happy to supply such of our members who may wish with copies of the same.

I am, Sir, yours &c.,
Colquitt-street, G. R. BERRY.
July 12, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—I would esteem it a favour if, in your forthcoming number, you would oblige me by giving a suggestion on the best means of getting rid of acidity in æther.

Also, if you could suggest the cause of *large blueish-green* stains that have troubled me frequently of late in working with collodion. They *generally* appear in the skies and sides of the pictures.

My chemicals are ordinary iodised collodion—a 30 grain nitrate bath—and proto-sulphate or proto-nitrate of iron.—I am, Sir, yours respectfully,

Glasgow, A CONSTANT READER.
July 2nd, 1855.

[There should be no acidity in æther. If present add some salt of tartar which has been dried by heat in an iron ladle: but the better way is to buy good æther which will be found really cheaper. Blueish-green stains are produced by the imperfect ashing of the picture, after development with the iron salt, previous to clearing with cyanide.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Hearing that you have kindly offered to answer any questions relating to the art of photography, I should feel obliged if you would send me, either by letter or through the medium of your *Journal*, a good recipe to make a quick drying black varnish, and also a good transparent varnish for collodion pictures. Could you tell me why the pictures are marbled and wrinkled in the back-ground of a portrait when the back-ground is quite smooth.

Please to refer me to any of the back numbers of your *Journal*, where it gives instructions to make a negative for printing from. I remain, yours truly,

6, *Birch Polygon*, WILMOT HOLT.
Rusholme, June 25th, 1855.

[1. Brunswick black and pale lacquer are the best and cheapest. The manufacture of varnishes is a trade by itself, requiring means and appliances which no private individual can possess; the materials are very inflammable and must be fused at a great heat, which is very dangerous unless it can be done in the open air, away from any buildings that are liable to take fire. 2. The wrinkled appearance may be caused by deficiency of spirits in the developing fluid. 3. See Mr. Berry's paper, vol. 1, p. 137, or the "Photography for Ladies" in the present number, p. 92.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Could you oblige a beginner in the art, by answering the following questions in your next number. 1st. Is there any particular kind of paper needed for taking paper pictures? 2nd. Will common drawing paper such as the specimen enclosed, answer the purpose? 3rd. If so, could you oblige me by giving the necessary formula for its preparation? 4th. How long will collodion keep after being iodized, and is it necessary to keep it in the dark when in a simple state? I remain, yours,

Edinburgh, 8th July, 1855. DIOGENES.

[1. Paper is made for the purpose. Common drawing paper is generally supposed to be too highly sized, but see Mr. Townsend's paper in No. 15 of our *Journal*, which includes a formula for its preparation, the best that has yet been proposed.

2. Collodion will not keep long after being iodized; but in its simple state, it is not generally considered to be affected by the light.—Ed. L.P.J.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

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We have to acknowledge with gratification, the reciprocal feeling of the French Photographic Society expressed in a letter to one of our friends, who, when in Paris, put himself in communication with M. Durieu, the President, for the purpose of obtaining a concurrence of action, and interchange of publications between that society and ourselves.

"The French Photographic Society, guided solely by the interests of art and science, devoted conscientiously to the progress of photography, will always be happy to interchange good offices and useful relations with the society and periodical publication having the same object."

Unfortunately, the regulations of the post-office in this free country have deprived us, for the moment, of the benefits intended for us by the French Society. During the absence of our friend from England, M. Durieu with great promptitude forwarded to his care the six numbers of the *Bulletin de la Société*, which had been published up to that time, but owing to the violation of some regulation of the post-office, a charge of about eleven shillings for postage was made. The servant, in the absence of her master, demurred to pay this, and the packet has been handed to the dead letter office in London, from whence we fear even the payment of the demand will not release it. Remonstrance against the charge, and explanation that the violation of the post-office regulation could only have arisen from want of knowledge, have been unavailing, and we are obliged to proceed to publication without seeing the latest numbers of the *Bulletin de la Société*.

From other sources we are enabled to direct the attention of photographers to the extraordinary paper of M. Testud de Beauregard, brought before the society by M. Durieu, with the attestation that he had seen the papers prepared by the process of M. de Beauregard, and the coloured prints resulting from them. The subject has attracted much more attention in France and America than in England. Some controversy has been going on between Mr. Henderson of this country and Mr. W. Ross of New York, as to the possibility of taking photographs in their natural colours by the camera; and a letter from Mr. Ross on the statements of Mr. Hill of Westkill as to his success in developing this desideratum in the Hillotype was read before the meeting of the Liverpool Society, but in consequence of the absence of two or three of our members less discussion took place than was expected; nor was the paper of M. Testud de Beauregard referred to, though the subject—printing in colours—is closely allied in principle with that of taking coloured photographs by the camera. It has been urged by an able photographer that the hypothesis which M. Testud de Beauregard brings forward as his theory of the *modus operandi* which is to explain the very extraordinary results, attested by M. Durieu, is scarcely satisfactory: for if the greater or less density of the tints of the negative are to be considered sufficient to modify the colour of the print, a negative from a bust or a statue should print in varied colours. But there are so many conflicting actions from the rays of light, luminous, calorific, and actinic, of which moreover we know so little, that the effect of a certain depth of tone on a collodion negative, may be very different when produced by a coloured object from that produced by the mere shade of a white object; and the terms of M. de Beauregard will admit of this interpretation, as he says only, that "the negative, well brought out by light, possesses in itself, and by the effect of the radiations of the different rays of the spectrum, the relative and proportionate intensities" (qualities or peculiarities) "proper to develope on the positive paper, prepared by his process, the natural colours of the model." Undoubtedly, a previous passage says, that "it is the duration, the intensity of the luminous action, which determines the varieties of colouring; and this coloration depends, consequently, upon the state of the negative, which, precisely in proportion to the opacity or transparency of certain parts, permits any given colour to shew itself on the corresponding places." This would involve a most desirable consequence,—that a negative taken from a print should reproduce the original picture in colours. But for opacity we must evidently read some other word implying opacity of a peculiar kind corresponding to the variety of effect produced by the shadows of objects, whether white or coloured, and objects the colours of which approximate to the hues of such shadows:—the variety corresponding to the difference between light and shade and light and dark, or what the artists term *chiar-oscuro*.

If we admit the theory of colour being the result of refracted rays of light, and we trace a triple action in those rays, who is to say that there may not be a molecular disturbance of the atoms of the nitrate of silver or other photogenic agent, which may vary in correspondence with the colours from which the light is reflected upon it in the camera, so as to enable it to transmit that molecular disturbance to the chemicals on the positive paper, as the proximity of a magnet will magnetise a bar of iron? But it is evident that the simple terms opacity or density will not adequately describe this molecular disturbance, though it may be the only visible sign of its existence or production. We recommend this subject to our experimental photographers, and particularly to Dr. J. B. Edwards, who, as our readers will see by our advertisements, is about to give a course of ten lectures on Photographic Chemistry in the Laboratory of the Royal Institution, on the Monday and Thursday evenings commencing on the 20th of this month. He proposes to go into the nature of light and its decomposition, and this subject —the power of coloured rays reproducing themselves—is a legitimate part of his theorem.

The French Photographic Society has got up a special exhibition in its own rooms, independent of the grand Exposition, but our publication is too late to be of service in making the announcement; the photographs were to be received at latest on the 30th of July.

Effect of Electricity on Photographic Chemicals.—An enquiry has been made whether photographic chemicals were likely to be affected by thunder. Two thirty-grain nitrate baths, one in glass, the other in gutta percha, appear to have been disorganized by a storm on the 13th of July. They had been in good working order till that time, after which stains appeared under the action of the developing fluid on the plate, which appear to follow the action of the light; as in some instances the stain follows the outline of a dark dress and dark back ground, while a figure in a light coloured dress is free from it. Fresh collodion and fresh developing fluids have been tried, but with the same unusual results. The stains are of a brownish-yellow tinge by reflected, and a purplish colour by transmitted light. In two instances the effect is different; the plate has the appearance of being whitened by bi-chloride of mercury, instead of exhibiting the yellowish deposit. On plates which had not been exposed to the light, the stain began to appear at the expiration of from thirty-five to sixty seconds, and immediately spread over the whole surface. The collodion contained 1½ drachms of iodide, and ½ drachm of bromide of silver to the ounce. The bromide and iodide of silver respectively dissolved in absolute alcohol, 1 drachm of each to 2 ounces of the latter. The developing solution consisted of 1 grain of pyrogallic acid, 1 drachm of acetic, and 1 drachm of formic acid to every 3 ounces of water. The plates had been cleaned with the ordinary liquor potassæ, and, on the stains appearing, were cleaned with dilute nitric acid and Tripoli powder, and left in the acid for eight hours, but without preventing the mischief.

Recovery of Waste Silver.—Mr. Maxwell Lyte has published a simple method of recovering waste silver for the hyposulphite bath, by boiling it in a porcelain capsule, then adding some liquor potassed and boiling for five minutes, after which, some syrup of glucose or honey will precipitate all the silver; he then boils it up again for a few minutes and filters it hot, the precipitate in the filter may be treated with *aqua regia* and converted into nitrate in the ordinary methods.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The fifth meeting of the second session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 7th August, Mr. Higgin occupied the chair, and there was a good attendance of members.

Mr. Berry read a circular by the Rev. L. L. Hill, Westkill, Greene Co., New York. It was addressed to the Daguerreotypists of the United States, and offered silvered plate glass reflectors as very superior to any other kind of mirrors for taking views; and offering a *View Camera* for five dollars, together with five valuable processes gratis. The construction of these reflectors would, he said, for the time, divert his attention from the Hillotype, to which however he would soon return. The five processes are for making *sel d'or;* a collodion process; a method of copying Daguerreotypes on copper; an enameling process, and what he called the Pantotype: "the human face daguerreotyped with natural backgrounds. With regard to the Hillotype or Daguerreotype in natural colours, a strong appeal was made to the Daguerreans at large to meet him with proper spirit, and he would then impart the process in all its details without reserve, and in great simplicity. He needs funds, like many other inventors, and according to a letter from Professor Morse, "the mental co-operation" of other experimentors to complete the proofs:—

"Mr. Hill, you have hooked a big fish, but whether you will be able to draw it to the shore, without assistance, is a question. I meant by this, not pecuniary assistance, but the mental wealth of men who have had opportunities to store their minds with the endless variety of chemical facts, daily accumulating from the labours, not of one man, but of many men, and in various countries, each contributing something it may be towards the perfect development of the beautiful and invaluable result, *the honour of the discovery which pre-eminently belongs to you.*

Your plan in its principal feature, meets my hearty approval, and you must consider me a subscriber, &c.

With sincere regard, your friend and servant,

SAMUEL F. B. MORSE.

It was ordered to be hung against the wall of the room.

He also read the following from Mr. W. Ross of New York, upon this subject:—

Sir,—As a contribution from a stranger to the Liverpool Photographic Society, I forward a copy of the *Reverend* Levi L. Hill's circular, which I have just been able to procure; and as the valuable document is worthy of every effort being made by those friendly to the dissemination of the principles of the Actinic Art, to scatter its information far and wide, I send it to you for that purpose. Its author either did not think me a worthy participant in its blessings, or did not know my "post-office address," so that the document has only tardily reached me; but as it is really *invaluable*, it would be a great misfortune should it be lost to the literature of that art, which the learned and pious author has done so much to adorn and perfect by his Hillotype for Daguerreotyping in the "Natural Colors," "*which have been regarded with astonishment by thousands.*" I therefore trust you will give it the publicity it so much deserves, notwithstanding his praiseworthy patriotism in restricting his dedication to "*The Daguerreotypists of the United States*" only. Should you think proper to read it at a meeting of your Society, I feel confident it would heal all differences among you; for, in fact, no two opinions can exist on its importance to, not only all your members, but to all interested in the art, wherever located.

I have been given to understand that doubts exist in Britain as to whether *any one* ever issued such a circular as has been imputed to Hill, or if such has been issued, it could never have emanated from any one claiming to be a Christian, far less a *clergyman;* yet such is the fact; a pity, to be sure, but still a fact, painful though it may be.

I have read every number of the *Liverpool Photographic Journal* which has reached this country, and think highly of its efforts in promulgating the practice of the art which so fascinates every one who once makes a first experiment. Only for the heavy postage from America to Britain I should be an occasional contributor to its pages, *i.e.* provided anything I could say would be deemed worthy of appearing in its pages, because I think it better calculated for general circulation than its collaborateur in London. Perhaps I have formed this opinion by having got the first volume and several numbers of the second volume at once, whereas I only obtained the other journal occasionally, and far out of its consecutive order. Humphrey informs me that he now sends you his journal regularly, hoping he will receive a copy of the Liverpool in exchange, in the same way as he gets *La Lumiere*, *Cosmos*, and the Bulletin of the French Society.

There is one thing I would much like to know, and that is, whether there is any Photographic Society in Dundee, or anywhere in Scotland? If there were, I should send a copy of *Humphrey's Journal.* Could I get such information in the "Notices to Correspondents" in the *Liverpool Photographic Journal?* I have now before me "The Calotype Process," by Sutton, a B.A. of Cambridge, but I do not think his *alma mater* will gain much additional reputation by the publication, notwithstanding his diploma. I do not form my opinion on the mechanical manipulations recommended by him, but on what the Rev. Levi L. Hill would probably call the "doctrinal points," *vulgo* the elementary principles. The chapter on "The Time of Exposure" is chiefly a tissue of nonsense, by mistaking "intensity" of light for its *quantity.* His "simple glacial," and "the crystallizable glacial," is surely "a distinction without a difference." Note 3, "The Lens," is worthy of its confreres. In short, wherever he alludes to principles he invariably makes a mistake, which, I am confident, is from negligence and not from ignorance.

I have recently been engaged in getting something as a measure of the strength of the various solutions or liquids recommended for use in the art, and think I have succeeded, at least partially, so that when using them the strength may always be accurately known to be that which is required. For example, with acetic acid we are sometimes directed to use equal volumes of water and acid in the aceto-nitrate of silver, and sometimes only a few drops; in both cases "glacial" acid is named. Both cannot be right, and the reason for the difference must be, that one teacher bought weak acid at a strong price, while that of the other was tolerably strong, yet, most probably neither sample could be crystallized, except when the water froze into crystals of water instead of crystals of acid. Again, with the other liquid acids, or with ether and alcohol, all used in making collodion, the directions are quite as wide apart; and, in consequence, unless with liquids of the same strength, an equal result cannot be expected; or rather, the expectation is that it will be obtained, but is seldom realized. The principal article is a new scale for a hydrometer, which I have designated the actino-hydrometer; its degrees are equal to the buoyant power acquired by water on the addition of crystals of nitrate of silver, every two grains of the crystal indicating 1° on the scale. As compared with the scale of Baume, 30° of his scale are very nearly equal to 75° of the actino-hydrometer. For the strong acids required for forming pyroxyline, there are three beads, which, with a series of five beads for the ether and alcohol, form a set of apparatus very useful to every one engaged in the art. I would send the Society a set if I knew how to get them conveyed, and should they find them as useful as I think they will, they can find no difficulty in getting others made in Liverpool; perhaps improving them, or correcting (if necessary) their accompanying tables, containing the means of applying them to every prominent solution in use. I have to cut my sheet to accommodate the circular and the Post-office.

Very respectfully yours,

New York, 26, *Second Avenue*, WM. ROSS.
July 10*th*, 1855.

Mr. Berry remarked, on the subject of printing in natural colours, that he had tried the process of M. Testud de Beauregard so far as it had been detailed, and had observed some slight traces of colour; but he warned photographers that however successful the results might appear to be, the colour would not be such as would satisfy artists.

The subject of the committee appointed to carry out Mr. Thomas's resolution on behalf of the funds of the Society was then brought forward, and after a statement of what had been done, Mr. Leithead proposed, that the photographs printed for the benefit of the fund to relieve the Society of its liabilities, be sold both in sets and singly, mounted and unmounted; the sets being sold comparatively cheaper than the single prints.

Mr. Forrest seconded this motion which was carried unanimously.

Mr. G. R. Berry proposed that each member furnishing a negative shall submit the same for printing to any person appointed by the committee; and that any member may present prints in addition to the loan of a negative.

This was seconded by Mr. Forrest and carried unanimously.

The Chairman then suggested that each member of the Society should be requested to send, before the 21st of this month, one or more negatives to the rooms of the Society, addressed to the Secretary of the committee; and in case any member should subsequently obtain a negative which he is willing to furnish to be printed from for the fund, he should send it to the Secretary of the committee as soon after the above date as possible.

Mr. Thomas would second a motion to that effect—and it was ultimately arranged that this should be done.

Mr. Berry then exhibited some stereoscopes and stereoscopic cameras, for the production of instantaneous views, and an intermitting syphon, on which he made the following remarks:—

I had often thought before I experimented that photographers when they took up the subject of stereoscopic pictures, very needlessly puzzled themselves by devising an elaborate theory about the matter, and then setting about constructing a camera or cameras in accordance with their peculiar notion.

Stereoscopic cameras are so varied in their construction, that I chose that form I deemed the best, namely Chadburn's, and commenced my trials, and succeeded quite to my satisfaction.

But as I wished to take instantaneous pictures stereoscopically, Chadburn's camera was, from having only one lens, quite useless. I consequently made inquiries from various parties learned in the matter, and found that some used two ordinary cameras of the same focus and rate of working, placed at an angle. This mysterious angle has always been a bugbear to me, and has deterred me from commencing the process many a time. I therefore determined that (fail or not) I would put my own idea into practice. I obtained two quarter plate lenses, cut down a half-plate camera, and mounted my lenses side by side, so that I could obtain the two images on a half-plate.

I yet imagined that a division would be necessary in the interior to prevent the interference of the two images; on looking on the ground glass, however, I saw the two spectra perfectly distinct, and instead of confusion at the central junction, a sharp line was drawn, and up to that line on each side, each image was distinct and clear. On taking a proof I found two distinct and perfect impressions, divided by a straight sharp line. I then printed a positive, and on cutting it asunder, and reversing them from left to right, I found the image perfectly stereoscopic, without exaggeration or distortion.

And now I lay before you a few specimens which I think will be acknowledged to be good. The time has varied according to the light from half a second to fifteen for portraits taken in the Society's operating room, and for views you will find two among the specimens quite instantaneous, the various figures being evidently in motion, and in one a gentleman actually running across the street, not merely a black outline, but with shirt front and face quite distinct; these were taken by means of a traversing shutter before the lenses passing across their apertures by its own weight. Should we be favoured with fine weather I hope to obtain more perfect impressions, and trust to lay before the next meeting a stereoscope of the Exchange, with our merchant princes represented as they were during the fraction of a second occupied by the exposure of the plate.

In accordance with the wishes of some of our members I have brought the intermittent syphon I mentioned in my last communication as being useful in washing photographs. It is intended to be placed as an ordinary syphon in the dish or tub in which the photographs are washed, and a small stream of water is to be allowed to trickle into it; as soon as the vessel is full, and not before, the syphon begins to act, and as it should discharge more water than the supply tap gives, it soon empties the tub or dish; it then remains quiescent until the vessel is again full, and thus the operation continues for any required time.

The peculiar advantage of the process is this: the vessel filling and emptying slowly gives time for the hyposulphite to soak out from the paper, and then at once removes it, leaving the photographs in a bath of clean water, which in due course also will be syphoned off until no trace of hypo remains.

The construction is extremely simple, being nothing more than making in the outer and longer leg of the syphon, an oblong loop similar in form to one of the moveable crooks of a cornet-à-piston, taking care that the top of the crook shall be below the apex of the bend of the syphon.

Among the stereoscopes exhibited was one of clouds taken at Liscard after a storm of rain: when viewed through the instrument the different strata of cloud appeared in perfect relief.

After a short discussion the meeting terminated.

LONDON PHOTOGRAPHIC SOCIETY.

Discussion on Mr. Mayall's paper on Dry Collodion, read May 3rd, 1855, (see p. 76.)

Mr. Mayall made a few additions to the paper he had read. He had stated that benzine, napthaline, hellenine, terpenole, and other substances might be made use of for impregnating the collodion with hydrogen, and preventing a too rapid decomposition when it was combined with iodide of potassium or the metallic iodides. He was not then able to speak with much certainty as to the extent of their preservative power. He could now say that he had found the addition of a few grains of benzine to collodion, which would not ordinarily keep more than two or three weeks, had rendered it, at the end of some months, more sensitive than at first. To some collodion iodized with iodide of ammonium, which does not keep more than a few days, he had added a single minim of napthaline, and at the end of two months it was more sensitive than two days after it was excited. He would continue his experiments till they met in November, and if it retained its sensibility at that time, he should conclude that it was worth consideration as a preservative agent. He would suggest that experiments should be made as to its effects on new collodion without exciting. The advantages with old collodion were very great.

With regard to exciting substances, he had found half a grain of bromide of cadmium more effectual than a grain to the ounce. He thought that even ten minims would be sufficient, and that an excess of bromide impeded the action of the light upon the collodion surface. He could not explain the action of the albumen in the nitrate bath, but he had no doubt that it did exert a powerful influence, as with the aceto-nitrate bath alone you could not obtain a picture worth the name. When the plates were kept for a month before exposure in the camera, they would require re-dipping in the sensitive bath, which would make them more sensitive than at first. He had, after an interval of eighteen months, re-dipped the plates, and obtained images just as perfect as with the original exciting of two or three days old. He preferred the metallic iodides for the dry process, because they did not decompose so quickly. The most sensitive collodion for the wet process would not prove the best for the dry process. He found you could obtain almost any degree of intensity by adding a small quantity of nitrate of silver to the proto-sulphate of iron developing solution.

But Mr. Pollock had been more successful than he in this part of the process.

Mr. Shadbolt was sure that every one who brought anything before the Society suggesting improvements in photography, deserved their best thanks, therefore anything he might say apparently in objection, Mr. Mayall must not consider as directed against the process, which he had no doubt would eventually supersede all other processes for amateurs; but from what he had seen he had been unable to discover any superiority over the results of simply preparing the plates in the usual way, washing and drying them. He could not see any advantage in the process: if the plates required re-dipping, they might as well be fresh prepared.

The Chairman said it was only in the event of keeping the plates some weeks that it became necessary to re-dip them, and that might be done the night before.

Mr. Shadbolt said that involved the necessity of carrying the bath with you; and you might treat your simple plate of collodion, if washed and dried, in that way.

Mr. Rosling had washed a plate with distilled water, and put it by for a week or ten days, and had developed it afterwards with very good results, but a smaller degree of intensity than is required to make a first-rate positive.

Mr. Mayall had done the same thing, but had failed twenty times to once succeeding. With his new process, failure was the exception, success was the rule.

Mr. Shadbolt must confess that he had not yet seen what he could call a success.

Mr. Pollock suggested that it would be interesting to compare the results with the sugar process, so that during the vacation they might be able to test all the keeping processes, including that of glycerine which Mr. Mayall had mentioned, and which had also been suggested by Mr. Hockin.

Mr. Shadbolt had, at Mr. Pollock's request, brought some specimens of the sugar process; but he wished to be understood as not advocating that process in preference to the dry collodion.

Mr. Mayall said in reply that he thought Mr. Shadbolt expected too much from him. He had been trying during the previous three months to obtain an uniform success to begin with; an image of a certain intensity; and though he would not demonstrate the action and kind of combination which took place—whether it were albumenate or albumenide of silver as alleged by Mr. Shadbolt—there was a trace of albumen in the bath, and a preservative quality which ordinary collodion did not possess. Spermaceti was another substance from which he had obtained most curious and valuable results, whether available or not for a dry process he could not tell. He prepared the spermaceti in the same way as pyroxyline with the strong acids. He thought it might be made very useful in shortening the time. He also thought that with glycerine the most important results might be worked out; and he had no doubt that in four or five months we should have a dry process as perfect as the most sensitive wet process with which we are acquainted. The albumen process was certainly valuable in this—that the results were perfect, if the directions he had given for it were followed. But the albumen was difficult to prepare. The dry collodion presented no difficulty if the preparations were properly conducted. He admitted that the process was not perfect, but it promised valuable results. He advised the use of any preservative substance in the silver bath, because a true chemical compound would be formed, which would be constant in its action.

PHOTOGRAPHIC PROCESSES.

Printing in Colours.—Closely connected with the subject of taking positive photographs in colours, by exposure in the camera, which occupied the attention of the last meeting of our society, is an extraordinary theory propounded at the *Societé Francaise de Photographic* on the 15th of June by the president, M. Durieu, on behalf of M. Testud de Beauregard, and illustrated by the production of a number of photographs coloured in the process of printing. M. Testud de Beauregard thinks that the luminous rays impress collodionized glass in a manner precisely analogous to that which is necessary for the reproduction of the natural colours; so that the negative, by the effect of the radiations of the different rays of the spectrum, has the relative intensities and peculiar qualifications requisite to develope on positive paper prepared by his process, the natural colours of the model. This effect is referred to a physical and chemical reaction produced by solar light on the different bodies and salts employed in the process, as described by M. de Beauregard; he saturates the paper with a solution of permanganate of potass, to which tincture of tournesol has been added. When thoroughly dried, it is saturated with ferrid-cyanide of potassium acidulated with sulphuric acid, and again dried; it is then subjected to a bath of nitrate of silver. After the impression has been obtained it is washed in distilled water, then immersed in a weak bath of hyposulphite of soda; and after another washing the colours are vividly brought out by a bath of neutral gallate of ammonia. M. Durieu, had seen prints obtaiued in the printing-frame, behind collodion negatives, on paper prepared in his presence, developed and fixed in the baths above described, assuming all the brilliancy of those exhibited. These consisted of, amongst others, one representing a female head in a violet veil, carrying a basket of green foliage; another, a female portrait, the hands and face flesh coloured, the eyes blue, the hair light brown, the dress green, and the collar and sleeves white; a third the portrait of a child in a dress striped with green and yellow, black boots, white linen, and a couch of black wood with chamois cushions; and a landscape, under the effect of sunset, tinted with different colours; all which variety of tints were produced in the printing-frame itself, by one and the same impression of light, fixed and developed as described.

Mr. Maxwell Lyte's Process.—A correspondent recently enquired after Mr. Maxwell Lyte's process, and we could not refer to any continuous description of it which could be readily obtained. Since that enquiry Mr. Maxwell Lyte, in compliance with the requests of several friends, has re-published it in *Notes and Queries*. As he was one of the three English photographers (and au Irish friend of ours remarks the other two were Frenchmen), who were complimeuted by silver medals by the International Photographic Society at Amsterdam, our readers may not object to having a summary of his communication. He divides it into three heads, the ordinary, the instantaneous, and the preservative processes. He makes his collodion of Swedish filtering paper, or finely combed flax, carefully submerged piece by piece below equal quantities of nitric and hydrated sulphuric acids of the greatest concentration, to which water has been added, till the solution reaches the temperature of 140° Fahrenheit, in a porcelain capsule. When as much is immersed as the acids will cover, he turns it all over by means of glass rods, and covers it with a piece of glass for not less than an hour; he pours off the excess of acid, and throws the paper or flax into a bucket of water, and washes it well, repeatedly changing the water; and at last washes it in running water till all trace of acid be removed, and separating it, lays it out to dry spontaneously, but not near a fire. When thoroughly dried, he places 250 grains in a bottle containing an imperial quart of the best washed æther, to which he adds 3 oz. of alcohol, 96° to 98°, and shakes it up till the whole is perfectly dissolved. After it has settled he decants into another bottle, in which has been placed half an ounce of pure and dry carbonate of potass, in powder, and shakes it up again. After settlement he decants into a stoppered bottle; and finds it improve by keepiug. To iodize, he dissolves 50 grains of bromide of ammonium, mixed with 200 grains of iodide of the same salt, in a pint of alcohol 95°, and of this solution adds 1 part to 3 of collodion: it becomes red at first, but after standing some time clears to nearly white. His sensitising bath is composed of 7 parts nitrate of silver to 50 parts distilled water, and some of the iodising fluid, in the proportion of 1 oz. to a pint: it is then well shaken, and 50 parts more water added, after which it is filtered. This is the ordinary process. For instantaneous effect he subjects the plate to a second bath, composed of completely neutral

Nitrate of Silver	300 grs.
Distilled Water	6 oz.
Alcohol	8 drs.

to which is added 6 oz. of fiue old chrystalised honey. This mixture is passed through a filter in daylight, which will turn it a dark red colour. It is then filtered through animal charcoal (burnt ivory), till colourless. On this part of the operation Mr. Maxwell Lyte's cautions are :—1st. That the syrup must not be exposed to too high a temperature, *e. g.* not left in the sun for any length of time. 2nd. That the nitrate of silver be perfectly free from acid; on which account the fused nitrate is preferable. 3rd. That the honey be old and chrystalised, and free from some substance which is very deleterious, and, as he thinks, oxydises on exposure to air. He says that the plates thus prepared will keep in cool weather for several hours, and in summer, if not too hot, for one hour; yet, they are much more likely to deteriorate than if treated as follows :—After sensitisiug, wash well in a bath of 5 grains nitrate of silver to a pint of distilled water, for five minutes; and after draining, wash well with a syrup composed of

Glucose (grape sugar)	6 oz.
Distilled Water	7 oz.
Alcohol	8 drs.

to which, at the moment of using, one drop of a filtered solution of nitrate of silver, 10 grains to the ounce, has been added. He says the plate thus prepared will keep in a cool and dark situation at the will of the operator: but he thinks it advisable that it should be used before many days have elapsed, as it is always subject to casualties, such as dust, noxious gases, ammonia, sulphuretted hydrogen, chlorine and all acid vapours, and lastly the hardening of the syrup. After exposure in the camera for the usual time, the syrup is to be disengaged by washing the plate for not less than four hours in a nitrate bath, 5 or 10 grains to the pint. His developing solution contains

Pyrogallic Acid	2 grs.
Water	1 oz.
Glacial Acetic Acid	40 mins.

With the preservative process the plate will, after development, require darkening by the addition of about 10 drops of a 10 per cent. solution of nitrate of silver to so much of the developing solution as is required to well cover the plate (query, of what size? Ed. L.P.J.), and poured on as if developing. After washing under a tap of water, he fixes with

Cyanide of Potassum	100 grs.
Iodide of Silver	10 grs.
Nitrate of Silver	5 grs.
Water	1 pnt.

Mr. Maxwell Lyte has also given his printing process. He prefers *Papier Saxe*, or *Canson freres* positive paper, but thinks the latter requires selection. He salts with a 5 per cent. solution of chloride of ammonium or 10 per cent. of chloride of barium: the latter, he thinks gives more of a sepia tint. Or he uses 40 parts of albumen to 60 of water, and 7 parts of chloride of ammonium. He allows the paper to remain twice as long on the surface of the albumen as on the saline solution. He sensitises with a solution of

Water	100 grs.
Nitrate of Silver	20 grs.
Sugar of Milk	1 gr.

on which he leaves the paper for five minutes. For every large sheet of paper or small pieces amounting to the same extent of surface that is sensitised, he adds a solid drachm of nitrate of silver to the bath; and, on returning it to the bottle, adds water so as to replace the quantity taken up by the paper, and keep it always at the same height. If the albumenised paper be used it will colour the bath, when a little animal charcoal should be kept in the bottle and the liquid be filtered every time before using. He prints darker than it is intended to remain, washes in plain water, then in salt and water, to remove the superfluous nitrate of silver, and immerses it in a colouring bath for a quarter of an hour. This is composed of 15 grains of ter-chloride of gold, dissolved in a little water, and diluted ammonia added drop by drop, till it turns from a light yellow to a darker colour. Pour this into a solution of 3 oz. of hyposulphite of soda and 60 grains of chloride of silver, stirring all the while. Let it stand six or seven hours, and then filter it. From this bath transfer the print to another of

Water	100 parts.
Hyposulphite of Soda	20 parts.
Carbonate of Soda	½ part.

in which it will rapidly assume a fine sepia tone; it is then to be transferred to a second bath of the same composition for about a quarter of an hour, and then well washed in pure water, which must be changed three times during six hours, and continually agitated; after which, to test the removal of the sulphur, it must be placed for five minutes in another bath of

Concentrated Solution of Chloride of Lime	1 oz.
Water	1 gall.

and finally in pure water, which must be constantly changed during twenty-four hours; the last washing being with tepid water.

Positive Printing.—Mr. Sutton has announced a method of printing which, from description, appears to resemble that of M. Blanquart Evrard, at least so far as that it does not require a strong light. He does not salt his paper, but employs an "organic substance" instead. He sensitises by immersion instead of floating, and uses a three grain nitrate bath. He exposes from half a minute to a quarter of an hour in common day light, and developes with gallic acid alone, which takes about five minutes, and is arrested at any time by simple washing in water. He colours in a bath of hyposulphite of gold, and says any shade between a brown and a violet may be obtained. He fixes in a fresh bath of hyposulphite of soda, and washes as usual: and states that the entire operation of printing, developing, colouring, and fixing, may be completed in ten minutes. He contends that by this method the prints are dyed into the body of the paper instead of being merely on the surface, as in sun-printing: they are nearly as strong at the back as at the front. Then he developes up to the point he wants, and there fixes it; whereas in sun printing, it is requisite to over-print to resist the reduction of the hyposulphite bath, "which, while it colours, dissolves out the minute and delicate touches in the light, and buries them under a deposit of sulphur." He asks, what would become of the sharpness of negatives if treated in the same manner? and says that his method, being the same in principle as that employed for negatives, ought to give results equally sharp and fine. He says that his three grain bath retains its strength to the last, and can be used to the last drop; and that none of it is washed away as in the sun printing, when "95 per cent. is washed from under the outside shell of darkened chloride, which prevents the further action of the light, as may be easily proved by exposing some in a saucer. The operations require nicety, but are mechanical and certain. The baths do not alter in their constitution by use. There is nothing left to chance or good luck; the successes of one day may be repeated *ad infinitum.*"

Collodion Process.—Mr. R. W. Thomas has published some very important remarks on the use of his own collodion. They have especial relation to the effects of too much light. His attention was directed to the subject from having to make alterations in his glass room for the purpose of obtaining twice the amount of light. When this was effected, he was "quite unable to take a picture, simply because the extra light introduced, though a north light, interfered with the darkness necessary for the production of clear and vigorous pictures in the camera." He urges the necessity of covering the camera with a black cloth, to prevent the possibility of any light getting in while raising the shutter of the slide: and in the dark room he insists on the necessity of a yellow calico shade over a candle, if used; otherwise a collodion plate would be entirely spoiled.

Albumen Process.—We find in *Notes and Queries* a report of a paper on the albumen process, by M. Fortier, read before the *Société Francais de Photographie.* As the albumen process has been very successfully and extensively used in France, and appears from the views in Egypt to be more manageable in hot climates than collodion, we give a summary of the process for the benefit of such of our readers as may be able to make use of it. It appears to be much more simple in operation than either Mr. Mayall's or that of Messrs. Negretti and Zambra. He cleans his glasses with simple whiting put in a paste sufficiently thick not to run, which he allows to dry, and then rubs off with linen. He pours the white of egg into a glass, and for every hundred cubic centimetres (3½ ozs.) adds a gramme (15½ grains) of iodide of potassium, and a few grains of free iodine, so that the latter may be in excess, by which black spots will be prevented. He decants into a dish, and beats into a froth, and after twenty-four hours the liquid will be deposited fit for use. He albumenises by means of a glass tube, into which he draws by inhaling sufficient to fill two-thirds of the tube with albumen, and allows it to flow over the plate by passing the tube from left to right and left to right, till three quarters of the plate are covered. Then with a glass spatula he spreads it over the rest of the plate, and removes any minute bubbles or specks with the point of a fine bodkin. To enable him to manipulate better, and to see his operation, he places the plate in an inclined position, with a piece of white paper under it. By means of another glass tube he sucks up the superfluous albumen which will have collected at the bottom of the plate, and leaves the plate in a horizontal position, in a place free from dust, to dry. He objects to the closed boxes, generally used, as they exclude the air, which he thinks indispensable. He prefers a frame in which the plates can be placed one above another, at distances in proportion to their size. The temperature of the place in which they are dried should not exceed 65° 2″ Fahrenheit. They will dry in twelve hours, and may be prepared in the evening for the following day. The plate should remain for one minute in the nitrate bath—

Distilled water	100 parts.
Nitrate of silver..................	10 ,,
Acetic acid........................	10 ,,

After which it is to be placed in a trough filled with distilled or rain water, till another plate has been sensitized. It is then placed on a stand, and washed with distilled or rain water, and will keep for a fortnight in the summer; and may be kept longer if two plates are laid face to face, and paper pasted, or gold beater's skin run round the edge. The exposure in the camera should have relation to the focus. In sunlight one minute to every inch of focus; in shade at least twice as long. He developes with concentrated gallic acid till the image begins to appear, and then with the addition of a little nitrate of silver, but without acid. If properly exposed, half an hour will develope it, but sometimes it will require as much as fifteen hours. It is fixed by washing with a 10 per cent. solution of hyposulphite of soda.

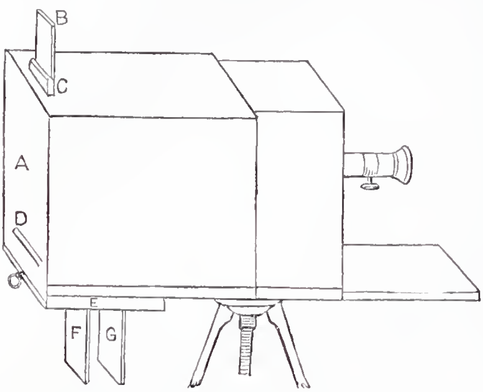
MOUNTING PHOTOGRAPHS. — Albumen has been suggested as the best cement for mounting photographs, as it will act as a protection against any deleterious influence from the chlorides in the card.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

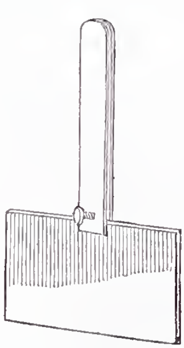
SIR,—I beg to enclose you a rough sketch of a camera I have had made for the much-talked-of "field-work," and which I find fully to answer all my expectations. I have been very successful with it.

In the first place, you will see that I put my lens in what is usually the back of the camera, thereby preserving the balance with the solutions.



A is the door to open with hinges.

B is the dipper passing through the entire body of the camera, made of a piece of walnut wood; at C there is a sort of boss or projecting piece standing about one and a half inch high, and which, fitting tight to the dipper, serves to keep it perpendicular. The dipper is made with a double end to hold the plate like a pair of pliers, and closes with a screw, the handle of which falls on the bottom of the camera, thereby keeping it from going into the solutions and carrying the iron back into the silver.



D is a slot in the bottom of the camera, through which the plates pass into the baths.

E. Slide.

F. Developing solution.

G. Nitrate of silver solution.

A ring to draw the slide out may be seen in front.

Now proceed thus—pass a piece of calico round the legs of your tripod, behind or under which to coat the plate, otherwise the least air will cause the collodion to flow in thick patches; now place the plate in the dipper, shut the door and draw the silver bath up to the slot, push the plate in, allow it to remain about two minutes, and then draw it up and down frequently to ensure the silver flowing off evenly; then draw up the dipper, and pat it several times to shake off any drops, or any solution that may flow to the bottom of the plate. Expose to the action of the light, and then draw forward the developing bath and push your plate into it, being careful to allow it to remain long enough, and to draw it up and down quickly several times, otherwise the developing bath will form stripes upon it; then wash and clear.

The baths are made of gutta percha, and fitted into a small board, made to slide under the bottom of the camera, thus the slot in the bottom is never uncovered, and no light can get to the solution. When I wish to empty the baths I throw the sheet over my head and the camera, thus the silver solution does not even come in contact with light whilst passing into the bottle. If the bath could have water-tight lids, it would be much more convenient.

This camera is about $1\frac{1}{2}$ inch less than the usual make to do the same sized picture. The only fault I find is, that the plates have to be a trifle larger than ordinary, as if you give the dipper good hold it takes about a $\frac{1}{4}$ inch.

I shall be obliged if you can find room for this in your next publication; and if any of your correspondents can suggest any improvement, I shall be glad to act upon it. Being an amateur, I see no utility in keeping a thing close, as some I have met with do; but think that the best way to progress, is for each to lay open his success, because, although one man invents, another may so improve the article as to make it doubly valuable.

I remain, yours respectfully,
S. C. BENNETT.

7, Greenheys Lane,
Manchester, July 27, 1855.

[We give this description of a field camera, which in some respects resembles that of Mr. Newton, improved by Mr. Forrest.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—Will you have the kindness to answer me the following questions in your next number.

I use a 30-grain silver bath, my developer consists of 20 drops of glacial acid, 1 drop of nitric acid, and 10 grs. protosulphate of iron. I finish by passing the plate through a solution of cyanide of potassium of the strength of 10 grs. to the oz., and then well washing in clean water. I have produced very good positives with the above mode. Can you suggest any improvement in the above simple mode? Should a *yellow light* be used, or will a *bare* candle do, as some photographers recommend a lamp enclosed in three folds of yellow calico? Can stereoscopic pictures be taken with a camera with *one* lens?

I am, Sir, yours respectfully,
H. TOWNSEND.

Kingsley, Staffordshire,
August 2nd, 1855.

[1. There is no better formula; proceed as before. 2. A bare candle will not injure the plate unless the full glare of the light fall on it, but see Mr. Thomas on the collodion process, p. 105. 3. Certainly yes; but two lenses are better.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Observing in the June number of your valuable Journal a notice of my mode of obtaining stereoscopic pictures, I beg respectfully to thank you for drawing attention to its claims. As however you throw some doubt upon the correctness of the results I argue for it, I take the liberty of forwarding you a few specimens taken by the method I have elsewhere detailed, which, though bad photographs, I trust will prove that imagination (at least to the extent you believe necessary), is not required to produce the remarkable results which the stereoscope reveals. I am proud to be able to add that Sir David Brewster, to whom some of my specimens, together with the *modus operandi*, were shown by Mr. Rodger, a distinguished photographer in St. Andrews, asserted that the method was a quite correct, and at the same time a more simple one. The group of trees mounted on the black pasteboard have quite as much stereoscopic effect as exists in the natural view; but a still greater—but then *not a natural*—effect could easily have been produced, had a greater rotation been given to the Camera. Many stereoscopic pictures have such a superabundance of steriod appearance as to be altogether unnatural, and in many cases disagreeable.

I am, Sir, your obedient servant,
Carnoustie, Forfarshire, ROBERT DICKSON.
7th Aug. 1855.

[The specimens sent are certainly stereoscopic in appearance, but we have witnessed so many delusions affect the eyes of even experienced judges, that we are not quite prepared to admit the test in an optical question. There is such a thing as *deceptio visus*. We think that if our correspondent were to cut and transpose the views, the effect would be better.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I have just got to hand the July number of your Journal, being the first I have seen. I was not aware of the existence of such a thing. Seeing the willingness to oblige your correspondents, I take the liberty to put a few questions to you. I have done a little in the way of photography. My lens is one of the half size: I do not know who is the maker. In taking a group of three figures, which are all equally good, the only fault I see in the lens is, if the figure has a very lean face, it makes the same too full; if the sitter has a strong marked visage, the likeness is well brought out if the plate has had the right exposure. But to my questions.

1. Could lenses be got unmounted for portraits or views, and the price of half sizes of each: the maker you would recommend?
2. What colour of a back ground is best?
3. What is the best thing to clean glass plates with?
4. The best work on the Collodion Process for Positives, and where to be had?—I am, yours truly,

August 4, 1855. PHOTO.

N.B.—Are all the back numbers of your Journal in print?

[1. Yes. It would be invidious to name any individuals. The foreign lens-makers have a great repute; but there are British manufacturers who may justly compete with the best. From 10s. and upwards. 2. Brown paper. 3. If developed previously, with nitric acid weakly diluted; if the plates are new, a little whiting. 4. Thornthwaite's, published by Horne & Thornthwaite, 121, Newgate-street, London.—N.B. Yes.—Ed.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Will you kindly oblige me by informing me what preparation ordinary honey has to undergo before it is in a condition to be used for Shadbolt's Honey Process. Messrs. Horne & Co. charge 6d. per oz. for theirs; and from this circumstance, and the fact of its being very different in appearance to the ordinary granulated honey of the shops, (which I believe only costs about 1s. per lb.) I conclude it has to be clarified in some special manner for the above process. I have tried ordinary honey according to Mr. Shadbolt's formula, but have not succeeded with it. I find too it ferments in three or four days after mixing with it an equal bulk of water.

If there is to be a Photographic Exhibition in Liverpool this year, would you kindly forward me a copy of the regulations or conditions to be observed by exhibitors.

I am, dear Sir, yours faithfully,
Sandbach, WM. CUST GWYNNE, M.D.
Cheshire, August 9, 1855.

[Mr. Berry has found that any genuine honey will do if a little nitrate of silver be added to it, and then kept some months before it is used.—See Mr. Maxwell Lyte's process in this journal, p. 103.

It is not probable that there will be any exhibition of photographs in Liverpool this year.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—In your report of the last meeting of the Liverpool Photographic Society, I am made to say, in answer to a question with reference to the purity of citric acid, that "the only deterioration which need be feared was the presence of potash, which could be readily detected by giving a precipitate with any soluble salt of potash except the nitrate." This is altogether incorrect: what I said was, that the most common adulterant was tartaric acid, but it was most easily detected, as citric acid gave no precipitate with any of the salts of potash except the tartrate; while if tartaric acid was present, a crystalline precipitate of bitartrate of potash would be yielded on the addition of carbonate of potash or any other potash salt.

By inserting this correction you will oblige,
Yours respectfully,
7, Church-street, NATHAN MERCER.
Liverpool, 9th Aug., 1855.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 21.—SEPTEMBER 8, 1855.

The *Odium Photographicum* threatens to rival the *Odium Theologicum* in fierceness and intensity. Not long since, we had occasion to remark upon the contest between the practitioners on collodion and on paper, and the strong language used by the respective advocates of the rival processes. The large and small lens contest exhibited, at first, a similar internecine character; and the printing in colours recently assumed the aspect of civil war. During this month, a fierce attack has been made by a writer in London, who signs himself "Old Photo," upon collodion positives. They may be, and doubtless are, less valuable than collodion negatives, but when this is conceded, there remains much to be said in their favour; and as we had occasion to say, with respect to the paper and collodion war, much of the abuse arises from want of knowledge of what has been done by others. London has not been famous for its positives on collodion—Liverpool has. Some productions by our members were exhibited by Mr. Sheridan at a meeting of the London Photographic Society, and from their beauty, instantly recognized as coming from Liverpool. A visit to Mr. Lee's operating rooms would speedily induce "Old Photo" to modify his assertion that "the difference between a daguerreotype, a calotype, and a xylograph is, that one requires art to produce it, the other does not." That "the operation in one instance is purely mechanical: certain collodion, so much iron" (the writer being a wag, he might have added "so much brass"), "so much nitrate, so much cyanide, requiring, of course, care and cleanliness, like any other base mechanical operation." That "in the other there are constant demands at each successive stage on the ingenuity and intellect, constant demands on the practitioner's tact and patience, scope for improvement, and his progression towards perfection,—defects that may be remedied by skill, defects of material, defects of light, accidents in the subject calling forth an infinite exercise of tact and judgment, to induce excellence. A calotopist, if successful, is an artist. So is a daguerreotypist. A glass positive producer is a photographic operator, and that is the entire difference. His picture of to-day is the same—conditions being the same—as that of six months hence, and as that of yesterday. He works at a dead level, where there is no progression and no hope. The delicacy of tint and tone, the charm of colour, the shifting hues, the pearly whites, the depth of light and shade of the daguerreotype, are denied to him. His picture is sharp, clean, and can be seen in any light, like a black profile. But where are the subtilities and beauties that task the skill and patience and the artistic discrimination of the daguerreotypist? All lost in one uniform dead irony black and leaden white, or soot and whitewash." If these were the facts, how could there be such great distinctions in degrees of excellence as we know to exist? We might be thought personal if we asked why, when so easy, do not the London practitioners rival our operators in a few collodion positives, just to shew that they can do so. But is there no "art" in the arrangement so as to produce a good composition? no management of light so as to produce fine chiaroscuro? no judgment as to how long the plate should be exposed in the camera? The numerous failures, even of the most successful, completely disprove this. Up to the photographic operation, precisely the same amount of artistic skill and taste is required in each, and it is up to this point only that any taste can be shown. It may be more difficult, it may require more chemical knowledge, though this does not accord with experience; the best chemists are not always the best photographers; it may require more skill in manipulation,—may we say "base mechanical" operation—to produce a negative on collodion, or a daguerreotype. And the negative on collodion, inasmuch as it may be printed from, may be more valuable when done; but it will be remembered that after a discussion at one of the meetings of our society, the preference to collodion positives over daguerreotype was given almost unanimously. The simple fact that they exhibit the countenance without reversing, and can be seen in any light, outweighing any supposed advantage in respect of minuteness on the part of the daguerreotype.

Old "Photo" must excuse our saying, that for an advocate of negatives he is far too positive. As we confess to admiring good positives, he will not take it otherwise than as a compliment; for we have no doubt we should admire him, if we had the pleasure of knowing him. Dr. Johnson said he liked a good hater, and we are not sure that we do not agree with him on the subject; but we are anxious to prevent a breach of the peace on the part of the advocates of rival processes, as we are sure that photography will be brought to perfection only by co-operation in observation, and patient examination of facts, as collected by all parties in all processes. They may each have their advantages and beauties, and mutually assist in the developement of each other.

In the seventh number of the *Bulletin de la Société Francaise de Photographie* there are some good observations on the real dangers that beset photography, which we quote, but have been obliged to moderate a little of the enthusiastic denunciation of the sins complained of.

"Like the true Christian, who detests the sin, though he may not always dislike the sinner, our Society would wish to exterminate a certain class of photography, sparing, perhaps, certain specimens of it; and the Committee, who have done us the honour to put a pen into our hands, need not warn us that we should not be too severe. We may, at any rate, go thus far: by keeping in a prudent system of generalities, we may sufficiently moderate the passion which animates us against these degraded specimens of our fraternity. But, under all circumstances, we may say beforehand, that it will not be necessary in proceeding against the crime to follow the criminals in detail. In our eyes the cause is sufficiently serious to be warmly pleaded. Photography, it is to be regretted, as it is practised and sought after by the majority, depraves the public taste by making portraits in the lowest style of art. It loses on this side all that those who have gone wrong in principle hope that it will gain. It would be easy but too long to demonstrate this. Let us confine ourselves to saying, that the greatest evil does not arise exactly from those photographs which are detestable and burlesque, but from those which are *mediocre*, and to some persons tolerable. It is a small misfortune, in fact, if the people who are satisfied with wretched productions, can always find pretended photographers at their orders;—"One fool will always find a greater fool, who admires him;"—while with those which are not quite so nauseous, is obtained the deplorable success of arresting the rising taste in its progress towards perfection. The authority of a recognised method of art and science, which, for want of knowledge, is presumed to be infallible, encourages these voluntary enrolments among the party of correct platitudes and incurable insignificance."

We have just received the rules of a Brighton and Sussex Photographic Society, at an annual subscription of ten shillings; and they propose in the autumn to have an exhibition, at which the members only are to be at liberty to display their works for sale, or otherwise. At a place devoted to amusement like Brighton, they may probably meet with much better support than in such a busy place as this. We wish them every success. We received a notice from the French Photographic Society, relative to the extension of time for receiving photographs for their exhibition, but too late to be available in our present publication. The session of this Society, as well as the London Society, has closed for the present, though Committees are sitting on various subjects, among others that to investigate M. Testud de Beauregard's printing in colours.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The seventh monthly meeting of the session was held at the Royal Institution, Colquitt-street, on Tuesday evening, September 4th, Mr. Corey presided, and there was an average number of members present.

Several specimens of the photographic art were exhibited during the evening, amongst which Mr. Chadburn produced the most striking. It was a print representing a portion of the Tuilleries, from a collodion plate of the unparalleled size of 3 feet 2 inches by 2 feet 6 inches,—the largest, he said, that had ever been taken; and for richness of tone, boldness of relief, marvellous accuracy of detail in every part, and entire absence of blemish, it had never been surpassed. It was indeed a triumph of the art, and afforded another proof of the rapid strides it was making towards perfection. It was from the laboratory of Messrs. Bisson Freres, Paris. Mr. Corey also exhibited several excellent photographs of views from Conway, recently taken by himself.

The Chairman stated that the Liverpool Photographic Society was making rapid progress in reputation. Those members who had been in London and elsewhere, reported that it was regarded with great reverence and respect by all votaries of the art who considered that they had but one object in view, that of promoting the science; and that, although their numbers were few, there was a pure principle at work amongst them; that they did not, like other societies, which he should not particularise, make it a stepping-stone for their personal aggrandisement, but that they hung together to do all they could towards a mutual interchange of that practical knowledge which they had each attained in the course of their operations. He was continually receiving letters to the same effect from every part of the kingdom, and what was more assuring still, from the continent. He had some letters before him confirming what he had stated. This evening, amongst a variety of beautiful specimens, there was on the table a wonderful work by Messrs. Bisson Freres of Paris. It was of extraordinary magnitude—3 feet 2 inches by 2 feet 6 inches. It had not been accomplished by means of the albumen process—which might be easily effected by putting the plate in a frame—but on collodion; and when they considered the difficulties of pouring the collodion equally on a plate of that enormous size, holding it there during the necessary evaporation, pouring it off in such a way that no streaks should be left, applying it to a camera of the requisite dimensions, and lastly the developing, they could not feel less astonished at the success of the operations than delighted by the beautiful result which had been obtained. He wished to call their particular attention to the singular beauty of the picture. No portion was distorted in the slightest degree, the lower corners being as accurate in detail as the centre, while all the perpendiculars were perfect. He had a picture of his own before him, 10 inches by 8 inches, with which he had felt well pleased, but he had failed even in that small size (as compared with the large one) to get his perpendiculars upright. He trusted that the example shown them by their more advanced neighbours would induce them to emulate their excellence. Referring to the approaching sale of photographic prints, for the benefit of the society, he expressed a hope that those gentlemen who intended to favour them with negatives would lose no time in sending them in, as now was the time when they were wanted.

The Rev. Mr. Banner observed that last month he promised to send in a negative, but he intended to furnish the prints himself.

The Chairman stated that while at Conway, last week, he met a gentleman—an amateur photographer—who announced himself a member of the Liverpool Society, though resident in London, and he showed him some pictures he was producing of marvellous brilliancy and beauty. As they lay beneath the water, the walls of the castle were quite brown, while the trees appeared a positive green. A great deal was said in France about different colours, but he suspected, after all, that the supposition of there being a variety of colour on the plate was in some degree illusory, for, though perceptible in water, as soon as taken out, the colour disappeared. This gentleman operated in a canvas tent, similar to the one invented some time ago by Mr. Forrest, where he worked as much at his ease as if in a room. He (Mr. Corey) questioned him as to how he got the brilliancy of tone, and the gentleman warned him against the use of cyanide of potassium, which he said would eat away every particle of detail. It was true, he further said, that this chemical would clear the picture rapidly—so rapidly that, in carrying away the redundant silver, it also walked off with the picture. The hyposulphite of soda, on the contrary went to work quietly, and only took off tha which was not acted upon by the light.

The Rev. Mr. Banner: Of what streng did he use the hyposulphite?

The Chairman: He poured it on his plate, using it saturated, as he would the developing solution, and when the picture was sufficiently cleared, he stopped. Mr. Berry had just been in London, and while there he wished to procure some cotton, which he expected to get better than in the country, and he went to Messrs. Horne and Thornthwaite's shop for some, but Mr. Horne informed him he had not any cotton on his premises, all his collodion being made with paper. He had heard also that Mr. Redman, a successful operator in London, had long since abandoned cotton. The paper collodion was remarkable for the tenacity with which it adhered to the plate; they could not get it off, in the dry state, without scraping; this, of course, was a strong recommendation, while the solubility of paper removed the difficulty of spotting the plates, which was inseparable from cotton collodion, if it had been often used.

Mr. Bell asked if any one had tried Mr. Sutton's method of printing. He had purchased one of his books in London, and had tried it. They had simply to soak the paper in whey; afterwards immerse it in nitrate of silver, the strength being 15 grs., instead of 30 grs., to the ounce; expose it from a quarter of a minute up to ten minutes, according to the strength of the light; and develop it with gallic acid. No salt was required. He modified the process by putting in a small quantity of bromine,—a grain to the ounce,—which made it successful by gas-light, simple exposure to which was sufficient.

The Rev. Mr. Banner: Do you use any citric acid?

Mr. Bell: You must not use that at all.

The Rev. Mr. Banner: How do you break the milk?

Mr. Bell: Use a little rennet.

Mr. Banner: That is an acid too.

The Chairman: But not a mineral, it is an animal acid merely.

Mr. Clements read the following instructive paper on the true method of using albumenized paper. His observations were illustrated by numerous specimens, some of which were greatly admired for their depth and quality of tone:—

"A hope having been expressed at one of the late meetings of our Society, that some of its members would come forward and impart to their fellow-members the results of their experience, has induced me to present to you a few remarks on a method of treating albumenized paper; not that I expect to introduce anything new, either in theory or practice, to your notice, but simply with a desire to comply with the request made, and in the hope of stimulating others to come forward and give us the benefit of their more extensive experience.

"To aim by the simplest method at perfection is the endeavour of all; and it can only be by comparing the results of our several labours that we can estimate which approaches nearest to that desideratum. I intend therefore to explain, as explicitly as I am able, the *whole* process of operating which I have found practically to produce most satisfactory pictures; and I am the more induced to adopt this course, as nearly all the processes I have read seem written as if for experienced manipulators, rather than for the novice in the art. For instance, one will say, 'beat the white of eggs into a froth,'—leaving the reader quite in the dark as to how it is to be done, or with what. These matters may appear trifling to some, but the majority of you will readily concede that it is from the observance of these little matters that success can be hoped for; but to the subject. I cut each sheet of paper into four or six pieces, to suit my convenience (Canson's positive paper is what I use), and, carefully examining them, I reject all that have black spots, as such generally being metallic consequently reduce the silver.

"The albumen used is prepared as follows:—I take the white of any number of fresh eggs (from 6 to 10 is a convenient quantity), rejecting the germ, adding an equal quantity of distilled water, in which is previously dissolved 16 grains of either chloride of sodium or ammonium in each ounce of water, then beat the *whole* into a white froth, which may be done by several means. One method is to beat the albumen in a basin with 6 or 7 quills tied together (with the feathers stripped off), for 8 or 10 minutes, until it seems as if it was *all* beat into a froth, and quite free from stringiness; a second method is by putting the albumen into a bottle capable of holding twice the quantity, then corking and shaking it well for the same number of minutes, until the froth appears to fill the bottle; another way is by putting it into an earthenware jar, using an instrument made on the principle of a chocolate-mill, with pieces of quill fixed at one end, twirling it backwards and forwards between the hands for the space of time before mentioned. After it has been well beaten to a froth by any of the above means, allow it to remain for 7 or 8 hours, then decant the clear portion, afterwards filtering it through a fine piece of cambric into a flat shallow dish, sufficiently large to hold your paper. Much depends upon this part; for if the albumen be not well prepared, you will have the surface of your paper, when dried, full of streaks; great care must also be taken, before floating your paper upon it, that the surface is quite free from small air-bubbles—then take one of your pieces of paper by the two opposite corners, bend it from you, placing the bottom corner upon the albumen, rapidly floating it, so that no air-bubbles lie between it and the albumen; let it remain for 3 or 4 minutes, then lift it up by one of the corners rather quickly, allow it for a moment to drain, and then hang it up to dry on a line, by means of a bent pin passed through one of its corners, or by laying it across a round bar of wood. If the sheets are large, the latter is the more advisable mode. When quite dry take them down, and press them flat between two boards; if kept quite dry will be ready for use after any lapse of time.

"To excite, take 300 grains of nitrate of silver and 5 ounces of distilled water; when dissolved, add 5 ounces of alcohol; or previous to adding the spirit, make the solution into the ammonia-nitrate of silver, by putting in strong ammonia, drop by drop, until the precipitate is redissolved, and then add the alcohol; pour a part or all of this into a flat dish, large enough to hold the sheets of paper, float them upon the surface one by one, when, owing to the alcohol, it will penetrate the paper, and coagulate the albumen immediately, and the paper will sink under the surface. As many sheets may be put into the solution as it will hold, taking care that they are well immersed; let them remain 5 or 6 minutes, then take them out and hang them up to dry. Of course all this must be done in a dark room, by candle-light. This solution will remain good until all is used, as it does not discolour with the albumen. It gives most beautiful tones, with great depth in the shadows; the only fault that I can find with it is, that the prepared paper will not keep so long as I could wish. Print the positives several shades deeper than you wish them to be when finished. As a general rule I let the whites or lightest parts of the picture be my guide, as the depth of tone is then more easily seen. To fix them, I first put them into a new hypo-bath (1 oz. of hyposulphite of soda to 8 oz. of water) for about five minutes, then transfer them to the colouring-bath—made according to Mr. Pollock's formula, thus:—

'Water	6 ounces.
Hydrosulphite of soda	1 ounce.
Nitrate of silver solution 50 grains 1 ounce	15 minims.
Iodide of silver, dissolved in a saturated solution of hyposulphite	10 minims.
Chloride of gold	3 grains.
Chloride of silver (blackened by light)	5 grains.
Acetic acid	2 drops.

mix these; let them stand some hours before use.' I let them remain until I get the desired tone. This part requires practice, as the proof is of a different colour when wet to what it will be when dry. I then put them once more into the new hypo for 20 minutes or so, and afterwards wash them well in several waters; finally letting them remain for 8 or 9 hours in a large dish, with a current of water running in and out. When they have been sufficiently washed, hang them up by one corner, and when dry place them between boards to press them flat.

"When I have fixed all my proofs, I return the colouring-bath into the bottle from which it came, and fill it up with some of the new hypo I have been using, by which means I have always the same quantity when I wish to use it again.

"The beauty of the finished picture will much depend upon the printing and fixing; for if the printing be not deep enough, in fixing it, by the time you have got the right tone, the picture will be too light; if printed too deep, then, in making it light enough, you get a disagreeable greenish tone; but only practice can be your guide, for negatives vary so that one will take considerably more printing than another to produce the best picture. Also, in the fixing, they must be well watched; for when they arrive at the best tone, they begin to change most rapidly into the greenish colour I before mentioned.

"I have now given you a brief explanation of the method I have adopted in operating with albumenized paper, and trust I have so clearly expressed myself as to have made it intelligible to all. Should I have failed, however, in so doing, I shall be only too glad to give any further explanation, or to answer any questions asked.

"In conclusion, I beg to thank you for your patient attention; and should the above remarks be considered worthy of your acceptance, I shall be glad at some future time to give you the results of my experience in some of the other processes."

The Chairman observed that, while in London, Mr. Horne had told him that in preparing albumen it was always advisable to use the eggs stale.

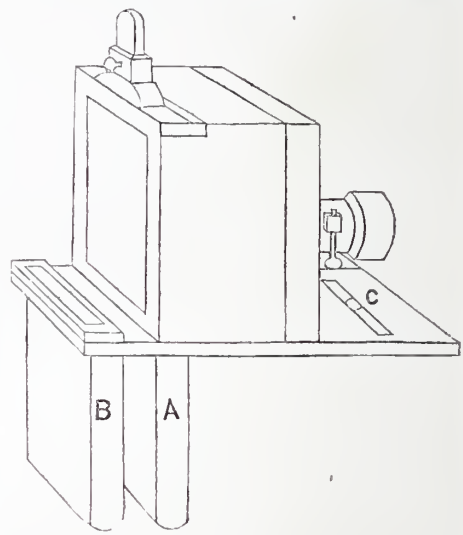
Mr. Clements said he always used them fresh, and seldom failed to get a fine gloss on the paper.

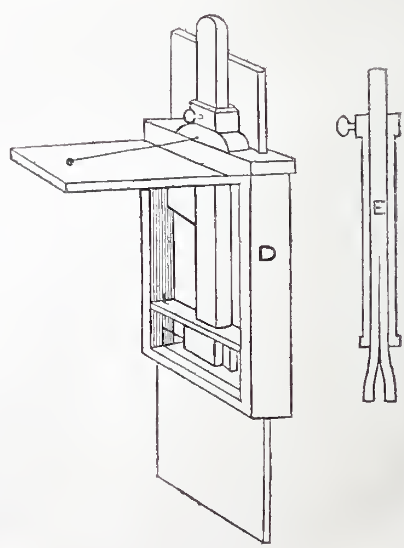
Mr. Corey was himself under the impression, that fresh eggs, when they could be obtained, were preferable, as stale eggs were calculated to produce sulphuretted hydrogen, which was very prejudicial to silver.

On the proposition of Mr. Forrest, a vote of thanks was by acclamation given to Mr. Clements for his practical and excellent paper.

Mr. Forrest exhibited and explained a camera containing some important improvements of his own. He said:—

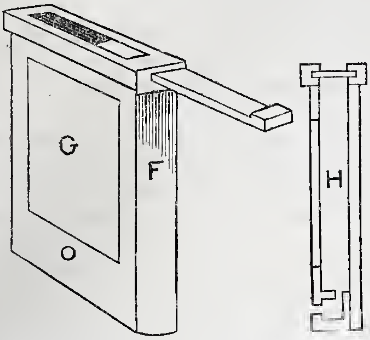
The adaptibility of photography to the requirements of the artist has been ably developed by Mr. McInnes in his small camera presented to this society in the early part of this year. It is to his unwearied exertions in this department of the art that we are indebted for an "Artist's Camera." He has been engaged lately in making it as perfect as possible; and I trust will bring it before the society at our next meeting. I regret exceedingly that the Journal did not give a wood-cut or two at the time, in explanation of its construction.* I hope that the hint may now be taken, and that illustrations may be given along with the one I am now about to lay before the society. The members of this society have the character abroad of being practical in their aim; having a single eye to the progress of the art; the Editor of the Journal never lending its pages to publish the nostrums of advertising quacks. I hold the principles involved in the course you follow to be of the highest possible value, and let me warn you not to be misled into any byepath; for assuredly the seeds of decay will enter when you cease to be the reflex of truth. And now for the camera and its requirements. Artists have, of late years, been obliged to acknowledge that photography is the hand-maid to art, and as such they have been anxious to employ her. The marvellous minuteness with which she pourtrays objects for a foreground, the folds of drapery, or garment, or ornament, unquestionably produce a great saving of time, and give truthfulness and beauty to the picture. Now comes the difficulty; the artist applies to some photographic friends for directions; he is told by one to follow the paper process; by another, the collodion, &c., &c., until he is perfectly puzzled which field to enter upon. He at last determines (for sake of argument) to follow the collodion process; he finds he is plunged into a sea of difficulties, and after having expended a considerable sum of money, he discovers he must either give up his pencil and take to photography, or throw photography to the winds. Now, this result mainly arises from the cumbrous nature of his apparatus, making a load of itself and a porter of the artist; but place a small parcel like this in his hand and tell him that it is a camera, tent, and everything he can want,





* We shall be most happy to do so if Mr. McInnes will furnish us with the requisite material. For a description of Mr. Forrest's Camera see note page 115.—Ed. L.P.J.

and that he can go out and take his objects without labour ;* place it near to any object or in any situation: he immediately says, this is the thing; I can take it up and lay it down



without labour or trouble, and lay it aside when I dont want it. The points of novelty in the camera are,—1st. A slot in the front to take stereoscopic pictures; 2nd. The dipper is so constructed that I can lower the plate into the dry bath for developing without touching it; 3rd. The bath for developing has a chamber in it, into which you pour the pyrogallic solution, and see the operation of developement under the protection of ruby glass. From the small size and short focus, the picture is instantaneous; consequently, you may take moving objects, and this is obtained with a great saving in material.

Mr. Forrest went through the mode of manipulation with this very portable camera, and shewed the simplicity of the operation and the completeness of the results.

The Chairman, in conveying the thanks of the meeting to Mr. Forrest, complimented that gentleman on the ingenuity he had bestowed in the development of his improvements, by which so many advantages had been secured to photographers.

This concluded the business of the evening, and the members adjourned until the next monthly meeting.

M. de Nothomb has addressed to the Editor of the *Bulletin de la Sociétie Francaise de Photographie* some observations upon the principal subjects which engaged the attention of the society during their late meeting. These remarks have been submitted to the committees appointed to examine the questions to which they relate. The following have been made public:—M. de Nothomb does not think it advisable to employ, according to the advice of M. Le Gray, the washing water for the developing bath for paper. He considers, morcover, that iodides of ammonium and potassium are the best accelerators for collodion. His experiencc also proves to him that the reproaches made against hyposulphite are unjust, and that, according to him, it is not the agent upon which depends the alteration of the positive proofs; that ought to be attributed invariably to the operation of strengthening. MM. Davannes and Girard also give their testimony in favour of hyposulphite of soda, but say that it must be used new instead of old. As to the question of the improvement of paper, M. de Nothomb says that he has obtained most excellent results with the new iodised waxed paper of M. Marion, and he was persuaded that this improvement was due to the sizing.

* A. Nitrate of Silver bath. B. Developing box. C. Slot for moving camera in taking stereoscopic pictures. D. Dark slide for dipping rod. E. Section of dipping rod. F. Developing box. G. Ruby glass. H. Section.

PHOTOGRAPHIC CHEMISTRY.

Mr. Hardwich on the use of Salts of Gold in Printing.—Mr. Hardwich has been experimenting on the effect of chloride of gold, and has given the public the benefit of the results which he thinks enables him to clear up some points of the chemistry of M. Le Gray's process. He says that there is evidently an unknown salt, compounded of silver and chlorine, which is evolved during the process of printing, but which will not stand the operation of fixing. M. Le Gray's bath of chloride of gold provides chlorine which bleaches the whites of the print by converting them into chloride of silver, and changes the reduced part to a violet tone, and deposits gold on the shadows, which is insoluble in the fixing bath; but both sulphur and chlorine assist in producing the tone. In using M. Le Gray's process, he finds it necessary to be very particular in preparing his paper. It is better not albumenized, but should be rendered sensitive on a strong bath of nitrate of silver. Too much salt he thinks prejudicial. He does not quite approve of Mr. Hennah's modification of the process, as the advantages are balanced by some inconveniences. Unless the hyposulphite bath be quite new and recently prepared, the composition of the deposit is altered to some extent, so as to be less reduced in intensity by the chlorine, for which allowance must be made; and the compound of chlorine and silver will require to be removed from the substance of the paper by the print being again subjected to the action of hyposulphite of soda.

Printing in Colours.—M. Durieu has brought before the French Photographic Society some further details of the process of M. Testud de Beauregard, which we noticed last month. He has modified his views with regard to the effects being referable to simple intensity of light, as we suggested we thought probable. It can neither be the duration nor the intensity of the action of the light. M. de Beauregard thinks that some of the effects may be attributed to the nature of the collodion he uses, which is thus prepared:—As soon as the cotton is touched by the nitric acid, he plunges it into pure hydrochloric acid in the proportion of 9 drs. cotton to 32½ drs. acid, stirring it from time to time till nitrous acid appears. He then places the whole in a non-metallic vessel filled with pure water, shakes and washes it, and for two hours allows water to percolate through it. After it is dried, he dissolves it in—

	sp. gr.	
27 ozs. æther (by weight).	0·736	In
9 ozs. alcohol (by weight)	0·828	summer.
30 ozs. æther (by weight).	0.736	In
5¾ ozs. alcohol by weight)	0·828	winter.

and submits it to a current of chlorine gas till it acquires a bluish tint. He iodizes with

Iodide of ammonium	124	grains.
Iodide of zinc..............	62	grains.
Bromide of ammonium ...	15½	grains.

to 1¾ pint of collodion. When perfectly dissolved, two drops of pure liquid ammonia are added to neutralize any acid that may have been liberated.

The collodion thus prepared should be preserved in a cool, dark place; it may be used in about five or six days; it is red at first, but becomes golden-yellow, crystalline, and very clear.

He sensitizes in a bath of nitrate of silver, 6 parts to the 100, to which is added, for every 3½ fluid ounces of water, 10 drops of the following solution:—

Distilled water	3½	ounces.
Iodine of zinc	15½	grains.
Nitrate of silver	15½	grains.
Liquid ammonia	2	drops.
Chloride of bromine	1	drop.

To develope the image the following solution is employed:—

Crystallizable acetic acid....	279	grains.
Crystallized citric acid	31	grains.
Acetate of zinc	15½	grains.
Pyrogallic acid	15½	grains.
Distilled water	10½	ounces.

When this solution is made, two drops of the following solution are added to it:—

Chloride of gold...............	15½	grains.
Distilled water	7	ounces.

The whole being agitated, left to rest for two days, and filtered.

When the impressions are too weak, they may be strengthened, even after fixing, by a solution of

Distilled water	3½	ounces.
Solution of chloride of gold (as above) ...	7	fluid drachms.
Nitrate of zinc	310	grains.
Nitrate of iron	15½	grains.

This mixture will not keep long in a liquid state.*

The fixing is performed by means of the following solution:—

Cyanide of silver	124	grains.
Cyanide of potassium.........	155	,,
Cyanide of zinc	15½	,,
Distilled water	17½	ounces.

This solution filtered may be used immediately.

On Positive Printing.—Sir Wm. Newton has written to express his surprise at Mr. Sutton having promulgated as a new process the mode of printing which has been long known and published as the negative process; and has repeated his reasons for adopting that process himself. But when he wrote this, he did not appear to be aware what was the modification of the earlier stages of the process, or what the "organic substance" used instead of salt or albumen, which appears to be Mr. Sutton's novelty. It is serum of milk or whey. And Mr. Sutton has published a paper on the chemistry of his process, in which he enlarges on the qualities of whey, on its component parts, and what he supposes to be their effect upon the print. A small portion of casein, which cannot be easily removed from the whey, he thinks to be of use in giving richness to the surface of the print, being coagulated by the acetic-acid of the nitrate-bath.

"Serum of milk was first used in photography by Blanquart Everard, and I believe he still employs it in printing. Foreign papers that have been immersed in serum lose a portion of their size, and that gentleman's prints, when tested by the tongue, appear to have done so; but a similar effect

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* M. T. de Beauregard preserves this mixture for an indefinite period by reducing it to a solid form, dissolving only a little as he requires it. He prepares in the same manner, in a solid state, the different baths of which the composition is given above, and the collodion itself, so that they may be easily carried about, and preserved unchanged until the moment when they are to be used.

may be produced by a weak solution of caustic alkali, employed either before the serum or after the hypo.

"Serum of milk has also been employed by Le Gray and his followers, who sometimes add to their iodizing solution a strange medley of organic substances, some of which I believe to be not only useless, but absolutely injurious to the proof. Gelatine, for instance, should only be introduced in small quantities, say 4 or 5 grains to the pint of fluid, in order to overcome the greasiness of the wax; and that homœopathic dose will be found quite sufficient.

"Papers prepared simply with serum appear to me to be sufficiently sensitive for my printing operations, without the addition of any of the usual salts. But their sensitiveness may be considerably increased by means of bromide of potassium. Five grains of this salt added to every ounce of whey will produce a paper so highly sensitive, that an *instantaneous* exposure to sunshine is sufficient for purposes of after-development. But the very same paper would require an exposure in the camera of some minutes, when placed in the focus of a No. 3 view lens, with a half-inch stop in front. And this little fact shows us how much stronger is diffused daylight than the light which forms the image on the ground glass. Let any one attempt to get an image of the window by means of a view lens with a small stop, on the opposite wall of a room *lighted by another window*, and he will find that image scarcely visible. In fact, diffused day-light is many hundred times stronger than the light in the focus of a view lens; how unreasonable therefore are those amateur photographers who admit straggling white light into their operating room! My sensitive printing papers, if allowed to dry in the light that I have sometimes observed in what is called the dark room, would infallibly brown all over under the action of the gallic acid."

Methylic Collodion.—Mr. Spiller announces that he has been able to produce a photographic collodion by dissolving gun-cotton in wood-naphtha, which he proposes to call methylic collodion, but it requires the spirit to be carefully freed from water, or the film will not resist the action of the nitrate bath. It will not do for positives, but once or twice when the film gave way under fixing, Mr. Spiller found positives on the glass itself. The disagreeable smell will be against its adoption, except in the case of large plates, where economy would be an object.

Instantaneous Positive Paper.—Mr. H. Claudet has published the following formula for Instantaneous Positive Paper:—Make a saturated solution of bichloride of mercury (corrosive sublimate), and dissolve two-thirds of an ounce of it in a pint of distilled water; pour it into a flat dish and float the paper over it. When the paper is dry, render it sensitive on a solution of nitrate of silver in distilled water (38 grains to the ounce), made in a dark place, with the light of a candle alone, the flame of which is covered by a yellow glass. Expose for about two to ten seconds in summer, and about one minute in winter. It is requisite to place the negative on the prepared paper in the frame, by the aid of the yellow light, to cover the frame with a black cloth, and when it is brought into the place of exposure, to arrange the frame so that the rays may fall as nearly as possible perpendicularly upon it; then to remove the black cloth, which is replaced as soon as the time of exposure has expired. The image appears very feebly when the paper is taken from the frame, but it is fully developed by means of a solution of sulphate of iron, 15 grains to the ounce of distilled water, to which about 25 grains of glacial acetic acid are added. This development must be watched, and arrested at the proper moment. The positive is then immediately washed, and fixed with hyposulphite of soda. This operation occupies about 15 minutes. By this operation a fine neutral black tint is obtained.

On Æther.—In *Humphrey's Journal* for July, which has just reached us, there is a long and carefully written paper, by Mr. W. Ross, upon Æther, its manufacture and use, from which we extract the following useful observations:—

"There is now lying before the writer a series of no less than sixty-four different formulæ for the mixing of the bodies which form the menstruum for dissolving the pyroxyline; and should I here transcribe them all, they would be seen to be mere repetitions of each other,—all the difference being in the measure of alcohol to be added to the æther. None of their authors, seemingly, see that the necessity of the smaller proportion of alcohol was only the effect of their alcoholized æther being much weaker than that of others who had used purer æther, although, doubtless, all supposed they were using æther of equal strength; or, possibly, some of them may have supposed that the strength of the æther made no difference. This is in reality the case, for provided the æther is at or above a certain strength, and that strength is *known* to the practitioner, it is not of much consequence what the strength is, as it is in his power to correct it by the addition of alcohol.

"The alcohol must itself be of a certain strength, as well as the æther; and it is equally necessary for the artist to know how strong *it* is, previous to mixing the two. Hadow, Hardwich, and Monckhoven, are almost the only authors of formulæ, who have, at the same time, given the precise strength of their material, either by direct specific gravity or by their per centage of pure æther, or absolute alcohol. None of the others' formulæ can with any certainty be followed by the practitioner, unless *his* alcohol and æther may by chance be of the same strength as theirs, and what that strength is we have no means of knowing.

"Those readers who read English only, should make themselves masters of Hardwich's work, recently published in London, entitled *A Manual of Photographic Chemistry*, which contains nearly all that is known in the art, and so arranged that the principles of any particular part of the process can be instantly referred to, and which, as the production of one who fully appreciates the wants of all who may dabble in the art occasionally, or who may follow it as a business, you can fully confide in. Those who only read French, should master the last production of Brebisson, and particularly that of Monckhoven; whilst those who can read both languages will be benefitted by reading all three."

Dish for Waxing Paper.—M. Gaillard laid before the French Photographic Society a sort of dish which he used for the waxing of the paper. This dish, of which the bottom and sides are made of tin, is closed over at the top with a plate of glass, held in its place by two bands of tin. Two openings furnished with pipes are inserted in the sides. To use it, you fill it with water to a certain height, and bring it up to the boiling point by heating the bottom of the dish either with a charcoal-fire or a spirit-lamp; or you may, instead of this, pass a current of steam into the interior, by means of a tube of vulcanised India-rubber. The sheet of paper is placed upon the plate of glass thus heated, and you rub over it a cake of wax, which becomes melted and penetrates it completely. To remove the superfluous wax, you begin by applying a second sheet upon the first, and rub them together with a dabber in such a manner that one absorbs the excess from the other. You finish by rubbing each separately with a dabber of silk paper, keeping it all the time on the heated glass.—*Bulletin de la Société Française de Photographie.*

Developing Solution.—In some experiments on acids capable of replacing acetic acid, as an addition to pyrogallic acid in reducing solutions, by MM. Girard and Davanne, they remark that there always existed, on the one hand a surface of iodide of silver, impressed by light, on the other an energetic developing agent, pyrogallic acid, and the addition of a body, which, without decomposing either, took possession of all the free nitrate of silver remaining on the surface of the glass, always sufficed to destroy all trace of the image. This fact, corroborated by so many others already known, would seem to indicate that developing agents only have the power in the presence of free nitrate of silver, however minute the quantity.

Development of Invisible Images.—Mr. Hardwich has published a paper on the development of invisible images, induced by some observations of M. Ludwig Moser. His remarks are confined principally to a comparison of the statements of M. Moser, with the facts evolved in the practice of photography, without pronouncing any opinion on his theories relating to the production of images on bodies by contact or the action of light. It appears that this phenomenon has an alternating action; after a time it diminishes till the image is altogether removed. M. Moser considers that a deposit of some vapour is made, which is afterwards apparently evaporated, absorbed, or condensed. Mr. Hardwich observes that this phenomenon of alternating action may be traced on the collodion film in the camera; as the intensity of the image is diminished, and if the film be thin, an opalescent deposit takes place which looks blue by reflected light, and suggests blue sky.

M. S. Geoffray suggests the following method for purifying papers from metallic spots, grease, &c.:—Under the influence of gentle heat, let three or four pieces at a time swim freely for an hour or more in a solution of 20 parts of citric acid to 200 parts of distilled water, then remove them to another dish, containing water rendered alkaline by 5 per cent. of ammonia; washing finally in pure water.

Chalybeography, or Photographic Engraving.—At a recent meeting of the French Photography Society, M. Lemaitre exhibited a highly interesting collection of prints, which comprehended all the efforts of photographic engraving made up to the present day. The most remarkable among the proofs was an unique engraving obtained in 1827, by Nicephore Niépce, representing Cardinal Amboise, in which the work arrived at a degree of excellence which has not been since surpassed. This is the only specimen known of the original heliographic engraving: following this, were many proofs from the essays at engraving executed by M. Fizeau, about 1843, upon daguerreotype plates; then some proofs taken by Hurliman, by the same method, under the direction of M. Lemaitre; and lastly, some more recently obtained, since 1853, by M. Lemaitre, in connection with M. Niépce de St. Victor.

PHOTOGRAPHY AT THE FRENCH EXHIBITION.

In the *Bulletin de la Société Française de Photographie,* there is a long and interesting account of the photographs exhibiting in Paris at the *Exposition Universelle,* of which our space this month allows us only to give a brief notice. M. Aguado is placed at the head of the exhibitors, for the taste with which he has selected the subjects of his exquisite proofs. They appear to be chiefly the interiors of forests, which the editor considers best adapted to display the capabilities and resources of the art. He mentions a view on the borders of a river as exceedingly fine. M. Balders is placed in the next rank; then M. de Beranger comes in for high praise, along with M. Delessert.

Photographic Gallery of Beauty.—Our friends across the Atlantic are certainly rather peculiar in their "notions" and schemes. In *Humphrey's Journal* we find a long advertisement from Mr. Barnum of world wide notoriety, for a "Gallery of American Beauty. Two Hundred Premiums! amounting to over Five Thousand Dollars! Presented to the Handsomest Ladies in America!!—The Portrait Gallery of Beauty! The People to be the Judges! An eminent publishing house in Paris is engaged in issuing a series of the most distinguished Female Beauties in the world, which, when completed is to include ten *of the most beautiful ladies in the United States and the Canadas.* In order to obtain such specimens of American beauty as will compare favourably with any that the Old World can produce—as well also as to secure in a permanent form a Gallery of Original Portraits, unequalled in the world for graceful perfection, and at the same time encourage a more popular taste for the Fine Arts, stimulate to extra exertion the genius of our Painters, and laudably gratify the public curiosity—the subscriber will give over Five Thousand Dollars in Premiums." We did not expect to find our Parisian friends taking up such an extensive, and we should think, dangerous speculation as to venture on the attempt to distinguish the handsomest ladies of France and other parts of the world. What will happen to the judges if the rejected ones catch hold of them? Will they adopt Mr. Barnum's method of making each lady select a number, and take the votes?

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—In taking photographic negatives on paper, I have many of them spoiled by a portion of the centre being apparently overdone. This only begins to appear when the picture is partially developed, and deteriorates them greatly for taking positives from. I send specimens. You will do me a very great favour by, in your next number, informing me what you think is the cause of this, or suggesting how it may be discovered. I use the front lens of a double half-plate combination. The lens is 2¼ in. diameter, and for pictures such as those sent here I use with a diaphragm with ⅜ in. aperture.

I am, your obedient Servant,

J. M.

[The foremost lens of a combination when reversed will produce good pictures, but the rays are then confined to the centre—a shorter tube should be substituted. See Mr. Thomas' observations in our last number, p. 105. Try a smaller aperture.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Your kindness in replying to a former communication, induces me again to trespass upon your valuable time, with the following queries:—

1st.—I have some pictures, taken some time ago, and *varnished with transparent varnish,* upon which, when dry, Brunswick black (slightly thinned with turpentine) was poured: they have gone black all over. Can you tell me the cause? My developer was iron and nitrate of potash, with acetic and nitric acids. Do you think the nitrate of potash had anything to do with it? Some others, developed with iron alone, have kept very well.

2.—You recommend "ordinary *pale* lacquer" as a good common transparent varnish for positives. I have enquired for some here, and can find no other than "pale gold lacquer," which is of a *deep-red* colour. Is that the kind meant? Would hard gums, dissolved in naptha, do for a varnish?

3.—You recommend bromide and iodide of potassium as iodizing agents for collodion, but in one of your journals say that "when bromides are used, a 50-grain bath seems necessary." Can you give me a formula for a good collodion, suitable for a 30-grain bath? I use one which I sensitize with iodide of ammonia $2\frac{1}{2}$ grs., bromide of potassium $\frac{1}{2}$ gr., iodide of silver $\frac{1}{2}$ gr. to the oz., my bath being a 30-grain. Do you think a 50-grain one would be preferable?

By replying to these queries in your forthcoming journal, you will greatly oblige, Sir, yours respectfully, STUDIO.

Manchester, August 28th, 1855.

[1. Your Brunswick black would appear to have penetrated through the transparent varnish. 2. Pale gold lacquer is what was recommended. 3. You cannot have a better, the stronger bath is necessary where bromides are used alone.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I should feel greatly obliged if you would answer the two following questions in the next number of your journal:—

1st.—In taking a portrait by the collodion process, with two meniscus lenses, how long ought the picture to be exposed to the light in an ordinary camera on a fine day?

2nd.—The best fixing solution.

I am, Sir, your obedient Servant,

September 3rd, 1855. CAMERA.

[1. We doubt whether a portrait can be taken satisfactorily with two meniscus lenses; and nothing but a trial of the lenses can give the time. Try some other object for two minutes.—2. Hyposulphite of soda, 3 ounces to the pint of water.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—May I beg a small space in your valuable journal, for the purpose of throwing out a hint to photographers.

There seems to be such a variety of opinions amongst photographers, as to the best means of extracting the hypo-sulphite of soda from positives, and none, it seems, has the desired effect, that I am induced to offer the few following remarks, in the hope that it may be of some service to the photographic world. I make no pretensions to photography beyond for my own amusement, therefore I hope that it may be received only as a hint, but at the same time one that's worth trying.

The article I have used is plain spirits of wine, and the *modus operandi* I should say thus—(this is the plan I follow in my little way):—After the operator has fixed his picture in the hypo-bath, and washed it in the usual way in water, let him soak the picture, say for 6 hours, in plain spirits of wine 60° o.p. (I soaked one for 14 hours, without any change in the subject), after which pass the print through two or three pans of plain or distilled water which you think best, and dry in the ordinary way.

I will answer the spirits will extract all the hypo; but whether the spirits will ultimately affect the picture or not, I must leave for others to say. At all events, I think it worth a trial; and if some of your talented members, such as Messrs. Mercer, Berry, or Corey, would make a trial and report progress, for the benefit of your numerous readers, I think many, and a great many, would heartily thank them for the joyful intelligence.

Trusting the above may be of service to your numerous readers,—I am, Sir, your well-wisher,

HENRY KING.

P.S.—It must be distinctly understood the above is for the paper process only.

43, *Warwick Street, Regent Street, London, August 27th*, 1855.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 22.—OCTOBER 13, 1855.

As the season for practical photography declines, speculative photography raises its head. The facts or notions elicited during practice begin to ferment, to excite consideration, to range themselves on the side of new or old theories, and the combatants rush into the field to "fight their battles o'er agaiu," or originate new contests, from which we trust the truth will gradually be discovered, aud the art, together with the science, advanced. All the journals are full of speculations of various kinds, most of which we have transferred to our pages. One will improve the stereoscope,—we fear it is not quite new; another attempts to combine albumen with collodion; another will work without a lens. The *ignis fatuus* of printing or photographing in natural colours attracts some, and repels others, or induces them to argue against the possibility of such an achievement.

The subject of positive printing by the negative process of development is coming more prominently before the photographic world in consequence of Mr. Sutton's pamphlet. We print a letter from our iudefatigable member, Mr. G. R. Berry, who appears to think that the use of whey is unnecessary, and that the common albumenised paper will answer the purpose; but Sir W. J. Newton has written a letter to say that he agrees with Mr. Sutton as to the whey being indispensable for French paper, so far as he had been able to try the experiment. He had found a double advantage in substituting camphor whey for camphor water in his own process of printing by the negative mode. The camphor retaius its own beneficial properties, and preserves the whey pure for a longer time.

Mr. Sutton has forwarded to us a specimeu of his printing,—a copy of an engraving iu which every line is perfectly reproduced, and the tone very agreeable; but we think the original subject was scarcely adapted to do justice to the method of printing. Mr. Sutton also iuforms us that he has founded, in Jersey, au establishment for permaneut photographic printing, at the suggestion of His Royal Highness Prince Albert, and under his patronage, and that he will have the assistance of M. Blanquart Everard. They propose to bring out two Photographic Albums every month, to be called "The Amateur's Photographic Album," and "the Artist's Photographic Album," each to contain four prints, price 6s. He informs us that amateurs will be appealed to for the loan of their negatives; their name will be engraved on the mount: and, in addition to the reputation, they will receive two numbers of the Album as an acknowledgment. The artists will be applied to, to lend their works, which will be photographed, gratis, and they will also receive two numbers of the Album in return, aud we suppose some arrangement may be come to for the supply of any number of photographs of their own works. Mr. Sutton states that he can print 20,000 per week in auy weather, except in severe frost.

The application of photography to scieutific purposes, which has been so often urged by Mr. Frank Howard, at the meetings of our societies, appears to have taken root, and borne fruit, in Paris. We have given some notice of certain productions lately laid before the *Academie des Sciences*, by M. Valenciennes; the work of M. Rousseau, whose labours in the direction of preserving transcripts of anatomical specimens, connected with various branches of zoology, appear to have been extensive. In the French exposition there are a great number of his works exhibited; and, while we regret our own backwardness iu this respect, we must cougratulate Paris upon such an appropriate use of this invaluable art. There are many other subjects to which it might be applied with great benefit. The complete series of armour from the earliest to the present time, preserved in Paris, would furnish an illustration of costume, to which no published work could form a parallel. If, to the photographs of the armour were added transcripts of the monumental effigies, a body of information would be afforded to the artist and antiquary, which would be of the greatest value to the former, and of the greatest interest to the latter; their accuracy might be depended on, and nothing would be left to conjecture. The new method of Dr. Taupenot, of which we have given a report in this number, appears to be admirably adapted for this purpose, as it is remarkably successful in interiors, where the monuments are generally situated, and where the armour would be most readily photographed. We have, at the moment of going to press, received the September number of the "Bulletin de la Sociéte Françaís de Photographie," in which the merits of this new process are highly eulogised.

Brighton and Sussex Photographic Society.—We announced last month, that a Photographic Society has been organised in this favourite watering place, and we have received the following account from a correspondent:—"The fifth monthly meeting was held in the Council Chamber, Town-hall, on Monday, the first instant, when a communication was made by J. Hall, Esq., on "Photography in connexion with the fine arts." At the four previous meetings papers were read on the various photographic processes: at the first, "On Calotype," by the Rev. W. F. W. Watson; at the second, "On Daguerreotype," by Mr. E. Collier; at the third, "On the Waxed Paper Process," by Mr. E. Streeter; and at the fourth, "On the Collodion Process," by Mr. E. B. Stamp. These meetings having been well attended and ably supported by discussion, augur well for the future career of the society, and considering that its enrolled members now number 40, after an establishment of four months, we think it bids fair to rival some of the older societies."

Photography applied to Natural Sciences.—M. A. Valenciennes made a communication to the Academy of Science, relative to the application of Photography to the records of scientific facts. He produced four new Photographic pictures, made from the Museum of Natural History, by his assistant M. Louis Rousseau: two represent the solid matter formed by the animals of the Polypus class. One of these bodies was calcareous, and had been named by M. M. Milne Edwards, and Jules Haime, *Stylaster Stabelliformis*. The photograph was taken from a specimen reported by Peron and Lesueur, and described by Lamarck an "*oculine*;" the other is a cellular body, entirely silicious, from the seas of Antilles, and which M. Valenciennes had described in his monograph upon sponges, under the name of *Sphitira panicea*. The other two photographs represented important portions of comparative osteology; one was the dentition of a lion of fifteen months, and the other that of a lion of six months, the maxillary bones have been opened to show the teeth appearing under the temporary or milk-teeth. These two photographs, he observed, were remarkable for their magnitude, for M. Rousseau has been able to reproduce them with but little diminution from the natural size of the bones. The brilliancy and whiteness of this photograph was above all worthy of notice. It had been highly appreciated by his celebrated coadjutor, M. R. Owen, who assisted at the performance, and who has told him that he had never beheld such perfect representation of anatomical subjects. This then was a new service that M. Rousseau has just rendered, by the photographic reproduction of anatomical specimens, for he would remind them that M. Rousseau had already obtained most important results, when he found the means, very simple all the while, of placing his instrument so that he could photograph soft bodies preserved under water. Such were the anatomical preparations of the *ascarides*, which M. Valenciennes had presented to the Academy.—*Bull. de la Sociéte Francais de Photographie.*

Stereoscope improved, by M. Grillet.—M. Grillet has brought under the notice of the members of the French Photographic Society a stereoscope greatly improved, for which he does not intend to take out a patent; but on the contrary, he has placed it at the disposal of the different makers. The alleged improvement consists—1st. Of a diaphragm placed in the interior of the instrument in such a manner that the photographic image only can be seen without the white mounting-board. 2. In the fixing of the glasses, cut to an angle, mounted in caps, and fitted in such a manner that they can not be displaced. The caps are made with a screw, which admits of taking out the glasses to clean them and return them at pleasure to the proper position for them.—*Bull. de la Sociéte Francais de Photographie.*

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The eighth meeting of the session was held on the evening of Tuesday, October 2nd, at the Society's room, Royal Institution, Colquitt-street.

Some beautiful specimens of printing from collodion negatives were exhibited, including a view of St. George's Hall, by Mr. Forrest, published for the benefit of the Society.

Mr. Frank Howard having been called to the chair, congratulated the members on so full a meeting, under the circumstances of season and weather, observing that they were more fortunate than their neighbours, who were obliged to take recesses, but the Liverpool Society were able to go on with fresh matter every evening for their amusement and benefit. There was, however, one thing very close on his conscience, viz., Mr. Thomas's scheme for relieving the Society by the sale of printed photographs, voluntarily contributed for that purpose. They had not progressed quite so rapidly as he could have wished; still some negatives had been sent in, one being a view of Penwortham Priory, by Mr. Samuel Cartwright, of Preston, and Mr. Forrest had presented a work of considerable interest—a negative of St. George's Hall; Mr. Berry had given some prints of Huskisson's Monument; the sale of the beautiful view of Speke Hall was continued for the same object, and with great success; and Mr. Lee and Mr. Morecroft had promised specimens, and had only been prevented from doing so, he was sure, because they had been so pressed with their private engagements. He begged respectfully to remind their friends that the sooner their contributions were sent in the better it would be for the Society. In the meantime two prints had been sent in by Mr. Hooper, of Bradford, accompanied by the following letter:—

Trafalgar-street, Bradford,
September 4, 1855.

Dear Sir,—Yours is to hand respecting the negatives for printing, &c. &c. I am sorry I have none worth the trouble to send, not having done much this year in out-door work on account of ill health and business. I will however send a couple of positives of B. Everard's (those Mr. Sutton recommends so highly for their tone), published at 3s. 4d. each. I said in a former letter that I would contribute 5s. to the funds. I should now, however, like to have 5s. worth of photographs; and if they really are good, may be more.

Trusting you will have sufficient for your purpose,
Dear Sir, yours,
W. HOOPER.

These prints, of large size and warm tone, were handed round, and as specimens of printing much admired.

The Chairman further observed, that two negatives had also been obtained by Mr. Higgin from the Rev. St. Vincent Beechy, of old Worsley Hall, and were, he believed, in the hands of the printer.

The Secretary read the following letter from Mr. Mercer:—

Chemist's Association, Royal Institution.
7, *Church-st., Liverpool, 20th Sept.*, 1855.

Dear Sir,—I have the pleasure to inform you, that at a meeting of the Council it was unanimously resolved, that the invitation to attend all the public meetings of the Association be renewed to the President and Secretaries of the Photographic Society.

I am, dear Sir,
Yours faithfully,
N. MERCER, Hon. Sec.

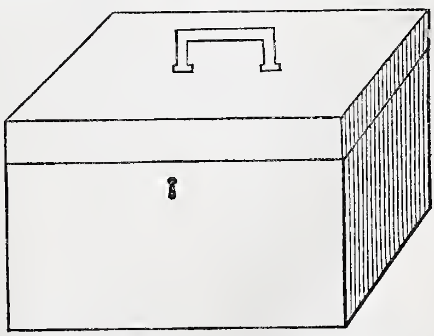
J. A. Forrest, Esq.
Hon. Sec. Photographic Society.

At the request of the Chairman, Mr. M'Innes exhibited and explained his beautiful, convenient, and very portable camera and chemical chest, and made the following remarks thereon:—

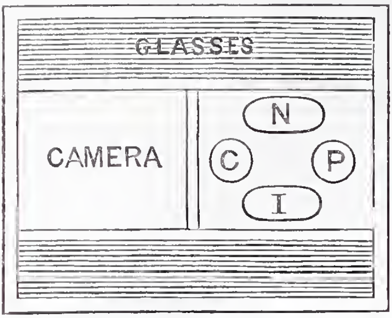
"So many ingenious plans of portable cameras have been brought forward from time to time, that it makes me somewhat diffident in again obtruding mine before your notice, but as it was at that time in a rude and imperfect form, I thought that it might interest some of the members of the Society were I to exhibit it in its more finished and compact shape.

"I have now had more than twelve months' experience of its capabilities,—have worked it in all weathers, and in various situations, and I can assure you that I have had no cause to regret having turned my attention in this direction. In all my excursions to the country it has been my constant and pleasant companion, ready at all times to provide an object to a ramble, and enhancing in a great degree my enjoyment of the country.

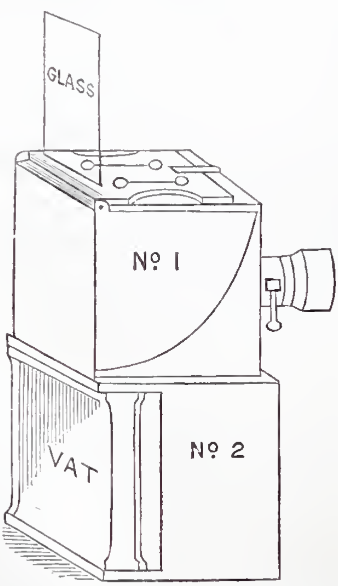
"The whole apparatus is contained in a small box, like a despatch box, about eight inches long, by six wide, and five inches high.



"Within, the box is divided longitudinally, so as to carry the camera and chemicals in the centre, and sixteen glasses at the sides.



"The lens is packed within the camera, which has also an outer case that serves for a stand, and secures the sensitizing bath beneath the glass plate. The camera slides into a groove on the top of this case. The nitrate bath is fixed in its proper situation; and one of the pieces of glass, having been coated with collodion, is passed down through a slit at the back of the camera into the nitrate bath. The other end of the glass, on which some varnish has been placed, serves to focus upon; and when the plate is sensitised it is drawn up, until a dark line, which divides the glass into two parts, appears above the slit. A spring is contrived on the top of the camera to fix the plate when it is in the proper situation."



"When the exposure is considered sufficient, a shield or case of the form described and delineated, vol. 1, p, 76, of our journal, but with the addition of a black velvet curtain, at the bottom opening, is placed over the upper part of the glass. The spring having been drawn back so as to release the plate, the sensitized portion is drawn up within the shield, the black velvet curtain wrapped quickly over the lower opening, and thus protected is carried to the developing bath, which I always place at some convenient distance against a stone, or convenient prop, and the sensitized portion of the plate is dropped into it, through the shield, and the operation is complete.

"The spring by which the glass is held in place will be seen on the top of the camera; and a quadrant line indicates a guarded flap, which forms the back of the camera, and is contrived to lift up so as to allow of the focussing, and then to close completely for the purpose of taking the view. The lens is fitted with a very long rack so as to admit of any adjustment of focus.

"The lens being small and of short focus, (I use a double combination,) enables me to take views of objects from situations where it would almost be impossible to use the long-focussed lenses.

"To the landscape painter, I am inclined to think this would be a recommendation;—a rugged rock, a moss-covered stump, or a group of leaves, could be most faithfully copied, and would save him many a weary hour spent in sketching detail from nature, besides giving so accurately the character of the subjects he might wish to introduce into his picture.

"As my method of printing does not admit of strong negatives, I usually develop my pictures with the positive developing solution. What I require is sharpness, and plenty of detail; I care not how faint they are.

"I have brought a few specimens enlarged, from negatives, taken by this apparatus. You will observe that they have to be viewed by transmitted light. They possess, I think, a character peculiarly their own.

"Some time ago I described my method of enlarging from negatives, and the way these transparent pictures are produced, (see *Journal*, No. 12., p. 156). At that time I exhibited a few printed by artificial light. Since that time I have worked altogether by artificial light, and find that I can do so with more certainty than by daylight, as the operation by day is so rapid that a passing cloud is often sufficient to spoil the picture. As I cannot command the light from gas, I make use of a common oil-lamp—one on the solar principle.

"I have for a long period been endeavouring to reduce to a certainty my mode of transferring the collodiou film on to paper, without running any risk of injuring the film, and trust to be enabled to lay the whole process before you at the next meeting."

In reply to a member, Mr. M'Innes stated, in his opinion it was better to develop, in the case he had explained, with iron than pyrogallic acid. This camera would be extremely useful in assisting artists in sketching, as it would save a vast deal of trouble in obtaining minute details. The foliage in some pictures he had taken were distinctly and beatifully developed.

Mr. Forrest observed that one of the great advantages of this camera was that they could focus a subject while the plate was in the bath, so that a difficult object to take, a child for instance, could be caught at once.

Mr. M'Innes said another great advantage was, that they might expose the plate the moment it was out of the bath. He always found the collodion more sensitive then than at any other time.

Mr. Berry: May I ask Mr. M'Innes if he will favour us, at some future time, with the full details of this invention. He has brought it to a point now very different from what it was before. Here are real pictures produced worthy of every attention.

Mr. M'Innes remarked that the camera was capable of still greater improvement.

Mr. Berry: Some of these pictures (enlarged transparencies) are beautiful.

Mr. Forrest also hoped that Mr. M'Innes would be persuaded to give them another paper on the subject. He did not think the subject sufficiently ventilated at present. If he gave them a paper he would be conferring a great benefit on the Society.

In reply to a member, Mr. M'Innes stated that his apparatus, lens and all, cost about three guineas.

After some further conversation the thanks of the Society were, by acclamation, presented to Mr. M'Innes for bringing forward his ingenious contrivance.

Mr. J. A. Forrest next proceeded to make some observations with reference to the honey process. The other day he met an operator with some very beautiful specimens, and he asked his mode of operatiou. The gentleman replied, that he coated the plate, after taking it out of the sensitive bath, with honey, four times, and allowed it to drain. He found that it remained sensitive in that case for a couple of days, which enabled him to take open air views *ad libitum*. On returning home he put a little distilled water into one of the ordinary trays, and allowed the water to flow over the plate. He then took it out, and developed in the half honey and half pyrogallic solution of 2 grains to the ounce, which he poured on the plate, and let it stand a quarter of an hour or twenty minutes. He developed with that by pouring it backwards and forwards until he got the full detail. He deepened the tone by adding a small portion of silver solution. Another gentleman, whose specimens were very good, never used any water at all. After returning with the plates, having exposed them, he poured a small portion of his honey solution over the plate, and allowed it to stand about half-au-hour, and then completed it the same way as the previous one.

Mr. Berry said a word for photographers in general, and he hoped it would be remembered. If they could produce a result once, he wanted to know the reason why they were not able to produce it again. There was no real reason why they should not. The reason they were not able at all times to accomplish what they wished was, because they did not take the trouble to analyse the causes of success or failure. He knew some iudividuals who had beguu with the honey process, and had obtained beautiful pictures, but who, on meeting with some difficulties, without taking the trouble to examine the causes, had hastily returned to the old system. On the other hand, he could recal one gentleman who had diligently persevered with the honey process, never swerving from it, and he invariably succeeded in all his pictures. Only that day he had seeu some portraits this gentleman had taken, which were quite equal to any he had ever seen from negatives; while he had known pieces of detail copied under the most difficult circumstances, among which were the darker portions of St. George's Hall. These were full of strength of detail and softness. The person to whom he referred had not begun more than three months at the outside, and he now never failed in his pictures. Photographers generally reminded him of Hogarth's picture of the quack doctor, surrounded by various mysterious implements of his trade, and among many other complicated articles, one to assist him in drawing a cork out of a bottle. They would not go the straight way about it, and they could not get the cork out after all.

A Member observed, that he perseveringly tried the honey process, had obtained new chemicals, and, by advice, had used grape sugar in the process, but had not been able to succeed.

Mr. Berry, having stated that common raspberry vinegar would do, produced about forty beautiful stereoscopic pictures which he had taken in two days, besides enjoying himself. They were all developed in the usual way, and he had scarcely one failure the whole time. Some were taken with collodion with the addition of honey and nitrate of silver. Some people were so afraid of light. One of these pictures was taken in the South of England, and developed in a room whitewashed throughout, with only one fold of yellow calico over the window and although the sun was shining, the picture was developed by that window. He had received from a gentleman a specimen of photography, taken without a lens. It had been unfortunately broken, but sufficient remained to show that it had been very sharp and distinct. There was a piece of land on the farther side of a river which was very perfectly represented, keeping its place with great truth. It had been taken by means of a hole the fortieth part of an inch in diameter, drilled through a tin plate. It must be perfectly round and smooth. The plate was exposed eight minutes. He had also from the same gentleman two specimens of transparent positives. One was very good, but there was no advantage in the process; it was merely curious. The way to do it was this: The operator took the view in the camera, and then went into a dark room, where he poured over the pyrogallic solution, and just as the picture was coming out, he emerged into the light room. This at once overturned the balance, and reversed the effect. What originally would have been dark, was converted into light, and *vice versâ*. The gentleman had promised to give a paper on this subject for the *Journal*. Mr. M'Innes' transparent positives were taken in the camera from the negative, by a second operation.

Mr. Berry then read the following paper on *Fancies of Photography*:—

"From very many causes those who practice photography, especially amateurs, not only themselves fall into grievous errors both in theory and practice, but the erroneous deductions they draw from fallacious diagnosis lead others into endless trouble and disappointment, who with beating hearts follow eagerly after these photographic *ignes fatui*. It is from a sincere desire to help to terminate a chase so unsatisfactory in its results, pecuniary as well as pictorially, I venture to lay before you the following observations on the collodion process; and at the risk of raking up old grievances I must again examine the composition of the collodion, the silver bath, and the use or abuse of the developing agent.

"One experimenter first persuades himself, and then impresses it upon others, that it is essentially necessary to remove all water from the æther and spirit used in making the collodion, and this is generally accomplished by placing dried carbonate of potash in the mixture, which soon deprives it of the greater portion of the aqueous element. Some even go to the extent of using quicklime and distillation. Taking this for granted, we have a spirituous fluid of great strength, and doubtless an admirable solvent of the gun cotton or paper. Now comes the sensitizing. Iodide of potassium is first tried as having been extolled as a certain producer of negatives. Alas! the film produced in the silver bath is what is technically called "thin, aye very thin," and the operator is obliged to seek some other iodide or bromide which shall dissolve more readily in his Procrustean solvent, and he forthwith declares it is impossible to obtain a negative with an iodide of potassium collodion. The unfortunate iodide is therefore tabooed by all photographers in difficulties. Another, either by insufficient development or the use of too strong a solution of cyanide, finds his proofs marvellously to lose strength and detail in the process of clearing, and he forthwith declares it is impossible to clear negatives with cyanide, and incontinently the gentlemen in difficulties apply themselves unto hypo, and too frequently they lose not only the detail but the film itself (through much soaking), into the bargain for their pains.

I have given only two illustrations, but I could multiply instances almost *ad infinitum*, especially if I were to dive into the curiosities of chemistry, as exemplified in the preparation of sensitive collodion. The almost numberless formulæ, all doubtless under certain circumstances good and successful, and as certainly useless under the circumstances as tried by others, have caused an enormous consumption of spirit, æther, and nitrate of silver, to the blackening of fingers and linen, and I fear also in some instances, the tongue itself, by the wrathful expletives ejaculated by the unhappy photos.

"There is one failing to which amateurs are especially liable, and that is mixing the chemicals; for instance, the bath, as the saying is, does not work well, that is, the results are not good; the unfortunate bath is consequently tormented with acid or alkali, acetate, iodide, or other compounds of silver, alcohol, or æther, or both are administered, in doses which would horrify Mr. Gough, and yet after all the "hanged" thing will not work; or on the other hand the collodion is at fault, and so to some of Thomas's is added a little of Hockin's, or Horne's, or some one else's, and very likely a little of own make, making confusion worse confounded; and then as a *dernier resort*, having failed on both bath and collodion, they make what they augur will be the successful attack on the Malakoff of the position, and in vulgar parlance walk into the developer; and here the forms used are as numerous as the users thereof: in fact it is useless to proceed with causes of failure, and I will now instance those points essential to success.

"The first point is the collodion; and provided the cotton or paper is of good quality, and the spirit and æther not too strong or too weak, a good result may be obtained with any sensitizing agent, providing the bath is of corresponding strength. I will now point out the essentials for producing collodion, avoiding all formulæ, and instance a few precautions to be observed in the purchase of material. First, spirit of wine or alcohol. Although the use of absolute alcohol, as it is called by chemists, is neither essential or advisable, yet there is a strength under which the collodion prepared with it will be found defective, and as the excise laws bear very oppressively upon the sale of spirit by chemists, it is difficult to obtain it from them unless mixed with æther, &c.; but supposing the purchaser should determine to buy the necessary materials for the solution of his cotton, and desires to ensure their purity, he puts the question to the druggist, "What is the strength of the alcohol?" The ready reply is "Oh sir, Pharmacopœia strength sir, we prepare every thing precisely according to the Pharmacopœia;" but although the Pharmacopœia may be a very good book in its way, and should strictly be the rule of life to every pharmaceutist, yet the *Spiritus Rectificatus* of P. L. or P. E. like many other pharmaceutical preparations, will not avail in the photographic codex. The *Spiritus Rectificatus* of the London and Dublin colleges is S.G. 838 being 56 over proof by Sikes' hydrometer, and containing 84 per cent. absolute alcohol, and 16 per cent. water, while the spirit required for photographic purposes should be that which most respectable rectifiers supply to the trade, the S.G. of which is 829°—60 5 over proof, and containing 87·33 per cent. alcohol, and 12·67 water.

"The sulphuric æther should have a gravity not exceeding 740°, it can be procured from respectable London makers as low as 735°. I give the result of various testings from my own laboratory book, 757°, 773°, 741°, 749°, 763°, 753°, 750°, as being rejected samples. Æther suitable for the preparation of collodion should be free from either sulphuric or sulphurous acids; a simple test is by litmus paper, which should be neither reddened nor bleached by immersion in it, and if of the gravity above mentioned may be considered suitable for the purpose.

"Being thus certain that the spirit and æther are unexceptionable, and mixed in the proper quantities, the cotton also being good, and the requisite quantity of sensitive introduced, the next point is the silver bath. And here nothing more is really necessary than that the nitrate of silver shall be pure, and shall have been crystallized from the fused nitrate, and shall not be less than 30 grains to 1 ounce. The larger per centage of sensitive in the collodion the stronger must be the exciting bath, and by attention to this rule the successful results of collodion and bath can at all times be ensured.

"I will give a simple illustration of photographic analysis. We will suppose a specimen of collodion that has worked well with a bath originally 30 grains to 1 ounce, after working some time the balance of chemical action is destroyed by the constant drain of silver from the bath, and the collodionized plate begins to exhibit, especially upon its lower edge, a species of surface crystallization similar to that sometimes observed on our windows in frosty weather. Doubtless every photographer knows the effect I mention to his bitter cost; I have seen traces of it in the printed positives of some of our ablest professionals.

"In this case our reason at once tells us the quantity of sensitive in the collodion remaining constant has become too strong for the weakened bath; and by the addition of a small quantity of nitrate of silver the balance will be restored and clean pictures obtained. Here we have one fixed point from whence we can proceed to the elucidation of causes of failures.

"We have a collodion of known composition, and it worked well with a 30-grain bath, and when the bath became weakened the result was vitiated *because the bath was too dilute.* From this we will take a step in another direction. We use the same collodion, but this time we have a stronger bath than 30 grains, and the same crystalline appearance is observed on the plate. We immediately reason thus: this collodion was faultless with 30-grain solution, and became defective when that strength was much diminished, but here is the same effect produced with the same collodion, *but the bath is stronger;* the deduction must be, the bath is too strong for the collodion, and (within reasonable limits) if this be true, two ways are open for the removal of the imperfection; we may add a little water to the bath until the collodion works well again, or we may add a little more sensitive to the collodion until it is able to give a clear picture with the stronger bath; you will find either way perfectly satisfactory. I think this will exemplify what seems to me the only means by which any practical progress can be expected by any one. We must have data upon which we have no doubt, before we can either practically or theoretically succeed in our deductions.

We will now proceed a step further in our analysis, and having secured by one or other of the indicated means the proper balance between the collodion and bath, we proceed to exposure and development. Here much more latitude may be allowed for the strength of the developer, but I believe a solution of 1 grain pyrogallic acid with 20 drops glacial acetic acid and 1 drachm of spirit to the oz. of water will in all cases fulfil every thing that can be desired; and yet in the development seem to arise a very great number of failures, especially to those who have been previously addicted to the bad habit of taking positives, the practice in the two cases being diametrically opposite; the positive man, with his irony solution, no sooner discovers the slightest appearance of detail in the dark parts of his picture, than with spasmodic haste he clears it of the developer, and assiduously washes the plate with water ere he clears it, but our steady negative friend with his pyrogallic mixture, hails with delight every successive appearance of detail, and by the cautious application of a few drops of the silver bath to his already discolored developer, and assiduously pouring it on and off the plate without weariness or fainting, is enabled to increase the vigour of his impression, until, if he so desire it, it shall be so dense that half a day's sunshine will scarce suffice for the production of a fully printed positive."

The paper led to an interesting discussion, which was closed by a vote of thanks to Mr. Berry. The meeting then adjourned till next month.

PROCESSES.

Albumen on Collodion.—Dr. J. M. Taupenot has announced that in the search for a new varnish he has discovered a method of working on dry collodion, which he conceives will be very advantageous under many circumstances. He coats the collodion with a film of iodized albumen;—1½ per cent. of iodide of potassium. If this varnish is to be kept for any time, he adds 10 per cent. of honey and a little yeast, to cause it to ferment, after which it is to be filtered and stored in bottles which will not contain more than 6 ounces, so that it may not be long exposed to the air after they have been opened for use. He covers the plate with collodion, dips it in the silver bath, washes it in distilled water, and then pours this varnish of iodized albumen over it; after which it is allowed to drain and dry. The plates may be preserved in this state for several days. Prior to use it must be dipped into a recently filtered aceto-nitrate bath:—

Nitrate of silver	10
Acetic acid	10
Distilled water...........................	100

and left there for 10 or 20 seconds, after which it must be again washed with distilled water, when it may be exposed in the camera either in its moist state, or on the following day. The development may be postponed till the day after exposure, and effected with either saturated solution of gallic acid, with a few drops of fresh aceto-nitrate; or with pyrogallic acid, to which 6 per cent. of acetic acid has been added, mixed with an equal volume of a 2 per cent. nitrate of silver solution; and before pouring it on, Dr. Taupenot moistens the surface of the film with distilled water, that the developing fluid may spread quickly and evenly over the plate. It should be poured on and off as usual till the development is completed, or until the mixture becomes muddy, in which case fresh fluid must be taken. In most cases the development will occupy from five to ten minutes, but sometimes not more than one.

Dr. Taupenot also says that an iron bath may be used, and appears to give greater rapidity; but he appears to prefer the gallic or the pyrogallic acid, with which he has been able to work very fast. He had taken on dry plates, prepared the evening before, by exposures varying from six seconds to a minute, groups of players at bowls; the pupils at work in the *Gymnase;* views of the procession of the *Fete-dieu,* in the *Cour d'honneur, &c.* But the most important value of the method appears to be its capability of taking interior views, for instances of which he refers to the High Altar of *Prytanée*, the *Bibliotheque*, and others, to be found in the transept of the French Exposition. The plate may be exposed for a whole day, and will give results unattainable by ordinary means. He adds, that the image is produced in the film of albumen alone, and he attributes the greater sensitiveness than is found in the ordinary albumen process to the fact, that it is backed by a compact surface of iodide of silver, instead of an inert surface of glass. He prefers the development with gallic acid when operating in dull weather, and pyrogallic acid, with a strong dose of acetic acid, when working in sunshine.

The albumen varnish above described, when used as a preservative of a finished photograph, is to be poured over the plate, which is then to be drained with its face to the wall, to prevent dust falling upon it. When dry it is to be passed through the ordinary aceto-nitrate bath, washed, and immediately passed through the hyposulphite bath.

Mr. Maxwell Lyte's Instantaneous Process.—Mr. Maxwell Lyte has sent to the *Bulletin de la Societe Francais Photographie* the following cautionary remarks with regard to the use of his process :—" To employ the formulæ with success the best method, during the great heat of summer, will be to prepare separately the syrup and solution of nitrate of silver, and to mix them together at the moment of using them, as is generally done with the nitrate of silver and gallic acid in the saltotype. The honey may be purified by means of a new crystallization with alcohol; to accomplish this it is necessary to boil the alcohol [in a glass vessel.—Ed.] and add as much honey to the boiling liquid as it will take up. As this cools, the crystallizable sugar of the honey is deposited in the form of a paste. The liquid which floats above must be decanted off and the precipitate washed. Of this take 500 parts to 400 of distilled water and 50 of alcohol; dissolve by means of heat, and then filter. In another vessel mix 20 parts of nitrate of silver and 100 of water. When you wish to sensitize the plate, take 18 parts of the syrup before mentioned, and mix it with 20 parts of the nitrate of silver. The plate thus prepared cannot be kept for any length of time in summer, but in winter, when it is cold, it may be preserved many hours. The more you reduce the proportion of the silver mixed with the syrup the longer you can preserve it, but its sensibility is decreased in the same degree."

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—I was highly gratified to hear that the circular of the very celebrated Levi L. Hill was to be read at a meeting of the Liverpool Photographic Society, because it would be a great pity so much valuable information should not be widely diffused.

I trust the members will be so much impressed with his immense labours in perfecting his great process of producing the "natural colors," that they will be induced to erect in their hall a statue of *brass* in his honour. If I might be allowed to suggest a design, I think it ought to be an equestrian statue of Hill mounted on a Pegasus, in the act of commencing an ascent from the top of a monument to Becquerel, while Niépce, Campbell and Beauregard are on foot striving to outstrip him.

From this you will readily infer that I class the three latter in the same genus as Hill, he being the generic type, Niépce that of the species, while the other two are only sub-varieties whose distinctive features are not very well marked.

I am fully aware that many would like to see an actino-polychrome picture, indeed I know none who would not; but I for one cannot as yet believe in the possibility of their desire being soon gratified, at any rate not from any indication yet given by any of the gentlemen who profess to have mastered the impossibility. The utmost that I can be induced to believe is, that some of them may be mistaken, while it is very evident some are not.

I have recently read the last *mistake* on this head, and am only sorry that the French Photographic Society gave it the countenance they did. Pretended results are not what are required to convince our reason. The experiments required to confirm the statements of Beauregard are readily made by any one who has ever made an actinic picture, but with the exception of Vice-President Durieu, whose testimony is of the most non-committal character, it is not likely we shall ever see another lend the weight of his name to the *mistake*.

M. Durieu says, "It is to be understood that I leave to M. de Beauregard the *responsibility*, as well as the honour, of these processes, of which I have truthfully given the description," and in his concluding paragraph he is still cautious in committing himself to the truth of the exhibited proofs. He says, "Should this theory be the true one, the problem of obtaining colour by the immediate action of light will have been solved." Undoubtedly it would, but M. Durieu does not assert that the solution is yet attained, nor is there the least probability of it as yet. So now for the theory which is to *complete the discovery*.

This *good-looking* theory appears to me to be, that the different depths of nigrescence of a transfer on collodion will give, on printing from it on paper peculiarly prepared "by the effect of the radiations of the different rays of the [chromatic ?] spectrum, the relative and proportionate intensities proper to develope on the positive paper prepared by this process, the natural colours of the model."

Let us try if this can positively be so: It is a well known fact that to our eyes the collodion impression is purely black and white, with the various intervening shades of grey in the half tints.—(See my paper in the 2nd vol., p. 71, of the London Photographic Society's Journal.)—Some of the impressions taken on collodion, of the same object, differ from each other in their relative degrees of light and shade, *i. e.* the lights of either can only be white where strongest, but the shades may be black on some, or only an intermediate degree of grey on others; thus, the impression will be on the whole of a lighter description than where the shades are fully darkened, and this to such a degree as to be easily remarked by a casual observer. We even see such differences existing between two impressions, whether from a wood cut, a steel engraving, or a lithograph, the lights of all being equally white, while the nigrescence of the shades are stronger in some than in others, arising from the difference in the quality of ink left on the paper. Practitioners will now have little difficulty in understanding the difference I mean as existing between different impressions of the same object being, that the parts which are very black in one impression may be less black in another.

Now, then, suppose we had several such collodion impressions, *a*, *b*, *c*, *d*, or, in fact, any number, and that so far as an educated eye could judge the different depths of nigrescence on *a* varied as 1, 2, 3, 4, &c., to pure black, *a* being taken as the standard, or nominal test, which would print the true colours of the model, it would follow by this theory that *b* (were its shades of a less deep tone than *a*,) would print an impression having different colours from those printed by *a*, and such as would *not* be those of the original model; but would differ from them in proportion to the difference of the nigrescence in the impression *b*, from that of the impression *a*, while in the least darkened parts the colours would be correct.

Every one must see that this is a fair exposition of what the result of the *good-looking* theory would be; the print would be produced in colours, but would they in such a case be the "*natural colours?*" Or would they print of the proper local colour, whatever the depth of tone of the collodion impression may be? It can hardly be expected that they should; but then, this is just as probable as that they should, under any circumstances, print in colours at all. Some of the prints exhibited were entirely of one colour, but this is no novelty; nor are *they* to be taken as evidence of the possibility of obtaining actino-polychrome pictures in natural colours, as yet.

It appears we are to have all the details published, and I have little doubt they are by many anxiously expected, so as to be able to dispense with colouring baths, &c. &c., as the impressions will come from the gallate of ammonia bath ready coloured; but such should remember that the tortoise moves very slowly, however good-looking he may be, and that he does not always land at the point expected. It may be some consolation to such to know that enough has been published in the Bulletin of the French Society to enable them to commence operations in preparing the wonderful paper, which I have no doubt will be printed in your journal previous to this reaching you, so that I need not particularly repeat them. His means of clearing some of his specimens by soaking, first in water, and then immersing them in a solution of the sulphate of alumina and potassa *(alum)* is not common; while, I think, his manner of rendering a print with black tints by bichromate of potassa, &c., is perfectly new. I presume that M. Durieu overstepped the mark, when he stated that the colours were developed in the printing frame, as this is not claimed by Beauregard himself to be so; but only after being impressed as usual, they are "first washed in pure water, then immersed in a dilute bath of hyposulphite of soda; finally, after another washing, the colours are brought out vividly in a neutral bath of gallate of ammonia." My translation, although given with quotation marks, may not be literally or verbally the same as yours, but I believe the correct idea is conveyed, however much the phrascology I use may differ from your translation. Please to make the necessary reference to the No. or page of your journal where the article from the Bulletin may be found, for the convenience of your readers, and believe me to be as interested in actino-polychrome pictures, and who would be as delighted to see one, as any other who has ever soaked a sheet of paper, or enfilmed a tablet of glass.

W. ROSS, *Architect.*

New York, 26, *Second Avenue*,
Aug. 29*th*, 1855.

[For the notice of M. Testud de Beauregard's process, See No. 20. p. 102.—Ed. L.P.J.]

THE CALOTYPE PROCESS.

To the Editor of the Liverpool Photographic Journal.

Sir,—I often regret in reading your valuable journal there is so little correspondence upon my favourite process, and in order to induce others to take up the subject, I have made a few memoranda of my own experiences, which I should feel obliged by your publishing if you think them of sufficient interest. I am no believer in the infallibility of the process, for I have not been so fortunate as to meet with any photographer who could conscientiously call it certain: I know operators who have worked for years at this process, and yet at times they not only fail but are quite as much in the dark as to the *cause* of their failure as they were after working only as many weeks.

This, however, is not the foundation of my belief, that the Calotype process, deserving though it certainly is of its name when successful, is in its very principle and essence a *fallible one*; I do not mean to deny that there are operators, who, by long practice, have acquired such an amount of tact and delicacy of manipulation as to avoid very many of the causes of failure; what I rather contend for is, that they cannot lay down such rules of practise as will enable others to follow in their steps and obtain the same results.

To illustrate my proposition, I will briefly consider some circumstances in the operations of iodizing washing,] and exciting the negative papers.

In selecting the paper for the first operation we are at once met by one source of uncertainty, and feel the want of some test for the quality of the material, it is true we may reject those sheets in which spots, marks, and irregularities of thickness, are preceptible; but how shall we know that those selected are regular and uniform throughout, both in density and sizing? Alas! I know of no rule whereby to detect these very important defects till it is too late. But I will now suppose the iodizing solution has been evenly spread upon the paper, either by floating or brushing, and dried. Next comes the operation of washing: Have we any rules laid down for our guidance in this opeartion? Truly many, but wide as the poles asunder. In a description of the process in a standard work, the author of which is, I believe, considered an authority, I read that the iodized paper is "to be set afloat in a dish of clear water, and allowed to remain for *five or ten minutes* to remove the soluble salts." A very recent author, who claims for his process the title of "The Infallible," says "allow the papers to remain in the water for 24 hours." The question arises, how are these variations to be reconciled? The operator must experiment for himself, when the fallacy of fixing an absolute time for continuing this operation will be apparent, if he takes into consideration the many varying circumstances connected with it—such as the irregularity of the paper, particular mode of iodizing, and above all the temperature of the water at the time of washing.

The more or less rapid change in the colour of the papers, according to the temperature of the water, strikes one very early, and taking this as an index (being, I believe, the best we have,) of the removal of the soluble salt from the paper, I demonstrated to myself the fact more clearly by the following experiment:—

Having iodized a sheet of paper I cut it in half, placing the pieces in two dishes containing the same measures of water, one being at the temperature of the air 62°, the other being raised to 72°, they were both treated alike while immersed, and the resnlt was, that the sheet in the warmest water assumed the full yellow colour in six minutes, the other not till after the lapse of twelve minutes.

So that what one requires is a sort of sliding scale of the solvent power of water at varying temperatures. I am not aware whether this has been, or can be, reduced to a law, but by experiment an approximation to the truth might at least be obtained.

Before leaving the subject of washing I will make a remark upon the changes of colour the paper undergoes during the process. Mr. Sutton says, "before washing it is of a reddish tint, then it becomes blue or grey, and finally yellow." My own experience shows: first, that the reddish colour is only seen when there is free iodine in the solution; second, that the paper undergoes one further change, viz. from a full yellow colour to a paler one, more straw colour, and that it is necessary to obtain this shade of colour to ensure the purity of the coating of iodide of silver.

After reading Mr. Sutton's instructions, I thought the only danger to be feared was from not washing my paper sufficiently, and that overwashing was a thing hardly possible, but in avoiding Scylla I encountered Charybdis and found that the right course lay between them.

In the operation of applying the sensitive solution, the ordinary weak gallo-nitrate, the evil effects of over washing are apparent, and the want of definite rules interferes equally with the certainty of the result. One operator, after spreading the solution, allows the paper to rest for some minutes before blotting off; another leaves the solution on only a quarter of the time; both plans may give good results but there is an uncertainty about it, and this I believe arises from not knowing the exact absorbent condition of the iodized paper after washing; if the sizing of the paper has not been affected it may be necessary to leave the solution on for some minutes, for if blotted off too soon the whole of the sensitive surface may be removed in so doing, but if the size has been generally or partially removed the paper rapidly absorbs the solution, which seems to decompose in the substance of it, or passing through stains the back. This last effect is more usually seen in the process of developing the picture, for before the necessary intensity is obtained, the solution has soaked through to such an extent as to ruin the picture for the purpose of printing. I may add that I was annoyed by this result in experimenting with Hollingsworth's paper, as recommended by Mr. Sutton, after washing it for only 12 hours, instead of 24 as Mr. S. prescribes.

With respect to rules for developing, the most definite I have met with are those given by Mr. Sutton, in the work I have quoted, but in taking the aspect of the picture, when removed from the slide, as the indication of the treatment required in developing I cannot help thinking he is in error, and has omitted to take into consideration two circumstances that seem to influence the strength of the visible picture,—first, the amount of time that elapses between the exposure and development; second, the amount of moisture in the paper at the time of exposure. My own experience shows, and the same has been confirmed by others, that if two papers, one being damp and the other dry, were exposed at the same time, the damp paper shows a stronger *visible* impression than the dry one. But does it therefore follow that one picture is more strongly impressed than the other? I think not; for I find, in developing, both pictures come out in the same time, and have an equal intensity when finished.

In conclusion, I will express a hope that some of your Calotype operators will publish the results of their own practice, whether supporting or controverting the opinions I have expressed, feeling convinced that it is only by such free interchange of thought we can hope to render photographic operations as certain and undeviating as I desire they should be.—I am, sir, your obedient servant,

Cheltenham, GEORGE S. PENNY.
Sept. 24th, 1855.

To the Editor of the Liverpool Photographic Journal.

SIR,—Since the last meeting I have concluded a series of experiments, which I had hoped to have been in time for exhibition before our society.

I have succeeded in the production of soluble paper for collodion; this I am aware is not new, being already described by Mr. Lyte, and has been employed some time by some of the London photographic chemists, to the courtesy of one of whom, Mr. Horne, I owe my practical acquaintance with its great value.

Paper is, or ought to be, a dried pulp of linen, *i.e.* flax fibres. Having succeeded with the paper, I turned to what I had long considered would be the best basis for collodion, that is, the best flax lint, and I have prepared lint completely soluble, the dried fibre of which, when employed in the production of a photograph, exhibits no striæ or opacity when magnified 10 diameters, and is so hard that when used for printing in the negative process no varnishing is required, providing the positive papers employed be free from moisture.

I am unable now to give the details of the process by which these results have been obtained, further than that I had a nitric acid prepared expressly for me, of great strength and this I mixed with sulphuric acid, the time of maceration varying from one hour to three.

I have before me specimens of soluble lint totally unaltered in appearance or texture. I hope to lay the full details before the Society at our next meeting.—I am, sir, yours truly,

GEORGE R. BERRY.

NEW PROCESS OF PRINTING.

To the Editor of the Liverpool Photographic Journal.

SIR,—About two years ago I exhibited before the society a process for printing paper positives by development, but first salting the paper with bromide of potassium, and exciting with nitrate of silver in the usual way; by this means I could obtain impressions from the most opaque negatives, in dull winter weather, in one minute, and the prints obtained are, certainly, as yet, permanent and unaltered. One drawback, however, led me to abandon the matter, and that was the want of lustre in the blacks. Mr. Sutton, in his process of printing by development, overcomes this imperfection by the addition of sel d' or, previous to fixing. Now, as the rapid multiplication of prints is a very great object to us at present, and as developed positives are, I believe, more stable than sun printed pictures; but not feeling at all inclined to swallow the whole of Sutton's dicta, and not liking his way of preparation, it occurred to me that by using the ordinary salted albumenized paper, as usually sold, and sensitized and developed, we should have a way of rapidly printing our proofs, no matter how dull the weather, and we could then develope them at our leisure in the evening. I accordingly prepared some paper with a twenty grain nitrate bath, and succeeded in even printing a positive, this dull morning, in ten minutes, while the same negative requires an entire day's bright sunlight to produce a proof in the usual way. The picture has all the beauty of detail of the albumen surface, and when toned by the gold is unexceptionable. I should, however, advise a stronger silver bath, say 40 or 50 grains to the ounce. My mode of procedure was simply this: after removal from the pressure frame, I poured some saturated solution of gallic acid in a dish and laid the paper face downwards on its surface, avoiding air bubbles; the picture was fully developed in ten minutes. I then washed in two waters, and then applied the sel d' or, again washed, and then fixed in hypo, one ounce to a pint.

I am, sir, your obedient servant,

Apothecaries' Hall, GEORGE R. BERRY.
Liverpool, 11th Oct., 1855.

To the Editor of the Liverpool Photographic Journal.

SIR,—I would be much obliged to you for an answer to the following questions in the next number of your Journal. I have been trying Mr. Sutton's new process for some time, and cannot succeed in it. Could you also suggest the probable cause of failure of the enclosed waxed papers by Townsend's process? I have had many such, especially with distant objects. I send with them a spoiled view from a glass negative just to show the objects that ought to appear in it. The papers were exposed from five minutes to twelve or fourteen hours in bright sunshine; but the fault, whatever it is, seems independent of the time of exposure:—

1.—Ought the serum in Mr. Sutton's new process to be clear and colourless; if so what is the probable cause that I can never get it clear?

2.—Ought the bath of sel d'or to continue colourless and free from yellow precipitate after being used several times?

3.—Will the same bottle of aceto-nitrate with which wax papers have been sensitized do for the serum paper? I remain, yours &c.,

Harrow, Oct. 2nd. W. J. B.

[The view which corresponds with the positive from collodion, appears to have required only a little longer exposure to be everything that could be desired. One of the others is stained, and the third appears to be over-developed. A little more care is all that is required.

1. If filtered through blotting paper it will be clear enough. 2. Certainly. 3. It is doubtful.—ED. L.P.J.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 23.—NOVEMBER 10, 1855.

The stirring photographic feature of the day, as regards Liverpool, is the exhibition of Mr. Fenton's productions from the seat of war. Following so soon after the commemoration of our successes, they will be sure to attract attention. It is an example of the true use of photography as a record of facts. Portraits of the men engaged,—views of the locality in which they have toiled, suffered, and succeeded; and transcripts of the means by which that success has been achieved. Here, also, are the tombs and monuments of those who have fallen victims to this sanguinary contest, and left their bones in a foreign land. As we have been accidentally delayed in our publication, and, perhaps, many of our readers might thank us if it were "an accident done on purpose;" and, perhaps, it might be thought perfectly justifiable delay, if intentional, we have had an opportunity of visiting the private view and giving, in another page, a brief notice of this exhibition.

The French Society have resumed their sittings, and exhibit the results of considerable activity during the recess. The committee on positive printing have not made their report, as they first desired to see a work on the subject in preparation by MM. Davanne and Girard, and an elaborate paper was read by those gentlemen before the society on the subject, detailing a number of interesting experiments by which they have arrived at conclusions very different from those generally received. We have given a report of the proceedings at the meeting, and invite the attention of our practical men to investigate the subject as one of the most important in connection with photographic art; and one on which there is at present much contradictory opinion.

M. Durien has written a long and valuable letter to M. Paul Perier, on the subject of painting on or touching up photographic prints, in which he fully concurs with the views we have always expressed against coloured photographs. As he says, if you colour a print, you have not a picture; it is but a coloured print after all. If you paint a miniature over a photograph you have no longer photography. The essential value of photography, its indisputable truth, is wholly destroyed if retouching is to be allowed; and he calls on M. Perier and others, who are known as distinguished photographers, to discountenance the proceeding; to make the draughtsman adhere to his drawing; and to leave photography in her virgin truth and purity. It is too long to transfer to our pages, or we should certainly have availed ourselves, for that purpose, of its publication in the *Bulletin* of the French Society.

M. Taupenot's process seems to retain its position in the favour of the French photographers; but we have not heard of any of our own practitioners attempting it or testing its powers in this country. But another application of albumen, modified by the addition of honey, has been tried by Mr. Christopher Bell with great success. This is an American process, and was introduced to the notice of our society at the last meeting. Honey has also, by the hands and head of Mr. Maxwell Lyte, been appropriated to another photographic purpose, that of developing; as a cheap and effectual substitute for pyrogallic acid.

It is a compliment to the English makers, and a contribution to that *vexata questio*, "which is the best,"—to find that M. Taupenot always uses English paper, either Green's or Whatman's. The English photographers, on the other hand, prefer the French manufacture.

We may also remark upon the theory brought forward to explain the unexpected results upon albumen, in Mr. Taupenot's process, that there is some discrepancy in the statements, which our brother Journal in London has reproduced in his pages without comment. M. Taupenot attributes the sensibility acquired by the albumen to the subjacent compact coating of iodide of silver formed on the collodion, the image being formed on the surface of the albumen, as has been shewn by his being able, with a piece of moist cotton, to remove the image without injuring the albumen. This is probably a clerical error, but the comment in the *Bulletin*, transferred to the pages of the London *Journal of the Photographic Society*, is:—"must it be concluded that the layer of iodide of silver modifies the albumen? Does not the albumen, on the contrary, serve especially to preserve to the iodide of silver the exceptional properties which that substance possesses when just precipitated? Does it not maintain a useful division between its recently formed molecules; or rather, on the contrary, do not the molecules of the collodion and iodide of silver serve to *divide the albumen*? How are any of these suppositions, especially the last, compatible with the fact of M. Taupenot being able to remove the image without disturbing the albumen. It is evidently in the outer coat of iodide of silver."

Dr. Crabbe Creke has fallen into a similar inadvertence in his communication on M. H. Claudet's process of printing. He must have read both statements of the formula hastily. M. Claudet takes, not a saturated solution of bichloride of mercury, but two-thirds of an ounce of bichloride of mercury to a pint of water, in which he prepares his paper. But, although we must charge this misapprehension on Dr. Crabbe Creke, we congratulate him on his practical success, many of the examples forwarded to us being exceedingly beautiful.

We have received the second edition of Mr. Hardwich's *Manual of Photographic Chemistry*, which appears, so far as a very hasty glance at it will enable us to judge, to be everything that can be desired. It is convenient in size, brought up to a very recent period, and from the notices we have had in our journal at different times, of Mr. Hardwich's chemical investigations, we have no doubt there is an immense amount of valuable chemical knowledge. It arrived only in the morning when we ought to have appeared in public; but we take advantage of the unforeseen delay to which we have referred, to give this brief notice of it.

Mr. Sutton's printing process is gradually winning its way in public favour, many of our members having practised it with very satisfactory results; but we shall look anxiously for the Albums, photographic and artistic, which he has advertised, to see what may be expected of the process as used by the inventor. He will, doubtless, be put upon his mettle by the various comments which have been made upon it; and may be expected to exhibit the process to its greatest advantage.

We were glad to see, at our last meeting, a member of a Photographic Society at Norwich, whose productions, chiefly by the wax-paper process, were exceedingly beautiful, and fortunately for the Liverpool Society, some of the best have been presented to their portfolio; and we have been promised reports of the proceedings of this society as the meetings take place. Endeavours are being made to get up a Photographic Society in Manchester, of which we shall be able to give full intelligence to our readers.

Exhibition of the Photographs of the Crimea in High-street.—The private view of this highly interesting exhibition took place on Saturday, and gave great delight to a numerous body of visitors. Our aspect of the display must, of course, be a photographic one. We must pass over the interest attaching to this or that distinguished officer;—this or that interesting locality;—this or that characteristic group. Our pages must be limited to a technical examination. As might be expected, in more than three hundred photographs, there are examples of various merit—some are very fine, others are less satisfactory. The artistic photographer will be most satisfied with the views of Balaclava harbour backed by the old castle—a number of charming atmospheric effects combined with the most perfect detail—and the views over the encampment, in which every tent in the extreme distance is as truly in focus as those in front. Some of the groupes are also very fine specimens of the art, appearing perfectly stereoscopic. The Mortar Batteries and the Valley of the Shadow of Death, though less artistic in effect, are, as photographs, of the highest class. The portraits are generally the least satisfactory class, though General Estcourt, Sir George Brown, Sir De Lacy Evans, and a few others are beautiful examples of the powers of photography. We regret that the want of space and shortness of time prevents a more particular discrimination of their several merits.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The ninth monthly meeting of the session was held on Tuesday evening, at the Society's room, Royal Institution, Colquitt-street, Mr. Frank Howard occupying the chair.

Mr. J. A. Forrest called attention to a number of photographic prints by Mr. Fitt, of the city of Norwich, who was a visitor amongst them that evening.

The prints were then circulated amongst the members, consisting of views in and about Norwich, taken chiefly by the wax-paper process. They were beautiful specimens of the art, being remarkable for depth and softness of tone, minuteness of detail, and general fidelity to nature, seldom achieved by the most practised photographers.

The Chairman was glad to see a gentleman from a distance. The Society would, no doubt, be pleased to hear something about the Norwich Photographic Society. The specimens Mr. Fitt had brought were certainly evidences that, whatever was being done in that city in a literary point of view, they were no laggards in the practical application of the art. He (the chairman) had also received some further intelligence from their photographic friends in India. Although he had not yet seen another number of the Journal, an old friend in India had written to him, in the first place, to be made a member of the Liverpool Society, and next asking him to assist in procuring some materials for carrying out his operations. He found Llewellyn's process the most certain in India; but the exposure in the camera, in every instance, required double the time that was sufficient here. There were some novelties at present attracting attention. From France they learned that Mons. Beauregard had made a wonderful discovery with regard to photographic colours; and perhaps a gentleman who had recently returned from Paris would favour them with some information upon the subject. Then they had M. Taupenot's process of placing an albumen coating over the collodion, and iodizing over that. It would have been gratifying if their friend had brought a specimen or two with him; and he would just remind them of the great advantage gentlemen would confer upon those at home by procuring specimens of any novelty they might meet with if travelling in France or elsewhere. M. Niépce St. Victor had improved his method of engraving, by being enabled to take photographs on the plates in the camera, so that nothing remained to be done but the etching. They had from America another novelty in the shape of albumen mixed with honey, which would be brought before the Society that evening rather more at length; some of their friends having put the method in question into practice, and obtained satisfactory results. He (the chairman) had to produce the work of an amateur, in the shape of a series of beautiful photographs, from engravings, arranged upon a card so as to form an agreeable combination.

The novelty last alluded to was much admired. It consisted of a number of excellent collodion photographs, of various sizes, and transferred on paper, then cut out and grouped in artistic fashion on a white card. The effect was extremely pleasing.

Mr. Atkinson exhibited and explained his large portable camera. It was principally made of milled board. When placed it was very firm, and had all the appearance of a substantial fixture, but on being taken to pieces the tripod was reduced to the dimensions of a fishing rod, and the camera folded into a sufficiently limited compass to render it extremely portable. The bottom of the camera is furnished with the clasps for fixing the legs, instead of requiring the disk, usually an additional incumbrance.

A vote of thanks was unanimously accorded to Mr. Atkinson.

Mr. J. A. Forrest stated that he had been trying Sutton's process, and, although he at first met with difficulties, he ultimately mastered them, and obtained fair results. He could recommend it to all his friends, because it gave the facility in this dark weather of printing two or three dozen impressions from the same plate in a day; whereas, by the old method, they could only print one or two. He had only tried the process by daylight. The most important thing to observe was, that they must have all the solutions thoroughly filtered, and it was advisable to use Canson's positive paper. He sensitized by means of the ordinary oil lamp, shaded with yellow glass. There was danger of having some trouble with the serum unless well filtered. He first filtered through muslin, and then through blotting paper. He took about a pint of milk, from which he separated the serum, and then used the whole to a dozen or two of papers. They would keep for any length of time.

Mr. Atkinson stated that he had written to Mr. Sutton for a supply of the paper for his process.

The Chairman asked whether it was possible to procure paper iodised by Stewart's process by the air pump?

Mr. Forrest: You will get that from Mr. Sanford.

Mr. Corey, having apologised for the various phases in which he had that evening to appear before the Society, read the following letter from Dr. Crabbe Creke, of Fife, premising that that gentleman had imparted a new mode of printing, possessing many similar advantages to those mentioned by Mr. Forrest. The process could be tested with any amount of light. The letter was as follows:—

Leven, Fife, October 24, 1855.

Sir,—May I be permitted to draw your attention to a few remarks on the elegant process for printing from collodion negatives, published by Mr. H. Claudet in *La Lumiere*, in the thirty-third number of the *London Journal*, and subsequently in your own. I have not seen the French serial, but must, for a moment, advert to the very obscure language in which the first part of the process is couched in the English journals. On comparing the *London* and *Liverpool Photographic Journals* you will at once discover discrepancy and ambiguity.

I will describe, shortly, the process I put in practice; and if I have misconstrued the sense of the first paragraph, I may still congratulate myself on having produced very good pictures. The tones, of course, are not adapted for all subjects, perhaps not for portraits.

Canson's positive paper was floated for three minutes on a saturated solution of bichloride of mercury, in distilled water, and hung up to dry; it was then floated (the light, gas, carefully guarded by yellow calico) on a solution of nitrate of silver, eighteen grains to the ounce of distilled water, also for three minutes; when dry it was carefully guarded from light. I have exposed papers so prepared to various degrees of light, varying from sunshine to dull and rainy weather. In sunlight four seconds frequently overdoes a picture; three seconds produces a picture of agreeable neutral tone; where overexposed it looks rusty and the lights are flattened. The faintest traces of a picture are visible after exposure; but on floating the paper on the developing solution the picture comes out vigorously. I prefer floating it simply face downwards, as in *preparing* the paper. Mr. H. Claudet says the development must be carefully watched. My experience is that the time of exposure to the light determines the tone of the picture, as in experiments I have made the print has assumed its tone in a few seconds, and a further soaking for twelve hours in the developing agent has not altered the tint of the picture, but saddened the bright lights as hereafter explained. Thus far I succeeded to my satisfaction; but, alas! on immersing or floating on a bath of hypo-sulphite of soda, my picture began to fade almost as quickly as it had been developed, which was a source of dreadful disquietude. At length I began to ask myself, what is the use of hypo-sulphite at all? I have a double decomposition effected in the second part of the process, where is formed a chloride of silver and a nitrate of mercury—the latter soluble in the water. In the developing process the silver is reduced, and what remains free will be washed away in the following stage of the manipulation, which is conducted as follows:—As soon as the picture is developed it is washed on a glass plate by pouring filtered rain water upon it till traces of reaction disappear on applying to various portions of the washing tests, as sol. cyanide of potash, solution of tannin, and litmus paper. The facts being established, it is not necessary to test every picture of course. And now a word on the manner of washing the picture. I found, on plunging my proofs in filtered rain water, the iron held in solution acted on the lights of the picture, producing dingy shades of red varying to brown. The washing on the glass plate obviates this. Having got thus far, I place the proofs in distilled water, which is occasionally changed, and after a night's soaking they are dried and smoothed. On placing scraped portions of a picture under a microscope of high power, no structural or crystalline appearance is visible—amorphic only: Shall I venture to suggest silver in a state of allotropy? Enclosed are the results of experiments: the portion of picture marked A has been kept in the dark, B has been exposed for a fortnight to daylight and gaslight. I also inclose two other papers, one over-done, and the other, I think, about right. The times of exposure are marked on the backs.—I have the honour to be, your obedient servant,

A MEMBER OF THE L. P. SOC.

The specimens accompanying the letter were extremely good—one of them, representing boys and a milk cart, being especially admired.

Mr. Corey, in continuation, said the difficulties about the solution were easily set right, as shown in the 33rd number of the *London Journal*, and subsequently in their own. He had received a second letter from Dr. Creke, upon the same subject, containing some other specimens.

A vote of thanks was unanimously passed to Dr. Creke for transmitting the results of his experiments.

Mr. Corey read the following translation of a paragraph he had found in the *Bulletin de la Societe Francais Photographie*, observing that it was a repetition of the process pursued by Mr. Atkinson, and other members of the society.

"M. Bayard, in the name of M. Jeanrenaud, presented a communication of a proceeding, to make a very powerful negative out of a very feeble one.

"He produced the negatives themselves to explain the method more satisfactorily: two of them were so bad that nothing could have been obtained from them; one of them represented a doorway of St. Denis: it was a photograph of extreme weakness, and much was, doubtless, owing to the subject having about it great trees in full vegetation, which overshadowed it, and was of a colour as sombre as all old monuments are—and, above all, exposed to the North. The other landscape represented some cottages of St. Adresse. The tint of this negative was weak, dull, and clouded. These two were obtained in the hottest days of summer, during the month of August. It is by means of double reproduction that M. Jeanrenaud has procured negatives, extremely vigorous. For this purpose he avails himself of a bad negative, to be reproduced by the camera; but in lieu of illuminating it by a reflected light, he causes it to be penetrated by direct rays, that is to say, as a transparency. He thus obtains a positive proof, which, in turn, he places before the camera to produce the negative which he desires.*

"We may easily conceive that in these two successive operations, in causing the photographs to be traversed by a direct light, we may obtain most luminous images, from which no detail can escape. Thus—it is the light that re-establishes, in the multiplying, the strength which is wanting in different tones in the first negative. These effects are very powerful, and it is necessary to avoid them in the first part of the operation, else you will have a proof like an opaque image too deep for the light to pass through; and it will make the blacks and whites so hard that all the demi-tints will be lost. In this only, consists the difficulty of the process—difficulty, after all, it is not; since, by a proper light, and by the duration of exposure, you may obtain all the transparency you can desire. The second part of the operation then becomes easy, and will give all the intensity required.

"Thus, having obtained a very weak photograph, if there is no means of taking the subject anew, or if it be one that forbids the possibility of greater success, it would always be easy, by a little extra work in the operating room, without alteration and without other trouble than two proofs upon collodion, to procure a powerful reproduction, and from which we may have all the various effects at pleasure.

"This proceeding offers also all the advantages to increase or diminish the proportions of the pictures, or to repeat them *ad libitum*.

"M. Bayard added that he had been able to simplify the proceeding in doing without the camera. He had placed in juxta position a weak photograph and an albumenized glass, treated as a positive; and had succeeded at last, in obtaining an excellent negative, only, that in this case, the exposure ought to be very short—only about one second. He also remarked that the principal advantage of this proceeding, was the enabling you to operate very rapidly and without any concern for the weakness of the photograph; and farther said that the only precaution necessary, consisted in covering over the space between the camera and the photograph, that the latter only should be seen when examined by the ground glass."

Mr. Corey also read the following paper for Mr. Bell, who was unavoidably absent, "On *Whipple's Albumen Process*":—

Photographers owe a debt of gratitude to Mr. Whipple, of Boston, U.S., for his discovery of a process which, I think, will be the means of inducing many amateur performers, who have been disheartened by the continuous failures they have met with—whether working collodion wet, with their tents and dipping apparatus in the field, or those, who, disliking this cumbrous apparatus, yet prefer the details which they are satisfied collodion produces more definitely than waxed paper, and pursue the sport with sweetened plates, not minding the trouble and the varying results they produce, content with a view now and then, which it must be admitted is of surpassing beauty; or whether those who, from its simplicity, prefer the calotype, undeterred by the never endless varieties of paper they meet with; or those tenacious of the excellence of their waxed paper process, yet now and then vexed with a leaden, lightless day, when they have, with infinite trouble, prepared a portfolio of sensitive paper, and find the whole useless from self-development, incident to internal decomposition. I think all those, if they make one trial of this new process, will thank F. W. S., of Leeds, for the news which he has been the means of promulgating in this country; and will prove to many new students of our beautiful art, how easy it is to follow in the steps of those whose works are opening the eyes of many to beauties which were hid to them before; and induce many more to begin a labour which will recompense for all their trouble, and add to the enjoyment of their summer mornings and winter evenings. To this end I will detail a few of my experiences in trying Mr. Whipple's albumen process: I took the white of one egg, which measured 6½ drachms, and added 5½ drachms (by weight) of honey, which was nearly solid. Having mixed

22 grs. Iodide of Potassium
3 ,, Bromide of ditto
1 ,, Chloride of Sodium

in a mortar, I put them with the honey and albumen into a wide-mouthed bottle, and agitated it until the contents were in a complete froth, allowed it to settle and filtered it. I poured it on the plate like collodion, and drained till

*On the same principle that our member, Mr. M'Innes, reproduced his small pictures.—Ed. L. P. J.

no more would run off, placed it on a levelling stand and dried with a spirit lamp. When cool I immersed it in a solution of

72 grs. Nitrate of Silver to
1 ,, 68-100 of water,
0 ,, 32-110 Glacid Acetic Acid
—
2 oz.

for a few seconds, washed it well and drained it.

My first experiments were made previous to the exceedingly dull days we had last week, and I exposed the first two plates—one half an hour, the other ten minutes—and developed them in a saturated solution of gallic acid with a few drops from the nitrate bath; there is scarcely any difference to be observed in the negatives. Proceeding on this basis, I tried the next two—one ten minutes and the other five—with the same result, this with the same light, both being underdone in the shades. A few days after the sun shone out from the clouds, and five minutes partial sunlight sufficed to overdo the distant objects. I consider, therefore, with a fair light, three minutes will prove sufficient. This process will also answer for printing, for even from weak positives, you will perceive, by gas light I have produced pictures which do not want for beauty, and the facility of stopping the development at any moment, will tend to render otherwise valueless pictures a fund available for the gratification of friends by enabling you to multiply copies.

The process may also be applied to paper, and this again may be used for printing by gas light, and developing with simple gallic acid. I regret that I have not had a few more days at liberty, previous to this meeting, to practice a little more with these proofs, but enough is seen to shew what may be done.

In using glass plates care must be taken to keep them clean from dust; also that the film of albumen and honey is spread evenly on the plate and not allowed to accumulate at any one point, otherwise the extra thickness produces a dimness in the printing: it must also be quite coagulated by the heat, or the film will be tender in the after process of developing and washing, and will dry with minute cracks. Of all these various defects you can see examples in the specimens, and I shall be glad if some mechanical means were pointed out by which an even film might be obtained without producing the minute air bubbles which draining developes on the surface. Perhaps a revolving motion would effect this at the cost of a trifling loss of the coating. There is one specimen of a plate immersed without drying by the spirit lamp, and it was covered by irregularities of the albumen, coagulated by the nitrate of silver, and at one period of the washing, nearly the whole film was floating in the water; it is, however, as firm as any of the rest.

It is necessary to sensitize the plate immediately after drying, or a part crystallizes; I kept some twenty-four hours after perfectly drying, and you may perceive the result, although the sensitiveness was not diminished.

The following specimens, marked with the time of exposure and developing, were handed round and excited great interest:—

No. 1. 30 minutes, same developing.
2. 10 ,, ,,
3. 40 ,, ,,
4. 25 ,, ,,
5. 10 ,, ,,
6. 5 ,, ,,
7. 8 ,, ,, very dull.
8. 5 ,, partial sunshine, crystallized.
9. 5 ,, ,, ,,
10. 5 ,, same over-developed.
11. 3 ,, printed from a negative by gas-light.
12. 3 seconds, printed from a negative by sunlight.
13. Printed by gas-light from a weak positive, one corner too near the light.
14. Printed by gas-light, the black spots produced by pouring in fresh nitrate over the picture instead of at the side.

Two specimens were handed round which had been taken on paper prepared by this process; but instead of being subjected to the influence of the light through the camera, they had been placed under a negative and printed with great success. Several, also, of those on glass, as will be seen by the observations appended, were obtained from negatives by juxta-position instead of in the camera.

Mr. Corey also exhibited a negative specimen by this process, which was much admired for its intensity and brilliancy as well as for the minuteness of its detail.

On the proposition of Mr. Forrest, a vote of thanks was unanimously accorded to Mr. Bell for his paper.

After a brief conversation on the best means of albumenizing so as to avoid air bubbles and consequent specks, and also as to the most desirable method of protecting the plates from particles of dust, Mr. Fitt stated, with regard to the latter subject, that he was accustomed to cover his table, on which the albumenized plates were placed, with a board which caught the whole of the descending particles of dust.

Mr. Forrest read the following paper from Mr. M'Innes, who was prevented from attending owing to the illness of his daughter: "*On a Method of Transferring the Collodion Film from Glass to Paper.*" In the first place a varnish is prepared in the following manner:—To an ounce of spirits of wine, a drachm of very dry carbonate of potash is added, and $\frac{1}{4}$ of an ounce of bleached lac; this is agitated frequently until all the lac is dissolved. It is then allowed to settle and the clear portion only poured off, taking care that none of the sediment is allowed to follow. To this is added, drop by drop, sulphuric acid diluted with about twice its weight of water, to neutralise the small quantity of alkali dissolved in the varnish. It is now allowed to settle, or may be filtered to separate the sulphate of potash formed. Care must be taken to avoid an excess of acid. It can be tried occasionally by pouring a small quantity upon a slip of glass and allowing it to dry; if it can be rubbed up by the finger, when breathed upon, in a tough stringy form, it will answer the purpose. This may be called the transferring varnish. To remove the collodion film from the glass plate, use this varnish in the ordinary way, and allow it to become perfectly dry. A piece of waxed or other paper is then cut to the size of the plate and washed over with an adhesive solution of lac and borax; carefully placed on the plate, taking care to exclude air bubbles. Press it gently with a piece of blotting paper and allow it to dry. When dry, sponge the back of the paper with water, being careful that every part is well wetted; allow it to remain for four or five minutes, then try if the collodion can be detached from the glass by gently raising one of the corners; if it leaves the plate readily, then remove the whole by a gentle and steady pull. The gummy solution of lac is prepared by putting about 2 ounces of lac to one pint of water and $\frac{1}{2}$ an ounce of borax, and boiling until the lac is entirely dissolved.

The reading of these papers and the discussion during the earlier part of the evening having prolonged the sitting to a late hour, a vote of thanks was, by acclamation, accorded to Mr. M'Innes for his excellent observations.

Before separating, Mr. Fitt presented to the Society a number of his photographs, which, during the evening, had excited so much admiration.

The thanks of the Society having been given to Mr. Fitt for his acceptable present, the meeting adjourned.

SOCIETE FRANCAISE DE PHOTOGRAPHIE.

The French Photographic Society resumed its sittings on the 10th of October. In the absence of the President, M. Durieu occupied the chair. A number of new members were announced, and a variety of donations of all kinds of photography were exhibited. The committee on "Paper for Photographic Purposes" required more time before they could be able to report. The committee on "The Durability of Positives" had been divided into two parts, one on the fixing and the other on the strengthening of positives, but M. Durieu said they waited for a promised publication from MM. Davanne and Girard on the subject, before they would be willing to report. M. Davanne on his own behalf and on that of M. Girard, stated that in the work referred to, they would show—1st, that in positives, the image was formed by metallic silver minutely divided, instead of by the sub-chloride of silver as generally supposed. 2nd, that in the strengthening baths of old hyposulphite of soda, the metallic silver is rapidly converted into sulphide; that the black tints which replace the red ones in the proof are the direct result of the formation of sulphide of silver; and that these, in contact with damp, change extremely, the black becoming yellow, without any variation in the proportion of the constituents, but doubtless from an absorption of moisture or modification of the atoms. 3rd, and in conclusion, that the strengthening by salts of gold did not offer these inconveniences, and gave the proofs a chance of durability which was not guaranteed by the hypo-sulphite of soda.

In support of these positions a number of experiments were described from the results of which these conclusions had been drawn. A sheet of paper had been prepared in the usual way, sensitized, exposed a long time to the light, fixed with new hyposulphite of soda, washed with great care, and analyzed. It contained no appreciable quantity of sulphur, sixty-two centigrammes of silver and one centigramme of chlorine. To constitute chloride of silver, hitherto supposed to form the image, ten times the quantity of chlorine would be required. A piece of paper prepared in the usual way, and left a long time in the light, finished by taking the brightness and whiteness of metallic silver; moreover, chloride of silver is insoluble in nitric acid, but the material which forms the image is destroyed by it. Prints strengthened by old hyposulphite of soda, after being submitted to distilled water twenty-four or forty-eight hours, always gave out sulphide of silver. They had subjected portions of a print fixed in new hyposulphite of soda—1st, to a weak solution of sulphide of ammonium; 2nd, to a solution of hydrosulphuric acid; 3rd, to a solution of hyposulphite of soda mixed with acetic acid, which produced hydrosulphuric acid and sulphur in a native state; 4th, to a bath of hydro-sulphuric acid gas; 5th, to a bath of *sel d'or*. The parts subjected to the liquid sulphides turned yellow immediately and admitted of no doubt. That subjected to the gas exhibited less decided change till it was brought into contact with moisture. The sulphuration was not sufficient by itself, nor the moisture by itself, but united they became destructive. Other experiments corroborated this.

The thanks of the Society were voted to MM. Davanne and Girard for their communication, which was ordered to be printed in the *Bulletin*, and submitted to the Committee on Positive Prints.

M. Davanne presented a number of prints of landscapes strengthened by *sel d'or*, also two large prints by MM. Bisson freres, obtained by the same process.

M. Bayle Mouillard read a note from M. Taupenot upon the advantages of the process he had brought forward, which were—1st, certainty of result, permitting advantage to be taken of favourable moments, often very fugitive; and economy of material, as the first attempt will be successful if the plate be well prepared, which may be ascertained by inspection before it is placed in the slide. 2nd, the power of using very small diaphragms so as to obtain the harmony of the lights and shades, without being obliged to remain a very long time as with the albumen, or to prepare the plate on the spot as with collodion. To the power of using small diaphragms he attached great importance, as bringing a subject dispersed on several planes into focus more uniformly, thus preserving the perspective together with the delicacy of detail. 3rd, the power of taking interiors with very little light, the pictures in a gallery without displacing them, and without establishing a laboratory in their vicinity. 4th, that the negatives are more equal than those obtained either by collodion or albumen alone; the middle tints are much better given; the shadows more transparent, and the trees very superior. The negatives are besides very solid and do not require to be varnished, though it will be well, in the case of a fine negative, of which many copies may be desired, to protect it with another coat of albumen. 5th, the facilities afforded by it will give a new spring to photography, many persons having abandoned their efforts in consequence of not having the time to devote to continuous operations: but who may resume when they find the plates may be prepared and developed in the evenings and other moments of leisure. But the greatest facility will be afforded by the circumstance of the preparation of the plates being so distinct an operation that it may be made an article of commercial enterprise to have them ready; and as they can be judged of by simple inspection, no useless attempts need be made. M. Bayle Mouillard added that it was a mistake on the part of M. Taupenot to consider the method capable of giving the minute detail of albumen, but then it had less of the hardness. It was intermediate between collodion and albumen, participating in the properties of both. In reply to Dubois de Nehaut, he stated that the plates iodized, nitrated, and albumenized could be kept two or three months, and when they had been again sensitized M. Fierlauts said they were as sensitive on the twelfth day as on the first. M. Fortier added that he had obtained satisfactory results on a plate freshly prepared.

M. Bayard, in the name of M. Jeanrenaud, communicated a process for making a strong negative out of a weak one.

[This paper appears in the report of the meeting of the Liverpool Society, read by Mr. Corey.—Ed. L. P. J.]

The thanks of the Society were given to M. Jeanrenaud for his communication.

M. Paul Perier read a letter from M. Heilmann recounting a singular result in his practice, which was quite incomprehensible to him and also to all the photographers of Pau. He had employed a double lens, by Ross, four inches in diameter, and usually exposed about three seconds in the shade; Maxwell Lyte's collodion, bromide and iodide of ammonium; sensitizing bath; distilled water 100 parts, nitrate of silver 10, alcohol 10; developing bath; water 100, pyrogallic acid 1, acetic acid 8. The plate referred to was exposed five seconds, as the day was cloudy; his developing solution having become exhausted he made some fresh, but without measuring the acetic acid exactly, and there might have been from twelve to fifteen per cent. of it. Having poured it on the glass, and not seeing any appearance, he added rapidly, from the same bottle, a pinch of pyrogallic acid, and a little water, thinking the acetic acid to be in excess. The image instantly appeared—but, to his astonishment, it was a positive, both by reflection and transparency. He tried the same materials again with the same exposure, but obtained only a common negative. The double positive was produced. MM. Bayard, Jamin, Thomson, and Delahaye said that they had many times had similar results but without ever being able to explain them.

M. Lacombe then made a communication relative to the albumenizing plates of glass. It consists of a frame with a groove on which the plate of glass is fixed after it has been coated with albumen and drained, but without waiting to remove accumulation at the edge, air bubbles, or particles of dust. The frame is screwed on to a drum [similar to a plate holder.—Ed. L. P. J.] which is furnished with a hook. The albumenized face is turned to the ground and the frame suspended by the hook to a double string and a rotatory motion is given [upon the primitive principle of a meat jack.—Ed.] the cords twist and untwist and continue the motion till, by centrifugal force, the coat of albumen is equalised, and by the same operation dried. M. Bayard feared that it would render the film too thin about the centre; the thinness would accelerate the drying.

M. Lacombe then exhibited and described a portable tent in the form of a cylinder kept out by a hoop. In the centre was a hood in which the operator put his head. In this way the tent was supported, leaving the hands at liberty.

The thanks of the Society were given to M. Lacombe, and the sitting terminated.

PROCESSES.

Photographic Engraving.—M. Niépce de St. Victor has contrived to produce an engraving on a steel plate, by the action of light in the camera, from which prints were taken and exhibited at the *Académie des Sciences;* but he is not quite satisfied with the results in consequence of the length of time which the plate requires to be exposed, which varies from half-an-hour to three hours in the sun, and from two to six hours in diffused light. The varnish which he uses—asphaltum dissolved in benzine and a tenth part of essential oil of lemons, exposed for some time to the light—may be made more sensitive by longer exposure, but then it loses the property of being cleared by the solvent. To increase the rapidity without this disadvantage is the object of his present investigations. In the meantime MM. Salmon and Garnier have propounded a method of engraving by means of a negative previously taken by the camera, which *promises* to be very useful, but we have not had time to test it, nor have we heard of any one being successful with it. It appears plausible, and is patented. It is founded on the peculiar effect of light upon iodine, and its results upon mercury. A negative is placed in front of a polished brass plate which has been subjected to the vapour of iodine; this is exposed to the light for a period varying from ten minutes to two hours, and where the light has passed through the negative the iodized surface will reject the mercury, which is to be rubbed over the plate with a ball of cotton. Some greasy ink is then to be rubbed over the plate, which will adhere to the parts affected by the light, and the photograph appears white on a black ground. This may then be bitten in by nitric acid in the usual way, or the plate may be placed in a galvanic bath charged with chloride of iron, which will deposit on the mercury and form a raised surface. The greasy ink is them removed with spirits of turpentine. The plate, again exposed to iodine, is again rubbed with a cotton charged with mercury, which covers the plate, but is easily removed from the iron deposit, which will then take the greasy ink and may be printed from by a lithographic press. We give the process as published, but fear that it is not quite so feasible as it appears. We should like to see some proofs.

Whipple's Albumen Process.—The following process, introduced by Mr. Whipple of Boston, a gentleman well known in the photographic world, is that referred to in Mr. Bell's communication to the Liverpool Photographic Society, at their meeting on the 6th instant:

Mix in the usual manner:—

Albumen	8 oz.
Honey	7 ,,
Iodide of potassium...	3 drachms.
Bromide of ditto ...	20 grains.
Chloride of soda	9 ,,

For foliage, increase the bromide of potassium up to 50 grains.

This mixture is poured on the glass plate in the same manner as collodion, and then dried over a spirit-lamp. The plate is then immersed from 10 *to* 20 *seconds only* in the following bath:—

Nitrate of silver	1½ parts
Water	16 ,,
Acetic acid	4 ,,

After the dipping, the plate must be well washed; and if all the free silver is washed off, the plates will keep for four weeks. Develope with a saturated solution of gallic acid and nitrate of silver, and fix in the usual manner with hyposulphite of soda.

New Process of Fixing Positive Proofs, by M. Jobard, of Dijon.—M. Jobard has made a communication to the *Bulletin de la Societe*, in which he says that he is convinced that the fading of positive proofs depended only on the sulphide of silver precipitated by the acid hyposulphite baths; but far from seeking, like other photographers, to replace the hyposulphite of soda by any other fixing agent, he continues to employ it, reducing its action within proper limits. The treatment of positive proofs ought to be divided into two distinct operations, else we shall unfortunately confuse the enquiry: these should be fixing and colouring.

He proposes to fix the image as a primary process, and uses

Water..............................100 parts.
Hyposulphite of soda .... 5 ,,

Whatever may be the colour of the proof, it should not remain in this bath more than 15 or 20 minutes: this time is sufficient to dissolve completely the chloride of silver, and the hyposulphite then does not become acid. He then washes the proofs for some minutes, and in many waters, and then leaves it to dry. He thinks it is useless to put the proofs into water before placing in the hyposulphite bath, which will serve only once.

For the colouring he immerses the print in

Water .... 100 parts
Bromide of Potassium......... 14 ,,
Iodine .... 1 ,,

from five to ten minutes, according to temperature, and then dries it without washing. This operation does not change the colour of the proof. When thoroughly dry he immerses it in

Water .... 500 parts
Sel d'or........................... 1 ,,

until it changes its colour to reddish-brown, sepia, violet, &c. The colouring differs according to the sizing of the paper. He watches the proof, and when it arrives at the tint he requires, he takes it out and washes it in pure water. The proof is then entirely finished, and is unalterable.

If the print has not been exposed to the light sufficiently long, and appears dull and confused, it may be cleared by immersion in an exceedingly weak solution of bromide of iodine until the lights become blue; it is then placed in a one per cent. solution of hyposulphite of soda, washed, and dried. This may be repeated till the print assumes the desired appearance, without fear of losing its brilliancy or detail.

A New Developing Agent by Mr. Maxwell Lyte.—Make a syrup of glucose (grape-sugar) of the density of about 25° Beaumé; to this syrup add slack lime mixed with water, agitating well until the sugar dissolves no more lime; a little excess of lime does not appear to produce a bad effect. Perform this operation in a bottle, so as to avoid as much as possible the action of the carbonic acid of the air. Shake the bottle well for a few minutes, and allow it to rest in a cool place for several days; the liquid will become transparent, but it will be more or less brown. Sulphuric acid, mixed with a little water and allowed to cool, must then be added very carefully, and in small proportions; sulphate of lime is then formed, and the solution all at once loses its colour. Stop at that point, and pass the solution thus obtained, through linen, to remove all the sulphate of lime. This liquid possesses all the properties of pyrogallic acid, and by adding citric acid (or better, a mixture of citric and acetic acids) in very small quantity, with pure water, a developing solution is formed rivalling pyrogallic acid. It seemed to me that this agent brought out green colours much better than any other substance.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—By answering the following you will oblige myself, and, I have no doubt, many of your readers.

I have, for some time past, been on the look-out for a formula of collodion which will yield good white positives, but without success. I have tried nearly all the forms which have appeared in your Journal, many of which have given excellent results as regards delineation, half-tone, &c., but they do not give that whiteness which I have observed in the pictures of others, and which I have produced myself by using their collodion, which is a proof that the fault is in the collodion and nothing else. I, therefore, Mr. Editor, should feel grateful, if, in your next number, you will endeavour to remove the difficulty.

Yours respectfully,

QUERY.

[We will consider it.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—With much pleasure I perused Mr. G. S. Penny's very interesting letter on the calotype process in your last number. From the long silence of photographers on that most useful but now undeservedly neglected branch of their art, I had feared lest its claims had been entirely eclipsed by the more fashionable processes of collodion and wax-paper. From experience I have reasons for believing that a good calotype negative surpasses that of wax-paper, at least in detail and uniformity of middle tint, recommendations not to be lost sight of, and which, were it not for the very desirable and convenient properties of keeping after excitation possessed by the wax-paper, would still, I am convinced, hold its ground against every known method, rivalling, perhaps, even collodion itself, more especially in the ease of its manipulation.

According to my experience on the calotype, I believe that much of its success depends on the methods of applying the iodizing solution. Whenever the paper had been allowed to become so saturated as to show yellow through to its back, I always found it was difficult to get anything like a good printing negative. I, therefore, always have been in the practice of brushing on the solution as quickly and as sparingly as I could, so as to keep the iodide of silver as much as possible on the surface. With regard to the time allowed for floating the iodized sheet, I have been forced to the conclusion that it matters little how long it is allowed to remain on the water, provided all the soluble salts are perfectly soaked out. The uniform light straw colour of the iodized surface is, doubtless, as suggested by Mr. Penny, the best criterion of the time required. I should like to be informed by your correspondent what ill effects he has experienced from lengthened floating, as he says that, "by avoiding Scylla he had encountered Charybdis."

I beg to acknowledge the value of Mr. P.'s truly practical remarks on the application of the sensitizing solution to his iodized sheet, and I have good reasons for believing that attention to them will be the means of avoiding frequent mishaps.

From our correspondent's able manner of handling his subject, I may fairly infer that he cannot be backward in his abilities with reference to manipulation; nevertheless, I would be bold enough, in all good fellowship, to offer him the challenge of a mutual exchange of calotype pictures. I have long thought that a more general interchange of ideas and proofs among operators of each particular branch, would be attended with the best results, which, I think, Mr. Penny will consider to be a sufficient apology for my thus unceremoniously throwing down the gauntlet.—I am, sir, yours very truly,

Hampston Rectory, *Totness*, H. H. HELE.
Devonshire, *Oct.* 24, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—Some time ago, I purchased a single achromatic lens 2¼ inches in diameter and 12 inches focus. The two glasses, when together, make a plano-convex lens, which suits very well for landscapes; but I am anxious also to have a portrait lens.

On examining a combination for portraiture lately, I found that the one lens is a plano-concave and double convex, and the other a concavo-convex and double convex; and I imagine that if I could get a concavo-convex and double-convex lens and have it fitted up with the one I have at present, it would suit well enough for portraiture (unless the focus would be too long.)

Please inform me whether I am correct.

I observed a statement in a late number of your Journal, to the effect that a combination of lenses for portraiture could be had unmounted. Would you be so good as inform me *where*, as I have tried several opticians without success.

An answer in your next Journal will much oblige,—
AN EXPERIMENTER.
Edinburgh, 18*th October*, 1855.

[It would be cheaper to buy a new combination. We object to recommending particular makers, but have found Mr. Chadburn, of Liverpool, and Mr. Goddard, of London, to furnish good unmounted lenses.—Ed. L. P. J.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. II. No. 24.—DECEMBER 8, 1855.

It is now nearly two years since we announced, in our first number, p. 8, that Mr. Burgess, at the preceding November meeting, during a discussion on the method adopted by Mr. McInnes for removing the film of collodion from the glass plate, stated that "he had taken photographs on collodion floated on gutta percha, which he had no doubt would supersede either paper or glass." Mr. Firth had stated that he had been successful with collodion floated on waxed paper. This prophetic announcement by Mr. Burgess bids fair to be fulfilled. The Rev. J. B. Reade, who claimed contemporaneous, if not prior, use of gallic acid with Mr. Fox Talbot, has turned his attention to the use of gutta percha for the purpose of enabling the operator to remove the film of collodion from the glass after the photograph has been completed, so as to obviate the weight of the glass and the risk attendant upon the fragility of that material. At the same moment almost Mr. Archer has patented (!) another method of using gutta percha for a similar purpose. He applies the gutta percha after the photograph has been completed on the film of collodion, and the two films are easily removed together in a state from which they may be printed as readily as from glass. Mr. Archer did not derive much pecuniary benefit from his introduction of collodion, and we fear that he will not, in the present state of public feeling, derive much pecuniary benefit from his patent for the use of gutta percha. We cannot but regret that he should have taken out a patent for such an operation, after the contrast drawn between his liberality as regarded the discovery of the use of collodion and the illiberality of Mr. Fox Talbot in endeavouring to include collodion in his reserved patent right. Not that we coincided in the attacks upon Mr. Fox Talbot, to whom photography is so deeply indebted, but that we regret that Mr. Archer who has equally merited the thanks of photographers, should place himself in antagonism to popular feeling, however unjust.

Mr. Long, of Fleet-street, has also published a formula for the use of gutta percha as a medium for keeping collodion moist. His method appears to be precisely that patented by Mr. Archer, but used before taking the photograph instead of after. We have thus three operations with the same material, announced pretty nearly at the same moment.

Another candidate for popular adoption is Mr. Whipple's honey and albumen process, which appears to have given such satisfactory results in the hands of Mr. Stansfeld, of Leeds, and our own members, Mr. Bell and Mr. Corey. Then, again, M. Taupenot's process of albumen on collodion appears to meet with equal admiration on all sides. How far the advantages of these processes may be combined, and used with Mr. McInnes's portable apparatus remains to be seen. We would direct our practical readers attention to M. Taupenot's method of preparing the albumen by fermentation as having, probably, the effect of simplifying that part of the process, and possibly improving the material in some respects. We would suggest that the albumen being prepared in the mode of M. Taupenot, should be combined with the honey in Mr. Whipple's method, and placed on gutta percha as proposed by the Rev. J. B. Reade, used in Mr. M'Innes's camera and removed from the glass and enlarged on the plan so successfully executed by the latter. This would be no great trouble to some of our members, and might advance the art a step in convenience, if not in beauty. The preliminary report of the committee appointed to inquire into the fading of photographs does not contain much beyond the facts, as stated, that there is no process of printing generally used, which of necessity entails fading; while there is no process which will not supply instances of fading photographs. They incline to the opinion of Messrs.

Davanne and Girard that the fading is to be attributed to sulphuration combined with moisture; but they also appear to think that the sulphur may be derived from sulphuretted hydrogen in the air, especially in London.

Mr. Sutton has announced a new monthly photographic publication, to be entitled *Photographic Notes*, edited by himself, the first number to appear on January 1st, 1855.

English Photography.—We extract the following remarks from the *Bulletin de la Société Française* on English photographs exhibited at Paris :—

"Mr. Fenton is one of the most brilliant examples of the close union of the artist and the practical photographer. The greater number of his prints appear to have been produced by a mechanism brought to ideal perfection—they are so irreproachable in brilliancy, in neatness, in tone and surface. Mr. Fenton is an operator of the first order. * * * * It is impossible to take leave of Mr. Fenton without offering the congratulations and praises merited by his labours in the Crimea—nearly three hundred proofs, which have been shewn to the Emperor—such is the result of what may be called the first photographic campaign. It is an honour, it is a title of nobility for the English photographers to have seen one of themselves inaugurate on the glorious plateau of Chersonesus, the most curious and certainly one of the most useful and interesting applications of our art.

"The views of Mr. Maxwell Lyte, as well as those of M. Vigier, though of a different kind—less broad but more minute, with qualities equally charming and intense, but differently beautiful—are still the most powerful from that privileged corner of the earth. At the same time that he is a fanatic in the art, Mr. Lyte is a very clever chemist, and whilst he has an eye the most susceptible for the beauties of nature, he is always engaged in the researches of his laboratory. Bestowing infinite pains, and being a master in the art of manipulating, his negatives, like those of Mr. Fenton, are generally without fault.

"Mr. J. D. Llewellyn ought to be placed in the same parallel, for productions almost as complete as Messrs. Fenton and Lyte.

"The labours and discoveries of the celebrated Talbot have founded on solid bases the renowned photography of England. Is it not an extraordinary anomaly that the weakness of their exhibition resides precisely in the paper process which they have very justly, at least among themselves, consecrated by the name of Talbotype? The principal adepts in the Palace of Industry are Sir William J. Newton, Messrs. Ross, Thomson, and B. B. Turner. The "*Burnham Beeches*," which would doubtless have given by another process an excellent print, presents us upon a yellow ground with details dry and hard, coarse contrasts of black and white, which is not the fault of M. Newton, but that of the unhappy method which he has adopted.

"It is a misfortune that M. Townsend has contributed some very estimable prints but little conclusive in favour of his simplification of the waxed paper process, which all his brother photographers would desire to have seen justified by more brilliant examples."

NORWICH PHOTOGRAPHIC SOCIETY.

At a meeting held in the Council Chamber, Guildhall, on the 9th November, 1855, the President in the chair.

On account of the accidental loss of a paper which the President had intended to read, no paper was read with the exception of a communication from Mr. Fitt to the President.

Mr. Manning Fellowes stated that he had printed positives by the light emitted from a rod of iron, about an inch in diameter, heated to a white heat in a furnace, and that he had also printed by the light of a common watchman's lantern; but no examples of such prints so printed were exhibited. The same member, however, exhibited a portrait from life, a half-length figure, sufficiently small to lodge within the setting of a finger ring. He also exhibited a copy of a rubbing of a Monkish rhyme carved upon a beam in a cottage. He prepares his rubbings for copying in the camera, by going over the darks with a mixture in Indian ink, lamp black, and ox-gall. This removes the glare of the heelball and sharpens the edges of the subject.

Mr. Howes exhibited a large collection of stereoscopic portraits and other subjects.

Mr. Pulley, Honorary Secretary, exhibited a stereoscopic picture upon glass, of a plaster figure, taken wihout the aid of a lens. The images were done simultaneously, the light being admitted through two small holes pricked in a disk of zinc.

Dr. Ranking exhibited some large and excellent views done by the waxed paper process.

The President also exhibited some French pictures, together with two views in the Crimea, and one in Constantinople, by Mr. Robertson, of Greece.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The tenth monthly meeting of the session was held at the Society's Rooms, Royal Institution, Colquitt-street, on Tuesday evening, the 13th November. The chair was occupied by Mr. Corey. There was a large attendance of members.

A series of positive pictures, from paper negatives, by Mr. Cocke, of Brier Villas, Starchgreen, Hammersmith, were exhibited, and elicited considerable admiration. They were exceedingly sharp, and presented a peculiar softness of tone, with a completeness of detail seldom accomplished.

The Chairman, in referring to the pictures by Mr. Cocke, observed that it was a great achievement to print from paper negatives, and to obtain, as that gentleman had done, a delicacy equal to collodion, the objection to the use of which was its want of portability, and the danger of damaging their specimens, even when successfully obtained.

A gentleman, representing Messrs. Agnew and Son, of Manchester, exhibited a number of the Crimean photographs, so successfully taken by Mr. Roger Fenton, and now on exhibition in the Old Police Office, High-street. They were much admired, and a vote of thanks to Messrs. Agnew and Son was unanimously adopted.

Several specimens of positives were exhibited by Mr. Fitt, one set prepared by Mr. Sutton's process, and the other by a process of Mr. Fitt's own, the image being merely fixed with hyposulphite of soda. At the request of the Chairman and several members, Mr. Fitt promised to read a paper at the next meeting descriptive of his wax-paper process, by which he has produced some of the most pleasing and effective pictures ever exhibited to the Society.

Mr. Berry described the mode of transferring the collodion film, by means of a solution of gutta percha in chloroform. He illustrated the process by actual experiment on two negatives, with a success which, he explained, was uniform, he never yet having had a single failure.

The Chairman exhibited a beautiful film detached by this process.

Mr. Berry also exhibited a specimen of paper for the preparation of collodion instead of cotton.

Mr. Mercer read the following paper, "*On Hyposulphite of Soda*":—

There have, at various times, been papers read before this Society, on the preparation and properties of most of the chemicals used in photography, but no communication has, I think, yet been made on the chemistry of sulphur. It is my intention, therefore, this evening, in bringing hyposulphite of soda under your notice, to glance at the general action of sulphur in photography, and more especially at the important part it plays in the printing of positives.

The compounds which sulphur forms with oxygen are of a complex but interesting description; they are seven in number, and all possess acid properties, and although we shall not at present stay to examine into their peculiarities, we will, for the convenience of reference, arrange them in a tabular form.

Sulphurous acid		$S\ O_2$
Sulphuric	do.	$S\ O_3$
Hyposulphurous acid		$S_2\ O_2$
Hyposulphuric	do.	$S_2\ O_5$
Trithionic	do.	$S_3\ O_5$
Tetrathionic	do.	$S_4\ O_5$
Pentathionic	do.	$S_5\ O_5$

The third on the list, hyposulphurous acid, is the one we have especially to do with this evening. It is unknown in the separate state, for the moment we liberate it from any of its salts, it is immediately resolved into sulphurous acid and sulphur: we must study it, therefore, in combination, and no better salt could be selected than the one we are all so familiar with—hyposulphite of soda. Since its employment as a photographic agent, and the large demand which has consequently arisen for it, several plans have been proposed for its manufacture, and amongst them the following:—1. A bisulphite of soda is in the first instance prepared, and its solution, after boiling with sulphite of sodium, filtered, and the resulting hyposulphite crystallised out. 2. By the ignition of anhydrous sulphate of soda with charcoal, and subsequently boiling the solution of the resulting mass with sulphur. 3. By igniting fused carbonate of soda with sulphur, and converting the sulphate into hyposulphite by boiling with sulphur. 4. By saturating a solution of bicarbonate of soda with a stream of sulphurous acid gas generated in a large still from charcoal and sulphuric acid. The liquor is then digested with as much sulphur as it will take up, filtered, and the hyposulphite of soda which has thus been formed crystallised out. The processes by which it can be obtained might be considerably multiplied, but I select these as the best and most successful on a large scale. No. 3 yields remarkably fine crystals, but there is great difficulty in getting them free from carbonate. No. 4 is the best and most uniformly successful, and the resulting crystals are frequently three inches in length and perfect in form. Hyposulphite of soda crystalises in large oblique prisms, which contain 5 atoms of water, its symbol being $Na\ O\ S_2\ O_2,\ 5\ H\ O$. It is very soluble in water, but not in alcohol; its solution is neutral to test paper, indeed all the sulphur acids, though their composition varies so greatly, form neutral salts with one equivalent of base. Exposed to the air, its solution deposits sulphur, and is converted into sulphate of soda; but in close vessels, though sulphur is still deposited, sulphite of soda remains behind. The action of acids upon hyposulphite is to liberate hyposulphurous acid, which is quickly decomposed, as is very evident from the odour of sulphurous acid gas, and the milkiness which is produced, and which arises from the deposition of sulphur in a finely divided state. By the addition of an alkali, such as ammonia, no immediate change takes place, though the sulphur present is brought into a more unstable condition,—indeed, a good colouring-bath may be formed by the addition of ammonia to hyposulphite of soda, and using within a short period after making; but it soon loses its power, from the sulphur combining with the ammonia, and thus forming an alkaline sulphide.

The most valuable property of hyposulphite, and that which first introduced it to the notice of photographers, is that of dissolving chloride of silver, a salt insoluble in the strongest acids and most other menstrua. It is not merely a case of solution, but of decomposition, a new salt, the hyposulphite of silver, being in fact formed:—

$$Na\ O,\ S_2\ O_2 + Ag\ Cl = Ag\ O,\ S_2\ O_2 + Na\ Cl.$$

With an excess of hypo, a double salt, the hyposulphite of silver and soda, is formed: —

$$3\ Na\ O,\ S_2\ O_2 + Ag\ Cl = (2\ Na\ O,\ S_2\ O_2 + Ag\ O,\ S_2\ O_2) + Na\ Cl.$$

We must also not fail to notice a very curious reaction and change of colour which takes place when solutions of about equivalent proportions of nitrate of silver and hyposulphite of soda are mixed together. The white precipitate of hyposulphite of silver first formed rapidly passes through several shades of yellow, then changes to brown, and is finally converted into black sulphide of silver, and free sulphuric acid remains in the liquid. The decomposition which takes place in this most singular reaction does not admit at present of any satisfactory explanation; we have white hyposulphite of silver formed at the commencement of the reaction, and black sulphide at the close, but the nature of the yellow and brown compounds has not yet been determined.

The tests which have been found most delicate in the detection of hyposulphites are protochloride of tin, and protonitrate of mercury. The former yields a brown precipitate, and the latter a black one. These tests will detach very minute quantities of hypo, but they are not sufficiently delicate to detect it in the washings of positives, whose fading has been ascribed to its presence.

We now come to the consideration of the action of hyposulphite of soda in the fixing and colouring baths. When a positive picture is obtained by the exposure of a surface of chloride of silver to the light, the shadows aro the result of the decomposition of the chloride and formation of metallic silver. To preserve the picture, by preventing the further action of light upon it, it is necessary to immerse it in some fluid which, while it dissolves the unaltered chloride, will not affect the metallic image. For this purpose hyposulphite of soda is generally preferred, and it has been satisfactorily shewn that prints fixed with hypo, and thoroughly washed, will keep a considerable length of time without change, though the foxy-red colour they possess is highly objectionable, and necessitates the employment of the colouring or toning bath before they are at all presentable as works of art. And it is here that the difficulties and annoyances of positive printing commence. The moment the photographer removes his picture from the colouring bath, though the tints may be of the finest, and the detail clear and well defined, yet with all his precautions and all his pains, he has the almost certain fact before him that his picture is not permanent. We have therefore to consider why it is that as a fixing agent hyposulphite of soda leaves a permanent picture, but as a colouring agent a fleeting one. The fixing bath will first engage our attention, and the points to which we have to draw attention are:—1. The nature of the surface upon which the picture is to be taken before exposure to light. 2. Its nature after exposure. 3. The action of the fixing bath (solution of hyposulphite of soda). 4. The nature of the surface after removal from the fixing bath. Taking ordinary positive paper, prepared by salting, and exciting with nitrate of silver, we have on its surface chloride of silver and free nitrate of silver. Exposed to the light, the paper is blackened, from the silver salts being partially decomposed and reduced to the metallic state. Immersed in the fixing bath, the hypo dissolves out that portion of the silver salts which has escaped decomposition by the light, but does not touch the metallic image, nor leave behind the least portion of sulphur chemically combined with the silver, and when properly washed from every adhering portion of hypo, and dried, we have the permanent dull red picture referred to before. You will perceive I have taken for granted that our picture is a metallic one, and such I believe to be the case, though many suppose it to be reduced only to the state of a sub-chloride insoluble in hypo. I would refer, however, the supporters of the sub-chloride theory to the excellent paper of Davanne and Girard, in the "Bulletin de la Societé Fraçaise," (an abstract of which appeared in the last number of our Journal,) in which they satisfactorily shew, both by synthesis and analysis, that the positive image is formed by the reduction to metallic, and not sub-chloride of silver.

Let us now examine the action of the colouring bath, and the changes which take place there. Removed from the fixing bath, we have seen that our picture had a dull red appearance, but on removal from the toning bath we find this objectionable colour replaced by tints of varied hue—brown, purple, violet or violet-black, according to the strength of the bath, or the employment of albumen or serum in the paper—and in addition to change in colour, a change has also taken place in the composition of the image. It now contains sulphur combined with the silver, and generally in the proportion required by theory to form sulphide of silver.

A series of valuable papers were read some time since before the London Photographic Society, by Mr. Hardwich, on the colouring bath, and several very excellent formulæ were given for their preparation. He lays great stress—and deservedly so—on the formation in all these baths of tetrathionate of soda, a most unstable sulphur compound, and one easily decomposed; but with the theory of the composition of these baths I will not detain you: for whether we present sulphur to our picture in the form of a tetrathionate or any other loosely combined state, the result of a complicated series of decompositions is the same—the formation of an unstable sulphur compound of silver; indeed, it cannot have escaped notice, that a fixing bath, if long in use, gradually acquires colouring properties, and this arises from a change in the condition of the sulphur present; in a new bath it is firmly combined with soda as hyposulphurous acid, but from the pictures immersed containing more or less free nitrate on their surface, first hyposulphite of silver and then other of the polythionic series are formed, and sulphur is presented to the picture in a state favourable to combination with the metallic portion. It is, therefore, very desirable, after removing the picture from the pressure frame, to wash it well before immersion in the fixing bath. Many suppose that the picture after removal from the toning bath would be permanent, were every trace of hypo removed by perfect washing, but experience has shown that such is not the case; on the contrary, *it contains within itself the elements of decay*, and sooner or later is sure to fade. The brilliancy and richness of the tints first pass away, and gradually a yellow tint commencing at the margin extends over the whole surface. What chemical changes take place in the composition of the picture *pari passu*, with these changes in colour, it is difficult to say, and our acquaintance with the chemistry of sulphur compounds will have to be materially increased before we can hope to obtain much further information. Mr. Hardwich is of opinion that the yellow fading is due to an excess of sulphuration, or of sulphuration and oxidation combined; and that when imperfectly washed, or exposed to an atmosphere in which sulphide of hydrogen is diffused, you have sulphur liberated by a slow process of spontaneous decomposition, which, acting alone or in conjunction with the sun on the already sulphurated print, turns it yellow. The French chemists Davanne and Girard adopt an entirely different theory. While fully alive to the injurious effects of imperfect washing and exposure to a vitiated atmosphere, they consider that the most simple way to account for the fading is to admit the existence of two isomeric modifications of sulphide of silver, which, black at first, become yellow under the influence of moisture. I would, however, throw out the suggestion, whether or no the changes which take place may not be a gradual change from sulphide to hyposulphite? We have seen the effect of mixing together solutions of hyposulphite of soda and nitrate of silver, and the series of chromatic changes during the gradual conversion of the hyposulphite of silver into sulphide. Reverse the process, and suppose the sulphide to be converted into hyposulphite, the changes of colour would not then greatly vary from those which take place in a coloured positive. But it will be urged, Is such a change possible? I believe it is; for when an alkaline sulphide is exposed to the simultaneous action of air and moisture, a hyposulphite results, and a print exposed to the same influences rapidly undergoes changes of a similar character. But whatever these changes may be, one thing is certain, that all positives coloured in sulphur baths will sooner or later fade; and that if we are to succeed in obtaining pictures with tints as permanent and as rich ten years hence as to-day, we must look for some colouring agent which will leave us pictures not readily acted upon by ordinary atmospheric influences. This much-to-be-desired permanence, I believe, we shall attain by the use of the salts of gold.

We will now pass to the consideration of the hyposulphite of gold and soda, or as it is more commonly called *sel d'or;* which has been for a length of time used for strengthening and fixing daguerreotype pictures, and is now coming into use as a colouring agent in the production of permanent positives. It is prepared by adding a solution of chloride of gold to one of hyposulphite of soda, and precipitating with alcohol, tetrathionate of soda and chloride of sodium remaining in solution:—

$$8\ NaO,\ S_2\ O_2 + Au\ Cl_3 + 4\ H\ O = [Au\ O,\ S_2\ O_2 + 3\ Na\ O,\ S_2\ O_2 + 4\ H\ O +]\ 2\ Na\ O\ S_4\ O_5 \times 3\ Na\ Cl.$$

Its composition is represented by the symbols between brackets, and it crystallises in fine colourless crystals, insoluble in alcohol but very soluble in water.

The condition in which gold exists in our positive pictures, and the decomposition which takes place when *sel d'or* is brought into contact with the silver image, have given rise to considerable discussion, especially between Mr. Hardwich and Mr. Sutton, both of whom have published several papers on the subject. Mr. Hardwich is of opinion that the element sulphur is concerned in the process of coloration equally with the gold; while Mr. Sutton asserts, that to the gold of the *sel d'or* alone, and not to its associated sulphur, is its entire colouring action due.

Although Mr. Hardwich is a gentleman of considerable experience, and any opinion he may give in photographic chemistry is entitled to our utmost deference, yet I think Mr. Sutton has, on this point, the best of the argument. To understand this clearly we must repeat the question we before asked when considering the action of the fixing bath. What is the nature of the image after fixing? Mr. Sutton takes the view which we have endeavoured to shew this evening is the correct one, that the silver is reduced to the metallic state; while Mr. Hardwich bases his argument on the supposition that it is in the condition of a sub-chloride, and that when brought into contact with an unstable salt of gold, such as an acid solution of *sel d'or*, the structure of the compound is broken up, and sulphide of silver, sulphuric acid, and metallic gold are the result:—

$$Au\ S_4\ O_5 + 2\ Ag = 2\ Ag\ S + 2\ S\ O_3 + Au.$$

Mr. Sutton maintains that no sulphide of silver is produced, but that the *sel d'or* acts by the simple substitution of gold for silver, hyposulphite of silver and soda remaining in solution, and metallic gold being deposited:—

$$Au\ O\ S_2\ O_2 + 3\ Na\ O\ S_2\ O_2 + Ag = Ag\ O\ S_2O_2 + 2\ Na\ O\ S_2O_2 + Au + Na\ O\ S_2\ O_2.$$

And this reaction is supported by the fact, that when a neutral solution of *sel d'or* is used, it is found after use to be neutral still; while, according to Mr. Hardwich's reaction, sulphuric acid should be present.

We will not pursue the discussion further, but refer you to the papers themselves, which are of a highly interesting character; suffice it to say, that the weight of evidence is decidedly in favour of the metallic theory, and that as pictures coloured by gold possess all the elements of permanency, so it will in a short time entirely supersede old hypo, and every other compound which depends for its colouring properties upon the presence of unstable sulphur compounds.

Having thus reviewed the action of sulphur in the fixing and colouring baths, I cannot conclude without referring to the report which has just been issued by the London Committee appointed to take into consideration the question of the fading of positive photographic pictures upon paper, and I think I shall speak the sentiments of most photographers when I say, that from the known talent and experience of the gentlemen forming that committee, a very different report was expected. The evidence they have been able to obtain on the subject of permanence is entirely of a negative character: they have not found that any method of printing which has been commonly followed will necessarily produce fading pictures, nor have they evidence that any method which has been adopted will not produce fading pictures.

Under the important head of Causes of Fading, there is not one fact noticed which has not been more fully dwelt upon and elaborately supported by experiments, by Davanne and Girard, in the October number of the "Bulletin" of the French Society; indeed, from the last paragraph of this division, they would appear entirely to have overlooked what I have endeavoured to lay great stress upon this evening, as the most important cause of fading, viz. the unstable condition of the image itself; for they say, as the result of their investigations; "Hence it appears that the most ordinary cause of fading may be traced to the presence of sulphur, the source of which may be intrinsic from hypo left in the print, or extrinsic from the atmosphere, and in either case the action is much more rapid in the presence of moisture." This is, no doubt, correct, as far as it goes, that both hyposulphite of soda and a vitiated atmosphere hasten the decay of our positives, but the evidence is quite as strong in support of the hypothesis—that though thoroughly freed from hypo and preserved in a pure atmosphere, they will in the presence of air and moisture still fade.

With respect to their suggestions on the best mode of mounting photographs, had they been better acquainted with the use of solution of caoutchouc, as recommended by our talented friend, Mr. Frank Howard, I think they would on that point have been able to come to a more definite conclusion. In the summary of the results of their inquiry there is not the least novelty or addition to our previous stock of knowledge, for all their suggestions had been anticipated, and to some extent improved upon by MM. Davanne and Girard, in the October number of the "Bulletin" to which I have had occasion this evening several times to refer. They are, however, pursuing their investigations, and I trust their next report will be of a more definite and practical character.

I had intended referring to the recovery of silver from old hypo and other solutions, but must now reserve that subject to a further occasion.

A vote of thanks having been accorded to Mr. Mercer for his useful paper,

Mr. Bell read the following portions of a letter he had received from Mr. Stansfeld:—

No. 5, Blenheim Terrace, Leeds,
17th Nov. 1855.

Sir,—I have been very much interested by the perusal of your paper on "Whipple's Process," read before the Liverpool Photographic Society, and as I am the "F.W.S." of the *London Journal*, (which initials are a misprint as you will see), I tender you my thanks for the able way in which you have treated the subject. This process appears to me to combine all the, advantages of other processes without their disadvantages, and when it is thoroughly understood will, I think, supersede all. There are, however, one or two points on which I should like to have your opinion. I have written to my friend in Philadelphia on the subject, and hope for a reply in two or three weeks. The first plates I tried were small ones, 4 in. by 5 in. which answered perfectly. I then commenced with $8\frac{1}{2}$ in. by $10\frac{1}{2}$ in., and in the first instance prepared three plates, which I excited twenty-four hours afterwards. One was perfect in every respect, the other two had numerous cracks and stains. A fortnight after, with the same albumen mixture, I prepared three more of the $8\frac{1}{2}$ in. by $10\frac{1}{2}$ in., every one of which I excited as soon as dry. On immersion in the nitrate bath the film of all split and cracked in every direction. I thought the cause might be the age of the albumen mixture, but on comparing notes with a friend who had tried it, I found that he had met with the same difficulty on the same evening on which he made his solution. Have you experienced such an effect?

In your paper you do not state the length of time it took to develope the pictures; all I have done were at least an hour. I also see you used *glacial* acetic acid in your bath. Do you think it is necessary to mix fresh albumen solutions every time? or how long do you suppose it will keep? I am very anxious that this process should succeed in this country. I have a few specimens of its qualities done by my friend in Philadelphia, and if you think they will interest your society I will send them over for your inspection. I would present them to your society, but I have no others, and they form part of my own collection. There is in this process all the softness of collodion and all the sharpness of albumen, and it appears to me to be far easier than the Taupenot collodio-albumen plan.

I am, yours truly,
THOS. W. STANSFELD.

Mr. Bell drew attention to the pictures referred to above, taken by Whipple's (American) honey and albumen process. The glass negatives had been unfortunately broken, but there was sufficient left to shew the immense quantity of detail obtained. In one of them, a view of a street in Philadelphia, the telegraph wire fastened along the sides of the building was plainly perceptible. The questions contained in the above extracts he had answered. The cracking of the film was, he thought, caused by the albumen not having been sufficiently thick. He had the same result two or three times, but on taking thicker whites of egg that fault was obviated. In every case he had proceeded immediately with the immersion of the plate in the bath. Mr. Bell proceeded to illustrate Whipple's process, developing two pictures, and printing one in the presence of the members, and with a strong gas-light in the room.

Mr. Corey, who produced a beautiful specimen 9 in. by 7 in., explained that he found the cracking of the film arose from excess of chemicals in the preparation; for he had reduced the proportions and overcome the difficulty: Mr. Hardwich describes the same mode of remedying the defect in collodion.

After an interesting conversation, the meeting adjourned until next month.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this society took place on November 1st, 1855, Sir Frederick Pollock, Lord Chief Baron, President, in the Chair.

The President opened the business with a brief address.

Mr. Henry Pollock apologised for the non-appearance of a report upon the fading of positives, but stated that such part as related to practical matters would be ready for the Journal, and that Mr. Hardwich had undertaken to make a series of experiments on the theoretical part of the subject.

The Rev. J. B. Reade read a paper "*On the Use of Gutta Percha as a substitute for Glass in the practice of Photography*," in which he remarked on the disadvantage in weight and fragility attendant upon the use of glass, of which the recent breaking of 200 valuable negatives at one time was an instance, and he proposed gutta percha as a substitute. He dissolved thirty grains of gutta percha in an ounce of chloroform or benzole in a bottle, by immersing it in hot water. The colouring matter falls to the bottom, and the supernatant fluid, which is clear and colourless, is poured upon a glass plate and drained like collodion. It is then dried by artificial heat. If the edges of the glass are rough the film will adhere, but if not, the edges must be passed, when dried, through a spirit lamp so as partially to melt a small portion to form a certain adhesion until released by the operator. The usual collodion process is carried through on this coated plate; and after varnishing and drying, a knife is passed round the edges to remove the superfluous gutta percha, and the plate is placed in water for a minute or two. One edge of the double film is slightly raised, so that the fingers can take hold of it, and the whole will separate with great facility and float. The glass is then raised to lift it out of the water, and the film laid on blotting paper, and the glass drawn from it to serve for other operations. The negative on this double film is ready for the printing frame. Mr. De la Rue had stated that one of the products of Birmese naphtha which he was about to introduce would form the best solvent, and produce a thick transparent film at all temperatures. Mr. Archer's patent was different from this process. His pictures are taken in the usual way: a film is subsequently placed upon them, they are removed from the glass by water, and the negatives are printed through the film.

A short discussion followed, in which Mr. Reade said, it would not be difficult to iodize the gutta percha, so as to dispense with the collodion, but he did not advise it. The common gutta percha of the shops dissolved in benzole would do, as all the impurities would fall to the bottom. It might become necessary to re-dissolve this solution in chloroform, in consequence of benzole having the property of becoming solid at a temperature of 32°, and making the gutta percha opaque, unless in a very thin film.

Mr. Shadbolt read "*Some observations upon Photographic Printing*," in which he opposed Mr. Sutton's opinion that there was any advantage in the print being in the body instead of on the surface of the paper, either in stability or effect. But though he differed from Mr. Sutton in many points, he considered that he had made suggestions of such value in photographic printing as far outweigh any such trifling errors as he has promulgated; manipulators will soon discover the errors and abandon them, but the valuable suggestions are not so easily arrived at; he alluded more especially to the bath of *sel d'or* (double hyposulphite of gold and soda), and the great importance of getting rid of the free nitrate of silver when the proof has been produced, before colouring and fixing.

He quite agreed with Mr. Sutton that we have no option about colouring our print, as without this process it is valueless as a work of art.

Upon a former occasion he had stated that no process of photographic printing could be considered as approaching perfection while the operation in the pressure-frame had to be carried on until the picture was almost obliterated by over-exposure, in order to allow for the destructive effect of the fixing and colouring baths.

The remedy for this evil had been supplied by the bath of *sel d'or*, and now the precise effect of a picture can be seen before its removal from the pressure-frame.

The destruction of proofs coloured by the old process was mainly due to over-sulphurization, arising either from the decomposition of the old hyposulphite of soda, or from moisture in conjunction with a small portion of that salt remaining from defective washing. The use of the bath of *sel d'or* enables us to dispense with hyposulphite of soda as a fixing agent altogether.

The mode of applying the solutions should be such as is most convenient to the operator concerned, but certain modifications in the various strengths of the solution must be adapted to the means of application. Thus, if the glass rod be used, the strength should be at least double what is used for floating.

He might here remark, that from comparative experiments, he considered application by the rod as infinitely more effective than, and superior to, any other mode whatever, and as a matter of personal convenience he invariably adopted it for applying the nitrate of silver.

He could recommend the following process as uniformly satisfactory:—He prepared Canson's positive, Marion's thick, Rive's, or Towgood's positive papers. Marion's should be salted by the operator. To prepare the salting solution, take 30 grains gum tragacanth (gum dragon) in powder, put it into a small bottle, and add 1 fluid oz. of Liq. Ammoniæ Fortis; shake it up until the latter is saturated, then pour it off and add 1 fluid oz. of water. To each ounce of the above add 10 grains of chloride of ammonium, or 20 of chloride of barium, the former preferred, as the latter must stand and be filtered before using. The whole should present a slightly milky appearance.

If the operator can use the glass rod, 25 minims for each quarter sheet (size 11 in. × 9 in.) should be measured out and spread evenly over it; but if floating be preferred, just laying the paper down and immediately removing it is sufficient, except for Towgood's paper, which must be left for about twenty seconds. They must be hung up to dry. The mucilage formed keeps the chloride much on the surface of the paper, and is perfectly free from the slightest glare.

To excite the papers thus prepared, 25 minims of a 60-grain solution of nitrate of silver should be applied with a glass rod to each sheet, or they may be floated for about half a minute upon a 30 grain solution.

When dry, they are to be exposed in the pressure frame until the whole of the details of the picture are perfectly printed, taking especial care that the *lights* are not overdone, otherwise it is difficult, if not impossible, to obtain a good effect. On removal from the frame, the print should be floated upon some clean filtered water, *face downwards*, for about five or ten minutes, the water poured off, and a fresh dishful supplied, the print being this time submerged, and in about five minutes' time hung up to dry or to drain well. The free nitrate of silver is by this treatment (which should take place in a dark room) removed, all except a mere trace. After draining, the proof may be kept in a dry state, *in the dark*, for some days, if more convenient, or may at once be submitted to the bath of *sel d'or* to be coloured. This bath is made by dissolving half a grain of crystallised *sel d'or* in each ounce of water, and then adding half a minim of hydrochloric acid to a like quantity. It can be made extemporaneously, as suggested by Mr. Pollock, at a much cheaper rate, by mixing in equal proportions, solutions of chloride of gold of a known strength and hyposulphite of soda of *three times* the strength of the gold solution, then adding the hydrochloric acid, when a solution of a bright red tint results, but which afterwards becomes colourless. The same solution may be used repeatedly until it becomes exhausted of gold, which will be known by its colouring more and more slowly until it ceases to act altogether.

The proofs may be either floated or submerged until the desired purple black tint is attained, which occurs very speedily in a new bath; the action, however, must be stopped before the lights become at all *blue:* the bronzed parts, if any, will attain a rich black tone. On removal from this bath, they may at once be submitted to another composed of carbonate of soda (common washing soda) in the proportion of one part *saturated solution* to six or seven of water, in which it may remain until the starch (if any) in the paper is dissolved out.

From this bath it should go into water, and then into the fixing bath; and here a novelty of some importance may be adopted, premising that it must be done in a room protected from common light. It is very well known that chloride of silver is *perfectly* soluble in ammonia; but the proofs prepared as above indicated may be immersed therein *without the least injury* to the tones acquired in the bath of *sel d'or*. Finally, the proofs must be washed in two or three waters and dried. Ammonia has been before suggested as a fixing agent, or rather one for removing the unaltered chloride of silver, but unfortunately it also removes that which forms the picture when produced in the ordinary way; the deposit of gold, however, resists it most perfectly.

The advantage to be gained is the absence of any material to induce sulphurisation, and thus avoiding one, if not the only cause, of fading.

Should the hyposulphite of soda be preferred, one part of a saturated solution to three of water may be used instead, without any visible alteration of the proof; but in this case more careful washing afterwards must be observed; and it appears immaterial whether the bath of carbonate of soda is used before or after the hyposulphite.

The chief object of the carbonate of soda is to obviate the occurrence of a peculiarly annoying mottled appearance in the *fabric* of the paper, often invisible on either side, but conspicuous by transmitted light, and which frequently, nay mostly, appears only after some time when soaking out the hyposulphite of soda.

As I have noticed it only in paper sized with starch, and find that the *total* removal of this substance entirely prevents the defect complained of, I conclude that it is owing to some compound of that material with sulphur.

A short discussion ensued on the nature of the mottled appearance referred to, Mr. Hardwich being inclined to attribute it to an excess of nitrate of silver.

FADING OF PHOTOGRAPHS.

We give the following extracts from the first report of the committee appointed to take into consideration the question of the Fading of Positive Photographic Pictures upon Paper, which constitute the important part of it:—

Evidence of Permanence.

The committee have unquestionable evidence of the existence of photographs which have remained unaltered for more than ten years, prepared by salting plain paper with a chloride, afterwards making it sensitive with either nitrate or ammonia-nitrate of silver, fixing with a freshly-made solution of hyposulphite of soda, and washing in water; also of positives produced by Mr. Talbot's negative process.

They have not been able to obtain evidence of photographs having been prepared at all upon albumenised paper, or coloured with a salt of gold, or fixed with "old hypo," so long ago as ten years.

They have, however, ample evidence of the existence of unaltered photographs, so prepared, five, six, and seven years ago.

They have not found that any method of printing which has been commonly followed, will necessarily produce fading pictures, if certain precautions be adopted; nor have they evidence that any method which has been adopted, will not produce fading pictures unless such precautions are taken.

Causes of Fading.

The most common cause of fading, has been the presence of hyposulphite of soda, left in the paper from imperfect washing after fixing.

The committee think it right to state that they have been unable to find any test to be relied upon, which can be used to detect a minute portion of hyposulphite of soda, in the presence of the other substances which are obtained by boiling photographs in distilled water and evaporating to dryness; yet they have no doubt of the truth of the above statement, from the history given of the mode of washing adopted.

The continued action of sulphuretted hydrogen and water will rapidly destroy every kind of photograph.

It appears that the most ordinary cause of fading may be traced to the presence of sulphur, the source of which may be intrinsic from hyposulphite left in the print, or extrinsic from the atmosphere, and in either case the action is much more rapid in the presence of moisture.

Mode of Mounting Photographs.

The committee find that taking equal weights, dried at a temperature of 212°, of the three substances most frequently used, viz. gelatine, gum and paste—the latter attracts nearly twice as much moisture as either of the former; and as in practice a much smaller weight of gelatine is used than of gum—gelatine appears to be the best medium of these three; and the committee have evidence of fading having in some cases been produced by the use of paste.

The committee make the following suggestions, arising out of the above Report:—

1. That the greatest care should be bestowed upon the washing of the prints after the use of hyposulphite of soda, and for this purpose hot water is very much better than cold.

2. The majority of the committee think that gold, in some form, should be used in the preparation of pictures, although every variety of tint may be obtained without it.*

3. That photographs be kept dry.

4. That trials be made of substances likely to protect the prints from air and moisture, such as caoutchouc, gutta percha, wax, and the different varnishes.

Philip H. Delamotte.
Hugh W. Diamond.
T. Frederick Hardwich.
T. A. Malone.
John Percy.
Henry Pollock.
Geo. Shadbolt.

* Dr. Percy and Mr. Malone consider that there is no sufficient evidence in favour of gold to warrant this recommendation of its general use.

Mr. Long's Process for Keeping Collodion Moist.—The plate is to be coated in the usual manner with iodized collodion, and rendered sensitive in the ordinary way in the nitrate of silver bath. The time of immersion I have found to answer best, is from three to four minutes, at a temperature of 60° Fahr. On removal of the plate from the bath, it is to be allowed to drain from one corner for the space of half a minute, and the surface is then to be *very quickly* washed with *distilled water*. This is in order to remove the film of nitrate of silver on the face of the plate, which would otherwise interfere with the subsequent process. The plate thus washed, is to be placed in a horizontal position on a table, or levelling stand, and allowed to remain in that condition until the collodion film is just *surface dry*.

During the interval of the drying, prepare the following solution:—Dissolve 40 grains of gutta percha, as pure as it can be obtained, in one ounce of pure chloroform, place the bottle in hot water, and when the gutta percha is dissolved, allow it to settle, and decant the clear liquid into a perfectly dry bottle.

The plate being by this time *surface dry* hold it in the same position as when pouring on the collodion, and spread over its surface as quickly as possible the clear solution of gutta percha, returning the superfluous quantity to the bottle. When the plate has tolerably well drained, turn it into a horizontal position once more, and after waiting a few minutes (the exact time depending on the temperature), it will be found coated with a transparent tough skin of gutta percha.

When quite set, which may be tested by the touch, pour some of the solution of gutta percha into a shallow porcelain or glass dish longer than the plate, and then dip the edges of the plate successively into this to the depth of one-eighth of an inch, keeping the plate in a vertical position all the time; by this means we thoroughly envelope the sensitive film in a case of gutta percha, thereby *preventing the escape of the moisture* contained in the collodion film for *an indefinite period*.

Having prepared our plate thus far, it can be stowed away in a dark box to await the exposure in the camera.

It will be obvious to most persons that the plate prepared as above requires a little different treatment in the camera, the only difference, however, being in the position assigned to the sensitive surface, which in this case is that next to the glass on which the film is spread; the glass side of the prepared plate is turned towards the light, and after being exposed to the influence of the actinic radiations for the requisite time, it is removed, and subjected to the following operation, in order to develope the latent image.

By means of a sharp penknife, cut through the film of gutta percha on the coated side of the glass, all round the edges and having previously wetted a square piece of white blotting paper, place it in contact with the film, using a gentle pressure to make it adhere, in such a manner, that one edge of the blotting paper may come within one-sixteenth of an inch of the top of the film; with great care this unoccupied one-sixteenth of film is to be turned over the edge of the blotting-paper, and there held by the thumb of each hand, one on either corner; then, by cautiously lifting the corner under each thumb with the nail of the forefinger, at the same time withdrawing the hands in the direction of the bottom of the plate, we can easily strip off the whole of the film, and have the surface exposed on which the light has been allowed to act.

The blotting-paper, with its adhering film upwards, is then to be placed on a porcelain slab, which has been previously wetted with distilled water, and the developing solution composed of pyrogallic acid $1\frac{1}{2}$ grains, acetic acid $\frac{1}{2}$ drachm, water 1 oz., is to be poured over it, and manipulated in the same manner as if we were operating with the ordinary collodion film.

When the picture is sufficiently developed, remove it, still on the blotting paper, to a bath of hyposulphite of soda of the usual strength, and finally free from the blotting-paper, to a capacious pan of clean water, where it may be allowed to soak for some time, in order to free it from any adhering hyposulphite.

Mr. Archer's Process for Rendering the Collodion Film Permanent, independently of Glass Plates.—The material used is a solution of gutta percha in benzole. Other solvents can be used, but this is preferable to any. There are two methods of applying this solution of gutta percha (both included in the patent) to accomplish the object in view, viz., the removal of the collodion film from the glass. The first method is this:—Pour on the clean glass plate a quantity of the solution of gutta percha in a similar manner as for coating the glass with a film of collodion. When this film is dried, the iodized collodion is poured on and immersed in the silver bath. The plate is exposed, developed, and fixed. The glass plate with gutta percha and collodion films attached to it, is immersed in a vessel of cold water, which presently causes the two combined films to separate readily from the glass. The second method: Prepare the glass with iodized collodion, and proceed with the process in the ordinary manner. When the collodion picture is dried, pour on to it the solution of gutta percha; when the plate is covered, hold it in a horizontal position for about a minute to thicken. Draw off very gently through a funnel into the bottle the excess of solution, and gradually raise the plate vertically over the funnel. The benzole will evaporate rapidly, leaving on the collodion picture, and in intimate contact with it, a coating of gutta percha. The plate must now be gently held with its back towards a clear fire. to accelerate the hardening of the gutta percha and to prevent its chilling on the surface. When cold, the plate is immersed in a vessel of cold water, which causes the combined films to separate, in one sheet, from the glass.

Collodiometer, or Actino-hydrometer.—In No. 20 at page 100 will be found a brief description by Mr. W. Ross of a new hydrometer invented specially with reference to photographic purposes. As might be expected, it has not satisfied all parties, though it is admitted to be of great use. The following criticism and defence are extracted from the Oct. and Nov. numbers of *Humphrey's Journal*:

Columbia (Tenn), September 18, 1855.

To the Editor of Humphrey's Journal.

Sir,—In the excellent article upon the "Collodiometer," which appeared in No. 8 of your Journal, your able correspondent W. R. appears to have committed an oversight which, without correction, is likely not only to mislead, but also to cause an unnecessary waste of acid. On page 124, in the directions for preparing collodion, it is stated, that "if number 3 sinks rapidly, the acids are too weak, and *ought not to be used*, or the pyroxyline will be matted," &c.; a result I do not intend to question, but merely to point out that the acids are not necessarily to be thrown away on that account, but may be made equally available by *increasing the proportion of sulphuric acid*. Excellent pyroxyline may be made with acids in which *neither* of the proper beads will float, by increasing the amount of sulphuric acid, say one-fourth, and paying due regard to temperature. This addition will float No. 3 and produce a fine article of soluble cotton.

This new instrument affords many facilities, and photographers are under great obligations to its ingenious originator, Mr. Ross, for the time and patience bestowed in its design; but it still requires that we should have some method of verifying its indications, and of detecting those errors that are frequently found in instruments of a delicate nature. It will therefore be a useful and general standard of comparison, if Mr. Ross will state *what specific gravity each particular bead is intended to represent;* it will then require but little investigation to verify their correctness: indeed, without this information, it is impossible to make a proper allowance for difference in temperature, and it is useless waiting for 60° Fah. in a country where we are above that temperature. the major part of the year. Tables of density of the same liquid for every 5° Fah., from 32° to 100°, would be of great service to actinic practitioners.

THOS. I. BAILEY.

To the Editor of Humphrey's Journal.

Sir,—In the last number of your interesting and valuable Journal, there is an article under this head, accusing your *quondam* contributor W.R. of having "committed an oversight which, without correction, is likely to cause much waste of acid." In this respect I cannot agree with Mr. Bailey, as we know that excess of water in the mixed acids *will* "mat" the cotton. On this point all writers agree with *me*, as no increase in the volume of the liquids can concentrate their strength—especially that of the nitric acid, which is the one that is all-important, as it is only from its decomposition that the *peroxide of nitrogen*, the chief essential agent in the soluble cotton, or pyroxyline, can be eliminated. An addition of a large volume of sulphuric acid beyond the amount required for the decomposition of the nitric acid, cannot, then, be of the advantage Mr. B. expects. If the photographer, when he buys or orders his sulphuric or nitric acid from a dealer in photographic chemicals, will state the purpose for which it is required, the dealer (if an honest one) will not send him one too weak, especially if he knows the purchaser to be in possession of an actino-hydrometer or collodiometer, together with the skill to use it: consequently no acid need be wasted, but should be returned to the seller, without more loss than the small quantity used in testing,—which an artist in daily practice had much better lose than waste his time and materials, to say nothing of his impatience or mortification, by saving a cent's worth of acid and keeping a quantity of worthless collodion, the inevitable consequence of that saving. Cotton prepared by such addition of sulphuric acid, may well be termed "a fine article of soluble cotton," for if left only a few minutes in the mixture, a portion of it will dissolve before it can be removed into the dish of water to wash the acids from it. [See *Hardwick's Photographic Chemistry* on this subject.]

Another point he makes is the want of some method of verifying its indications by means of tables, &c. It strikes me that the easiest way is to get the liquids to the required normal temperature of 60°, even although this is "a country where we are above that temperature the major part of the year." There is no artist who requires to make his pyroxyline or collodion oftener than once a month, and there is no part of our country where ice cannot be had to cool a water bath to that temperature, or fuel to raise it when so cold as to cause any defect in its indications, where that accuracy is desired which is so essential to success. The specific gravity, or as W. R. prefers to call it, the *buoyant power*, is therefore unnecessary, each bulb being accurately graduated to the required degree for the given temperature. A set of tables, such as Mr. B. suggests, would be useful only where a specific gravity hydrometer was to be used, unless indeed, a bulb was made for each degree's difference of temperature from 32° to 100°, which, instead of 8 for the acids, ether, and alcohol, collectively, would require not fewer than 48 bulbs! viz. 16 for each of the three liquids.

What practising artists require, is a simple arrangement of apparatus, which will at once, and by using always the same part of it for the same purpose, indicate whether the liquids in their possession are proper for their purpose or not. This they can readily do with the apparatus as it is, with the occasional addition of a small piece of ice, or a spirit lamp. With the present number of bulbs, no such tables as are recommended would be of the least value: I, for one, would rather use the few than be troubled with the many, to say nothing of their additional cost. As one who learnt all he knows of the art with W. R., and who has perhaps used the apparatus before any one else who was not a pupil of his could possibly procure it, I may be excused for coming forward to say a word in its behalf in the shape in which it stands, rather than see an increase in the number of bulbs from 5 to 48, and of its cost, which the adoption of Mr. B.'s suggestions would require.—Respectfully, ARIEL.

We have received the last number of the *Bulletin de la Société Française*, but want of space prevents us from giving any extracts. There has been no report of the meeting of the Society during the past month.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—Your number for October is to hand, and I see by it that Testud de Beauregard's process has appeared in the August number, and I believe that is pretty nearly all that will ever be heard of it. The case will be I think somewhat different with the process of M. Taupenot, which carried in its first announcement in *La Lumiere* so much consistency, that I tried it as soon as my albumen could complete its fermentation, which at our present temperature (53° about) took three days. As the albumen was so fluid and clear, I thought it would do without filtering, or rather straining, through linen, that I used it without its having undergone that operation. I got a good impression of the subject (a house), but it could not be printed from, owing to several parts of the film being somewhat striated, or thicker in some parts than in others. I saw what was the cause, and strained the albumen, which took till night to pass through the linen; after which I prepared some plates with collodion, and they, when washed and enfilmed with albumen, were set aside till next morning to dry, when the albumen was excited. The day was cold (44°) and cloudy, but with occasional gleams of sunshine; during one of which I took one impression with ordinary collodion, and one with the albumenised, giving each the same time (12″) in the cameras. The former was fully impressed, but the latter was not. The second trial was exposed—the plain glass 12″, and the albumenised 15″, to the light, and both were rather overdone. The third trial was with the albumenized alone, and an exposure of 14″ gave an elegant impression, sharp as possible, the deep blacks being very dense and the whites clean. The sun was shining at the time on the building, but all the minute details of the parts in shade were as clearly marked as could be desired. The lens being only 1½ inch focus the picture was very small, covering only a diameter of about 1¼ inch, yet the joints of the bricks were visible to the naked eye, as well as each individual rod of the blinds. The impression was placed in the megascopic camera, and enlarged to cover a circle of 8 inches on its ground glass, when it seemed equal to what it would have been had the house itself been the object at which the camera was focussed, instead of a small impression; a circumstance which is very rare indeed with an ordinary collodion impression, when magnified to the same extent. Should M. Fortier or any of the other gentlemen succeed in rendering it more sensible than it now is, it will be extensively adopted here for face mapping, including fingers and rings. In its present state it is not likely to be used much for that purpose, as every one is fully occupied with direct prints on ordinary collodion, and no other branch of the art is pursued here, nor is likely to be. We are all so much occupied with ourselves, that we have no time to look at any thing else; and as all who practice the art do so for a living, according to the proverb—"Those who live by pleasing, must please to live."

On the whole, I am of opinion that for views and other purposes on your side of the water, it must be preferred to every other, especially, as I see by the *Bulletin* for October, that it has been used months after the preparation of the plates, and even long after the albumen film has been excited.

By the way, what is the matter between the French Society and the *Cosmos* and *La Lumiere*. It was in existence several months before they noticed it at all. But as we get their proceedings in the *Bulletin*, the tabooing by the others does not amount to much.

The statement of the rival claims of Le Gray and Archer to the collodion process, in the *Bulletin*, will no doubt have received a notice at your hands before this reaches you. WM. ROSS.

96, Second Avenue, New York.

To the Editor of the Liverpool Photographic Journal.

Sir,—It is really wonderful to remark the very large amount of valuable information which has been literally thrown away in regard to relative values of different lenses, processes, &c., as is to be found in the pages of all the periodicals, and in all the more elaborate works devoted exclusively to the art of actinography.

We are often told, with such accurate precision as to be tiresome, of the number of drops of such a solution, or grains of such a substance, to use, in order to produce certain effects in a given time; itself also as minute as possible, even to the fraction of a second; in one case the *twelfth of a second!*

I have no intention of charging the parties giving their processes with having intentionally suppressed the essential information which would enable us to compare the rapidity of one process with that of another, but I am charitably inclined to believe that some of the so very excellent processes were only dreamt by their authors for the sake of trying whether they would actually be printed or not.

I am fully aware that Editors are not to blame for so sending them to press; such often arrive late, and appear at first sight to be worthy a place, and are accordingly inserted; but what I would impress upon all writers, as well as all Editors, that much more information is necessary than is usually given for the composition of any compound, or for ascertaining its probable sensibility, whether on exposure in the camera, or by superposition in printing.

For example, no liquid which is purchased in that state, such as acids, alcohol, æther, &c. should be used or described as forming part of a compound, unless its strength is also given, as well as its purity ascertained. Unless this is done, how can others be certain of having a similar compound, even when the published process is faithfully followed, as far as practicable, even to the fraction of a drop?

Some processes, after being so minutely given, generally wind up with the statement that an impression was obtained in such a space of time, often exceedingly small; but no information is given as to many points which are essential to be known before any one can judge of its real value in respect to its sensibility. Sometimes the diameter of the lens is given, but this is the most homœopathic dose of information that can be imagined. It is true that the greater the diameter of the lens, the greater the quantity of light admitted, and consequently, the quicker will an impression be obtained; but the statement often winds up with the fact, that a *half*, or even a *quarter* inch "diaphragm" has been used, which is certainly a misnomer, if any thing. I presume a diaphragm must be of the same diameter as the tube in which it is placed, and that the true meaning is, that a diaphragm with a half or quarter inch *aperture* is meant. If the mere mention of the diameter of the lens was very meagre information, this addition has (to use an Hibernicism), subtracted it all away, and left us more in the dark than if we had had none at all. Unless we are told the distance at which the diaphragm is placed before or behind the lens, no idea can be formed of its effect. For example, a shade may be continued so far in front of a lens as to operate as a diaphragm, with an aperture of any size in inverse proportion to its length; or, the tube may be continued inside with a similar effect as far as limiting the extent of the field is concerned, and shutting out the very oblique rays; and so also will a large aperture when at a certain distance from the lens, have the same effect as a smaller aperture nearer the lens. As long as the shade does not extend farther in front of the lens than its internal diameter, it will not interfere with any rays from the object, which would in any case appear in its field; but here it differs from a diaphragm, because the shade is never of less diameter than the lens, while the aperture in a diaphragm is; the diaphragm being ntended as a stop to keep out some of the oblique rays from passing through the extreme edge of the lens.

I was about running off at a tangent on the subject of lenses, but must return to the more immediate subject o fshowing what information is required in all cases, to enable *distant* readers to judge for themselves of the claimed degree of sensibility for any particular new process. I have placed the required data in a tabular form, and although it may be probable that every item cannot be given, yet it is to be hoped that as many of them as possible will be, when convenient. Some of them may appear to man of your readers, who know all the localities by name, as being superfluous; but the Editor will please to recollect that his Journal is read, not only in Liverpool, or in the civilized parts of the world only, but also in many places *uncivilized* as well; consequently too minute information on such points cannot be given, even though much of the so often repeated minutiæ of how to "soak" or "float" the paper may be omitted, to make room for them.

The latitude of the place.
The height above the sea.
Date and hour of the day.
Temperature—state of barometer.
State of weather—clear, dull, &c.
Situation of object—out-door, in-door, in shade, or sun-light.
Predominating color of object if single.

Description of lens—if achromatic or not.
Landscape or portrait arrangement of lens.
Focal length for solar rays.
Diameter of aperture.
Distance of ditto in front of lens.

Kind and size of tablet used—silver, plate, glass, or paper.
First impregnation applied—its composition.
Strength of exciting bath, and time on it.
Time, since excited, before exposure to light.

Time of exposure to light—in camera or otherwise.

Developing liquid—its composition.
Time kept before being developed and the time it took to be developed.
Clearing solution—its composition.
Indication wheu cleared sufficiently.

Toning or colouring bath for prints—composition.

Any remarks not included in the above.

Your readers will say this is a long list, especially those who might have to write them; but very many of them may be written in less space than I have used, as in the following example:—

Lat. 40° 44°; 316 ft. above sea; 13th November, between 2 and 3 p.m.; temp. 69 F.; bar. 29.7 inches; calm and hazy; open in view; foilage rather brown and building white. A single achromatic lens, by Ross; 12½ inches focus; ⅝ aperture; close to lens, (in such a case it is unnecessary to give the diameter of the lens itself, as no part of it is effective except the ⅝ of its centre). Glass tablet (here give the composition of the first impregnation); exciting bath, 30 grains nitrate of silver (grains, or measure, or anything else); left in contact 3 minutes; exposed in camera immediately for 75 seconds, or kept 4 hours or 5 days, &c., before exposing in camera. The other portions require no recapitulation.

I am afraid I have encroached too far on your patient good nature, but believe me to be an ardent student in actinic art.

WILLIAM ROSS, Architect.

96, Second Avenue, New York,
13th November, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—Experience has taught me that, although it may be convenient to print off a few proofs at a spare time, it may not always be so convenient to colour and finish them forthwith. To avoid this difficulty, it may be useful for tyros in the photographic art, who cannot always depend on their time, to be told a simple way of *temporarily* fixing them, seeing that paper, especially albumenised, should be used within twenty-four hours after excitation.

On taking the proof from the printing frame, plunge it into a tolerably strong solution of common culinary salt in plain water, which converts the undecomposed nitrate of silver on its surface into a chloride—a salt not discoloured by a small amount of light. Allow it to remain for ten minutes or more, then wash off the superfluous salt solution with water, and hang it up to dry. In this state it may be put away in a folio until a more convenient season arrives for the final finishing, or until a larger number of proofs may have been struck off; as it is as easy to attend to twenty as five; and to colour and fix properly requires almost constant attention.

In making public the above simple plan, which occasionally has been of service to me, I would distinctly wish it to be understood that I disclaim all merit of discovery, well knowing that the use of salt in photography is as old as the art itself. Neither would I recommend its constant adoption, from the greater length of time the proofs require in colouring. and, when gold is not used, from the pictures when finished being of a good warm sepia tint instead of black, a thing, in my opinion, much to be preferred in many cases.

I am, Sir, yours very truly,
HENRY H. HELE.

Hempston Rectory, Totness, Devonshire,
November 17, 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—Though a constant reader, I have never before asked you a question; but an answer to the following would much oblige:—

1. What length of time will nitrate of silver keep in *solution,* if *not used* but put by in case of accident?
2. Is *acetic* acid a *proper* addition to a bath ?
3. Is there any fear of giving a bath on over-dose (as Archer says,) by adding the nitric—1 drop to every six ounces ?
4. Will fused potash (wretchedly weak of course) injure the silver. 4a., that is, does its presence there destroy, as any impurity would, nitrate of potash, &c.?
5. When it is spoken of as exposing a solution to the action of the sun-light for half an hour, does it mean that it should be freely exposed with the cork out? 5a. Would the day-light do the same if the sun's taking a nap ?

I should be glad that this may have your attention in the next Journal.

I am, dear Sir, yours truly,
30*th Nov.*, 1855. TOM TERRITT.

[1. Any length of time if it has not been used. 2. It may be used for positives. 3. Not for positives. 4. Precipitates the silver. 5a. Yes.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Being much engaged in business, in which, though I sometimes snatch an hour to take a picture or a portrait, I cannot find time to print my negatives, and therefore am obliged to do so by gas-light in the evening. I have tried the regular calotype paper, iodised with the double salt, and can get a goodpositive in fifteen seconds from a 5 by 4 plate, but it is very harsh, and not pleasing. Paper negatives in a few minutes give good prints, but they have the same fault. I have tried bromides and fluorides, but the tone is bad. Would you be kind enough to suggest to me the best preparation for printing by gas, and how to tone the prints? I cannot get the iodidesand bromides to change in Mr. Sutton's bath. I have succeeded with that gentleman's whey process very well: preparing the paper and sensitising with a glass rod; will the addition of bromide of potassium, make it sensitive enough without giving the harsh picture ?

I shall be very glad of a suggestion from you, or any of your correspondents.—I am, Sir, Your obedient servant,

W. J. A.

[See Mr. Bell's observations on Whipple's process in our last number. We do not think that bromide of potassium would remedy the evil complained of.—Ed. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—Can you, or any of your numerous correspondents, inform me how the transparent glass pictures are produced—I mean those used for the stereoscope ? I have tried to print on an albumenised glass plate, but could not succeed. A formula for the production of such pictures would confer a great favour on, Yours most obediently,

Warrington, Nov. 19, 1855. STEREOSCOPE.

[Try Whipple's Process, and print by apposition.—Ed. L. P. J.]

THE

LIVERPOOL

PHOTOGRAPHIC JOURNAL.

CONDUCTED BY SOME

MEMBERS OF THE LIVERPOOL PHOTOGRAPHIC SOCIETY.

VOL. III.—1856.

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THE

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We are so over-pressed this month with interesting matter, that even with four extra pages, besides an index and title to our second volume, we are obliged to postpone much which we desired to place before our readers. We must limit our greetings to thanks for increasing encouragement, and promises of increasing efforts to deserve it. New sources of information are opening to us every day, and new discoveries in every quarter indicate that photography is progressing, has room for improvements, and will continue to furnish matters worthy of record. The account of the state of this art in America, which immediately follows these remarks; the state in India, as evidenced in the transactions of the Bombay Society; the state in France and England—will be regarded with great interest: the efforts at improving the printing process, made by Mr. Sutton and Mr. Shadbolt; the modifications of the collodion and albumen processes; and the improvements in the manipulation of waxed paper, are all symptoms of progress which will be hailed with satisfaction by all lovers of the art.

American Photography.—*From a Correspondent.*—You have no idea of the magnitude of some of the establishments here, or the magnificence, in some few cases, of the furnishing and fittings, where the *elite* are "taken off," at prices varying from ten to one hundred dollars, including the trimmings of a gilt frame, &c. Even the places where a Daguerreotype is advertised to be taken for a sixpence sterling, (or a shilling of our New York currency), up to as high as half-a-dollar, are, in many cases, by no means shabby. There are a very great number of places where a real good Daguerreotype can be had in a case for the half-dollar. We are not troubled with any other branch of the art than face-mapping; not that there would be no demand, but it would be requiring too great exertion from our people to have to learn how to do anything requiring a different routine to what they are accustomed to by having everything at hand in their rooms. I infer that there would be a demand for landscapes if any were offered for sale, because in the importing print stores a very large number of actinic pictures are sold, not only of the celebrated localities and buildings, such as those large prints of *Bisson Freres*, but of numerous unknown scenes, even without an intimation of locality beyond the beauty of the picture itself. I feel certain that prints from Mr. Fenton's collection would sell here at very high prices, and that a summer exhibition of them in New York, ready to open on the 1st of May, would pay as well if not better than in London or Paris. The number of coloured French lithographs of the Eastern war which have been sold here, is beyond all conception, even although the government sympathy is with Russia, as is also, I am sorry to say, the mercantile. Another characteristic of the art, in this country, is the great number of establishments on wheels, which may be termed *itineraritypes.* They generally bear the name of "*saloons,*" and are something of the appearance of the waggons of a menagerie in Britain, but much lighter in the wheels. They are plentiful in the thinly peopled districts, and when every body has been "taken" who are within a convenient distance of the saloon, a team of horses, oxen, or mules is hired, and paid for in pictures, as is nearly all their other expenses of living, &c., and the *saloon* is moved to another neighbourhood, till all the faces in that are also mapped *secundum artem,* when another move takes place, and the process is repeated. These perambulators are formed so that portions of the sides fall down to form a floor, in addition to the waggon bottom, and the sides fitted up with sashes, india-rubber cloth, &c., all of which, with the steps and other "fixings," are packed inside when travelling from one spot to another. As the body is always on springs, it is impossible to stir in one while a face is being mapped; the casual entrance of a visitor at such a time is mentally deprecated, and calls forth sundry efforts of ingenuity to stop the springs by props under the body to bear it off them. Many of these concerns are very profitable indeed, and their cost originally, (the carriage alone), without any stock of plates, &c., is from £75 to £200 sterling. It is not every one who can manage with such customers as are most numerous at such establishments, and a peculiar tact is required to accommodate them. I made a plan for one such saloon which cost the latter sum, and the owners in two years more than paid for it, his assistants, and his own time, having a considerable sum in the bank besides. He has since sold it at a profit, and is now using a *swimming Daguerrean saloon* on the Ohio and Mississippi rivers, on which are several other floating establishments, from the owners of two of which I have an occasional letter. These saloons also migrate like wild fowls, according to the degree of exhaustion of business in any locality, and in several cases receive their pay in any kind of produce they may require for their own use, or can dispose of. From such as these perambulating establishments many fine views might be procured, were they only to turn their attention to the subject: but the prospect of being paid for their trouble being so remote, and withal rather uncertain, they prefer the usual walk of face mapping as being by far the most available. I have often wished I was rich enough to be able to take a trip round the country on an actinic tour among the fine scenery of America, where everything is on a gigantic scale. I have even designed, or invented, whichever you may call it, a camera for the purpose of taking views on glass, which you may have seen. Three of them will receive the whole visible horizon, or 120° each. I could have arranged it for 150°, as in Martens', but two whole tablets and a fractional one would have been required, whereas, I thought it better to have the whole horizon in three *equal* parts. I term it the "*Scioptric camera*," and have several times, through *Humphrey's Journal*, offered to allow any one to inspect it who has ever contributed an article of any description, except an advertisement, to any scientific periodical of any kind, yet you may be assured my visitants were few, only three in all, and of these only one had a right to see it. It has taken a picture of three companies of soldiers extended in a line, and with the same trouble could have taken a regiment; the same arrangement can be adopted to a tent without a camera box, and this was the one adopted for the above view. The impression was a print, and was spoiled in the process of deepening in order to convert it into a transfer for being printed from. The size of the plate was 14 inches by 5, which was the widest the lens would cover, being only six inches focus. As it must be constructed for one lens only, a change of lenses of different foci cannot be attempted, but a camera may be made for a lens of any focal length which may be most convenient.

NORWICH PHOTOGRAPHIC SOCIETY.

At a meeting held in the Council Chamber on Friday, 7th December, 1855, T. D. Eaton, Esq., President, in the chair, after the election of several members, &c.

Mr. Pulley (Hon. Sec.) read a paper explaining the rationale of stereoscopic pictures, together with the laws of binocular vision. The manner in which the effect of solidity is obtained upon a flat surface was rendered clear by the aid of several well executed diagrams. In further illustration of the paper, Mr. James Howes exhibited a reflecting stereoscope, upon Professor Wheatstone's principle, (the refracting instrument being invented by Sir David Brewster,) and a traversing camera for taking two stereoscopic pictures upon one plate of glass. He also shewed several films removed from glass by first covering the collodion with gutta percha dissolved in naptha: some of these films Mr. Howes had attached to thin paper by a process of his own, whereby they were rendered less liable to injury. The President thanked Mr. Pulley and Mr. Howes in the name of the Society for the valuable information they had afforded.

A number of excellent collodion pictures, many of which were stereoscopic, were laid upon the table by Mr. Stewart and were much admired.

In the course of the evening a communication from Mr. G. R. Fitt was read by Mr. Howes, informing the Society that the Liverpool photographers were desirous of forming an exchange club in connection with this Society. From a short discussion which followed this announcement, it appeared that there was a general feeling in favour of the scheme, and the Hon. Sec. was accordingly requested to write to Mr. Fitt for the proposed rules and regulations.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The tenth meeting of the session was held at the Rooms of the Society, Royal Institution, Colquitt-street, on Tuesday evening the 8th instant. There was a fair attendance of members, and Mr. Corey was called to the chair.

The Chairman exhibited a glass negative of St. George's Hall, Liverpool, taken by himself by the American honey and albumen process (Whipple's), which possesses the singular faculty of being able to print by gaslight. This negative was prepared by Mr. Corey on Monday and exposed to gas-light on Friday evening, The result was highly successful. The details of the building were obtained with great minuteness, while the half tones were of the most approved and agreeable description. The negative was passed round and elicited much admiration.

Mr. Fitt showed some beautiful specimens of his own wax-paper process prepared by an amateur, a friend of his at Norwich, and which he had brought to the society to prove that the process could be successfully worked by others as well as himself. The collection included both negatives and prints, and thus afforded conclusive evidence of the superior claims of the mode of manipulation which will be found clearly and minutely explained in the paper on the subject read by Mr. Fitt. One of the most beautiful views (Ethelbert Gateway, Norwich) was inspected with unusual interest, the paper having remained in the camera upwards of a month before exposure.

The Chairman showed several pleasing specimens by Mr. Cox of Devonport, waxed paper, printed by Sutton's process.

Mr. Fitt.—Nothing can exceed the beauty of those.

Mr. J. A. Forrest stated that since the last meeting he had experimented on Shadbolt's process. He had found it extremely sensitive, taking very excellent impressions on a very dull day. It was next to impossible with other processes to print during these dark days, and hence the great advantage of this process. There was, however, one displeasing result he could not remedy: all the prints had a dull yellow tone, which he could not get rid of. He at first thought it was owing to the gum, which appeared to be of a dark colour, and he procured some beautiful gum from Mr. Berry, but he still had the same result, though in a less obnoxious degree. He had tried various means to get rid of the yellow tone, but without success, and amongst these, after washing the print, he had applied chloride of gold, which reduced the colour but did not get rid of it. He then took *sel d'or*, and fixed with ammonia, and then applied hypo, but he had still the yellow tone. He should like to know if more hypo after the *sel d'or* would make any alteration.

Mr. Corey pointed out a fundamental error in the printed formula in the *London Journal*, which Mr. Shadbolt had written to correct, viz. "1 oz." in one of the ingredients, having been printed instead of "10 oz."

Mr. Forrest said he first fell into that error, but seeing the correction, he made the requisite addition, yet still the same disagreeable yellow tone pervaded the picture.

Mr. Fitt: If you use the *sel d'or* without acid you are likely to get that cheesy tone. If you add acid you get rid of it.

The Chairman: With Shadbolt's process you get rid of hyposulphite altogether, carbonate of ammonia being used instead of it.

Mr. Higgin suggested that the disagreeable colour might be the fault of the nitrate of silver. By clearing that he got rid of the objectionable tone.

Mr. Fitt was of opinion that the nitrate of silver had not so much to be considered, he having frequently obtained very brilliant pictures with old dark coloured nitrate of silver.

Mr. Higgin: But if you use highly albumenized paper it has the same effect.

Mr. Forrest: This is not albumenized paper at all.

Mr. Berry observed that the great point in the use of albumenized paper was that it should be taken out of the hyposulphite as soon as possible with safety, and washed immediately, and repeatedly. If completed and washed in a few hours they would have the whites as pure as they could wish, but if they let it soak in a weak hyposulphite solution, they had then a nasty yellow colour and could not get rid of it. He had always found that if they left the albumenized picture in pure water twelve hours it turned out well.

Mr. Higgin observed that in using highly albumenized paper he had found that after floating it in a fresh solution of nitrate of silver he obtained a nice picture; if he used the same solution a second time, he had a bad colour; but if he used a little kaolin the next would be as good as he could wish.

After some further conversation the subject was allowed to drop.

Mr. Berry shewed and explained a large portable camera, the novelty of which consisted of two lenses, one 16 in. focus and the other 24 in. focus, either of which could be expeditiously adjusted by means of a slide and screw to suit the distance of the object: the weight of the whole apparatus was not more than 10 lbs.

The Chairman observed that the double focus supplied a great desideratum; as there were few photographers, if any, who had not at some time experienced great inconvenience by having only one lens when they came upon a choice lot of landscape which could not be taken either because their focus was too short or too long.

Mr. Atkinson exhibited and explained his portable camera, the body of which closes up and forms a box, in which the other parts of the apparatus may be carried. When fixed, it may be drawn out or shortened at will, and moved gradually in any direction to suit the object to be focussed.

Mr. Berry exhibited the stereoscope laid before the members of this Society by Dr. Edwards when the British Association visited Liverpool. It was a large lens cut in two, and the two halves placed longitudinally together in a hand frame, the centre of the lens outside and the edges in the middle. Stereoscopic pictures of more than ordinary size could be seen through it, the only objection to its general adoption was its price, which, at retail, was 25s. This was obviated by another and more simple description which he also exhibited; it was formed of two small lenses set in a kind of spectacle frame, with a spring nose-arch, and could thus be used in the same way as a double-eyed eye-glass: by a little adjustment large stereoscopics could be seen as perfectly as with more expensive instruments. The selling price of this was 7s. 6d., but he thought it could be bought much cheaper.* Their great advantage was, that pictures of almost any size could be seen through the same stereoscope, while, with a common box stereoscope, they could see nothing larger than a medium plate.

The Chairman then stated that as the members would not use the photographic rooms above, the council had determined to give them up; and having been met with great fairness, if not great liberality, by the committee of the Royal Institution, the lease had been taken off their hands, on the trustees of the Society paying the expenses of altering the premises to suit photographic purposes in lieu of the arrears of rent; they would, therefore, meet for the future in the lecture-room of the Institution, and their expenses would be reduced to about £20 per annum. In every other respect the Society was flourishing in the highest degree.

Mr. Berry anticipated an important addition to their revenue this year from the sale of photographs.

The Chairman hoped that a market was open to them in America, a hope justified by statements in a long letter he had received from Mr. Ross, and advising him of the remarkable fact that there were no negatives in America. It was perhaps a bold assertion to make, but he said that the photographers there did nothing but what would realise money.

Mr. Fitt (from Norwich), read the following paper, descriptive of his mode of working the wax-paper process:—

"In fulfilling the promise I made of describing the process by which the pictures I exhibited to the Society, at their two last meetings, were taken, I must claim indulgence for making some remarks which, while they have no direct relation to the process, nevertheless are necessary to the full comprehension of the objects of the various formulæ employed. In seeking for a photographic process, the intelligent photographer has several considerations to study; he must not adopt a paper process because it is paper, or a glass process only because glass is the material on which the pictures are taken; he must study all processes, and select from them one or more, best suited to his means, his time, and his opportunities. One great advantage to the man of several processes is, that he may best know how to employ them in their turn, to make each serve a special purpose; in short, to be a master of his art, and many degrees removed from a man who boasts his own special mode of taking pictures, to the disparagement and exclusion of all others. This is a failing common to most photographers in some degree, and to many in a greater extent; and I hope to shew its fallacy, by pointing out, in the case of the process I am about to describe, its weak points as well as its strong ones, and shewing that, though perhaps it is the most generally available for photographers, there are subjects to which it is totally inapplicable, and others to which it cannot do justice. To the photographer who requires (more than half the votaries of this fascinating art do) a process which is easy, all

* Mr. McMillan sells a similar instrument for one shilling.

but infallible, very beautiful in its results, and, above all in importance to a man engaged in business, one of the various steps of which may be carried out at different and distant intervals, this form of the waxed paper process offers very great advantages. A stock of iodized paper may be carried about in a portfolio, and any required number of sheets be made sensitive at the pleasure of the operator, in a few minutes. For a few months tour, sufficient iodized waxed paper, some clean blotting paper, and a small bottle of gallic acid, with his photographic dish and bottle of silver solution, an ounce bottle of glacial acetic acid in a small wooden case in the pocket, will complete his list of requirements: and with these he may visit any part of the world, and bring home magnificent views. If he wishes for a week's tour, or even a fortnight, on the mountains of Wales or Scotland, he may prepare his fifty sheets of sensitive paper at home before starting, and may, at the end of his fortnight, develop all the pictures he has taken, or he may develop on his journey in the evening. I exhibit a negative taken last May, after the paper had been made sensitive nearly five weeks. The subject is the 'Ethelbert Gateway, Norwich,' and the blacks and whites are both pure and well preserved.

"In the waxed paper process, the paper is soaked in all the solutions, the picture is consequently in the substance of the paper, which for negatives is desirable on many accounts, but especially as giving greater force and depth of tone; but for positives I think it decidedly objectionable, notwithstanding Mr. Sutton's assertions. It is, I believe, partly at least, on this account that it is impossible, as far as my experience goes, to obtain a paper negative shewing distant objects; they appear to require a fine surface to render them properly; and incapability to render these is a weak point of this process, which it shares with all paper processes, but in a greater degree than the calotype, for distant objects are sometimes much better represented on the latter, bearing out my idea that a fine surface is requisite, as the picture in the calotype is certainly on the very surface of a fine hard layer of iodide of silver. For these reasons we must not use the waxed paper for a panoramic view of miles in extent, but here the glass is required, and we have now in Whipple's process the very thing we require to go hand in hand with the wax paper, as I intend it shall be in my own case. For near objects, however, of still life, where great rapidity is not required, I think we need never use any other process. With a good sample of Canson's negative paper we can get definition and softness and a gradation of tone nearly if not quite equal to that of glass, while the negatives are portable; there is no fear of breakage, and the cost of paper for each negative is almost infinitesimal.

"Having now mentioned some points in connexion with the advantages or otherwise of this process, I will proceed to detail the method I employ for preparing the paper. Having cut your paper to the requisite sizes, take a clean sheet of blotting paper rather larger than the paper to be waxed, and under this put some waste blotting paper to form a pad. Then on the clean blotting paper place the paper you are going to wax, sheet by sheet, ironing over each one with a warm box-iron, to drive off any adhering moisture. Remove the pile of ironed papers and place them within reach of your left hand, and put a cake of white wax near them. Then take a hot iron, not so hot as to discolour the paper, and place one of your papers on the clean blotting-paper, iron over it and press the wax with the left hand against the iron, carrying both over the paper; the wax melts and is instantly absorbed until the paper is saturated, then any superfluous wax remains on the paper, a second sheet is then laid on the first, and the process repeated till the iron is too cool to melt the wax. When this is the case separate the waxed sheets while they are still hot, and have another iron to wax more. When you have done enough take the waxed sheets and lay them in a pile, six at a time, with alternate sheets of the same paper unwaxed, pass a hot iron with pressure for a minute or so over the top of the pile, do the same with six more, and so on, only do not let the iron get so cool as before, as the object of this last ironing is to extract all the superfluous wax from the paper; and to prevent waste I use the same paper to absorb it, which, by this operation, gets half waxed, and not a particle of wax is, or need be, wasted; by the old plan it took a quire of new blotting-paper to absorb the wasted wax from half-a-dozen sheets of waxed paper, and thus both wax and paper were wasted and useless. Mr. Crookes, a great waxed-paper man, lays great stress upon not heating the iron hotter than boiling-water; but I think if you adopted this plan it would be found so very tedious that you would be purchasing your paper ready waxed, which is, I think, a bad plan, as you neither know what paper you are using, nor how pure the wax is with which it is prepared. I have never yet seen any ill effects from using a box containing an iron at a dull red heat, as the box will never get very hot with this: but if a bright red iron be used you will scorch the paper and burn the wax.

"Having waxed the paper we must take great care of it, not to bend it about or it will crack the wax and make opaque lines in the paper, and consequently in the negative; neither must it be handled, for that may cause mysterious looking spots to come out in the development; but we may put it in a case kept for the purpose, remembering that it has a tendency to glide about and fall on the floor or some other undesirable locality.

"The iodizing is the next process we have to perform, and we make a quart of iodizing solution as a convenient quantity for the 11 × 9 papers. The iodizing solutions recommended by Le Gray and some others are so complex, and contain so many articles, as to lead to a belief that the photographer intended preparing a plum pudding instead of a photographic solution. I, for my part, dispense with the rice, and the eggs, and the sugar, and the isinglass, and the honey, which some gentlemen use, and in their place I use whey, and if you can get it ready made it will be the best way, but if not, the next best thing is to make it, which you may do by heating some skimmed milk in a saucepan, and when it nearly boils dropping in two drachms of the ordinary acetic acid for each quart of milk; the curd separates, and the whey is to be filtered through muslin. When cold take a quart of the strained whey and add to it 480 grains of iodide of potassium, 100 grains of bromide ditto, and 10 or 12 grains each of cyanide and fluoride of potassium. This solution will keep for any length of time, a crust occasionally forming on the top from which the clear solution may be poured or filtered, but sometimes the whey will be at first as clear as sherry and then no crust ever forms, but generally there is some milkiness, which, though I have made the whey fifty times, I do not know any certain plan of avoiding, unless the whey be, when cold, mixed with white of egg and again boiled and filtered, but this is useless and therefore unnecessary trouble.

"The waxed papers are then iodized by *soaking* in this solution; they should remain for two hours at least, and twenty-four does not injure them. Care must be taken to avoid air bubbles; the best way of doing this is to float one paper on the solution, and as the paper is semi-transparent any air bubbles may be readily seen and expelled; the other sheets are then slid under the first, one by one, and thus 100 sheets may be put in quickly without risk of bubbles. The solution is then made to flow over the top of the floated sheet, and then they are left to soak; any number may be put in together, only care must be taken to leave enough liquid to cover them well.

"The very best way of drying the iodized papers is to suspend them by the wooden clips which may now be had here, for if silver pins be used the corners must be perforated, and may be torn off, or they may give way and let the wet paper down, when it is quite spoiled, as it gathers various unphotographic substances from the floor; and if brass pins be used a purple stain will be formed in the negative, which may extend all down the paper; but suspended by the clips all this is avoided.

"The waxed and iodized paper should be of a mottled yellow-brown appearance; some samples are nearly white, but I think the best paper invariably becomes brown a short time after iodizing. It will keep for any length of time, and is, I think, improved by keeping. Some samples of paper, which are rather rough grained after iodizing, may be improved by being ironed; but generally this is unnecessary, and from giving the paper a greasy surface, spots are liable to be untouched by the silver in the after process of making sensitive.

"The sensitizing of the paper is, of course, to be performed by a yellow light or by candle light. The solution of silver I generally use consists of 20 grains of nitrate of silver, 15 grains of glacial acetic acid, and 1 ounce of distilled water. 20 ounces of this solution will last a long time for the 9 by 11 papers; with small papers 5 or 6 ounces will suffice. Care must be taken not to let the proportion of glacial acetic acid get much below what I have stated, or the whites of the negative will suffer; neither must there be more than this quantity, or the sensitiveness of the paper will be greatly reduced, especially to the more feeble radiations, consequently the half tones of the resulting negative will be impaired. In warm weather the acetic acid will evaporate from the solution when in the dish, and will frequently have to be replaced; if this is not done, you will get dirty pictures. The proportions given above have reference to glacial acetic acid, which is the strongest that exists, and is a definite chemical compound of an hydrous acetic acid and water, consisting of one equivalent of each. If weaker acid be used the effect will be practically the same as adding too little; therefore, if you do not possess the strongest acid, which is solid at 50° Fah., you must add more of a weak sample. Unfortunately the strength of acetic acid bears no regular or proportional relation to its specific gravity, hence the method of determining its strength, which is useful with most acids, is in this case inadmissible, and the only way when you purchase a quantity is to test its saturating power with respect to carbonate of soda by means of a standard solution of that salt. But in Liverpool and most large towns the glacial acid is to be had; and as this can have, if quite solid, but one constant composition, you may save all trouble by obtaining it. Samples of acetic acid considerably weaker than glacial, may be divided into real glacial and weaker acid by exposing them to a low temperature, 32° or under; the glacial acid congeals, and the weaker may be drained off into another bottle and used in the collodion process, &c.

"I have thus digressed in this place in speaking of acetic acid, because I am sure that in the present state of our knowledge, it is impossible to overrate its importance to the photographer. I have no doubt that one half the failures in the paper process are to be attributed to the use of a liquid called glacial acetic acid, but which contains not a fourth of that substance, and is contaminated with formic acid, acetic ether, and perhaps acetate of lead. This must be my apology for thus leaving the subject of my paper. But to return. Having our sensitive solution ready, we pour some into a dish, and immerse the iodized papers as before, avoiding air bubbles as ruinous nuisances; we leave it here 4 or 5 minutes, covering up the dish to keep in the acetic acid and keep out the dust, and in the meantime we get a dish of clean water, then take out the now sensitive paper and place it in the water, as many sheets as there may be, moving it about to wash off the free nitrate of silver, we let the paper be in the water, and while it is soaking, pour the aceto-nitrate back into the bottle that it may not be exposed to air longer than necessary. Then the paper has soaked 3 or 4 minutes, and we pour off the first water and put in a fresh quantity, and if the paper is to be kept above a week, a third wash may be given; and the same is also advisable in hot weather. Now the paper is ready to be blotted, and our best way is to have a blotting case of nice clean white paper, in the leaves of which we put the sensitive paper and press it, then take it out and put it between other drier leaves. The free nitrate of silver being removed, the blotting paper may be used any number of times; and I keep a book on purpose. The paper should be put in the slide when damp, and I think it preferable to have a double slide with a glass in front of each paper, and a pad of blotting paper between, the air is thus kept almost entirely from the sensitive paper, and it will keep much longer in consequence. I have noticed this as a fact myself, and a friend of mine in Norwich, who has practised this process on a small but very successful scale, has frequently observed that if he made several papers sensitive at one time, and put some in his slides and others in a book, at the end of a week those in the book were spoiled, and those in the slide as good as at first. The best way of keeping a number, for many days, is to have a dark frame, like a printing frame, but wood instead of glass in the front; the papers are put in this between blotting paper and screwed up, and the air quite excluded. The frames and anything containing sensitive paper should be kept in a thick cloth bag, as the most minute portion of light entering the slides will, when continued for some days, greatly injure the paper.

"We come now to that, as I conceive, *all important* question, 'What is your time of exposure?' There is quackery in photography as in medicine and other sciences, and there is none more glaring, and to my mind more palpably absurd, than the pretence which is put forward by some, of having an infallible process, and one in which the time of exposure is a very secondary consideration. I have practised this process, and I like it for many reasons, but I do not pretend to assume for it any infallibility, still less one springing from a false theory, and therefore I say that the time of exposure is in this, as in *all* other photographic processes at present known, the *sine qua non* of a successful result. To enter fully on this subject is what I feel I must not do to-night, though it is one I have studied, and is of the first importance. I will only now lay before you a few of the reasons why the secret of success lies in the question of time of exposure to light, and in doing so I may repeat in this place some remarks contained in one of my papers read before the Norwich Photographic Society, at its October meeting:—

"'I have seen reason to take a widely different view of the action of light on the sensitive surfaces from that taken by most photographers, at least until very lately. Mr. Hardwich slightly mentions the subject in his admirable manual, and completely bears me out in thinking that the respective actions of the light and of the developing agent are entirely different; that is, that the developing agent does not act by carrying on the same action which the light has begun, but the light prepares the surface on which it falls, modifies its physical condition by an action entirely its own, so as to prepare it for an entirely distinct action afterwards, under the influence of the developer. Were not this the case, why should there be the smallest necessity for attending minutely or at all to the time of exposure. If the light performs one portion and the reducing agent the other portion of the same process it is obviously indifferent what proportion might be allotted to either. But, in point of fact, every fact which can be brought to bear on the argument strengthens my view of the case. What are the characteristics of under-exposure in a negative by any process? The blacks produced by white or light objects are perhaps good; but the half tints are entirely or nearly absent. If the action of the developer be continued for a long period, the evil is increased, not mitigated; the opacity of the high light is increased, but no appearance of detail is to be seen in the half tints; the surface is not adequately prepared by exposure to light, and the developing agent is powerless. I believe most, if not all, of the opprobrium which has been cast on photographs, of being hard, soot and whitewash, and other unfavourable epithets, is earned not by the art, but by its disciples. Another stage, a little additional exposure will give some, but not sufficient half tones; the evil is lessened; go still further, and we get the picture right, and I am sure that a really perfect, artistic, and pleasing photograph, by any process, can only be obtained when the time of exposure is *exactly* hit: if this be done, leave the developing agent to itself in any process, and it *must* do its work right, and cannot go wrong. These remarks are not mere theory, but deduced from my own observation and practice. You *may* expose a negative exactly the right time, and then may cut short the development, but you then have a perfect negative, in the lights, the half-tints, and the shadows; there is something wrong with it, what is it? there is no density, the blacks are transparent, they want a further precipitate of reduced metal in every part, and if you put the negative into the developer again the matter is set right, and you have a magnificent picture.'

"These remarks, though not part of the waxed paper process I am to give you, still have a direct and important bearing upon it, and likewise upon every other photographic process, for they have been deduced from practice in collodion as well as in paper.

"You may lay it down as a rule, that to a *very small* extent only can you make the developer do the work of light, or even *seem* to do it; or the light that of the developer.

"Hence I do not call my process infallible, but, with judgment, all but certain; and this is as much as can be said of any process in photography or any other art, which depends on chemical reactions for its result.

"From this you will expect me, perhaps, to lay down very precise rules as to the time to be allowed for the action of light. I can give you, for my part, no more than a standard, from which you must depart on either side as circumstances indicate. An important element in the calculation, irrespective of differences of subject, is, the diameter of the aperture, and the focal length of the lens. Mine is a three-inch Ross, with three apertures, of which I use the medium as a general rule. The focal length of the lens is 15 inches, and the picture 11×9.

"With these data, my average exposure, with a good light, is from 16 to 18 minutes; much foliage, and a preponderance of deep shadow, requires a longer time; and light stone buildings in sunshine, much less time. Here is a negative of the south transept of Norwich Cathedral, over exposed in 16 minutes in October last, on a bright day. Here is one, on a dull, leaden, cold day, late in September and late in the afternoon, of a dull red brick building. I gave it half an hour, and could not have hit it more happily. This is the longest exposure I have ever given a negative out of doors by this process; while with a small landscape lens of eight-inch focus and three-eighths stop, I have seen many good negatives in five to eight minutes.

"Nor do I consider the length of exposure in this process as any detriment, but the contrary; and for this reason: If you have a process, like collodion, which gives you in some cases pictures in a fraction of a second, you may and do get representations of any moving or moveable objects in the field of the camera; but if you increase the time of exposure to three or four minutes in, for instance, a street scene, there is an indistinctness produced, by persons and animals standing for a portion of the time and moving about. A horse without a head or with eight legs, is no uncommon sight in a five-minute calotype negative; but if twenty minutes be given, the time during which these objects are in the field is so small in comparison with the whole amount that the impressions made are effaced.

"You may think this making a virtue of necessity, but I believe it to be true, and have found it so.

"To resume our process, we will snppose the papers to have been exposed in the camera, and as I have spoken of the effects of over and under exposure already, I need now do no more than describe the method of development; repeating my assertion, that little can be done here to remedy a wrongly-timed exposure, and that if the previous processes have been well conducted it is difficult to go wrong in the development, when a little practice has made us tolerable judges of the appearance of good negatives, so as to know when to arrest the reduction, neither to stop it too soon, or carry it too far.

"The process of development in this process differs in no one respect from that usually followed.

"I use a saturated solution of gallic acid in water, and I keep it in a bottle with an excess of acid in the bottom, and filled with liquid so as to exclude every particle of air; and also I keep a lump of camphor in the bottle, which I think prevents the gallic acid from becoming mouldy and decomposing.

"In this solution the pictures are immersed, as before directed, for the iodizing. Great care must be taken to avoid air bubbles at first, as if a spot remains undeveloped for three or four minutes it is difficult to make good the omission.

"In from five to fifteen minutes, varying with the temperature, the image begins to appear of a red brown colour, and will go on till all the details are perfect, and if looked at on the exposed side the appearance it presents is very beautiful. The negative *may* remain, if the operator be called away, for many hours in the gallic acid, but it is ready for the addition of silver when the image is perfect by reflected light, and usually we continue the process at once; and if this be done, three-quarters of an hour will generally be the utmost time required for the completion of the development. I take the negatives from the solution, and pour into the dish about one drachm of the silver solution for each three ounces of gallic solution; mix it well by moving the dish to and fro; then replace the negatives, avoiding air bubbles. Immediately they begin to blacken. It is well to add, also, eight or ten drops of glacial acetic acid to each half pint of liquid, to restrain the action and keep the whites clean. After a few minutes more, if we remove the negative, we shall see that the side on which the picture fell is becoming rather less distinct, and the high lights very black by transmitted light; but the softer tones, which still are beautiful when looked at, are as yet imperfect and weak when looked through. We replace the negative, and the exposed side becomes less distinct, while the *outline* becomes *more distinct* on the other side. We must now watch it carefully, and not suffer the development to go *beyond* a certain point. This point is difficult to determine, but if the operator has the opportunity of seeing good negatives he will soon learn to imitate them in his own. I exhibit some here to-night which will give you an idea what they ought to be, and what they ought not to be. Supposing the development finished, the negatives are to be put in clean water, and the adhering developing solution washed off. A little weak salt and water will then fix them from the action of daylight, and they may be immersed in the hypo when convenient.

"The strength of hypo is not very important, but it is quite possible to injure the negative by too strong a solution if it be left in for any considerable time. It is well to have a solution which will remove the yellow colour of the paper in ten or fifteen minutes, and as soon as the light parts of the negative are quite white it should be removed into clean water and the hypo washed away by a gentle motion, but care must be taken not to let the negative bend, or the wax will be broken and an opaque mark left which will be permanent. Every care must, of course, be taken in the washing to remove all trace of hypo, and from the horny texture of the paper, a long soaking will be required to get rid of it completely. When you deem the negative to have been sufficiently washed and soaked, it is to be dried in blotting paper, and the operator will doubtless be horrified at finding, when it is dry, that the wax has assumed a kind of granular appearance, and the whites look dirty, and all the fine details are obscured, but let him not despair: pass a heated iron over it, first on one side and then on the other, this will melt the wax and smooth the surfaces, and then you will be surprised at the change which has taken place; all the beauty which the negative possessed by transmitted light, when in the water, is now increased, and the negative, if of a good subject, is really a beautiful object, and will, I think, bear comparison with a negative by any other process, glass not even excepted.

"I have now taken you through the various stages of the process, and described every essential part, and if I have been too minute and made my remarks too elementary, it must be remembered that I am desirous that those who may feel inclined to try this really valuable process may do so with a complete knowledge of it, and I recommend them to do so without trying modifications of it before they have tried the process itself, and I believe no photographer who gives it a fair chance will ever abandon it.

"Lest it should be thought, as it may be, that my success is entirely due to the facilities which long practice has given me, and that the process I have been describing will not be so successful in other hands, I have to-night, by the kindness of my friend Mr. Brownfield, of Norwich, some of *his* pictures to shew you, done, during the last summer, by this plan. They are all taken with the front *lens of a French portrait combination, quarter plate size,* placed in a temporary metal tube, with a cardboard diaphragm in front. Their sharpness and gradation of tone are unexceptionable, and they afford good proof that costly apparatus is by no means essential to the attainment of even first-rate results in photography.

"I wish it to be particularly understood that these small pictures were taken by Mr. Brownfield by this process, and that his success is and has been uniform, excepting when, like myself, he has tried some new samples of Canson's paper, which, for some mysterious reason, will not answer the purpose nearly so well. But with good old Canson's *papier rive*, or even Marion's, I know not how to avoid getting good negatives.

"I saw a really beautiful negative taken, about a fortnight since, in Birkenhead Park, by a friend of mine, on Marion's paper; it was his first trial, and would not have disgraced many an old photographer.

"Had the weather been more favourable I intended having some papers exposed in the camera to develop before the Society to-night, but this I must defer.

"I also have to apologise for the paucity of specimens, but I have been unable to print any, and have none in Liverpool, and was disappointed of a parcel which should have arrived from Norwich in time for this evening's meeting.

"I sincerely hope that this dull weather will in good time give place to brighter, and that all my photographic friends here will try this process, and if I have this evening placed one step nearer to them facilities for the reproduction and perpetuation of the beautiful and ever varying scenes of nature, or the wonderful results of human labour, by recommending a simple, easy, and certain process, any trouble I have taken will be amply rewarded by the reflection that I am serving the cause of photography, and, I may be permitted to hope, of art."

On the proposition of Mr. Forrest, a vote of thanks was, by acclamation, given to Mr. Fitt for his interesting and excellent paper.

Mr. Fitt, in expressing his acknowledgment, said he should at all times be happy to give any information in his power to the Society upon this or any other process.

The Chairman translated a letter which appears in the French Photographic Journal, containing Mr. Maxwell Lyte's method of removing the excess of wax from paper by scrapers, which will be found in the report of the proceedings of the French Society.

The meeting then adjourned.

M. Martens' Albumen Process.—Mr. Martens has published in the *Bulletin de la Société Francaise de Photographie,* some observations in which he urges the use of iodide of ammonium instead of iodide of potassium with albumen, to avoid a minute crystallization of the surface; and insists on the necessity of varying the mode of operation according to temperature, circumstances, and the objects to be photographed.

To the white of eight eggs he added

Iodide of Ammonium	1 drachm
Sugar of Milk	1 ,,
Dextrire, (Sugar of Starch)...	$15\frac{1}{2}$ grains
Grape Sugar	24 ,,
Distilled water	$6\frac{1}{4}$ drachms

and beat them up in the usual way, leaving it to stand for a night: it might be used the next day. For landscapes he doubled the quantity of iodide, and in wet weather omitted the grape sugar. The plates when sensitized, if well washed, will keep ten days; and after exposure in the camera may be kept some days before developing with a saturated solution of gallic acid, to which a few drops of a 4 per cent. nitrate solution have been added: this must be done on a sheet of copper well heated.

An amateur in Bombay has found that 30 grs. of iodine, dissolved in 1 oz. of alcohol, once floated over the plate, which has previously been coated with pure albumen, sensitized in a 60 gr. nitrate bath, to which 10 drops of nitric acid had been added. is as rapid as collodion.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this Society was held on the 6th of December,—Sir W. J. Newton, V.P., in the chair.

Mr. Archer read a paper on his "*Process for transferring collodion pictures to gutta percha,*" in which, after reciting his experiments and failures, he recommended the solution of gutta percha in pure benzole, in preference to chloroform or any other solution, to be poured on to the middle of the plate and allowed to spread to the edges, assisting, if necessary, by a glass rod,—kept horizontal for a minute or more, then gradually inclined over a funnel till it reaches a vertical position, assisting the draining as before by the glass rod or a piece of wood. The plate is then to be gently warmed at the back, to keep the gutta percha clear while setting, after which it must be put aside till cold, about ten minutes. It may then be put into cold water until the film separates easily from the glass. He disputed the claim to originality on the part of the Rev. J. B. Reade.

The Chairman said he had printed half a dozen positives in half an hour from negatives thus removed by Mr. Archer.

Mr. Wilkinson said that he had accidentally discovered that Brunswick black poured over the collodion, allowed to dry perfectly and then placed in cold water, would remove the film perfectly, It might be of great use for positives.

Mr. Hardwich read a paper "*On the effect of certain oxidizing agents on positive printing,*" with the view to show that some portion of the fading might be attributed to the absorption of "atmospheric oxygen." The results to which he came were that "developed prints" generally withstand the action better than others, but that the development must be continued so as to produce an additional deposit on the image. Those on chloride do not resist the action so well as those on iodide and bromide of silver, or on the serum of milk. Of prints by direct exposure, those on plain paper are the first to fade, the half tones giving way; "on ammonio-nitrate they fade out very perfectly: sulphuration previous to toning facilitates the oxidizing action; gold retards it. Albumenized paper resists oxidation better than plain paper, whether the prints be taken by development or otherwise. A positive coated with white wax dissolved in æther resisted oxidation better than one unwaxed, but less than a developed print on albumenized paper.

Mr. Shadbolt thought the albumenized paper resisted the oxidation because it formed an insoluble compound with nitrate of silver, so that moisture could not penetrate it.

Mr. Hardwich said that the albumenized paper did absorb moisture while the waxed did not, yet the latter faded away more quickly.

Mr. Melhuish exhibited what he thought was an improved and more portable camera, and Mr. Bourne read a paper on certain improvements in the camera, which has not been reported.

The remainder of the meeting was taken up with private business, and on 3rd of January, a special meeting was held to recommend the appointment of a paid secretary, and the union of the secretaryship with the editorship of the Journal.

SOCIETE FRANÇAISE DE PHOTOGRAPHIE.

At the meeting which took place on the 12th of November, 1855, M. Durieu, V.P., presided. After the admission of several members and some presentations,

M. Girard read a letter addressed to the society by Mr. Maxwell Lyte, containing a modification of his process which he had practised with the greatest success. After sensitizing in the ordinary manner, take the plate out of the bath and place it upon a levelling stand, and then pour gently over it several times as much distilled water as will cover it,; then drain all the water off from one corner of the plate upon a piece of blotting paper several times folded; replace it upon the levelling-stand and pour some of the following solution, diluted by the addition of 2 equal volumes of water,

Water	300	parts
Gum Arabic	50	,,
Alcohol	50	,,
Honey	5	,,

several times on and off the plate until the surface is entirely wetted, and then after attaching the blotting-paper, leave it to dry. It ought to be exposed in the camera for a longer time than a plate not dried, or prepared solely with honey. To develope, place again upon the levelling-stand, and having covered the surface with distilled water, replace this with either the solution of pyrogallic, or the silver prepared with sugar, which he had recently published; and strengthen with gallic acid and nitrate of silver when the details are well out, and then fix in the usual manner. He preferred one per cent. solution of cyanide of potassium to hyposulphite of soda.

He also mentioned the highly energetic effect of gallic acid combined with potash in reducing chloride of silver without heat: it is sufficient to mix the chloride of silver with a solution of potash, and to add gallic acid; the whole of the chloride is changed into pure silver, requiring little washing.

M. Bayle Mouillard considered the method pursued by Mr. Lyte an extremely useful invention, as it would do away with the frequent washing which was the great inconvenience of preserving collodion with syrup. Mr. Lyte, who was present, said, that as to the honey that he used, he considered it necessary to purify it by a crystallization in alcohol; for of the two descriptions of sugar contained in honey, that would give the best results which was deposited upon the cooling after a heated solution in alcohol.

M. Aguado recounted his experiences with dry collodion prepared by M. Dubosc, which had been perfectly satisfactory, except in its requiring double the time of wet collodion. He shewed some proofs from negatives by contact, after the plates had been prepared twenty hours: after three days the plates had not lost their sensibility. Mr. Archer's description of his folding camera was then read, after which Mr. Lyte exhibited a new apparatus intended to wax papers and free them from the excess at one operation. It consisted of a vertical bath, similar to those used for sensitizing collodion, placed inside a case of copper which is terminated by a horizontal box of the same material, so that it appears like a T reversed. This case serves as a sort of water bath, and admits of being placed over the fire, or spirit lamp, and is furnished with a valve for the escape of steam. When the water in the copper box is heated, the wax put in the bath soon melts. The cover of the bath is fitted with two scrapers of wood, edged with smooth metal, which are separated, and the paper plunged in vertically, and when thoroughly saturated the scrapers are brought together and kept in contact by an Indian-rubber band. The paper when drawn out is pressed between the two edges of the scrapers and all the excess of the wax is scraped off without the slightest fear of tearing the paper: the only precaution requisite was to keep the scrapers sufficiently close: experience will teach the necessary force required.

M. Gaillard communicated a method for removing, by gelatine, the film of collodion from glass. Soak gelatine in cold water till it has absorbed all the water it will take up, and then liquefy it by heat. Place the negative, collodion side upwards, upon a perfectly level stand, and pour hot water on it—1st to soften the collodion that the gelatine may penetrate it more readily, and 2ndly to heat the glass to prevent the gelatine from congealing until it is spread into an equal coating. When the negative is softened and heated, about four to five minutes, throw off the water, replace the glass upon the stand, and pour on to the middle of it sufficient melted gelatine to cover it completely; pour off the excess at the angles, and leave it upon the stand until the gelatine is congealed: let it dry in an inclined position. When perfectly dry give it a slight humidity, by the act of breathing for a few moments just before unfixing it; cut round the edges of the glass with a penknife, raise a corner and lift with great caution—the collodion film will be easily detached.

M. Durieu communicated his method of printing. His salting bath was 1½ part of salt to 100 of water, and he only placed his paper on the surface, and removed it immediately. He passed the papers quickly on and off his ammonio-nitrate bath—20 parts of nitrate of silver and enough ammonia solution to dissolve it in 100 parts of water: the paper will not keep long, but is extremely rapid, and the preparation and drying take a very short time.

M. Davanne thought it necessary to warn practitioners that the clear brown precipitate was fulminating silver.

Mr. Maxwell Lyte asked whether the proofs so obtained did not fade very rapidly under the hyposulphite. M. Durieu replied that as they did not require exposure to so strong a light as by the other processes, they need not remain so long in the hyposulphite, and consequently the tones did not sensibly change.

M. Lacombe described a method of removing the excess of wax, by placing in a bath of alcohol of commerce 36°, ten sheets of paper at a time for 12 or 24 hours; the wax will float at the top; the papers are then to be removed one by one to another bath of alcohol to clear them from the wax they may have picked up from the surface of the first bath in being drawn out, and are then dried before the fire: the alcohol may be filtered for use a second time or kept to burn in a spirit lamp.

M. Jamin exhibited an improved combination of lenses, admitting of the focus being varied.

M. Davanne exhibited a portable camera without hinges, constructed under his directions by M. Relandin, which unites great rigidity with space and strength, and can be placed upon every kind of stand. It is formed in two parts, viz: —

1. The frame or stretcher, as long as may be desired, on which the camera is worked.
2. The camera properly so called.

Two uprights at the end of the stretcher admit in grooves the plate which carries the lens; and in two other grooves the camera, constructed upon the plan exhibited by M. Davanne a few months since under the name of *Chambre Soufflet Tournant*. In this invention, which had for its object the avoiding the use of square cameras, the expanding portion like an accordion body, and the box which holds the slides have a movement independent of the lensholder, which admits of their being moved either higher or farther off with the greatest facility. The plate which carries the lens is of very small dimensions, and is adjusted in a way to admit of sliding stiffly in the two uprights of the frame, a springhook entering in two notches to fix the lens at any height desirable; the camera is fixed upon the frame by the edges of two plates of copper entering the grooves of the uprights: a screw at the side stops the apparatus at any point. When not used, the lens and the camera are put within the box, and enclosed by a slide. This little box can be placed flat upon the stretcher and carried over the shoulder, fastened with straps, without causing more fatigue than the sketching case of an artist.

M Davanne also exhibited, in the name of M. Relandin, supplemental slides for collodion made of slate in one piece, which have not the disadvantage, like those in wood, of getting out of shape under the influence of nitrate of silver.

Mr. Lyte observed that it was wrong to make slides of walnut and oak; these woods contained a great deal of tannin and caused spots; he thought lime-wood much better for the purpose.

M. Lacombe exhibited a camera-stand on the principle of that of a theodolite.

BOMBAY PHOTOGRAPHIC SOCIETY.

At the meeting of this Society in March, it was announced that the Honourable Court of Directors had consulted Capt. Barr on the question, Whether the remodelled system of education which was to be introduced at that Presidency, should include instruction in Photography? and in April an application was made by the Government of the Presidency to the Bombay Society, for advice on the subject of carrying out this suggestion. After some discussion, it was decided to circulate the letter among the council to elicit their opinions. The Chairman, Capt. Barr, read a communication from an amateur suggesting the use of ammonia mixed with tincture of iodine in the albumen process, and describing two methods of operating with it; he also exhibited a contrivance for carrying a large number of sensitized, collodionized, or albumenized plates, which could successively be brought into focus and exposed, without any further manipulation than sliding a board. Mr. W. H. S. Crawford exhibited several views of the temple of Umbernath, printed from negatives taken by the chairman. At the meeting in June, a communication was read from the Government relative to a number of photographs of Indian antiquities, sent down by Capt. Biggs, of which it had been resolved to forward one set to the Court of Directors, and another for exhibition at the Photographic Society; subsequently, this set was presented to the society, and permission given to Capt. Biggs to supply a duplicate of every photograph he might take for the Government. The notice taken of the Society by the *Liverpool Photographic Journal* was mentioned and received with many complimentary observations. At a subsequent meeting an extract was read from the proceedings of the Liverpool Society, in which the interchange of elections of the principal officers of the Bombay and Liverpool Societies were recorded, with the names of their members proposed for election.

Awards to British Photographers at the "Exposition Universelle," Paris, 1855:—Grand Medal of Honour: *H. F. Talbot. Silver Medals: J. A. F. Claudet, R. Fenton, J. D. Llewelyn, Maxwell Lyte, Count de. Montizon, J. Robertson, W. Sherlock, C. Thurston Thompson, and H. White. Bronze Medals: P. H. Delamotte, H. W. Diamond, W. T. Kingsley, —. Lamb, O. G. Rejlander, B. B. Turner, F. Townsend, and *H. R. Williams. Honourable Mention: J. E. Mayall, W. J. Newton, *Reade, Ross & Thompson, West, & Wilks. **British Colonies.*—Honourable Mention: J. C. Doane, Montreal; D. Kilburn, Australia; A. Duperrey, Jamaica; J. Gow, Sydney; T. J. Palmer, Toronto.

* The names so marked are in the French journals of last month, but not in the list issued from Marlborough House.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—Your inquiry as to Whipple's process cannot be answered from America, without incurring a forfeiture of the bonds exacted from all who have paid their hundred dollars for it. I expect to hear every day that the Philadelphia doctor, whose friends were so indiscreet as to publish it in England, had been sued on his bonds. All I know of the process is contained in the Liverpool and London Journals. Humphrey promised his subscribers he would publish *all the patents;* but he now has the privilege of selling rights to use that, and the same for Cutting's process, for one hundred dollars each; so his subscribers must wait till all are sold. Cutting's process, so far as patented, can be found in the first number of the current volume of *Humphrey's Journal*, being from an official copy of the patent. I have sent to the patent office in Washington for an official copy of *Whipple's* patent, and shall send it to you as soon as I procure it. Is it not wonderful that so much ignorance abounds among us on such subjects, as to fancy a patented process can be a *secret*, when any one may procure an official copy for a very small sum, depending on the number of words: only ten cents, or fivepence sterling, per hundred words. Yet, so it is; so few of those engaged in the art take a periodical on the subject, by which they might be always posted up to the latest date, that there are not a few perambulating professors who exact large sums for information long since published in every periodical. It is entirely among *such* followers of the art that the Rev. L. L. Hill finds the means of raising the wind. A post-paid circular reaches them in every corner of the land for one cent each, and to a very great number this is all the literature of the art that reaches them.

Cutting's process is much more used here than Whipple's; indeed we are now run mad on direct points on glass (positives so called), and all are produced as nearly as possible by Cutting's process, who as a "trade mark," has termed them "*Ambrotypes.*" They are really beautiful, and some call them "*Lamprotypes,*" to imitate the sound of the Cutting name. Although at many establishments such pictures are exhibited at their doors, they are not produced on the premises at all; but an ordinary Daguerreotype is taken of the sitter, then sent elsewhere to be copied on glass as a print, and afterwards sent to the customer as if it was the identical impression for which they had sat. The same takes place often when a print is required on paper; the daguerreotype is copied first as a transfer on glass, and then printed from on paper in the usual way, being toned by "old hyposulphite."

You will see by all this, the amount of the "debt of gratitude" we owe to Mr. Whipple, or Cutting either; for it would seem you in England are more indebted than we are; for all such here as did not pay a hundred dollars in cash, could not get near enough to get even a look at it. In the next number of *Humphrey's Journal* is a short article drawn out of "*Ariel*" by your accusing us of being in debt to him (Whipple), which I beg you to read; as also that on "*Pine-shingle-o-type*" by a friend of mine, who was induced to communicate it, in the hope that somebody would feel a deep "debt of gratitude" to him for it. It will be a fair match for the Fenographs of *Professor Smith*, of Ohio.

Yours respectfully, WM. ROSS.

P.S.—In my letter published in the October number are two errata; the first is in the 12th line from the top of the first column, page 130—for "quality" read "*quantity;*" and in the same column, line 22, for "nominal" read "*normal.*"

I have just received the English edition of Niépce's labours, and am surprised at the fine impression of an actino-engraving which forms its frontispiece; of course only the impression on the prepared plate is actinic, the engraving being simply in other respects an *aqua-tint;* but even at that, actinograpby is now capable of affording great assistance to that branch of art, and *to Niépce this credit is entirely due.* It is a pity the letterpress is so bungling in the translation, especially in the chemical nomenclature.

You doubtless saw by a remark of Humphrey's in No. 14 of his Journal, under the head "To Correspondents," that the Rev. L. L. Hill is again circulating among the uninitiated, and victimizing them to the amount of *one dollar.* One would think his impudence could not sustain him so far, nor the practitioners be so simple as to trust him with even *that* small amount; but as long as nine out of ten subscribe for no periodical on their art, they are at the mercy of every one who has a process to sell, in which lucrative branch of the art we have a great many *travelling "Professors,"* who get a hundred dollars or so for teaching a process to be found in almost any shilling pamphlet. Those who know too much to subscribe for a periodical, pay more for a single nostrum than they could get every thing published on the art for. All such ought to pay a good price, and this comes of being "penny wise and pound foolish."

I submit the following table of adjectives as hints towards a new nomenclature of Actinography, the proper term for the whole range of the art, whether for commercial, experimental, or philosophical purposes.

Daguerrean—Process on silver plates (obsolete?)
Morsean, Draperean—Pseudo discourses of portraits on silver plates.
Wolcottean—The real portrait process on silver plates.
Niepcean—Albumen process on glass.
Archerean—Collodion " "
Talbotean—Calotype " on paper.
Bondean—Whipple, Cutting, & Co.'s, (or Arcaniau,) from the bonds exacted to keep the secret.

No. 26, Second Avenue,
New York, 10th Dec., 1855.

To the Editor of the Liverpool Photographic Journal.

Sir,—Very shortly after Mr. Shadbolt published his process of preserving Collodionized plates by means of honey, I made trial of it according to the formula then given, but was not very successful; and this I found to be the case with a great many others among my photographic friends.

At length I took fresh courage, and thought, if only for experiment, I would depart in some measure from the method as laid down; and after coating the plate with collodion, and immersing in the ordinary nitrate of silver bath, 30 grains to the ounce of water, without washing or using any other means, I poured on and off the honey diluted as described below, until the plate became perfectly coated; I then placed it upon the edge or corner to drain. When it ceased to drip I put it into the wooden case or dark slide of the camera, and kept it there until it was required for use. I prefer at all times to expose the plate as early as possible after preparing; but have found them all I could wish after as many as eight days; only the longer they are kept, the longer time must be added to the ordinary exposure in the camera. As it is now possible to travel from John-o'Groat's-House to the Land's End in two days, why should we want to keep a plate longer.

If the plate has been prepared only a day when brought home, it may be developed in the usual manner without any washing or other preparation; but if longer than a day, I pour the honey over the plate again, and back into the bottle till the surface is thoroughly moistened, and then commence developing as usual with pyrogallic acid, assisted by a few drops of the nitrate of silver bath. The whole process is so simple, that it is impossible to fail.

To make the honey solution it is not necessary to be at all particular in the choice of it, for any kind will do; or even treacle will answer.

Take of honey two parts, water three parts, mix thoroughly and filter, and then add a little alcohol. It will work well when first made, but I believe it improves with age and keeping. Having used this plan a long time, I find it invariably successful; and I feel confident, that if photographers would try it they would become fully satisfied with it; for its great advantage is, that the tenacity of the film is so well preserved; whereas in Mr. Shadbolt's process the film becomes so exceedingly tender with washing, before and after the honey is applied, that if the picture is long in coming out, and requires much developing, the collodion layer is very apt to break.

When abroad I do not require any tent or other contrivance to change the plate; but carrying each in a thin envelope that has a sliding shutter which closes light-tight, and is slipped in its turn into the groove of the camera, and one dozen of these are very little more cumbrous than the usual plate box for as many plates. Yours, &c.

33, *Manchester-street, Liverpool.* J. ATKINSON.

To the Editor of the Liverpool Photographic Journal.

SIR,—By answering the following questions in the next number of your valuable journal you will greatly oblige both myself, and I doubt not many other photographers, who, practising the art for their pleasure, like to try every novelty.

1. What is the best diameter to make the hole in a thin metal plate, for the purpose of taking views without a lens? 2. What is the focus? 3. What size of pictures is it best adapted for taking?

Yours respectfully, M.R.A.

Dec. 26, 1855.

[1. The 60th part of an inch. 2. Every focus. 3. We should think only small ones.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—Will you please to answer the following questions in your next Journal:—

1. In trying to take a negative picture, they are all too transparent—not sufficiently opaque to resist the light. I use a 30 grain bath. I bought some negavive collodion in Liverpool; it is quite as thin as my positive collodion: Is that right?

2. When taking some positive pictures a day or two ago, after fixing they appear to have a greasy white film over the blacks; when dry I can almost wipe it off. I can always rely upon my glasses being clean. I tried with a few more drops of nitric acid in the developer, which made it a little better?

3. Is there any advantage in being a subscriber to the Society?

4. Would you recommend me to keep two distinct baths? I dont suppose I shall take many negatives; if only one, what bath would act best for both? I succeeded very well in taking a negative by coating the plate three times with collodion before placing it in the bath.

5. What could I be supplied with unstamped copies of your Journal for in Wolverhampton?

I remain, yours truly,

No. 4, *Summer-hill, North-road, Wolverhampton,* W. H. DODDS.
7th January, 1856.

[1. Probably insufficiently developed. 2. Perhaps too much nitric acid in the bath, causing a deposit of metallic silver. 3. The non-resident members receive a copy of this Journal gratuitously. 4. Yes. 5. By post 4d. each.—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—I have a few notes and queries for you, if you can find room for their insertion.

1. Can you inform me what part is iodide of silver supposed to play when added to iodizing solutions for collodion? Two years' experience in making collodion tells me that it plays no appreciable part at all; and yet, such authorities as Archer, Count Montizon, &c., attach considerable weight to its presence—dissolved of course in a hydriodic salt.

2. What is the best way to keep iodide of ammonium in a colourless state? I keep mine in small bottles, which again are kept in a large bottle containing a few lumps of carbonate of ammonia. This I have found the best way, but still it changes colour after a while.

3. None of your collodion correspondents seem to be aware of an important addition to the negative nitrate bath, viz. *nitrite* of silver. This is made by fusing equal parts of pure nitrate of potash and nitrate of silver until bubbles of nitric oxide arise. Of a saturated aqueous solution of this, add 15 or 20 drops to each ounce of the nitrate bath. The advantages of this addition are, rapidity of action, and purity of tone.

4. I can recommend as an excellent iodizing agent for negative collodion, equal parts of the iodides of zinc and ammonium, one drachm of a saturated solution added to seven drachms plain collodion.

Yours respectfully,
J. TRAILL TAYLOR.

Dumfries, January 7, 1856.

[1. To prevent over-action of the nitrate and to ensure a coating of the iodide of silver. 2. Thoroughly dried over a dish of sulphuric acid, and sealed in tubes containing about half-a-drachm—ED. L.P.J.]

To the Editor of the Liverpool Photographic Journal.

SIR,—Can you inform me if gallic acid is ever used with sulph: iron to develope collodion positives? From some casual experiments it is my opinion that very beautiful *instantaneous* pictures may be taken by the addition of a *small* quantity. Any information on the subject would oblige, M. E.

Jan. 1, 1856.

[We have never heard of its being so used.—ED. L.P.J.]

ANSWERS TO CORRESPONDENTS.

A WELLWISHER.—
15 grs. protosulphate of iron and 5 drops acetic acid.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 26.—FEBRUARY 9, 1856.

The season is becoming more favourable for photography, and societies and individuals are making preparations for commencing active operations. With the desire of holding out inducements to photographic production, the Liverpool Society have appointed a committee to negotiate with other bodies the interchange of prints between amateurs of the art residing in different parts of the world. Hitherto the modesty of private practitioners has prevented their carrying out this idea, many times previously suggested. They are not aware of the beauty of their own productions, and fancy that no one else will value them. We trust this *mauvaise honte* will gradually subside, and the art will be greatly benefitted by the interchange. The exhibition of the London Society exhibits considerable improvement, and brings forward some new names in connection with photographs of great beauty. Some of the better known operators retain their position. We have not space for a review of the works in the present number, but cannot postpone notice of some exquisite prints from collodion, of scenes in Yorkshire, by Mr. J. W. Ramsden, which combine every beauty that such subjects will admit of. Mr. F. Bedford and Mr. G. B. Gething are also very successful on collodion, while waxed paper is upheld by Mr. Leverett, of Ipswich, and Mr. Melhuish, of Blackheath; and the Talbotype in equal rank by Mr. Llewellyn and Mr. Buckle. Clouds make a very good appearance in Mr. Ponting's panoramic view of Bantry Bay. The portraits are not satisfactory; but of those which are coloured, Mr. Locke's are far the best we have ever seen: we must give a more detailed notice next month.

We have given, in another page, a notice of the encouragement which photography is receiving in Bombay from the Government. Perhaps we may see the example followed in England, and a professorship of photography established at King's College, London. The new Secretary to the London Photographic Society, and Editor of the Journal, is Mr. Mavor, the son of Dr. Mavor, the principal of that establishment. Mr. Delamotte, the distinguished photographer, is the drawing master; and Mr. Hardwich, the Professor of Chemistry to the College, has long and successfully devoted his knowledge to photographic art.

A correspondent in the *Bombay Photographic Journal* describes a novelty which, as he says, may prove interesting. Wishing to increase the sensibility of his collodion, as the room was dark and his lens slow in action, he attempted to pour a few drops of oil of cloves into it, but, instead of doing so, accidentally let a stream of that oil run in. Nothing daunted; he exposed the plate 25 seconds, and on opening his slide in the preparing closet, "was surprised to see the picture was visible, although not a drop of pyrogallic acid, protosulphate, or any other developing agent had been poured on to it. This was repeated several times, and afterwards in like manner by his friend." Now the question arises, what made it visible? His suggestion is, "that there being a large quantity of organic matter in the collodion, the iodide of silver on the glass plate, instead of being partially reduced, by the action of the light as usually, was in this case *completely* so; the oil of cloves having, in common with other accelerating substances, much affinity for oxygen, did, in reality, the work of the developing agent." Another writer in the same journal says, "In practising the wax-paper process I have been annoyed by uneven depth in the skies. This could be partially remedied by a larger quantity of silver in the developing solution, but the pictures were thereby rendered less delicate. Abandoning this mode, and thinking the unevenness of the coating of the iodide of silver might be due to its solution in the nitrate bath, I saturated the latter with iodide of silver as in the collodion process, which entirely removed the defect, the skies subsequently being solid and even throughout."

Mr. Hogarth has opened a printing establishment, and has announced that on the 1st of March he will publish the first part of "Cambridge Illustrated, in a series of Photographic Views, by Charles Critchett."

We have had a letter handed to us addressed to the Secretary of the Liverpool Photographic Printing Establishment, enquiring our terms. We only print the *Journal*, of which our publisher will be happy to supply as many copies at threepence each as any of our admirers may require.

Application of Photography to the Production of Fac-simile Reprints of Important MSS.—A lengthened correspondence has appeared in the *Times* relative to the possibility of obtaining, by the means of photography, a fac-simile of a celebrated manuscript copy of the Scriptures, called the "Codex Vaticanus." Mr. Maxwell Lyte has written his opinion that the discolouration of the parchment and the fading of the ink will have reduced the whole to such an uniformity of yellow-brown, that the power of photography would be neutralized by the prevalence of non-actinic rays; but Mr. Delamotte, on the other hand, says that before this effect could be produced the parchment must assume a yellow, the tint produced by gamboge, and that the negative tones of brown, which the manuscript may have assumed, are not non-actinic; moreover, he sends to the Editor of the *Times* a specimen of what he had been able to do from an old MS. in the Irish Academy, in 1852, in which, with very little trouble, every letter could be made out. He thinks Mr. Maxwell Lyte has over-estimated the difficulties, as he hears it is in contemplation to ferm a catalogue of the MSS. in the Bibliotheque Imperiale, of Paris, by taking photographs of their title-pages. And, he adds, "It is too much the practice of photographers to publish the abortive results of their individual attempts as impossibilities of the art they cultivate; whereas they ought to consider that the same experiment which in the hands of one person is a failure, is often a brilliant success in the hands of another."

PHOTOGRAPHY IN BOMBAY.

The October number of the Journal of the Bombay Photographic Society informs us that the instructor in photography, in the Elphinstone Institution, has opened the photographic class under very favourable auspices, the pupils numbering forty. The course of instruction was commenced by a series of preliminary lectures explanatory of the nature and properties of light, and the construction of lenses; a description of the nature and chemistry of the salts of silver employed by photographers, and the theory of the collodion process. Practical instructions are now being given in this very delightful and useful branch of art. Government have, with the utmost liberality, not only furnished a very complete set of instruments and chemicals for the use of the class, suitable for beginners as well as the more proficient, but have, under the eye of the principal of the institution, Professor John Harkness, M.A., fitted up a very complete studio, provided with all the paraphernalia so essential to perfect results. Professor Harkness has, too, with considerable forethought, under the sanction of C. J. Erskine, Esq., C.S., Director of Public Instruction, held out the incentive of prizes in three sets to those who have shewn their proficiency in producing, between the 1st and 16th of December, the best pictures, four in number—the subjects named, and judgment to be given by a committee appointed for that purpose.

NORWICH PHOTOGRAPHIC SOCIETY.

A meeting of this Society, held in the Council Chamber on the 1st February, the President, T. D. Eaton, Esq., in the Chair.

After some conversation respecting a proposed exchange club, the President read a short but practical paper on the different brushes that have been used and invented by photographers, and concluded by exhibiting a modification of the Buckle brush of his own invention.

Mr. Geldart produced one of Ottewill's registered portable baths, which was much admired, but deemed susceptible of some improvements. Mr. Geldart also exhibited some Swiss views of large size. A photograph by Dr. Diamond was also brought forward by the President.

Mr. Bridgeman exhibited a portrait on glass, mounted as a slider for the microscope: this picture was not more than 1-10th of an inch in diameter.

The Rev. E. L Bulwer exhibited a portfolio of Italian views taken by his son and a friend, principally by the albumen process.

The thanks of the meeting were voted to the President and the other gentlemen who had contributed to the enjoyment of the evening, and the members then dispersed.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The annual meeting of the members of this Society was held in the Lecture Room of the Royal Institution, Colquitt Street, on Tuesday evening. There was a fair attendance, and Mr. COREY was called to the Chair.

The CHAIRMAN congratulated the Society on the commencement of another year under far more pleasing circumstances than had perhaps characterised the opening of the preceding Session.

Before the election of council and officers for the succeeding year, a statement of their accounts, audited by two unbiassed members, would be laid before them. There were still a great many subscriptions to receive, and perhaps some few sums to pay: he believed that the whole claims against the Society amounted to not more than £3 18s. 3d.: the accounts must be considered, under the circumstances, highly gratifying.

A report of the past year's proceedings should be laid before the meeting, but it was not yet prepared. It should, however, be ready by the next meeting. The council had not thought proper to bring forward any list of officers, being desirous to leave the appointments entirely in the hands of the members.

The following were then proposed, *seriatim*, and elected unanimously:—

Patron.
The Earl of Ellesmere.

President.
Viscount Brackley.

Vice Presidents.
James Newlands, Esq. | R. B. Preston Esq.
R. Rathbone, Esq.

Treasurer.
C. Bell, Esq.

Hon. Secretaries.
J. A. Forrest, Esq. | G. R. Berry, Esq.

Corresponding Secretary.
C. Corey, Esq.

Council.

J. McInnes, Esq.	J. Leithead, Esq.
T. Higgin, Esq.	J. Stephens, Esq.
J. T. Foard, Esq.	C. H. Chadburn, Esq.
N. Mercer, Esq.	W. N. Duckworth, Esq.

G. R. T. Fitt, Esq.

Associate.—Frank Howard, Esq.

Honorary Members.

M. L'Abbé Moigno, Paris.	Alfred Rosling, Esq.
M. Dubosq., Paris.	J. Bowes, Esq., Norwich.
Rev. St. Vincent Beechey.	J. Robinson, Esq., Dublin
Fallon Horne, Esq.,	H. H. Hele, Esq., Plymouth.
J. Thornthwaite, Esq.	
Frederick Townsend, Esq.	J. W. Cox, Esq., Devonport.
Montagu Marriott, Esq.	

Capt. Barr, President, Bombay Society.
Dr. Buist, LL.D., Vice-President, ditto.
W. H. Stanley Crawfurd, Esq., W. Johnson, Esq., } Hon. Secs.
Four members of ditto, (names not furnished.)

This terminating the business of the annual meeting, the ordinary proceedings were entered upon.

Mr. J. A. FORREST observed that at the last meeting he stated that he had been experimenting with Shadbolt's process, and found it difficult to succeed, the pictures having a disagreeable yellow tint. On that occasion it was suggested by Mr. Fitt, that if he used a drop of pure muriatic acid with the *sel d'or*, he would probably get over the difficulty. He had great pleasure in stating that he had tried it, and it completely obviated the objection. In endeavouring to make some modification of the process, he found that by soaking the paper in serum, and afterwards keeping it dry, being careful not to put it in a damp place, the time of exposure was shortened by about one-half. He had that day printed some pictures, so prepared, in twenty minutes. He had no doubt that, in summer, serumized paper would be found extremely sensitive, and that they would be able to print in five or ten minutes. A print taken with Shadbolt's process acquired additional strength and force, and he had found considerable improvement, in so far as the details were better developed, by brushing it over, after it was printed, with a weak solution of gelatine. He added that some very beautiful pictures from collodion negatives were exhibited at Mr. Atkinson's a short time ago by a gentleman from Paris, who had had the positive prints coated with gelatine. He poured the gelatine, like collodion, upon a piece of plate-glass, and when in a half-moist state, he put the print carefully on the glass, taking care to expel all the air. Leaving it till morning to dry, he then carefully removed the print, with the coating of gelatine upon it: the effect was very beautiful. He (Mr. Forrest), had tried it himself, but did not succeed, a portion of the print adhering firmly to the glass. He preferred, however, to lay the gelatine on with a flat brush, the operation being very simple and rapidly done, while it gave a perfectly even surface.

Mr. FITT thought they should endeavour to print photographs without albumen or glaze of any kind, the effect being very much better: the gelatine and albumen gave the pictures an obtrusive glare.

Mr. FORREST read some extracts from a letter received from Mr. Shadbolt in reference to the observations on his process at the last meeting, which will be found in the correspondence.

The CHAIRMAN announced that he had received a letter from a gentleman in Grantham, stating that they were about to have a soirée and exhibition of articles of taste and vertu, at the Literary Institution, on the 14th of February, and suggesting that copies of the photographic prints which are being published for the benefit of the Society, might be forwarded for the purpose of sale, as well as other photographic specimens which members of the Society might desire to exhibit.

The letter was referred to the printing committee with instructions to forward a number of prints.

Mr. BERRY exhibited a very beautiful collodion film, 12 by 8 inches, detached entire, without the aid of gutta percha, benzole, or any other medium; this, as well as the paper from which the collodion was made, prepared in whole sheets, ¼ of demy size, were remarkable for their electricity: when rubbed with a handkerchief they clung to everything near.

The following paper, by Mr. FOARD, "*On the Comparative Merits of the Daguerreotype and Glass Processes*, was read by Mr. BELL:—

"In the few remarks I am about to make I must apologize for any want of preparation they may display, by stating that at a late hour, against my wish, and amid the pressure of accumulated business engagements, I have been induced to come forward in the absence of an abler and worthier candidate, with a few disjointed paragraphs, loosely strung together, by way of filling a gap in an evening's entertainment which I am afraid will not in my case illustrate the sage advice—'that the evening's amusement *should* bear the morning's reflection'.

"'Time was' when a foot passenger passing hurriedly along the streets might decide, on seeing a photographic picture exhibited in a window, what kind of photograph it was, and might pronounce with tolerable certainty that it was a Daguerreotype. Unless he were specially educated, he could do so no longer. He would be puzzled to settle whether it was a Hyalograph, a Xylograph, a Heliotype, or a Hill-o'-type; a Calotype or a Talbotype; a Daguerreotype or a Verreotype, and the probability is that if he were at once placed in a witness box, to be badgered by some learned serjeant, the names of all the types he has ever heard of running through his head, 'in line as long as Banquo's', or as the catalogue of Homer's ships, he would be in a dilemma whether they represented one or more processes, with a sort of Monsieur Tonson's omnipresence, or so many distinct 'modes,' as numerous as those of Paris.

"So many novel improvements and additions have been made in the photographic art, within the last few years—not that their names represent as many differences really—that the general knowledge of the public has been scarcely able to keep pace with the changes and innovations that have been made, and it becomes confounded with collodion pictures and collodion negatives, and albumen and wax paper, and others not yet elevated to the final dignity of style conveyed in the 'final type,' besides those already enumerated, till it gives up the solution of the problem in despair. On this account, perhaps, a brief explanation and superficial comparison of the different processes of photography most frequently practised, with their relationship to each other, may not be inadmissible to some portion of the members, although to the more qualified ones it must necessarily appear as a thrice told tale.

"In the first place, then, I may mention that there are only four processes of photography in general use. 1st. The collodion positive, called respectively the Collodiotype, the Xylotype, the Verreotype, the Hyalotype, as fancy or policy, the desire to attract notice, or a sense of the inadequacy of any previous title to express the capabilities of the process, may have dictated. 2nd. The collodion negative, or paper process; called the Calotype or Talbotype, and sometimes the Photographic Process. 3rd. The Daguerreotype, Hillotype, Heliotype. 4th. The Albumen Process; in less general use in this country, and which I therefore need do no more than name.

"The first discovered process, in point of time, was, as most of us are aware, the Daguerreotype, discovered in 1839, by M. Daguerre, a Frenchman, and subsequently patented by Mr. Beard, receiving several improvements in his hands, which accelerated the action of the light, and intensified and beautified the image. In this process the image is produced directly by the light on a silver plate, or a plate with a silver surface. In the collodion negative process it is transferred or reproduced on to paper. In the collodion positive it is directly produced on glass by the same agent, collodion.

"First, then, in order of discovery, as well as importance, is the Daguerreotype—a process the pictures of which are taken on silver plates, the medium on which the light acts being iodide of silver; the most perfect and beautiful known process of photography, the most certain and unfailing in its results in practised hands, but at the same time the most difficult to unpractised; limited in size, confined to the character of miniatures, and liable to the disadvantage, frequently urged with undue importance, that the results can be seen only in one light. Compared with the other processes its works bear the relationship of miniatures, to water-colour drawings and engravings. Exquisite in detail; unequalled in complete realisation for the stereoscope; perfect in its execution; of the most dazzling white, or the least illuminated black; marking the merest gradations of half-tone and semi-tint; the broadest effect of light and shade, equally with fidelity and without error. It is capable of producing the most charming and pleasing artistic results on a small scale, possible to any process of photography. On a large size, however, expense and the mechanical difficulties it offers, but chiefly the apparent absence of equable and vivid intensity, from the nature of its reflecting surface, are a bar either to its general use or its proper application. As a photographic process, for unrelenting accuracy and charming variety of tint and tone, as well as for detail in the execution of white laces, or anything requiring minute delineation, it is unapproachable. This arises partly from the metallic nature of the surface which forms the groundwork of the picture, and partly from the gradual nature of the developing stage of the process. The hard surface of the metal gives a clearer edge and a sharper and more acute line than any material of a fibrous nature, like paper, or collodion with a granulated surface, could be reasonably expected to do. The developing stage, which is effected by a most subtle agent—subtle, equally in its form and application—the fumes of mercury, admits of being indefinitely prolonged or hastened, with a very marked influence on the subsequent result. By a brief or lengthened exposure; by its application at a high or low temperature; by shielding portions of the plate from its action; and by dosing as well as by the adaptation of the coating or preparation of the plate with the view to it, a precision of result is attained, impossible to any other new mode of development. A correspondent in the *London Photographic Journal* some time since, styling himself 'An Old Photo,' claimed for its works a superiority, it may be presumed on this account, in reference to glass positives, similar to that of pictures or paintings, over coloured lithographs; a distinction which an artist readily, but the public not so completely, will undeistand. Without endorsing to the full so extreme an opinion, inasmuch as all kinds of glass pictures are as susceptible of the intervention of artistic tact and a taste to the full as much as the Daguerreotype, I am yet inclined to believe that in the Daguerreotype the operator has the process more immediately under his control, to alter and modify to taste or requirement than in any other, and that it consequently offers, if not greater scope for skill and ingenuity, greater difference in the character and nature of the effects that may be obtained, according to taste, than any other.

"Next in frequency of use and application, though last in order of discovery, is the glass positive process; which, in small pictures, never competes, but in large ones rivals, and in some qualities, from the nature of the materials employed, surpasses the Daguerreotype, though decidedly inferior in others. The medium on which the image is obtained in this case is glass; but this merely plays the part of the copper backing up the silver plate, offering a hard smooth surface for the free action of the material placed upon it. This material —iodized collodion, a preparation of gun cotton dissolved in ether, is the nature of paper, being, however, of a texture much less fibrous, more equable in character, admiting a metallic element into its composition which gives regularity and smoothness of surface, and by means of its being in an originally liquid state, solidizing by exposure, it offers another feature which paper does not, of being supported or strengthened by more stable material. Its results, when perfectly or well executed, present great brilliancy of effect, vigour and intensity, with considerable beauty of detail and susceptibility to broad effects of light and shade, while the comparative rapidity and simplicity of the process, its cheapness, and the power that it has of executing pictures of a very large size, limited only by the optical power that can be employed, point it out as a most valuable process in its integrity, in the production of large portraits, of copies of works of art, and of views or pictures, either at low prices or under circumstances in which the Daguerreotype, from its complexity, and the paper process from its comparative lengthiness and tax on the time, cannot so immediately be brought into requisition.

"Thirdly, we pass to the paper or to the collodion negative process; a branch of photography in which collodion plays an active part by shortening the sitting, enabling us to obtain pictures of superior definition to those obtainable by any similar means. This process, unlike the proceeding ones, does not receive the image direct from the light to form a perfect picture, but an image, imperfect and indistinct, by reflected light is first made, and from this image other pictures are effected, by a process almost analagous with printing; the copies so obtained or transferred being on paper, capable of being extended almost indefinitely in size, and offering a distinct peculiarity from any other kind of photograph, that they may be placed in the hands of an artist to finish into pictures bearing the character either of drawings or miniatures, in oil, or sepia, or water colours, and coloured to a beauty and naturalness impossible to any other branch of the art. The photographic transfers themselves, as executed by the light on paper, compared with the Daguerreotype, are harsher in their shadows, less perfect in texture, and inferior in detail; and although susceptible of vigorous effects of light and shade, it lacks the delicacies, the subtlety and precision of effect, possible to the Daguerreotype. Offering, however, one compensating principle, that its results can be produced from one negative, literally *ad infinitum*, without injury to the negative; unless, of course, accident of any kind intervenes. For statuary, for copies of works of art and vertu, where many copies are required; for architectural elevations, landscapes, &c., it is of course invaluable on account of its uniformity of result, the cheapness with which the transfers may be made, and its literal exactitude.

"In summing up the capabilities of these three distinct and separate processes of photography now in general use, and with the products of which we are in every way so familiar, it is no less curious than interesting to remark that they all appear in well-ordered arrangement, and by something much more than accident or chance, fall naturally and of themselves into distinct paths with separate purposes, applications, intents, and with different uses, ends, and means. They appear to do this without trenching in any way on each other's domains. 1st.—The daguerreotype, adapted for miniatures, for small pictures of all kinds where beauty of detail and finish are required, bearing the character in relationship to the others of miniatures. 2nd.—The positive glass or xylographic process, producing with great comparative simplicity and at small expense of cost and labour, pictures of large size, of considerable excellence of detail, fine in forced effect of light and shade, vigorous and striking, and also possessing a certain capacity of colour. 3rdly.—The paper process, less perfect in itself than either of the preceding, but capable of being converted by artistic skill and labour into the most perfect of the three, combining the maximum of vigour with the maximum of colour, solidity, and suitability of light and shade. The first being entitled to be considered—I am speaking of all, of course—when pursued in their integrity and with skill and taste, as light miniatures, the second as light engravings, and the third as light lithographs. Such a classification, however, cannot be supposed to imply that they possess all the peculiarities and excellence of miniatures, engravings, and lithographs, but that they bear such a relationship to each other as may be expressed.

At the conclusion of the paper,

Mr. Fitt, who stated that the idea had been carried out on a small scale at Norwich, suggested that a committee should be appointed to confer with kindred societies as to the feasibility of having, throughout the country, mutual exchanges of prints from first-class negatives: Mr. Corey, Mr. Bell, and Mr. Fitt were appointed for that purpose.

Mr. Berry then read the following paper "*On Photography and Photographic Apparatus in a new point of view*:—

"Almost infinite as have been the varieties and variations in form, in character, in value, in price, and in utility, of Photographic instruments and Photographic processes, I yet venture to introduce a novelty in theory, and hope at our next meeting to lay the instrument and its results before you.

"One of the most prominent facts relating to our subject is the rapid progress, towards perfection shewn in the design, and manufacture of our lenses and cameras, and it seems but as yesterday when I made my first essay on Daguerreotype, my camera being a portion of an Eau de Cologne box, my lens a burning glass, my plate a piece of copper roughly coated with silver, in the same way as barometer dials are covered, my iodine pan a common earthen jar, and my mercury box a gallipot, and last not least the object was a large bottle of calcined magnesia. Various were the improvements in lenses and coating pans, and numerous were the manipulators, and the daguerreotype reached its utmost limits before the time of the Great Exhibition of 1851. There were individuals who practised the process of Talbot, but they were so few and far between that when one came in contact with such a man he was esteemed a very singular and long suffering person.

"The original Crystal Palace gathering gave an enormous stimulus to light printing, and the contemporaneous discovery of the collodion process in a short period set at nought the patentees of sun-light; and then to crown the whole, the marvellous visions of the stereoscope revealed themselves, and Sir D. Brewster shewed us the reason why we had two eyes. So popular has this instrument become that in the leading thoroughfare of London an almost palatial building has been erected, crowned with an ornamental glass roof, and the whole support of this establishment is the sale of stereoscopes and stereoscopic views. Here I introduce the new form of stereoscope, a modification of that shewn at the last meeting. It is composed of two lenses so mounted that their axes converge, and that they can travel on a horizontal bar so as to vary the focus. This bar is capable of being raised and lowered on a support which is fixed in a foot. The photographs are laid on the table and the apparatus adjusted so as to produce the single vision, and can display photographs 6½ by 4¾ each. As I wish to go a step or two beyond the stereoscope, I leave the instrument with a few specimens in your hands while I lay before you a new phase of photography, and to do so I must bring before you as briefly as possible the laws of vision. We have two eyes: but why two? each tiny camera, for such it is, is perfect in itself. One eye gives perfect definition but gives no distance between objects, and if we essay to walk by the sight of one eye, we shall be continually confounding the relative position of external objects, and stumble over that which we imagine remote or avoid another as imminent although really out of our reach.

"We will now contrast a view taken by a photographer and the same sketched by an artist, both taken from the same point of sight.

"The photograph far transcends in detail and correctness of drawing the labours of our knight of the pencil, but yet on comparison the work of the hand stands up before us in rich relief, while the photograph is as flat as the glass plate from which it was printed. And why this difference? The artist drew what he saw with his two eyes, the camera represented only what his monocular vision comprehended.

"I proceed now to the remedy, and from my preliminary experiments I believe I shall succeed in photographing portraits and views with the same relief as the pictures worked by the hand.

"I purpose using two lenses at a linear distance of not less than 3 inches, and I purpose showing the two separate images refracted on to one sensitive surface, so that the combined photograph shall represent to our sight the identical counterpart to the two spectra received on the retinæ of the eyes, as presented as one solid object by the optic nerves to the brain."

Votes of thanks were unanimously accorded to Mr. Foard and Mr. Berry for their papers, and the meeting adjourned.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this Society was held on the 3rd of January, 1856,—Sir W. J. Newton, V.P., in the chair.

A letter from the Rev. J. B. Reade, in answer to the statements made by Mr. Archer at the previous meeting, was laid before the Society and read by the Secretary.

Mr. R. Fenton read to the meeting a communication on the subject of his photographic labours in the Crimea, of which the only facts bearing on the art of photography are in the following passages:—

"During this period till the beginning of spring, the light and temperature were everything that a photographer could desire. Without paying especial attention to the condition of the nitrate bath, I was able to take, with Ross's 3-inch double lens, with a diaphragm of about an inch and a half, almost instantaneous pictures. With the single lens, a Ross's 4-in., with an inch stop, from 10 to 20 seconds were sufficient. Towards the end of April, 3 seconds were frequently enough for the proper exposure of the negatives with the single lens; in some cases that was too much.

"It is, however, with our present facilities, impossible to estimate the relative photographic value of solar light at different seasons and in different countries, otherwise than approximately. I am inclined to believe that the difference is much greater between the actinic power of light at different seasons in the same country, than it is in different countries at the same season. I have taken pictures in England in the spring, with a single lens, more rapidly than at any time in the Crimea. As the weather became hotter, and spring began to change into summer, the difficulty of getting successful pictures became in every way greater. First, the actinic power of the light was less with the same collodion, and with the bath in apparently the same condition as in the spring, the time of exposure became gradually longer. As it got hotter still, it became very difficult to keep the nitrate bath in good working order. The comsumption of nitrate of silver in making fresh baths was at this time very considerable.

"It was necessary in the hot weather to thin the collodion to a much greater extent than is usual in England; and even with this precaution it was hard to spread a film of collodion evenly over a large plate, the upper part of the film drying before the excess of liquid had run off at the lower corner of the plate. From the same cause the development of the pictures was more difficult, as the film often became nearly dry in the short time necessary to take the slide containing it to the camera and back again, and then of course the developing fluid would not, when poured on to the plate, run at once all over it without stoppage.

"Eventually I was obliged, in the month of June, to cease working after 10 o'clock in the morning. Without reference to the fatigue which would have resulted from work during the heat of the day, it would have been impossible, so far as portraits were concerned, to take any satisfactory ones after that hour, for the glare was so great from the sky and burnt-up ground, that no one could keep his eyes more than half open."

The meeting then resolved into a general special meeting, to consider Mr. Fenton's proposal, that the offices of Secretary and Editor of the *Photographic Journal* should be united and paid for. The report of the committee to whom it had been referred was read and adopted, under which the Secretary and Editor will have £200 per annum for his services, and £100 per annum will be set apart to pay for articles to be written for the Journal. A committee will be appointed to watch over and give a general direction to the management of the Journal; and, associated with the Editor, there will be persons who shall be each responsible for the contributions to the Journal, relating to the branch of photographic science with which he is specially conversant.

At the meeting of this Society, held on the 7th instant, Mr. Mavor, son of Dr. Mavor, Principal of King's College, London, was elected to fill the double office.

SOCIETE FRANCAISE DE PHOTOGRAPHIE.

At the meeting on the 21st of December, 1855, M. Regnault in the chair, M. Durieu, on the part of the committee appointed to examine the processes and other photographic apparatus exhibited in the rooms of the Society, presented a report which was adopted unanimously, but the publication of which was postponed to make room for the other contents of the *Bulletin*.

M. Emile Rousseau presented, on the part of M. Mousson and himself, a complete work embracing the production of photographs, positive and negative, photography, heliographic engraving, and the accounts of photographic prints taken on woven materials. Their processes are founded on the successive employment of bichromate of ammonia, gallic acid, and citrate of iron. The principle on which they all rest is the same, and the four different methods only differ in certain details of manipulation.

M. Balard, in the name of M. Poitevin, explained a process of photography, patented in August, 1855, and founded on the employment of bichromate of potass. Some discussion took place relative to these processes, between MM. Regnault, Balard, Edmond Becquerel, Emile Rousseau, &c.

M. Bayle Mouillard read a letter from M. Taupenot, in the first part of which he declaimed vehemently against the pretensions to the use of albumenized collodion, raised by M. Martens, and against the appreciation of that process expressed by him; and in the second he described a very simple apparatus which every photographer could manufacture for himself out of two bands of thin cardboard; and by means of which he could determine beforehand how much of a view or a monument could be completely given by his camera, and which was the best point from which to take the photograph.

PROCESSES.

The *Revue Photographique* acquaints us with a process described by Captain Navez, of Anvers, which we condense for our readers. This mode offers the following advantages:—1st. It furnishes proofs which in all probability will be permanent. 2nd. Minuteness of detail, which albuminized paper cannot equal. 3rd. The general tone of the proof may be regulated by the operator according to the nature of the subject. 4th. A positive proof may be obtained in a quarter of an hour. 5th. After having been occupied with obtaining negatives during the day, the operator can secure proofs of the same in the evening. Cover a plate of glass with very thin collodion containing iodide of potassium, and only just so much alcohol as will allow the cotton to dissolve; sensitize in a weak nitrate of silver bath (4 or 5 per cent.) and in which a small quantity of iodide of silver is dissolved. Place your prepared plate in a frame having a rabet to contain it; apply over it the negative, previously protected with slips of strong paper at the top and bottom, to prevent contact with the moist surface of the collodion film; fix the frame vertically in front of a powerful lamp furnished with a parabolic reflector, and surrounded on all sides with a screen of black cardboard, so as to exclude all diffused light. The exposure should be from two to six minutes; finish in the ordinary manner with pyrogallic acid, and clean with a saturated solution of hyposulphite of soda. Dry the proof thoroughly, after careful washing, and place it in a levelling stand; then pour upon the collodion face, white plaster finely powdered and mixed with gum water. Hasten the drying with a spirit lamp, if hurried, but not with much heat. The proof thus obtained, when seen from the glass side, appears with most finished details upon a brilliant white ground; or you may vary the effect by introducing into the mixture such colours as may seem appropriate, being careful to choose them of very light tint. With these precautions the pictures dispense altogether with passe partouts, as you may surround them with a border of gold, or any other ornament, and they will therefore prove particularly well adapted for portraits.

Helioplastic Art by M. Poitevin.—The problem that M. Poitevin considers that he has successfully solved is, to produce by the action of light, and without the intervention of biting in by acid, or the work of the graver, the reliefs and depths that can be transformed into plates, either for copper plate or the ordinary press printing, for rollers for printing calicoes or stuffs, or matrices for stamping cards, &c. He explains :—" I pour upon some surface, glass for example, an uniform layer of solution of gelatine. The thickness of the coating ought to vary according to the extent of the relief that is desired to be obtained: I either suffer it to dry spontaneously or dry it in a stove; when dry I plunge into a concentrated solution of bichromate of potass. After a few minutes immersion I wash quickly in water, and leave it to dry in the dark. The plate thus prepared may be placed in apposition to a negative, or in a camera if we desire to produce natural objects; the time of exposure varies according to light and the thickness of coating. After exposure I wash again: all the parts which have not been under the action of the light, become moistened and swell up, and produce sensible reliefs upon the surface of the plate, whilst the portions affected by light are hardly wetted and therefore are not changed; consequently the reliefs answer to the blacks and the hollows to the whites. I then take upon this gelatine proof thus raised and depressed, a counter proof in plaster or any other susceptible medium, so that I can produce a metallic plate from it by any of the well known aids of galvanic electricity."

Taupenot's Process.—We find from *La Lumiere* that M. Taupenot has expostulated with M. Martens upon what has been entitled "Proccedings with collodion albuminized," saying, very naturally, that the attempt described by M. Martens during his visit at Lausanne, and which did not succeed, could not be called a discovery, and that therefore M. Martens is not justified in depreciating the novelty of a process of which he could make nothing; that it is wrong to say that the albumen hinders the collodion from drying, for it is not by preserving the collodion moist that the picture is formed; the picture is no longer upon the face of the collodion, but on the albuminized surface over it. In reply to Mr. Sutton he says, " I have no reason to change my opinion as to the rapidity of collodion albuminized being equal to collodion when in the moist state, both taking about six seconds; whereas where there is a delay required for placing the object or waiting for the passing of a procession or review, the albuminized collodion affords great latitude." Speaking of the fermented albumen, M. Taupenot says, " All photogpaphers who have consulted me attach great importance to the fermenting of the albumen. During five years that I have used albumen, sometimes fresh and sometimes fermented with a little honey and yeast, I have not found much difference in the quality or rapidity; since I conceived the idea of superposing it on collodion I only find it more convenient to have it fermented because it is ready at any moment when wanted, and also because it passes so freely through the filter, which perfectly frees it from dust.

Albumen Process.—A more explicit description of the method of using albumenized plates, as spoken of in the *Bombay Journal*, has been desired and is now given:—" The liquid part of the albumen only, rejecting the coherent mass, of several new laid eggs, is to be beaten into a froth. After having settled for some hours, it is to be poured evenly upon a plate, and to avoid undue thickness at the edge from which it is to be drained, the plate is to be tilted to the opposite corner, and when it has flowed thither repeat the process several times, when an uniform coating is obtained, which will dry in the sun. The iodizing solution is simply a saturated solution of iodine in spirits of wine, whieh is to be poured upon the plate in the same manner as collodion is ordinarily done, only that it must be left to dry horizontally; then immerse for only 15 or 20 seconds, in a bath of 60 grs. of nitrate of silver, 10 drops nitric acid, 1 dr. acetic acid; the nitric acid is essential, the acetic merely improves the effect. Develope with 4 parts saturated solution sulphate of iron, 1 of acetic acid, and 1 of water. For positives 5 drops of nitric acid must be superadded to each ounce of this mixture, but for negatives 10 drops of sulphuric acid instead, and thorough washing afterwards. The fixing cannot be effected by hyposulphite of soda, [if pure it is the best means—Ed. B.P.J.] but as cyanide of potassium in water puckers up the coating it must be dissolved in spirits of wine. Mix 1 dr. of saturated solution to 1 oz. of alcohol, dip into this for four seconds, wash with alcohol, and dry."

Mr. Hill and Hillotype. — The New York papers state that the Rev. L. L. Hill announces he has *at last* completed his admirable invention of the Hillotype, and that he has been offered 30,000 dollars (?) for the discovery, on the condition that he will himself instruct the purchaser, and secure him by letters patent. This offer does not appear to the reverend inventor to be commensurate to the importance of the solution of the difficult problem of the fixing of colours. His new plan proposes to use silver plates, and reproduce the pictures immediately after with their natural colours upon collodionized glass. He finds support in his speculative theory from M. Van Monkhoven, who has written to the Abbe Moigno and says, "I have at last obtained the principal colours of the spectrum directly upon glass. You can scarcely believe what a truly astonishing effect is produced by an image which gives the principal colours when seen by reflection, and the complementary colours when looked at by transparency." M. Van Monkhoven, as will be remembered, has paid great attention to the details of photographic manipulation, and not long since we gave his tables for the relative proportions of ether and alcohol requisite for various temperatures. Mr. Van Monkhoven has also published a work on the practice of photography, which is very highly esteemed on the continent, and by our correspondent, Mr. W. Ross, whose views on the question of coloured photographs are very antagonistic. The *Revue Photographique* says M. Van Monkhoven is a serious man, who cultivates photography with an ardent desire to aid in the progress of this beautiful art.

Works on Photography. — Mr. Sutton, with his prospectus of the Printing Establishment, at Jersey, has given a short statement of the process of photography, which is the most complete and intelligible account, so far as it goes, which we have ever met with. Messrs. Horne and Thornthwaite have published a new edition of their Manual, which has always borne the character of being the most satisfactory of its class; and Mr. Hardwich's "Chemistry of Photography," notwithstanding a most unfortunately confused arrangement, increases in estimation every day. We have received a number of a new French periodical, *Revue Photographique*, which has begun in a highly spirited manner, although they have not noticed Liverpool photography or photographers in any other way than by sending a copy of their third number.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—As whey is becoming so generally used in photography, perhaps the following hints may be useful to those following the wax or printing processes.

For the rennet, get a calf's, hare's, or rabbit's stomach, clean out any contents but do not wash it; steep it for twelve or twenty-four hours in as much water that has been boiled aud cooled as will cover it, decant this into a stoppered bottle for use, adding 30 or 40 grs. bromide of potassium, in fact any known quantity to make it keep—common salt is generally used by cheesemakers—and you then have a solution for use at any time. Two or three drms. of this, according to strength, will curdle a pint of skimmed milk, which should be warmed, and the operation conducted in a vessel convenient for pouring; when firm and cold cut it across two or three times with a paper knife, taking care not to break up the curd, which will then gradually subside, and the clear whey will float on the surface; pour off and cut again and again, and pour off as long as you can get it clear; by using a quart of milk a sufficient quantity of whey may be obtained fit for printing, with little trouble and quite free from milkiness, and, from what Mr. Fitt says in your last, very suitable for his wax-paper process. A little cotton wool in a filter will keep back stray pieces of curd, which will break off if the curd is not very firm. I may say the last yearning, (as it is called in Scotland) I made from the stomachs of two hares which I got from the kitchen.

I am, Sir,
Edinburgh, Your obedient servant,
26th January, 1856. W. J. A.

Our correspondent adds, "I tried the Whipple Process, and also fermented the albumen, but could not get the paper free from sticking. The best salting solution that I have got is 8 grs. bromide, 8 grs. iodide of potassium, and a little free iodine, which colours the paper (French) nearly black, and whitens on the application of the silver, allowing you to see that every part is sensitized, and to work with very little light. Exposure for collodion negative of medium intensity, 5×4, one bat-wing burner, 30" tin reflector, and held within a couple of inches of the flame, and if not over exposed, a beautifully black picture is the result. This gives the softest picture I have got. Less salt and whey gives nearly the same. I sensitized with 40 grs. nit. silver, applied with a glass rod, aud blotted off; developer, gallic acid, warmed to a little above 60°. No frame used, only clips."

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—I have been a regular reader of your Journal since its commencement, and am glad to say have derived very considerable assistance from its pages in overcoming difficulties incidental to the first steps of photography, studied from books alone. As I have derived so much advantage from your labours, I think it but fair when I meet with any thing novel, to communicate it to you. I am not sure that the following process is novel, I can only say that in all my photographic reading I have never met with any thing similar. You will be better able to judge of its novelty than I am.

I use collodion sold by J. Spencer, Glasgow; the usual 30-gr. silver bath; developing solution, protosulphate of iron 15 grs., nitrate of potash 2 or 3 grs., glacial acetic acid 12 min., fixing with cyanide of potassium 10 to 12 grs. to 1 oz. water. After using the cyanide wash the plate well, and as quickly as possible expose it to the heat of a bright fire till it is *thoroughly* dry, and feels almost too warm for the hand. Looking at the picture at this stage the whites appear of a brownish yellow metallic lustre. If now you rub the impression, briskly but lightly, with a warm dry silk handkerchief or something of this sort, for a minute or so, keeping the plate as warm as possible, the dingy brown colour disappears, and is replaced by a beautiful white surface of polished silver. This is to be protected from the atmosphere by a coating of transparent varnish. Care must be taken not to rub too long or too heavily, else the sharpness of outline may be injured. By ordinary care a brilliant surface can be insured, not only without injury, but in almost every case with decided improvement to the picture. For polishing I use a brush made by stretching on a flat bit of board a piece of velvet, nap side outmost.

I enclose my address should you wish to make any inquiries. I am, yours truly,

Aldbar, Jan. 4th, 1856. AMATEUR.

To the Editor of the Liverpool Photographic Journal.

Sir,—Perceiving from a report of the last meeting of the Liverpool Photographic Society, that some observations were made by Mr. Forrest and others, relative to the formula for positive printing which I recommended in a paper read before the London Photographic Society, and that some misapprehension appears to exist upon the subject, may I request that at the next meeting of your members you will be kind enough to communicate the following remarks in order to elucidate what at present appears obscure.

The yellow tone of the high lights complained of by Mr. Forrest is due *entirely* to some error of manipulation, they should be *as pure* as the original colour of the paper. The cause may be—1st, that the paper has become very slightly discoloured after excitation before being exposed. 2nd, that the exposure may have been carried a *little* too far so as to discolour the skies. 3rd, that the *free* nitrate of silver has not been sufficiently washed away after exposure, and before submitting to the sel d'or; this is a *very* important precaution—and 4th, that the immersion in the last-named bath has been *too prolonged,* especially if the operation be performed by artificial light, as the eye does not immediately detect the *commencement* of the yellow tinge, which demands the removal of the proof the instant that it appears. Lastly, an absence of the free acid is likely to cause this defect. The error of printing *one oz.* instead of *ten* in the formula appears to have been noticed.

I am, Sir, your obedient servant,

GEO. SHADBOLT.

Hornsey Rise, Middlesex,
19th Jan., 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—I see in your number for January, an account of a new process by Mr. Maxwell Lyte, for preserving plates by the use of Gum Arabic. I had hoped to be the first to communicate this to you, as several months ago I was engaged in experiments upon this substance, but wished to carry them further before I published the results. I had previously arrived at the conclusion that the honey, as used by Mr. Shadbolt, acted principally the part of a varnish impervious to the air, but there were two objections to its use, namely its partial insolubility in cold water, and liability to injury from dust. The problem was, to find a substance neutral in character and soluble in cold water, which would form a varnish that might be rubbed without injury, and Gum Arabic is the only substance that occurred to me as fulfilling the requisite conditions; but it cannot be used alone, as its contractile force would destroy the film. The proportions which appeared to me to answer best were, 3 gum, 2 honey, and 10 water; in damp weather less honey is necessary.

I also tried some rough experiments as to its preservative properties upon paper, (not waxed,) and found them very great. I have little doubt it might be substituted for wax paper to a considerable extent, but I have been unable to make comparative experiments. I observe there is a great difference of opinion as to the use of hypo and cyanide of potassium for clearing negatives; I have tried the latter, but never satisfied myself, and have consequently always used the hypo, and never remember spoiling a picture through its use, but I always employ an old solution nearly saturated with silver, which takes 3 to 5 minutes to clear a collodion plate, and will not injure the finest details in an hour; when it gets too slow, I add a small quantity of fresh strong solution of hypo, to keep it in working order..

Yours, &c.

MONTAGUE MARRIOTT.

8, *Montpelier Square,*
London, 6th Feb. 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—As the practice of Whipple's modification of the albumen process is becoming very prevalent, it may save your readers much trouble to acquaint them that, for this climate at any rate, the proportion of honey is too large. Unless it be reduced one-half, and the chemicals one-third of the prescribed strength, you cannot get a film from the silver bath without long rents in it. Farther, that if from want of sensibility or under exposure, the negative cannot be obtained dark enough with gallic acid, even though strengthened with a little silver added, it may be deepened to almost an illimitable extent by the after use of pyrogallic acid,—1 gr. to the ounce.

I am, Sir, yours, &c.,

CHARLES COREY.

ANSWERS TO CORRESPONDENTS.

F. S.—It is not advisable to use more than one kind of collodion to your bath.

Fritz.—See Mr. Bell's paper on "Whipple's Process," and notices in vol. 2, pp. 137, 151.

T. D.—We do not know the publisher.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 27.—MARCH 8, 1856.

A considerable portion of our space this month is taken up by the reports of the London and Liverpool Societies of their last year's progress, and the report of a Committee of the French Society upon the exhibition in their rooms. All give evidence of satisfactory progress in the art, and that of the French shews the care with which our neighbours are investigating and watching every phase as it appears. But we cannot concur in the observations made by the London Society upon their exhibition. The branch of portraiture is much less favourably represented than at the first exhibition. We do not trace the expected advantage from the abrogation of Mr. Fox Talbot's patent, in the examples to be found in the present exhibition. Mr. Hennah is decidedly inferior to his former productions. Mr. Mayall's "ministry" are by no means satisfactory. Mr. Locke has undoubtedly produced some of the most agreeably coloured portraits that we have seen, but the photographs along side shew how much has been done by the artist. The best portraits are those by our member, Mr. Frith, an amateur.

The London *Journal* has passed under the management of a paid Editor; it would be unfair to comment on the first number of his labours. The form remains the same as before. The President of the London Society, in a congratulatory strain, commented on the provincial Societies which had arisen in emulation of their example, and "the provincial Journals now circulated and respectably edited." We presume we may appropriate a portion of the compliments, though not specially named, and shall be happy to share it with any other "provincial Journals" as soon as we are made acquainted with them; but up to reading the observation, we thought we stood alone as *the* Journal of Photography for the provinces. There is a very creditable publication just set on foot by our jealous Manchester friends, proposing to give photographs of objects of interest and curiosity, with a record of the circumstances under which the photographs were taken — the means employed — the time occupied — the state of the light, and every thing that can make the most complete record of the individual photographic results. This course has been frequently advocated in our pages.

The disadvantages attending the wet collodion process have led to various attempts to keep it wet a long time, or modify it so as to preserve its properties when dry. Mr. H. Pollock has contributed his quota towards the solution of the problem, by the addition of glycerine to collodion in the proportion of rather less than six drops to the ounce, and to the nitrate bath in the proportion of one to five of the distilled water. He uses a second nitrate bath of only six grains to the ounce of water, in which he immerses the plate for a minute, the plate will then keep for a week. Before developing he moistens the plate with distilled water, adding two drops of a 50-grain solution of nitrate of silver to the developin solution, before pouring it on the plate. H admits that it soon destroys the nitrate bat but suggests that a horizontal bath, holding small quantity to be occasionally renewed, might be used.

M. M. E. Caranza has suggested the use of the chloride of platinum for fixing positives instead of the *sel d'or*, "as being less expensive, and not giving the bluish tint of the latter." To about three pints of distilled water he puts about sixteen grains of chloride of platinum in a moist state, and about an ounce of muriatic acid. After some seconds' immersion, he says the metallic parts become black. When the desired effect has been obtained he washes the positive in six or eight waters. In the fifth water he puts a little chalk and lets the proof remain about two minutes, shaking it continually, and then again washes in pure water. These operations must be performed in low light. He then immerses it in a bath of hyposulphite of soda, 100 parts to 500 of distilled water. "The half tints come out a delicate rose colour."

Sir William J. Newton has published at length his modification of his previous printing process. To each ounce of camphor whey, or, as he prefers, equal parts of gelatine and camphor water, he now adds two drops of oil of cloves, and after this is well shaken up, he adds 1 grain of bromide of calcium, 1 grain of iodide of potassium, 1 drachm of saturated solution of gallic acid, 20 grains of white sugar. This is to be well shaken together, and to be filtered every time before using He brushes it over the paper which he leaves flat to dry, and then brushes it over the other side and dries again. He sensitizes with a 25 grain aceto nitrate bath; blots it off and exposes to the light in the printing frame from ten seconds to a minute. He developes with gallic acid and aceto-nitrate, and puts it afterwards into hyposulphite of soda for about an hour, and then into alum water, a tablespoonful powdered and three pints of water, and concludes by washing in two or three changes of water.

Dr. Diamond has made an important communication to *Notes and Queries*, relative to copying manuscripts, prints, &c., by photography. He thinks an old mixed collodion originally made sensitive with iodide and bromide of ammonium, produces the most satisfactory results. Neither new nor rapid collodion will do: all delicate lines are obliterated thereby. With a single lens, he exposes a light object, as a page of an ordinary book when to be reduced one half in size, for three minutes, but twelve or fifteen will be required if the copy is to be the full size; and a longer time still if it is to be magnified. A double lens will diminish the time, but also the size. With a single lens, no diaphragm but the ordinary one is required; with the double combination, great advantage arises from a small diaphragm. Develope with a weak solution of pyrogallic acid, and dash it freely over the surface, otherwise stains will occur from the collodion having become, from the length of exposure, more than ordinarily dry. When cleared perfectly from hyposulphite of soda, it may have little of a negative character, but the most intense black is produced by passing over it a mixture of

Bi-chloride of mercury......	2 drachms
Chloride of ammonium	2 ,,
Water.	10 ounces

until a bluish tint appears, then wash quickly and perfectly, and pour a solution of

Hypo-sulphite of soda	5 grains
Water............................	1 ounce.

Wash and varnish, and any number of positives may be taken from it.

The Imperial Printing Office at Vienna, for the last two years, have had in use, and are said to prefer to all others, the following process for obtaining a sensitive surface:—Five parts of fresh potters' (porcelain?) clay are mixed with an equal quantity of water, and three parts of albumen beaten into a froth. This is applied to paper like ordinary albumen, and allowed to dry. This coating must be combined by heat or by alcohol, that neither the potters' clay nor the albumen may separate. After it has been again dried, nitrate of lead is passed over it, then muriate of soda, and, lastly, a salt of silver. No other details are given.

We have no proceedings from the Norwich Society this month, in consequence of their meeting taking place on the Friday preceeding our day of publication; and we must refer to an advertisement in our last number for the terms upon which a club has been proposed for the exchange of photographs, which deserves to be supported, as it will, we conceive, greatly benefit the art. We have received Mr. Humphrey's Manual of the Collodion Process, but are compelled, by want of space, to defer our notice of it.

We have also received the *Bulletin de la Société Francaise* for March at the moment of going to press but have only room to acknowledge it.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

At the first meeting of the fourth session, held at the Royal Institution, Colquitt Street, on Tuesday evening, Mr. Corey presiding, there was more than an average attendance of members.

Mr. J. A. Forrest stated that since the last meeting he had continued his experiments in the hope of obtaining a satisfactory modification in positive printing with Shadbolt's and Sutton's processes combined. He had printed two without gum, and when he compared them with Shadbolt's entire process, he thought there was a great improvement. He produced two prints—with one he had used Shadbolt's process entire, and with the other he had discarded gum, merely using chloride of ammonium.

Mr. Berry: This can not be considered a fair test; serum does what gum was intended to do.

Mr. Forrest observed that gum retarded the action of the *sel d'or*. With serum, in putting a print under the influence of a *sel d'or* solution, he found that it changed colour in about ten minutes, but with gum it took three quarters of an hour and more; with length of time, it gathered a disagreeable tint. He also exhibited some prints from Mr. Sutton's Portfolio: they were fine specimens of the art, and were much admired.

Mr. Higgin produced the first number of a new photographic publication, being a series of prints from the photographs of members of the Manchester Photographic Society, and "intended to illustrate the use of photographs as a help to education in its highest and widest forms." He also exhibited some exquisite photographic prints of a large size, by Martens of Paris, some of which had the gelatine glaze, which certainly appeared to add much to the beauty of the pictures, bringing out the details and increasing the effectiveness of the half tones. The collection included two superior specimens by Bisson Freres, of Paris, one a wood scene, and the other a view of the Bibliotheque, Paris.

The Chairman read the following annual report, explaining the circumstances under which its presentation had been delayed from the previous meeting:—

Annual Report, 1855-56.

"The third year of the existence of the Liverpool Photographic Society has now come to a close, bringing to an end a vast load of doubt, anxiety, and trial. It is the fate of many learned societies, whose very vital condition depends upon members who can devote so small a portion of their energies already engrossed with the "means to live" towards the forwarding the intents and purposes for which the society is formed, that "the burden and heat of the day" is borne by the enthusiastic few who are willing to encounter every obstacle to further the cherished pursuit. A series of adverse circumstances too frequently beset an infant society; the many who, in the first ardour of the pursuit, join in the throng, by degrees look coldly on, and at last altogether slacken, and eventually abandon that to which, but a short while before, they had seemed pledged heart and hand; the spirited few who would really carry out the object thus becoming disheartened, too often disgusted, at being misrepresented, and too frequently maligned for their exertions, by the less industrious, give up what they so ardently desire to promote, and the once promising society comes to an untimely end.

"The Council of the Liverpool Photographic Society having passed through a crisis nearly analagous to that faintly sketched, are enabled to look back upon the vicissitudes they have gone through with redoubled confidence and confirmed strength. Anxious to promote the study of the art of photography, by the exhibition of works from the ablest practitioners, they invited the productions of all who professed or exercised the science, and were gratified by a *reunion* of some of the most distinguished specimens, which were the admiration of all the surrounding district. The result, however, in a pecuniary point of view was not satisfactory, and first led to a series of embarrassing trials. Assured by the promises and representations of many who expressed the utmost readiness and indefatigable energy to assist the enterprise; and greatly stimulated by some who urged that the "*locus in quo*" was only wanting to give the society a position, its ennobling study really required, in an evil hour the council entered into an agreement with the authorities of this Institution for the erection of a suitable gallery and operating rooms at the back of their buildings in Colquitt Street. The committee entered into the project with the liberality with which they ever seek to forward the pursuit of the science, or to further the dissemination of knowledge.

"The rooms were entered upon, facilities afforded, and the exercise of the art appeared to be about to be pursued through all its varied phases, with untiring zeal and searching avidity; but doubt and suspicion crept in, the purpose of the promoters was misunderstood, their exertions misrepresented; the canker once introduced, the evil spread, and all that had seemed harmony and strength, now assumed the guise of personal aggrandizement, with its concomitant—factious opposition. Those who before were slow with their subscriptions were glad to find excuse; the wavering decided adversely; the coldly disposed became still more indifferent; and only those who were true of heart and stedfast of purpose clung to the object so many had promised to support. The funds at the disposal of the Treasurer sank to the lowest ebb, while the still accruing expenses and fast accumulating rent threatened to overwhelm all who were engaged in keeping the society together.

At this juncture, when the utter collapse threatened absolute dissolution, the Trustees, Messrs. Newlands, Forrest, and Bell, stepped nobly forward and advanced the sum necesssry to meet the most urgent demands, while the committee of the Royal Institution, with a liberality even exceeding that which they had previously evinced, consented to waive all claim upon the society on being reimbursed what they had expended, although that claim extended by legal right over the ensuing nine years, thus freeing the members from all apprehension of personal responsibility or risk.

The following is the statement of accounts:—

DR. THE LIVERPOOL PHOTOGRAPHIC SOCIETY *in Account with* CHRISTOPHER BELL, *Treasurer.* CR.

	£	s.	d.		£	s.	d.
1855.				1855.			
Mar. 2 To Balance due Treasurer.........	£29	10	1	By amount of Arrears, and Subscriptions received	£39	5	6
„ To cash paid attendance at Royal Institution	1	6	0	By amount of donations in aid of debt ...	5	17	0
„ To cash paid Jeffery and Morrish	0	2	11	By sale of pictures in aid of debt	0	10	0
„ „ „ Gas Company	0	18	5	By one life member	5	0	0
„ „ „ Greenwood, printer.	2	9	9	By rent of rooms received	3	18	6
„ „ „ Platt, printer.........	0	14	0	By balance due treasurer....................	3	18	8
„ „ „ Thos. Ray, joiner...	2	5	6				
„ „ „ Income-tax on room Seel-street	2	2	0				
„ „ „ Housekeeper.........	16	16	0				
„ Stamps and commission for collecting subscriptions, 1854	2	5	0				
	£58	9	8		£58	9	8

Errors excepted.

Feb. 5, 1856. To Balance due treasurer, £3 18s. 8d.

Liverpool, 5th Feb., 1856.
CHRISTOPHER BELL.

Audited HENRY DAWSON, GEORGE THOMAS. } Signed.

To which balance must be added one or two liabilities for printing and gas, the accounts for which have not yet come in.

The liabilities for the year 1854, for the liquidation of which the printing committee was formed, have not been diminished to any great extent, as will be seen in above account; but as the weather for the prosecution of printing becomes more favourable, no doubt tho sale of the pictures will increase. The amount still due is about £40.

The expenditure is now reduced within the limits of twenty pounds per annum, and for this the list of members, when taken at the most threatening crisis, is doubly sufficient to meet, and the Liverpool Photographic Society promises to rise, Antœus like, invigorated with renewed strength, from its recumbent position.

While in common candour the council have been forced to expatiate on past reverses, they have other phases to present before the members: the darkest cloud, if we wait the blast that carries it along, has ever a silver lining, and while all has been dark, sombre, dreary, and threatening to us, the society has presented the fairest semblance to all the world beside. The correspondence of the member, whose department it is, and the contributions of other and kindred societies, prove the celebrity of the Liverpool Society to be fully established in either extremity of the known world: while we have the authority of a correspondent in America, that the report of their proceedings, and the information resulting therefrom, is read with avidity, not merely in the civilized, but in many of the uncivilized parts of the world, and that their example is looked up to, their dictum watched for, their experience quoted, and their advice sought on every side and in every difficulty. To what then may be attributed the re-invigorating principle that has so rewarded the patient endurance of the council, and will suffice at last, they confidently trust, to reimburse the trustees for their self-sacrifice and pecuniary inconvenience? It is the skilful and enlightened pursuit of an art at once the most stimulating, as most baffling, yet most richly compensating; the keen research of the ardent philosopher. Time was when the productions of the camera were limited to distortions of the human form divine, which glared upon us with their dazzling disappointment from the glass cases of different door posts, while their producers languished for a needy living in far-away, lofty, and lighted garrets, as lonely as the lighthouse-keeper, and the ceaseless roar of busy traffic, like beating waves, careered along at the base of their tenements. We now see the camera levelled at the beauties of the landscape, and its most attractive objects fairly and pleasingly represented, while its purposes are adapted to the most tasteful productions of art. Amongst its operators may be reckoned the most talented, the most learned and intellectual men of the day; while so general is it, that there is scarcely a family of enlightened taste but has some one among them who professes or practises the art.

"What may not be said of its patrons: for ourselves we claim one of the brightest ornaments of the peerage, one who loves all that is intellectual, who fosters all that desire to rise above their station. In the London Society we see one of the most impartial judges in the land presiding; and a newly formed society is stretching forth its infant efforts under the auspices of a right reverend bishop.

"In justification of the distinguished position of the Liverpool Photographic Society in the world at large, the council direct the attention of the members to the papers that have been read before their meetings fully descriptive of most pleasing results. They may also congratulate the society on the possession of members, ordinary and honorary, whose productions may vie with any yet submitted to notice. Tho indefatigable exertions of many of the members have simplified and perfected some of the most practical processes.

The papers read in their several orders are—

"*On the present position of Photography*," by Mr. Frank Howard.

"*On the comparative results of large and small Lenses*," by Mr. Bell.

"*On the Waxed Paper Process*," by Mr. Corey.

"*On the Printing and Fixation of Photographs*," by Mr. Berry.

"*On Photographic Chemicals*," by Mr. N. Mercer.

"*On the true use of Albuminized Paper*," by Mr. Clements.

"*On the Fancies of Photographers*," by Mr. Berry.

"*On Whipple's Albumen Process*," by Mr. Bell.

"*On Hyposulphite of Soda*," by Mr. N. Mercer."

"*On the Waxed Paper Process*," by Mr. Fitt.

"*On the comparative merits of the Daguerreotype and Glass Processes*," by Mr. Foard.

"*On Photography and its Apparatus in a new point of view*," by Mr. Berry.

"The council, desirous to avoid any invidious distinction, forbore to present a list for the election of officers for the ensuing year, leaving the body of members to express their confidence or distrust as they might think fit, and had the gratification to find that the whole of those previously filling office were again elected by general voice; some new members being added at their request, persons selected either for their known energy or judgment, by whose faculties the unremitting exertions of those formerly engaged in behalf of the society, might be aided and matured. They have, therefore, great satisfaction in presenting the list of those so elected as it appeared in the report of the proceedings in the last number of the Journal.

"In conclusion, the council earnestly request the most strenuous efforts of their brother members to further the object of the society, and to promote the accession of members, whereby the exalted position of the Liverpool Photographic Society may be sustained and extended."

The reading of the above appeared to give general satisfaction to those present: and

Mr. HIGGIN moved the adoption of the report, which was seconded by the Rev. THOS. BANNER, and carried unanimously.

Mr. BELL then read a letter from Mr. Stansfeld, which will be found in the correspondence.

Mr. BELL joined issue with Mr. Stansfeld as to the honey solution being worthless when fermented; about two months ago, by way of experiment, he fermented some by adding yeast, and on Saturday evening he prepared a plate with the solution, which acted perfectly. He sensitized two or three more plates with the same albumen, and they cracked, although done within five minutes of the others. He presumed that the drying was not uniform on the surface of the plate. He exposed one of the successful plates yesterday, with very little light. He gave it a quarter of an hour with a single lens, 3-8ths of an inch diaphragm, and 9 inches focus, and the result proved that they might work with this system when they could not use any other.

On the proposition of Mr. Bell, seconded by Mr. Forrest, the thanks of the Society were unanimously accorded to Mr. Stansfeld for his letter, and also to Mr. Higgin for exhibiting photographs by M. Martens.

The Rev. THOMAS BANNER, referring to one of the prints which had been exhibited, regretted that it had not been glazed, as the half tones would have been so much better developed. He always covered his own prints with thick albumen, and ironed them well.

Mr. BELL was glad to hear Mr. Banner say so. There was much difference of opinion on the coating question.

Mr. FORREST, in reply to Mr. Higgin, said the usual *modus operandi* was to pour the gelatine on a glass plate, which had been previously thoroughly cleaned with ox-gall. The print, in a moist state, was then pressed upon it, and allowed to remain the whole of the night, and in the morning it was carefully removed with the glaze adhering to the paper.

Mr. FORREST exhibited a small print of St. Chrysostom's Church, Everton, taken with M. Taupenot's process, which he thought infinitely superior to Whipple's. The exposure was only one minute and a-half.

Mr. BERRY read the following paper "*On Photography, retrospective and prospective*:"— "THIS paper has for its object the examination of the means used to produce impressions of objects upon suitable media, by the use of lenses or mirrors in a dark chamber or box (the camera obscura), without reference to the production of positive photographs by the supplementary process of printing.

"When Talbot's and Daguerre's discoveries were first published, it was deemed absolutely necessary to success that the object to be reproduced, whether landscape, building, statue, or portrait, should be illumined by the direct rays of the unclouded sun, and the unhappy wight who desired to immortalize himself by a portrait, of which the sun was the artist, the camera the vehicle, and the silver plate the canvas, was required incontinently to whitewash his face, powder his hair, put on the habiliments of a miller or a plasterer, and finally to sit from four to ten minutes without blinking or wincing in the blazing sunshine. Would not the effigies of a few of these first martyrs to our faith be treasured up as precious relics of the apostolic age of photography.

"Immediately succeeding this period, was the era of blue glass operating rooms, and the important discovery of the accelerating properties of bromine and chlorine applied to the Daguerreotype plates; and next, good news for those troubled with weak eyes, it was found possible to take portraits with the nose indicating due north.

"Bearing yet in mind that we are sketching the history of camera work, we have in the portrait line Daguerreotypes and a few Calotypes, strongly suggestive of a pen-and-ink study on blotting paper, and for landscapes, the aforesaid Daguerreotypes and some very fiery landscapes on paper, red buildings, red trees, red herbage, red everything, until the Great Exhibition of 1851, when two processes, alike and yet dissimilar, the advent of which had been announced by the display of specimens on glass, beautiful by comparison with the results of former labours, but the manipulation of which was carefully withheld, was then inaugurated. Since that period four separate processes have been in popular practice, with more or less success, and it is to the elimination of the peculiar advantages of these that our attention may be profitably directed.

"Placing the Daguerreotype aside, as already worked to its limits and now efféte, we have before us the calotype, wax paper, albumen, and collodion processes.

"As the chemistry of photography became more easily comprehended, the calotype, at first exceedingly operose, was much simplified in its manipulation, and its results more satisfactory; and soon the wax paper, with its superior keeping properties and assumed better definition became fashionable; but now, although there have lately been published some very elaborate papers treating on the use of these processes in the camera, we may safely say that paper, as a primary recipient of photographic images, has culminated. We, therefore, pass on to the consideration of albumen and collodion, taking the two processes as described in works on photography, reserving the consideration of development for a future occasion. Having thus discarded paper, we now place our sensitive surfaces on glass, and the media we employ must also be as translucent as the glass itself; thus, and thus only, can we guarantee that the positive impression on paper, &c., printed by a secondary process, shall be as perfect in definition as the negative itself.

"As albumen is the elder of the two, it demands our first consideration.

"On consulting 'Hunt's Treatise on Light,' we find that in 1848 M. Niépcé de St. Victor published his process on albuminized glass plates, which process, with various modifications, although essentially the same, has been followed out by Malone, Mayall, Negretti, Ferrier, &c. We close this, the historic period of the albumen processes, by quoting from the *Athenæum*, No. 1,220, as follows:—'Success is sure to attend any one practising this method, provided the eggs are fresh, and the glass is clean Caution! Wash all the vessels as soon as done with nitric acid, and then with water; every precaution should be used to avoid dust. "The albumen of a duck's egg is more sensitive than that of a hen, and from an experiment of to-day, I am almost certain that of a goose is more sensitive than either.'

"I may also quote from Hunt, for the comfort of Whipple and others, a passage evidently written at least four years ago, pp. 282, sec. 4, *Miscellaneous modified processes* (immediately following the goose's egg):—'Several other preparations have been employed with variable success, and recommended for procuring an absorbent film upon glass plates, among others *serum* of milk has been used by M. Blanquart Everard (bearing a resemblance to Mr. Sutton's recent paper process). Others combine with the albumen grape sugar or honey (alas! poor Whipple); the object of these being to quicken the process, which they appear to do, in virtue of their power of precipitating metals from their solutions.

"Far be it from any truth-loving photographer to deny the merits of albumen pictures; we need only point to the multitude of superb transparent stereoscopic views now in circulation as evidences of the beauty and utility of the process. It would be superfluous to give all the variations in albuminizing the plates, whether the non-metallic excitants have been dissolved in the liquid albumen, either with or without honey, or afterwards applied in the form of vapour, or as a spirituous solution, or as in the latest and possibly the best formula, the first and second combined, as is now the practice in the Eternal City.

"The collodion process has had a rapid and very varied success. From the first it divided itself into positives and negatives. It falls more within the scope of the present paper to pass by the positive variation, merely linking it with the daguerreotype, which it imperfectly rivals, and we then have to deal with, on the one hand albumen, and on the other, collodion negatives.

"The various formulæ for sensitizing collodion are as numerous as the operators themselves, each one having a pet fancy of his own; and should a brother "photo" venture to hint at any alteration as advantageous, his interference would be esteemed as a novel instance of teaching your grandmother; and as to touch his silver bath by the introduction of a plate coated with strange collodion, you might as well touch the apple of his eye.

"The albumen and collodion plates agree almost identically in sensitizing, both requiring a nitrate of silver bath; but they differ in their after-treatment, the albumen being used either wet or dry, and in the latter state retaining its sensibility for several weeks; the collodion, on the contrary, must, if worked by the ordinary process, be used in the first few minutes from its excitation. Very many have been the attempts to accelerate the working of the albumen, so as to rival the collodion in rapidity, without imparing its keeping qualities, and *vice versa* to impart to the collodion the stability of the albumen without sacrificing speed. Success has been fully attained by the votaries of gun cotton, by several different processes.

"Maxwell Lyte has so accelerated the process that instantaneous negatives of moving objects may, under favourable circumstances, be obtained more than an hour after the preparation of the plate, specimens of which I have had the honour to lay before you

"Several methods of preserving the collodionized plates for lengthened periods have from time to time been published, commencing with Messrs. Spiller and Crookes, with nitrate of zinc, then nitrate of magnesia; and again Messrs Shadbolt and Lyte with honey; later yet by Dr. Taupenot by the super-addition of an iodized albumen solution to the already excited collodion plate, and finally finished by another dip in the silver bath and washed with distilled water, after which the plates may be used wet or dry. Upon this process Mr. Mayall nearly stumbled with his dry collodion. Latest of all the use of distilled glycerine has been recommended by Mr. Llewellyn. I had, as far back as September, 1852, used glycerine prepared from the residual liquor in the process of making diachylon plaster of the pharmacopœia. I abandoned the trial, perhaps too hastily, as I found the glycerine decomposed the silver bath. This Mr. Llewellyn confesses it does, although so slowly that it does not interfere with the success of the process. Glucose also does the same, but more slowly; and to this decomposition may be attributed the gradual deterioration of the honied plates.

"A slight examination of M. Taupenot's process may be advisable, and I am only sorry that I have had no time to test, by experiment, the points I lay before you.

"Some considerable time ago I asserted my belief that the extreme sensibility of the collodion process did not arise from any subtle combinations of the alcohol and æther with the silver compounds used, but that it was due to the perfectly infinitessimal division of the particles I appeal to the last October number of the *London Photographic Journal*, page 237, where we find M. Humbert de Molard employed a layer of iodized paste instead of collodion, and upon which he placed M. Taupenot's albumen, and obtained a result as rapid as before when collodion was employed.

"We may be well assured that M. Taupenot's albumen, if employed alone on the bare glass plate, would be no more sensitive than the other albumen processes. I believe the foregoing fully substantiates the assertion I made, and which at the time excited much opposition.

"The employment of albumen in conjunction with collodion is, after all, only a variation of Shadbolt's or Lyte's processes; the albumen, in fact, representing the honey solution, and like it intimately combining with the pulpy substance of the excited collodion. It however differs from the honey in being coagulated by the silver bath, and is thus rendered insoluble, especially by the action of the second silver bath. Another advantage consists in the coating becoming dry and hard, unlike the dust collecting surface of the honied plates.

"The most prominent disadvantages are its operose details of manipulation, slow development, and, as has been alleged, the constant and rapid decomposition of the silver bath.

"Enough has however been shewn to warrant any one to make a fair and unbiassed trial of the process, for assuredly it is one of those that will produce good results in 1856."

A vote of thanks was accorded to Mr. Berry for his paper.

In reply to a member, Mr. Berry said he was still pursuing his experiments with regard to the formation of a stereoscopic camera, and although there were some serious difficulties in the way, he hoped to be able to overcome them.

Mr. Fitt read the following paper "*On Positive Printing:*"—

"The subject of my paper to-night is one of immense importance to the photographer and to the public; and I fear the short notice I had for preparation, and the little time I can give for preparing, will allow me to give but a very meagre outline even of that portion of the subject of positive printing which I purpose touching upon this evening.

"Positive printing is, I need hardly say, the method by which the photographer makes his labours available for the gratification of his friends, and the community at large. From this very fact it is evidently of the highest importance, as regards the interests of the art, that this branch of it should be well understood, properly based on scientific foundations, and last, but not least, ably practised. On it must necessarily depend the reputation, and consequently the fate, of photography, as a branch of and aid to the fine arts. The fate of negatives is known only to the photographer; the public do not see them; some who purchase a positive print do not dream of the existence of its negative counterpart. If negatives lasted only long enough to yield a certain number of copies, and ultimately faded, that fact taken alone would to my mind be of little moment; but if the result of our labours become the property of others, and then fail, the art by which they are produced suffers as a necessary consequence.

"Were photography confined to the practice of the daguerreotype, what would become of its value as a means of illustration? we could not avail ourselves of its marvellous truthfulness to illustrate our books and our portfolios: the camera would have to be employed for each separate proof: whereas, with our present means, a good negative may be the parent of thousands of beautiful resemblances. Mr. Sutton in the last number of the *London Photographic Journal*, says he has just seen 250 copies struck off in a single frame, in the space of one hour and fifty minutes.

"With so powerful an aid to our photographic work in the field, shall we be negligent in our use of it, or treat with indifference or discredit the complaints which have reached us from all corners of the land, that our works are not permanent? Surely not. Mr. Hunt repeats, in the same place as I have just mentioned, his conviction that it is the fault of the photographer, and not of the art, if his works are not as permanent as anything that has been or can be produced for the gratification of the human intellect. This is entirely my own opinion, frequently and long since expressed to all my photographic friends, in the teeth of many assertions confidently made to the contrary. While far from denying that some methods of printing resist the destructive agency of certain re-agents on their results more perfectly than others, I am still fain to assert, that all are capable of giving permanent results if properly used. I have now prints from good negatives on plain paper, and on albuminized, on French and on English paper, by sun-printing and by development, and which have been kept, some in the light and some in the dark, some mounted and some unmounted, for just two years, and all are as good as on the day they were first printed, and many have been circulated about among friends, and some among purchasers, and I have not seen or heard of one which has faded or changed in the smallest degree. If you ask the reason of what I fear is an unusually successful result, I will answer, it is that I have taken every precaution in all stages of the process to remove every trace of silver and of hypo from the papers.

"In the first place, what is the essential nature of the process for obtaining a copy of an object by superposition, by the action of the sun's rays on a sensitive surface, without after development? We require a paper which shall contain chloride of silver in combination with free nitrate of silver. This we obtain by applying first a solution of a soluble chloride to the paper, and next a solution of nitrate of silver, more than sufficiently strong to decompose the chloride. It is the various organic matters which are combined with these which give variety of tone and of surface to the proofs; but the principle of all these modifications is the same, whether albumen, whey, gum, sugar, gelatine, or other material be used as auxiliaries. The paper being rendered sensitive to light, is placed beneath the object to be copied, and in close contact with it; the sun's rays are then allowed to act on the paper, passing through the transparent portions of the object, and being obstructed by its opaque parts, and giving a representation of that object with reversed light and shadow, on the sensitive surface of the paper beneath. When the light has acted sufficiently, we remove the sensitive paper now impressed with a vivid picture, and it must be our first care to prevent the portions left unblackened from being now darkened by the light: these light portions contain the same sensitive material as at first, and we therefore apply ourselves to remove it. This must be done by finding an agent which will dissolve the unreduced silver, but leave untouched that portion which forms the picture. Water will do this to a certain extent, it will remove the soluble nitrate of silver, and this is a great point gained, and one of vital importance in printing: for as we can dissolve out the nitrate unchanged, we have the double advantage of saving it, and of leaving only about one-fourth of the silver to be dissolved by, and to saturate, and consequently to injure the fixing properties of the hyposulphite solution. After the nitrate of silver is dissolved by the water there still remains the unaltered chloride, and to remove this hyposulphite of soda is employed, that salt having the property of dissolving the salts of silver with great readiness, at the same time that it leaves the reduced silver of the proof untouched.

When the hyposulphite solution has done its work, the print is fixed, that is, it contains no substance capable of being affected by luminous agency; all that remains to be done is to remove the hyposulphite from the proof by several washings, and then to dry. How simple this all is, the novice will exclaim; where are the difficulties of photographic printing? But stay, let us look at our print; we were very well pleased with its tint when it came from the printing frame, but alas! the rich violet has given place to a dull brick-red rusty colour, and our print is for that reason valueless.

"'*Hinc illæ lachrymæ*,' were it not for this the path of the photographer would be a smooth one, but at this point his difficulties begin. He must find out a method of imparting an agreeable tone to his print ere it will be a fit object for the criticism even of too indulgent friends. To obtain the requisite change of colour, some change, and that an important one, must be wrought in the picture; either a deposit of metallic gold must be made upon it, or the requisite tints must be obtained by the action of certain sulphur compounds in the hypo bath. According to some the former is the only safe plan, and it certainly seems feasible that a coating of metallic gold, a most permanent metal, should increase the durability of any substance to which it is applied. Mr. Hardwich, however, in his last paper, read at the February meeting of the London Photographic Society, considerably modifies the assertions which have been made as to the infallible protective agency of gold-coloured proofs. When we depend on the preservative agency of a coating of gold on the proof, we must not forget that any deleterious gases may enter the paper at the back as well as on the front, and moreover, that the coating of gold is by far the deepest where the silver is thickest in the print, namely, in the dark parts, and that the amount of the precious metal covering the lighter shades of the picture is very small, and that its protective agency must be equally so. For my own part, I believe that the superiority, if any, of the prints coloured with gold in any form, is due not so much to any protecting action of gold, as to the fact that the process of sulphuration has not been, and need not be, carried so far if gold be used to obtain the required black tint. I do not now attempt to go far into the question of the exact nature and composition of the coloured surface in the different cases; I believe that a hypo bath in warm weather, and in a warm situation, will give in a few minutes a perfectly yellow picture, without having first produced the rich purples and blacks which may be ordinarily obtained, and I know also that with a freshly prepared bath of hyposulphite of soda and chloride of gold, the proofs may be left in for days without the purity of white and black being injured, or in the least affected.

"Here are two important facts which may be of great use to those who have time and convenience for experimenting. A photographic friend of mine in Norwich kept his hypo bath last summer in his glass room, where the temperature was often 75° to 80°, and never less than 70° for days together. This bath would get turbid and deposit sulphur, and make the proofs the colour of hay in fifteen or twenty minutes, and I have often watched them to see if they first became black, but they always appeared to pass from the first red tint to the green-yellow without any of the rich tints obtainable in the usual way. My own baths, kept in a cool cellar, would, at the same time of the year, give a pure black and white in three to five hours, sometimes longer, and if I left the proofs in for thirty hours they would become green, but not to the same extent even then as in my friend's bath. Now I think from these facts, which I can vouch for, we may draw some useful deductions, and conclude that the different colours of our pictures are produced by different compounds, probably of sulphur and silver; that a bath which will give a good black proof does not necessarily or generally contain the elements essential to the yellowing process, and that we may and do have a certain state of bath which forms the green-yellow compound in the proofs, and which will not in any case form the black pictures.

"This is a theory of my own; I am at present content to give it thus roughly, and to support it by such naked facts as I have to advance, for it is only by so doing that we can aid each other and further the cause of photography.

"I think that a close observance of facts such as these will tend greatly to clear up the doubts which now hang over the subject of positive printing.

"I have seen so much of the action of hypo baths that I think I can judge of their effects with tolerable certainty, and I therefore give you this hypothesis with some confidence, hoping that some one among you will follow out the track. I am certain that Mr. Hunt is correct in his observations made at the last meeting of the London Photographic Society; and I have also the feeling that the material of which our proofs are composed is, by nature, as durable as any *matter* can be. What can be a more durable material than silver? as far at least as injury from atmospheric influence is concerned; or if our pictures be in reality composed of sulphuret of silver, is that a very changeable compound? Certainly not. The metallic sulphurets generally are a very stable class of salts. Look into any museum and satisfy yourselves of this. There are specimens of the native sulphurets of iron, copper, lead, silver, tin, zinc, and many others, both alone and in combination with other substances, and their lustre, and form, and colour remain the same under all circumstances.

"There may be, however, great grounds for questioning whether sulphuret of silver is ever an important component of our pictures. I exhibit two prints here to-night, one coloured in a solution of *sel d'or*, and the other in a hyposulphite toning bath, prepared with chloride of gold, and I can perceive no difference of tint, and any person would say they were prepared entirely by the same process; and the iodine baths, prepared by Mr. Hardwick's formula, gives results frequently so like the gold baths, that it is an impossibility to pronounce which formula had been employed in any given case.

"Having made these observations of a general character, I will proceed to give a sketch of one or two practical points. In my previous remarks I have not laboured so much to establish any favourite theory, as to throw out a few hints of a general character, and to indicate where inquiry is needed, where our observations may be most usefully directed to elucidate knotty points, and to displace the opprobium which has rested on our labours, but which is, I am sure, being fast removed as pains are taken to exalt photography above the number of mechanical arts, and to place it in the ranks of scientific pursuit.

"In my remarks on the practical details of printing I will try to point out the advantages of a method which I have followed for some months, and which I believe, as far as permanency, artistic effect, and simplicity are concerned, will be found a most available process for the photographer.

"There is one gentleman whose exertions on behalf of photography entitle him to much praise and to our best thanks, though he holds some opinions to which we may not subscribe: I mean Mr. Sutton; and there is one point particularly in which I agree with him, which is, that there is an obtrusiveness and vulgarity about albuminized paper that defies our efforts to remove. I do not like the *glaze* or varnish of the surface, and I find Mr. Shadbolt and other photographers agreeing at length upon this point. I cannot think the public prefer albuminized prints, for it is quite possible and easy to produce those which shall have all the vigour and transparency of albumen without a varnished surface, and unquestionably the varnish, of whatever it may consist, is detrimental to artistic effect.

"To remedy this defect we must find some substance which will give a certain surface to the paper, but yet no glaze. Mr. Shadbolt tells us that gum tragacanth is good for this purpose. I have as yet had no opportunity of trying it, and cannot therefore give my opinion. Some substance of the kind I have found to be necessary, for when I have tried to print on paper simply salted with an aqueous solution of chloride, I have almost always found the proof sunk in the paper after drying. Having always used whey for my iodizing solution, and being familiar with it, I tried the effect of using this liquid for dissolving the chlorides and forming a salting solution: my success was greater than I had hoped for, and in consequence last summer I determined to adopt whey salting solution exclusively, in spite of being much laughed at by my brother photographers for leaving albumen. Every time I print a photograph on the whey paper I am more pleased with it; it certainly seems to close up the porous surface of the paper, and to give finer definition from the same negative than albumen; the finest tints may be obtained with it, and any colouring process may be employed. Its only disadvantage is that it forms a less sensitive paper than simple water and chloride, especially in a bad light such as we have had this winter; in the spring and summer the difference is much less; I cannot account for this, but it is a fact.

"The following then is the printing process I adopt and recommend:—

"Make the whey in the same manner which I described in my paper in the *Journal* for January; then take of the clear whey 8 oz., chlorides of ammonium and barium, of each 1 drachm. Dissolve.

"This may be applied either by floating or by Buckle's brush. I prefer the latter, as we cannot have a positive too much on the surface. I like the solution brushed over and the paper quickly dried. The paper will keep in this state for any length of time. It is made sensitive by floating on a solution of nitrate of silver of 30 or 35 grains to the ounce, or a 50 grain solution may be put on by a glass rod, but floating is infinitely better in this part of the process. Thick Canson's paper will require three or four minutes to become silvered, but two minutes will be sufficient for thin paper.

"To prove how long the paper thus prepared will remain sensitive and good, I printed from a glass negative upon some which was made sensitive in Norwich, in the middle of October last, and accidentally left in a dark box which was sent to me about six weeks since. I printed a good copy on this paper between three and four months after it was made sensitive. Paper prepared with ammonio-nitrate of silver is spoiled in five or six hours in summer time, and can never be kept twenty-four hours.

"To the usual directions and practice of photographers, as to exposure in the printing frame, I have little or nothing to add. The depth to which the printing must be carried depends on the mode of colouring and fixing that is to be employed. I am in the habit of using a freshly prepared hypo bath, containing chloride of gold, which I believe amounts to the same as colouring in a bath of *sel d'or*. I exhibit here to-night two pictures, one coloured with *sel d'or* solution and a little hydro-chloric acid, the other in a hypo bath with chloride of gold. They have both been printed within the last fortnight, so you may judge of the capabilities of the process. I can discern *no* difference in tone between them, except that which will always exist between prints of different subjects. The "Norwich Cathedral, West Front," is wax-paper, from a negative exhibited at your January meeting; the other is from a collodion negative. I am quite certain that not even Mr. Sutton himself could say which of these two prints was coloured by his process, and which by the hypo bath, and were it not that I have named them for the purpose of illustrating the two processes, I should put it to the members to decide if they could. When our proof comes from the frame it is our duty, for the honour of photography, to treat it in a way to secure its permanency, and this we may do as follows:—the most important point is to assist the fixing action of the hyposulphite, and ensure its completeness by the perfect removal of the soluble silver salt from the print.

"My plan is to place the prints in water to soak for half an hour at least, in a dark place, or covered from the light; they are then drained and placed in another dish of water; at the end of the day these washings contain a large amount of nitrate of silver, which should be precipitated by salt at the end of the washing, and preserved in this way 60 per cent. at least of the silver used may be recovered.

"The prints when taken from the last water may then be placed in the hypo colouring bath, or if *sel d'or* solution be used they should be again washed, as Mr. Sutton directs, in water containing a little ammonia, and again in common water; this removes a further trace of nitrate of silver which would precipitate gold from the *sel d'or* solution, and it would be a useful precaution always to perform it even in using a toning bath of hypo, as we cannot be too particular in removing all the silver possible. If much be left in the print, a double salt of difficult solubility is formed in the paper on its first immersion in the colouring bath, and can scarcely ever be entirely removed by any amount of washing and soaking, and with this state of things permanency is of course out of the question. I have little doubt that if proofs coloured with *sel d'or* solution are more lasting, or have been found so, it is owing to the greater care which it has been thought requisite to employ in the preliminary washing.

"But I must go on with my process, for the prints are washed and waiting to go into the bath.

"Take of hyposulphite of soda 8 oz., water 24 to 28 oz. Dissolve. Then put 8 grains of chloride of gold, or less if an active bath is not immediately required, into 2 oz. of water, and *pour this into* the hypo solution, agitating the latter so as to mix thoroughly; next dissolve 10 grains of nitrate of silver in $\frac{1}{2}$ oz. of water, and into this put $\frac{1}{2}$ oz. of the hypo solution; a white precipitate of hyposulphite of silver is formed, which in a few moments changes from white to yellow, then brown, and nearly black; when this change is complete, pour the solution into the hypo bath, and the latter is complete and fit for use. I think the tone obtained is better after a few days, but the addition of the silver in the way I have described seems to be a great help to its immediate efficiency.

"The time occupied in fixing the picture will be a very few minutes, but the time allowed for colouration will depend much on the temperature; at this time of the year, if I warm the bath by setting the dish containing it near a stove, 20 minutes will suffice to give the tint of most of those I exhibit to-night; but if the temperature be low, 40° or under, the process may occupy some hours. A pure black and white tint, like an engraving, I obtain by a longer immersion than above mentioned, and the action of the bath may be much prolonged, even to 12 hours or over for this tone, as the proofs will not go further and no yellowness of whites need be feared. As the bath gets older, there is a slight tendency to yellowness manifested after long immersion, but when the prints are well washed when brought from the printing frame, the bath keeps in good condition for a very long time. I made one containing a quart of solution in the beginning of last November, and I exhibit some prints to-night coloured in it last week, and they have all the freshness of those done in a new bath.

"When the fixing and colouring is completed, it only remains to remove completely every trace of soluble material from the paper. On the proper performance of this duty, I may say, depends the ultimate fate of the picture. I have very lately seen prints executed by professional photographers fading rapidly in patches, and I have no doubt whatever that this results solely from carelessness in this important operation. The first object is to remove all the hypo from the surfaces of the paper. If the prints be put as they come from the bath into a pan of water and let soak there, they are only remaining, in fact, in a weak hypo bath, and taking more harm than good. They should first be washed in a running stream of water for some minutes, and if the whole washing can be done in a vessel where the water is running in and out constantly, so much the better; but if not, change the water they are soaked in as often as possible, and always wash well in fresh water the last thing before drying.

"A writer in the Journal of the London Photographic Society has well said, that if the soakings do any good, it is by removing hyposulphite from the paper, and consequently, if the paper be dried from a liquid of this kind, it must be dried while still containing a small portion of the hypo salt. Attention to these hints will, I am certain, ensure success.

"I like drying the prints in blotting paper, and then ironing them with a warm box iron. I then trim them, and place them between blotting paper in a pressure frame to flatten them perfectly. I mount them by merely gumming the edges, and there is thus less danger of their being injured by the cement. Some of those exhibited here to-night were, however, done in a hurry, and must not be taken as specimens of mounting.

"The specimens I have brought will, I hope, show that the plan I have described merits the praise I give it. I certainly think it gives proofs more vigorous than albumen, and more sharply refined, whilst the absence of varnish gives an artistic effect which albumen will never realise. I have been much gratified within the last few days, by the approval of these prints by many non-photographers, but who could discriminate between the glazed and the unglazed, much to the advantage of the latter; and it may be no small encouragement to photographers to try this process, when they hear that many of its admirers belong to the fairer sex, whose opinion, I think, in matters of taste is of much weight.

"Time will not now permit me to speak of printing by development, and I will, therefore, rest satisfied with having described my own plan of working. For the consolation, however, of those who prefer albuminized paper, I may state that the mode of proceeding after removal from the printing frame, which I have described, is equally applicable to the albumen; but owing to the hard and horn-like surface of the paper, great care must be taken in the washing, and longer time allowed for soaking. I exhibit a few prints on albuminized paper, coloured in the hpyo and chloride of gold bath I have given.

"In conclusion, I have made these remarks on 'Positive Printing' with an earnest wish that they may prove of service to the art and science which we meet here to cultivate and improve; and if gentlemen who differ from me, or question any point or theory I have advanced, will give us the benefit of their experience, I for one shall be most glad to profit by it, for I feel we have all very much to learn in the matter of positive printing, but however little we may know of our subject, let us use that knowledge well, and contribute each his share of permanent and artistic photographs to the general fund, and for the good of the science of photography."

The specimens exhibited in illustration of the systems described were among the most beautiful ever submitted to the Society. They were chiefly from street scenes in Norwich, one of them, Porch of the Norwich Grammar School, with a group of pupils and preceptors on the steps, being remarkable for fidelity and depth of tone. This was shewn as a specimen of whey salting solution, collodion, and fixed with hypo and chloride of gold.

The thanks of the members were cordially accorded to Mr. Fitt, who, after responding, produced an oil colour portrait, the outline of which had been projected on to the canvas by reflection from a camera, used as a magic lantern. A photograph was first taken of the person, put into a camera, and the image was then reflected from the camera on to the canvas.

Mr. B. Rowland detailed some interesting experiments made at a recent meeting of the Chemists' Association, in magnifying negatives of minute objects. The greatest difficulty, he observed, in the enlarging process, was the ribbiness of the collodion. When enlarged, the furrows and ribs were a serious detriment.

After some conversation, in the course of which the Chairman expressed a hope that Mr. Rowland would favour the Society with his experience, the meeting separated..

LONDON PHOTOGRAPHIC SOCIETY.

The annual general meeting of this Society was held on the 7th of February, 1856,—Sir Frederick Pollock, president, in the chair. The minutes of the preceding ordinary meeting of the 3rd of January, 1856, were read and confirmed.

The auditor's account was read and approved, and the secretary read the report, in which the state of the Society and its effect in inducing the establishment of "several societies newly formed in the principal towns in the kingdom," and also of that in Paris, were referred to, and good wishes expressed for the success of the latter society. The display of photography in the *Palais de l'Industrie*, as affording a rare opportunity of examining the progress which has been made, and the position which is held by the amateurs and artists of the various nations who were represented there, "was coupled with the opinion formed by the French of English proficiency in the art." "For every one who is not attacked with incurable cockneyism[*chauvinism*,]--for every one who knows how at the same time to see and to judge, if in some special branches, such as architecture and portraits, we have manifestly the upper hand, in others we must yield precedence, and especially in one of our most charming-paths, landscapes upon collodion." An apologetic allegation, "that till the removal of the late restrictions upon the practice of photographic portraiture, landscape was the only division of the art upon which the taste and energy of our artists could be brought fully into exercise," is followed by "the council is glad to recognise the evidence afforded by the exhibition of the present year in Pall Mall, that not only is the character of our photographic portraits showing promise of improvement, but that also attempts are being made, and with considerable success, to make the camera a rival to the painter's pencil in expressing the higher conceptions of artistic imagination. The council venture to express an opinion, that the persevering continuance of these efforts will, on the occurrence of any future great international exhibition, render it impossible for those who may be charged with its direction to place the works of photographers in the Palace of Industry instead of in that of the fine arts." This was followed by some remarks on the papers read at the proceedings of the Society, and their investigation of the methods of photographic printing, and the aid given by Prince Albert thereto. After a remark upon the endeavours on the part of French and German photographers to adopt the art to ordinary lithographic or copperplate printing, and the endeavours of the council to keep the photographers of this country to purely photographic purposes, a compliment was paid to Mr. Fox Talbot, as having originated these experiments in photographic engraving by his successes which appeared in the first exhibition of that Society. The report concludes with the announcement of the appointment of the Rev. J. R. Major, of King's College, to be the future secretary and editor of the *Journal* of the Society.

Mr. Fenton then introduced the Rev. J. R. Major, who made a short address, promising to devote his whole time and energies to the requirements of the Society.

Mr. Marshall then proposed, and Mr. Hunt seconded, a vote of thanks to Mr. Fenton for his honorary services. Mr. Fenton replied.

After the election of officers and council, the President delivered an address of some length, in which he advocated the abrogation of the seventh rule, under which some restriction existed as to the proposal of names of persons in competition with those presented at the recommendation of the council. This might be necessary in a young society, but could no longer be required. He congratulated the Society on the advance of photography, referred to the specimens taken in the Crimea by Messrs. Fenton and Robertson, and to the exhibition in Pall Mall East, and proposed to call photography not an art but *practical science.*

Mr. F. Hardwich then read a paper "*On the action of Sulphur upon Positive Prints,*" in which he showed that there was no effect produced by pure sulphuretted hydrogen gas, unless air were also present. The rapid deterioration which sulphuretted prints undergo when wetted, was therefore probably due to the action of air dissolved in water, rather than to the influence of moisture independent of oxygen. The change from black to yellow was facilitated by powerful oxydizers, such as chlorine, permanganate of potash, and chromic acid, and by bodies which dissolve oxide of silver, as alkaline cyanides in dilute solution, hyposulphites, acids, ammonia, &c. Potash, though a stronger alkali then ammonia, has not the same effect. He thought the notion that the fading was to be attributed to the gradual oxidation of the black sulphuret into pale sulphate of silver was erroneous, as the latter was soluble in water, which the faded photographs were not. He thought, on the other hand, that if the image could be obtained in pure sulphuret of silver, an advantage, in point of permanency would be gained. He had experimented, with a view to test the hypothesis of M. M. Davanne and Gerard,* but without any conclusive results. He thought the image of photographs on paper was formed by silver or sub-oxide of silver combined with organic matter. He thought he should be able to bring before the Society proofs of this at an early opportunity. The action of sulphur, he thought, was to combine with the silver, and the liberated organic matter took up oxygen, and the print faded from want of a sufficient quantity of silver in its state of sulphuret. He would show that faded and yellow photographs consisted solely of sulphuret of silver. He had taken out all appearance of an image by converting it into white chloride of silver, and redeveloped it by sulphuretted hydrogen, reproducing the yellow tint which is the characteristic of sulphuret of silver. He repeated his opinion that developed prints were superior to those printed by direct ex-

* Given in Vol 2, p. 139, and commented on by Mr. N. Mercer, p. 149.

posure to light. But they must be sufficiently developed, or they would be even less permanent than the latter. Moreover, the sensitive surface must be iodide of silver, which carried a greater amount of metal than bromide or chloride of silver. The inky tone objected to as resulting from the iodide of silver might, he thought, be obviated by some organic matter which would redden the reduced surface. Sir W. Newton had added serum of milk, containing *caseine*, with great advantage. But on applying hydrosulphate of ammonia to positives prepared by Sir W. Newton's other process, containing one grain of soluble bromide to the ounce of water, and also to that of Mr. Sutton containing serum, they are far more easily sulphuretted than those developed on iodide of silver. He did not perceive that albumen protected the prints from sulphurisation, though it protects them from oxidation more than was at first supposed. The use of gold was undoubtedly a protection to the print; it, however, could not render a sun-print equal to a developed positive. A coating of wax dissolved in æther is a partial protection, but the evaporation of the spirit leaves the film porous, and the sulphur is absorbed by degrees. His next paper would be upon the effects of chlorine, bi-chloride of mercury, and other substances of a destructive nature.

Sir W. Newton said that developed prints might be prevented fading by exposing them as little as possible to the light, and allowing longer time for developement. In such cases he believed they would never fade; he had substituted gelatine for whey, and found that made from ivory sawdust very superior: it gave strength to the paper.

Mr. Hunt said that the Photographic Society and the public were infinitely indebted to Mr. Hardwich for his researches; but he thought Mr. Hardwich was mistaken in supposing that the darkened surface was a sub-chloride of silver. It was silver in a metallic state, and on that ground he repeated an observation which he had made before, that a photograph, if properly prepared, need never fade. He had some presented to him years ago by Mr. Fox Talbot which was as good as when first given to him; he had others of his own which had lasted quite as long; others again which had been subjected to the saline atmosphere on the coast, the atmosphere of London, and other atmospheric influences, without change. He could not help adding that the conclusions to which he had come were precisely those of Scheele, who first directed special attention to the influence of the solar rays upon chloride of silver.

Mr. Malone thought that he was the first who stated that sulphur was a destructive element; but his experiments having been made upon sulphide of ammonium, he had not carried them sufficiently far to shew that sulphuretted hydrogen was alone sufficient to fade a picture—that he thought was due to Dr. Percy.

Dr. Percy had disclaimed it long since; the merit was not due to him.

A paper was then read by Mr. J. Maxwell Lyte on a new printing process devised to prevent all possible sulphuration, and to obviate the necessity of the use of gold. It proceeded on the principle of converting the sulphide of silver into chloride by *aqua regia*, and darkening the chloride of silver by gallic acid and potass. Take paper which has not been sized with gelatine, albumen or any animal preparation, (*papier saxe* is the best,) float the right side on a 5 per cent. solution of chloride of ammonium. When it has thoroughly imbibed, hang it up to dry; then float on a 20 per cent. nitrate bath, and after five minutes again dry. Print a little darker than usual; wash in plain water; then in salt and water; then place in a new bath of 25 per cent. hyposulphite of soda, to which 5-10ths per cent. of carbonate of soda has been added, for a quarter or half an hour.* Wash it well to remove the hyposulphite of soda, and while wet transfer it to a bath, 8 or 10 per cent. of *aqua regia* and water.† In this it will fade away almost entirely; it is then to be transferred to a bath of water, to which a morsel of carbonate of soda or a few drops of ammonia have been added. It is then developed in a bath composed of 2 or 3 drops of saturated solution of gallic acid in alcohol, and 1 drop *liquor potassæ* to the pint of

* In a communication to the French Photographic Society, Mr. Lyte says, a bath of ammonia, or a bath of ammonia and hyposulphite of soda, or a bath of hyposulphite and carbonate of soda. If the hyposulphite bath be used, it must be new—10 or 15 minutes will do.

† In the French communication:—

Water	10 pints.
Muriatic Acid	4 „
Nitric Acid	1 „

The effect is equally well produced if the print be placed in a weak solution of ammonia in water or of carbonate of soda and water—the latter is preferable.

[We presume this refers to the preceding bath, and not to a substitute for the *aqua regia*.—Ed. L. P. J.]

water,* mixed at the moment of using, and subsequently washed; after which it will be necessary to resize it—or, Mr. M. Lyte recommended in preference, wax dissolved in turpentine to the consistence of pomatum, to which alcohol is added in quantity half the bulk of turpentine used; rub this quickly over, and immediately polish with clean flannel. It will be requisite to renew the nitrate bath by adding a drachm of nitrate of silver in crystals for every sheet, or pieces equal in quantity to a sheet sensitized.

This process could be applied to positives taken by the negative process, and other methods of applying the principle might be found—as hypochlorous acid, formed by the addition of a strong acid to an alkaline hypochlorite; or the mixture of hypochlorous and chromic acids, or any compound which readily yields its chlorine would do equally well with *aqua regia*.

It does not appear whether the paper excited any discussion.

SOCIETE FRANCAISE DE PHOTOGRAPHIE.

The meeting took place on the 18th January. M. Regnault, President, in the chair. He announced the accession of several new members, and the presentation of a number of photographs by MM. Le Gray, Mestral, Bisson Freres, Durieu, Bayard, and Archer. Most of these prints had formed part of the Exhibition at the rooms of the Society.

M. Paul Perier read a letter from M. Marchal de Luneville relative to the collections of photographs which might be made by the exertions of the society: and said that this letter naturally connected itself with a proposition by M. Stephane Geoffray, which was supported by most of the members of that Society,—that a classified arrangement should be made upon cards of specimens of all interesting objects, artistic as well as scientific.

The President said that one of the most pleasing duties which devolved upon that meeting was forming such collections. M. Louis Rousseau had already spontaneously undertaken one department, and the number of photographs which he had taken at the museum and presented to the Academie des Sciences, and to that Society, formed the nucleus of a collection most curious and interesting.

The letter of M. Marchal was referred to the committee of administration.

The order of the day called for a communication from M. Moitessier upon printing of positives, but M. Humbert de Molard, who was entrusted with presenting it, said that as the author had recently entirely altered the process which was to have been read to that meeting, it would be better to wait till he had completed his experiment, and was able to present to the society a perfected process.

M. Lacombe sent two prints, one in its natural state, the other varnished with a two per cent. solution of gum dammar in rectified spirits of turpentine, filtered. This was put on with a brush after sizing the print with white soap, Flanders size, and alum, about an ounce of each in a pint and three quarters of water; care must be taken to get the gum dammar pure.

M. Paul Perrier read a letter from Mr. Maxwell Lyte on a new method of printing positives, which is that read before the London Society, except in some details, which we have given in foot notes.

M. Durieu observed that the specimens sent by Mr. Lyte in illustration of his process were not sufficiently complete to enable them to form an opinion of it; he thought, therefore, that it would be well if one of the members would investigate it. The President appointed MM. Davanne and Girard for that purpose.

M. Durieu then read a letter from M. Poitevin to the Society, relative to a letter appearing in his name in *La Lumiere*, which he said according to his wishes should have had only the aim to establish his own position with regard to M. Emile Rousseau, and not that of criticising a Society which had occupied itself in examining and publishing every useful experiment. He did not hesitate to thank the Society for their communication to him on the proofs of his new process, and he begged the continuance of their well meant and efficient support. M. Durieu said from this letter it was clearly implied that the letter in *La Lumiere* was not written by M. Poitevin, and that it resulted from the habitual disposition of that Journal to attack the photographic Society. The process of M. Poitevin was

* In the French, equal quantities of saturated solution of gallic acid and *liquor potassæ*—5-10ths of a part of each to 250 parts of water, while in this bath it should be shaken about, and may be exposed to the light, which appears to accelerate the operation: the bath will become brown rapidly as the print blackens. The process is applicable for strengthening negatives on paper or on collodion. Treating them alternately by this process and gallic acid as had been pointed out by M. M. Barreswill and Davanne any degree of intensity might be obtained.

brought forward in the same sitting, and referred to the same commissions as that of MM. Rousseau and Musson. The President added that the attack upon the Society was quite incomprehensible. The Society had not taken part with any person. They had examined the processes communicated to them with the greatest impartiality. M. Emile Rousseau in presenting some additional observations on the process he had communicated with M. Musson, said that he had believed it his duty to reply to the letter in *La Lumiere*, but he felt satisfied that the discussion between him and M. Poitevin had arisen from a misunderstanding, for there was a complete difference between the two processes.

M. Paul Perier presented, in the name of an amateur, under the auspices of M. Caron, an apparatus for using collodionized plates without touching them with the fingers.

M. Girard read a letter from Mr. Archer relative to his patent for the use of gutta percha, but said that as the process had appeared in the *Bulletin* of the previous month he need not trouble the members with the details.

M. Durieu feared that the use of gutta percha would be difficult, and that in the printing frame, under the intense heat of the sun, it was doubtful whether the gutta percha would not soften, adhere to the glass, or be destroyed altogether.*

M. Durieu concluded the sitting by reading the second part of the report of the commission appointed to examine the works and apparatus exhibited in the rooms of the Society.

REPORT ON THE EXHIBITION IN THE ROOMS OF THE FRENCH SOCIETY.

A committee or commission consisting of M. M. Regnault, president, Leon de Laborde, Balard, Peligot, all members of the institute, Philippe Rousseau, an artist, and M. Durieu, was appointed to examine the productions exhibited in the rooms of the *Société Francais de Photographie*, from the 1st of August till the 15th of November, 1855. The first part of their report drawn, up by M. Durieu, has been published in the *Bulletin* for February. The second part is promised for the next number of that Journal. After a general expression of satisfaction at the results, and a declaration of the principles of strict impartiality with which each work should be assigned to its just relative position, their attention is first drawn to a specimen of the earliest efforts of M. Nicephore Niépcé to produce engravings on copper, by the action of light. This leads to a notice of M. Daguerre, one of whose plates was also exhibited; and a plate by Hubert, one of the most fervent of Daguerre's apostles. A well-merited compliment is then paid to Mr. Fox Talbot for having opened the vast field to photographic efforts, by his discovery of the latent image, the development, and the power of infinite reproduction by the process of printing, and a comparison is drawn between the earliest productions, then so admired but now so defective, so obscure and scarcely visible, and the splendid views of Greece, with which M. le Baron Gros had enriched the exhibition. Doubtless the latter period had been greatly benefited by M. Fizeau's discovery for fixing proofs with chloride of gold, and the employment of accelerators; while M. Claudet had the glory of giving the process considerable improvement, and novel facilities. Justice is done to M. Bayard's efforts, contemporary with the earliest communications of M. Daguerre, his want of reputation being the result of modesty, and not any wish to conceal his discoveries from the world. At the present moment he was known as one of the most universal as well as successful practitioners of all the processes which had been brought forward, and he was the first to display a positive photograph on paper, taken in the camera. The productions as well as the scientific exertions of M. Humbert de Molard, are pointed out with high encomium; and a passing compliment to M. Blanquart Evrard, for popularising photography on paper in France. M. Le Gray and Mr. Archer, for their discoveries, are then mentioned; and lastly M. Taupenot, as having contributed to photographic art.

After some further general observations on the relative claims of discoverers, and a regret that the paper makers have not sent specimens for examination, as they cannot but feel, notwithstanding the peculiar advantages of collodion and albumen, paper had the advantage in convenience and safety for photographers travelling, and especially on a long excursion: they proceed to details, and mention, as the best operators on paper, M. le Comte Aguado, M. Le Gray, M. Gaillard, M. le Vicomte Vigier, M. Mestral, M. Davanne, and others. On albumen, M. M. Bayard, Fortier, Renard, Ferrier, Humbert de Molard, Eugene Constant, Soulier, and Clouzart, take the lead. On col-

* Mr. Archer has stated that these fears were without foundation.

lodion M. Le Gray is said to be as equal to any operator on that material, and in the second rank are M. M. Bayard, Bardulong, Belloc, Beranger, Bernard of Florence, Bertsch, Aguado, L. Tripier, &c., and special notice is made of M. M. Bisson Freres. On dry collodion the honours are divided between Mr. Maxwell Lyte and M. Taupenot.

The application of photography then is referred to, as generally being directed to producing artistic effects. M. Rousseau is honourably distinguished as devoting his efforts to scientific objects. M. Bertsch, also, for producing enlarged microscopic details. M. Braun has reproduced the form of flowers for the use of manufacturers, but with so much beauty that photography itself vies with its utilitarian purpose.

Photochromy then receives the attention of the committee, in connection with the names of M. Testud de Beauregard, who gave the name, M. Edmond Becquerel, and M. Niépcé de St. Victor. The two latter had shewn that the colours of the spectrum could be obtained on a Daguerreotype plate, but they could not fix them. "The process of M. Testud de Beauregard was quite different. He did not produce the colour in the camera, but in the printing from collodion negatives, and the colours were produced in the printing frame by the direct influence of the light. The prints were not perfect. M. T. de Beauregard obtained on the same leaf, and by the same luminous impression, different colours; but they did not show sufficiently all the natural variations, with the graduation of the tints, the contrasts, and the harmonies of the real colour of the object. We conclude nothing against the process of M. Testud de Beauregard; it is in the course of study—and a study highly curious and interesting. It is an opening of a path which, carefully explored, may conduct to most complete results, and perhaps to a definite solution of the problem of colour. In any case, it is an important service which M. T. de Beauregard has rendered to photography; it enables us to obtain prints with a beautiful effect, without any salt of silver. This economy is a real progres. Such as they are, the prints exhibited by M. Testud de Beauregard deserve the attention of the *savants* and the photographers."

The process of applying photography to porcelain, by M. Lafon de Camarsac is then adverted to: and the reproductions of drawings and engravings are then examined, and some of them highly praised. Some photographs from plaster casts are also commended; and the artistic photographs are preceded by some general observations on the powers of photography, and what should be the aim of photographers who look merely to artistic productions; insisting on an endeavour to emulate the sentiments excited by the scene, instead of the reproduction of mere details with delicacy and precision. A number of photographs are criticised on this principle. This part of the report concludes with an examination of the progress of photographic engraving, which the commission do not think has made much advance since M. Nicephore Niépcé produced the portrait of the Cardinal d' Amboise.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—In your Journal for June, 1855, page 76, you observe, "One of the difficulties in using collodion has hitherto been found in hot climates, in consequence of the film drying before the photographs could be taken. Whether this may be obviated by Mr. Shadbolt's process we cannot say without experimenting."

I beg to observe that I have had sensitive plates by me for six weeks before exposure in the camera, during which time the thermometer varied from 55° to 90° in the room in which they were kept. The day on which I exposed one of them was very hot indeed. I did not observe the temperature of the room, but in the sunshine, where the camera was placed, the mercury was 138°. and I have had very good negatives in this way. In fact I make fewer failures than when using collodion by the wet process. Thanks to Mr. Shadbolt for his process, although I vary from it a little, thus: when taken from the nitrate bath I drain it half a minute, then plunge it in the common spring water which is supplied to this city, leaving it to soak for five or six minutes, lifting it up and down two or three times; after draining half a minute again, I pour on the honey and water (half and half) two or three times; this I do rather quickly; then stand it up to drain. The exposure, if kept long, is four or five times longer than for fresh plates. Before developing I soak it in clean water again for twenty minutes. Then proceed as usual. You will perceive that the difference is in always using common water, and never using on any account, the same water twice. I have tried fresh collodion plates, that have been washed in the same way, and have always found more uniformity in the result, than when placed in the camera direct from the nitrate bath; but it lengthens the exposure some three or four times. I iodize the collodion as follows: 5 grains iodide potassium, 1 grain bromide ditto, 2 drams alcohol 50° over proof, 6 drams thin collodion; nitrate bath 30 grain solution, kept free from acid, by carbonate of lime being kept in the filter; so that whenever it is filtered, any acetic acid found in the bath is discharged. Develope 1 grain pyrogallic acid, 20 minims glacial acetic acid, with the above formula. I can get negatives that will print in strong sunshine in five or ten minutes, or bear an hour's exposure without detriment. For positives I use the same collodion, and develope with proto-nitrate of iron. The exposure in the sunshine is so very quick that I am obliged to use a 1-inch diaphragm, the lens is a double combination 3¾-inches diameter, 16-inch focus. With this diaphragm and the collodion one day old, I can scarcely get the cap off and on quick enough: three seconds is sufficient on a dull day. In damp weather I seldom practise it, because I find that collodion is as sensitive to the commodity of the atmosphere as it is to light. Should you deem this worthy of insertion, and would not object, I would feel great pleasure in communicating the calotype process I find best suited to hot climates.

I am, Sir,
Your most obedient servant,
H. HAYDON.

New South Wales.

P.S. With the above collodion, I have removed a picture on to a fresh collodion plate by the aid of moonlight in fifteen minutes, and have had a very vigorous picture, and have also done the same with the light of a single stearine candle. H. H.

[We shall be glad to hear again from our correspondent.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—In your January number, page 14, it is mentioned that Cutting's albumen process is considered superior to Whipple's in America, and the details are stated to have been given in the first number of the current volume of *Humphrey's Journal.* Could you convenieutly obtain an extract? I have no doubt it would be highly esteemed by many of your readers as well as myself.—Your most obedient servant, J. B.

[Cutting's patent is for a collodion process to which camphor is added.—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I have tried Mr. Atkinson's method of using honey with collodion plates, as described in your January number, and so far find it answer exceedingly well. I should be glad to kuow whether the honey which has been poured on and off the plate may be poured back iuto the bottle whence it came? If so, it must certainly acquire a portion of nitrate of silver from each plate—an addition which seems likely to have some effect upon the honey solution, but whether injurious or not Mr. A.'s experience will best enable him to tell. I have been induced to trouble you from observing that my syrup has, during the last few days, acquired a very dark tint, which I infer is produced by the presence of nitrate of silver added as above described.

2. As to Mr. Lyte's developing solution made from grape sugar, described in your November number, having no saccharometer I proceeded as follows, by guess:—To about four ounces of water I added nearly two ounces of honey almost solid, then added lime, let the solution "stand several days," then added "sulphuric acid," &c., as directed by Mr. Lyte. As the result, however, I did not get a "colourless" solution, nor one that seemed to possess in the slightest degree any "developing" qualities. Cau you point out the cause of my failure?—Yours, &c.

E. EGERTON.

Bolton, Feb. 18th, 1856.

[1. It is of no consequence. 2. Mr. M. Lyte says, "transparent, but more or less brown."—Ed. L. P. J.]

To the Editor of the Liverpool Photographic Journal.

My Dear Sir,—I am very glad to hear that the "honey and albumen process," under certain modifications, as those suggested by Mr. Corey in his letter to the Editor of the *Liverpool Photographic Journal* of February, is giving so much satisfaction to the Liverpool photographers, and as I have been favoured with sundry details in its manipulation by gentlemen who have devoted considerable time to the process, I have much pleasure in communicating the same, as they may be of considerable service to you and your friends. First of all, in reference to a letter from Mr. Ross, of New York, in your Journal for January, I am informed that the process in question is not patented.

The great difficulty experienced by all who have tried this process in England appears to be, cracking of the film after or during immersion in the nitrate bath. Mr. Corey suggests less honey and a reduction of the chemicals. As, however, the first plates I tried with the original formula turned out all right, I am inclined to believe that climate makes no difference in this case, but that the real causes are, as suggested by those who have long worked the process and experienced similar misfortunes, either too great *carelessness in drying the plate* over the lamp, or *too little acid in the bath.* If the plates are dried too rapidly the coating becomes positively "cooked." Five or six applications of the lamp aro sufficient; the heat must be applied till the coating cannot be *rubbed off* by the finger. Experience proves that acid must constantly be added to the bath. One bath, containing two gallons, has frequently received the addition of sixteen ounces of ordinary acetic acid to correct this fault. It is important that the plates should be excited as soon as dry, and if well washed they will keep for a month. As soon as fermentation commences in the albumen honey solution is worthless.

The following is an excellent and rapid developer:—2 drachms gallic acid, 2 ounces of alcohol, 2 ounces of water, and two or three drops of acetic acid.

This can only be used in developing dry plates. In very bright weather, with a single lens, 14 inch focus, ¼ inch aperture, pictures, in which clouds are distinctly visible, have been taken by this process in thirty seconds. Does not this combine the advantages of all the other processes together? Easy and rapid manipulation, and excellent keeping qualifications, with the sensibility of collodion. Some of the finest specimens of our art exhibited in the London Exhibition are printed from collodion negatives exposed from five to ten minutes. I hope that the productions of the ensuiug season will place this process in that high position to which it is entitled, and I only regret that I can myself devote but little time to our fascinating art.—Believe me, yours truly,

THOS. W. STANSFELD.

Leeds, 3rd March, 1856.

ANSWERS TO CORRESPONDENTS.

Wilmot Holt.—15 grs. protosulphate of iron, 10 drops of acetic acid and one drop of uitric to the ounce of water, for positivés; for negatives, see Mr Haydon's letter. 2. Ten grains on the average. 3. To preserve the sensibility of the plates for some length of time.

George Thomson.—Our correspondent has succeeded fully in his object, and has produced a very pleasing transparent positive.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

VOL. III. No. 28.—APRIL 12, 1856.

We are overpressed with matter this month. The last meeting of the Liverpool Society was occupied in a discussion on positive printing and the causes of fading, of which we have received no report. These subjects still preserve their painful interest, for nothing very positive has been decided about them at present. The discussion at the London Society would appear to reopen the whole question, no one appearing satisfied upon what is undoubtedly the foundation of the enquiry, viz. the nature of the substance forming the print. Mr. Hardwich says he can tell us, and that he will; but for his solution of the question we must wait. In the meantime the power of reproducing photography in typographic and lithographic inks which will not change, appears to have been attained by means of gelatine and bichromate of potass. The honours of discovering this process, which is connected with processes for photolithography, photochalybeography, helioplastic photography, and galvano-photography, are disputed between M. Poitevin and M.M. Rousseau and Musson. Their claims have been referred to a committee of the French society. Pretsch, formerly belonging to the Imperial printing-office of Vienna, also appears to lay claim to the discovery, and has taken out a patent and formed a company to work it, which has an establishment at Holloway.

At the moment of going to press, we have received a mass of valuable matter, the greater part of which we are compelled to postpone till next month.

We have received the following notice of an Exhibition of Photographs at Manchester:—"The first annual exhibition will take place at the Fine Art Gallery, Bridge-street, on the 1st May. The following conditions must be observed by parties intending to exhibit: 1. All contributions must be sent before the 19th of April. 2. Each work must be accompanied with a descriptive label, stating the subject, name and residence of the artist, also the price if intended for sale. 3. All expenses of carriage to Manchester will be defrayed for those to whom this circular may be addressed. Contributions from London and its neighbourhood, to be forwarded to Messrs. Ackermann and Co., Strand. 4. Arrangements will be made for facilitating the sale of photographs, and a charge of 10 per cent. will be made upon all sales effected. 5. It is not necessary that each contribution should be framed or glazed, as arrangements will be made to protect such under glass. 6. Every possible care will be taken of works sent, but any accidental damage will be at the risk of the sender. 7. All communications on the subject to be addressed to H. Whaite, Fine Art Gallery, Bridge Street, Manchester.

We have received an intimation of an Exhibition at Brussels, and have been requested to give publicity to the following conditions especially referring to Photographs:

3. A particular section is reserved for photography. It will comprehend copies of objects relating to science, art, and industrial products, copies of works of art on metal, glass, &c.; monuments, objects of art, landscapes, portraits; copies of works of art on paper, linen, &c.; photographic engravings, &c.

5. Rewards will be given to exhibitors whose works show most merit. The distribution will be public.

6. The Association reserves the right of purchasing the designs, &c. exhibited.

7. Exhibitors must give notice (post-paid) before June 15th, to the Secretary of the Committee of the Association, Rue Royale, 58, Brussels, specifying the nature of the objects, and the length, breadth, and height of the space required.

8. Objects for exhibition must be sent before July 25th to the place hereafter to be determined.

9. Exhibitors must send with their works their names and addresses in full, and state

whether they exhibit as authors, manufacturers, or owners; in the two last cases, they are requested to state the names of the authors. Exhibitors should also send their titles under which they wish the articles to be described in the catalogue, as well as the price, mentioning whether they intend it to be made public or not.

10. Expense of transport to and fro is to be defrayed by exhibitors. The Belgian Government railway will make a reduction of 50 per cent. going and returning. All care will be taken of the articles, but the Association will not be responsible for loss or damage.

We have received no particulars of the Dublin Exhibition, but see that it is to open on the 14th of this month.

Scotch Photographic Society.—We understand that a number of gentlemen, interested in photography, have just formed in Edinburgh a society for the advancement of this wonderful art, to be called the "Photographic Society of Scotland." Similar societies have been in existence for two or three years in London, Liverpool, Manchester, &c., and have had the greatest success. The Photographic Society of Scotland is to meet on the second Tuesday of every month, for the discussion of subjects connected with the theory and practice of photography, for receiving communications from the members regarding new discoveries and processes, and for the interchange of photographic works executed by the members. The first meeting was held a few days ago for the election of office-bearers, when the following gentlemen were elected:—*President*—Sir David Brewster. *Vice-Presidents*—Horatio Ross, Esq.; George Moir, Esq. *Council*—John Cay, Esq.; Dr. Thos. Keith; T. J. Johnstone, Esq.; Jas. Ross, Esq.; Professor Macdonald; Jas. Black, Esq.; Dr. Walker; Cosmo Innes, Esq. *Hon. Treasurer*—Henry Watson, Esq. *Hon. Sec.* C. G. H. Kinncar, Esq.—*Scottish Press.*

NORWICH PHOTOGRAPHIC SOCIETY.

The usual meeting of this Society was held in the council chamber on the 7th March, the President, T. D. Eaton, Esq., in the chair.

The proceedings commenced with the election of four new members.

Mr. Pulley (Hon. Sec.), then read a paper on "*Stereoscopes and Stereoscopic pictures*," being a continuation of one read by him in December last. The action of the eyes whilst looking at different objects, both with and without the stereoscope, was demonstrated by means of models on a large scale.

This paper, which excited much interest, led to a discussion respecting the true distances by which lenses ought to be separated in taking steroscopic pictures.

Mr. Pulley said that he was not satisfied with any explanation which he had yet seen upon that point. He had been investigating and experimenting both by himself and in conjunction with the vice-president (Mr. Francis) and Mr. Howes, with the view of arriving at theoretical truth and practical precision, but at present without success, although they had hit upon one or two methods which seemed to promise sufficient accuracy for practice.

The photographs exhibited on this occasion were of the highest order. Several by Blanquart Evrard and other foreign photographers were brought by Mr. Muskett.

Mr. Stewart exhibited a panoramic picture done by himself, about two feet long by nine inches wide, perfect in every detail, besides a large quantity of other pictures, also his own production, including photographs of flowers and engravings of the natural size and of the greatest beauty, also some fine copies of oil paintings.

Some first-rate portraits by an artist at Holstein, were exhibited by Mr. Barwell.

After the usual votes of thanks the meeting, which was fully attended, separated.

The April monthly meeting of this Society was held in the Council Chamber on Friday Evening, the 4th inst., the President, T. D. Eaton, Esq. in the chair.

Two new members were elected.

Two letters from Mr. George Edwards were read, in which he regretted that other engagements had prevented his attending the meeting, and exhibiting as he had intended his new pocket camera. He also gave the results of some experiments with dry collodion, and promised another communication as soon as he had further investigated the subject.

Mr. W. K. Bridgeman mentioned the fact of Price's glycerine being distilled—a recent discovery, and very valuable.

The President then read a dialogue between a wax paper practitioner and a calotypist, supposed to meet in Devonshire; an abstract of the paper cannot afford a true idea of this admirable exposition of the relative value of waxed paper and calotype pictures.

Mr. Stewart exhibited several fine pictures by the waxed paper and urea processes.

LONDON PHOTOGRAPHIC SOCIETY.

The third annual meeting of this Society was held on Thursday, March 6th, the Rev. J. B. Reade, F.R.S., in the chair.

Mr. Malone opened the discussion upon the paper read by Mr. Hardwich at the meeting of Feb. 7th. by regretting the absence of Dr. Percy, who was expected to do so. He first noticed the remarks by Mr. Hunt, "that if photographs were sufficiently washed there was no necessity for their fading, and that where photographs, prepared in the usual way, had faded, it was due to the carelessness of the operator. Mr. Hunt had been too bold in this matter: pictures printed on the ordinary letter-paper by means of salt and nitrate of silver, or nitrate of silver mixed with ammonia, then fixed with hyposulphite of soda, and washed repeatedly in water, will fade upon exposure to the atmosphere. He had used boiling distilled water in addition to common water, and yet, with all those precautions, as a rule, photographs so treated would fade. At the same time it was true that prints prepared in the manner he had indicated by Mr. Henneman for Mr. Fox Talbot, having only three changes of common water, were now as fresh and brilliant as at the time when they were first issued In the library of the London Institution there is a copy of the "Pencil of Nature" which he had carefully examined, and which bore him out in this statement Until Mr. Hardwich commenced his researches the subject of positive printing had not been taken up in that thoroughly philosophical spirit which it deserved. In the main his views coincided with Mr. Hardwich's It must be admitted as an unquestionable fact, that the ordinary photograph may be changed from its brown colour to a purple or slate colour, approaching black by the action of sulphur; but it does not follow that therefore it is in a condition to fade. He produced a copy of a negative taken by M. Martens of Paris, several years since, it was changed by the action of the old hyposulphite bath, and not the slightest detail had disappeared, although it was prepared several years since, and had been kept in an ordinary portfolio. He had some older specimens of Mr. Fox Talbot's, which received a purple tint by allowing a small quantity of hyposulphite of soda to remain after the last washing, and then, while the picture was slightly damp, passing a hot iron over its surface. In 1844 he first used this method of deepening the colour, and found that pictures prepared in this manner had retained their perfection and details for several years. So far, therefore, as we could speak with any confidence in this matter, the fact of pictures thus coloured by the action of hyposulphite of soda and heat remaining good, warranted the assertion that the mere presence of sulphur was not sufficient to account for the fading; but there was one difficulty that lay at the root of the enquiry—what was the nature of the image with which we were dealing? It had been stated that light produced from chloride of silver, metallic silver, oxide of silver, suboxide of silver. and subchloride of silver. We had no evidence to warrant us in stating whether the image is metallic silver or oxide of silver, or a compound of silver with organic matter. From experiments which he described, he thought there could be no question as regards the direct influence of animal matter upon the production of the colour or tint in the photograph; but it does not at all prove, as a consequence, that there is any combination of the silver with the organic matter under the action of light. It was quite fair to insist upon chemical proof, as to whether the image is a compound of silver with animal matter, or whether it is silver merely diffused throughout the animal matter. Nothing short of the production of the colouring substance in a condition fit for rigid analysis would satisfy him. Therefore he deprecated the use that has been made of their Journal as to statements of certain processes being "infallible," "improving by time," &c. What! when we had pictures that had existed five or six years before showing any palpable signs of fading, could it be said of any process recently invented that the results would improve by time? We must wait for many years to prove such an assertion. So with regard to gold, he protested against its being considered a desirable fixing agent. It assisted in making the shadows more permanent, but it was not deposited in sufficient quantity to preserve the half-tints, and a picture which had lost its half-tints was no picture, as we understood photography at the present time. Our best course would be to prepare our pictures by processes somewhat similar to that adopted in the "Pencil of Nature" by Mr. Fox Talbot, or on paper moderately albumenized; he preferred the last, and did not agree in the opinion that albumenised prints were "vulgar." Pictures prepared by means of gallic acid appear, at first sight, to be permanent; but in one of the public libraries a book was deposited as a specimen of the art: it contained a negative, with a copy of that negative, and several other positives. On first opening the book, the negative was found to be in an advanced state of fading. He fully admitted that negatives, as compared with positives, were more permanent; but we must not run away with the idea that therefore we can print copies by the negative process and then expose them with impunity for months to the open air, as he saw done in the shop-windows in London. We still had to invent a good "development" printing process. Knowing that pictures printed upon albumenized paper, and even upon ordinary paper, have remained permanent for many years, he was of opinion that we should continue to carry out such process, shielding the positives so printed from those conditions which experiments point out as chiefly interfering with their permanence.

Mr. FENTON said he brought with him a few negatives which had been for some time during the past year lying in the Glass House of the British Museum, without any fire in the room, and exposed to the heat of the day-time and to the damp of the evening. All of them, except such as were varnished, exhibit symptoms of decomposition. The change has generally begun at the edges, in the usual way, proceeding gradually from the edges to the centre. He did not, with Mr. Malone, despair of at some time being able to give much greater permanency to our positive prints. He had found some prints fade in half a day, whilst others, prepared perhaps on the next day, and in apparently the same way. have shewn no change whatever. He knew that the rapid fading is due to the acid state of the hyposulphite bath. I have never been able to obtain such beautiful prints as by the old hypo; nothing gives such good half-tones. The principal fault he found with pictures printed with gold was a sort of deposit upon the surface, which obstructed all the details of the shadows.

Mr. MALONE said Mr. Fenton had quite misunderstood him. He said that at present we had no data for stating with certainty that pictures prepared according to our present method were secure; and simply for the reason, that, not knowing the nature of the image, we could not discuss the exact influence of atmosphere and moisture. When we had explained those points, no doubt we shall be able to make all our pictures as permanent as those in the "Pencil of Nature."

Mr. HARDWICH thought he had sufficient proof to enable him to state what is the composition of the photographic image. He would, at a future meeting, make the subject as clear as he could. He had so many arguments, all tending to the same object, that he thought the matter might be clearly proved. A *very slight* amount of sulphuration did not, practically, do a print much injury; but if the process was carried to the maximum of darkening, then the print would fade on exposure to damp. With reference to the faded negatives exhibited by Mr. Fenton, he should have been disposed to suggest that gas was the cause of injury; for Dr. Diamond had mentioned to him the importance of this point, and he had made some experiments, which would be communicated to the Society. He collected one ounce and a half of water from the combustion of a jet of coal-gas, and found it acid from sulphuric acid.

Mr. SHADBOLT thought Mr. Sutton, in putting forth as being evidence why the pictures produced by his process should be better than others that they improve by time, proved a great deal too much; if he proved that the pictures changed at all he could not prove that that might not be eventually a destructive change. Mr. Malone threw it rather unjustly upon Mr. Sutton, that he had complained of the vulgar appearance of albuminized pictures. He could plead guilty to having made the same remark. As to the greater permanency of albuminized pictures over those on plain paper, the opinion seemed to be that they resisted oxidation better, but not sulphurization. Mr. Malone stated that albumenized pictures were better in their details than those on plain paper. Admitting that this was the case with some pictures, he must say that the finest photographs he had seen were those upon plain paper. If Mr. Fenton referred to the *sel d'or* as recommended by Mr. Sutton, he must differ with him on the point of its obstructing the details of the shadows. He could speak in the most emphatic terms of the great advantage of the bath of *sel d'or* in deepening the shadows, provided the picture has not been over-printed. As a general rule, those pictures that had starch in their composition would more readily produce a cold tone than those which had size or any other description of animal matter.

Mr. MALONE thought that a small quantity of albumen might be used with advantage. He had proposed on a former occasion that a lead compound should be used, such as we find on glazed cards: and with regard to acids, he knew that it was the opinion of a great chemist that there was sulphuric acid in London atmosphere. All these things went to prove the advantage of printing on albumenized paper; and certainly all things shewed the importance of taking the precaution of enveloping the prints, as he suggested, in a tin case, or placing them under glass in some way to prevent the action of sulphur.

The Chairman said that it was interesting to know that in the very first photographic paper which was ever published upon this subject, Sir Humphrey Davy distinctly stated that the picture was formed by an organic combination with the silver; and he hoped, as a means of fixing the picture, to be able to discover some chemical componnd which would destroy that portion of the combination which had not been acted upon by light; he promised to communicate his discoveries to the world, but unfortunately no further announcement was made by him of those researches. This militated very strongly against the fact of the picture being formed simply of pure silver. He was not quite sure that Mr. Malone did not attempt to uphold both statements.

Mr. Hardwich read a paper "*On the Photographic Properties of Citrate of Silver*," in which he stated that it was formed on adding a soluble citrate to solution of nitrate of silver; it precipitated in white flocculi, which were insoluble in water, and contained three atoms of oxide of silver to one of citric acid. He prepared paper with citrate of silver, and exposed it to the light, using Swedish filtering paper free from chlorides, and allowing an excess of nitrate of silver in contact with the citrate. The paper darkened gradually to a brick-red tone, which altered very little in fixing. He then added a portion of soluble chloride to the solution of the citrate, which greatly increased the sensibility and altered the tint of the darkened surface to a shade of purple.

The employment of the citrate of silver also appeared to give to the print that peculiar warmth and softness which is so much admired; the gelatine is used to retain the layer of sensitive salt at the surface of the paper. Dissolve the citric acid in a small portion of water, and exactly neutralize with carbonate of soda added cautiously, with continual stirring, until the last portions produce no further effervescence, and the immersed litmus paper, previously reddened by the acid, *begins* to change to blue; to this add chloride of ammonium 100 grains, gelatine 10 grains, water 10 ounces.

The paper which he had found the best was the Papier Saxe. Float the papers on the salting bath one minute and a half. Render sensitive upon solution of nitrate of silver 50 grains to the ounce, allowing three minutes' contact. The sensibility to light is somewhat less than that of albumenized and ammonio-nitrate paper highly salted, but greater than ammonio-nitrate paper with small proportion of salt. When the proof is removed from the frame it is of a brown or a purple tint, which becomes bright red in fixing. Tone by Sutton's *sel d'or* process, having previously washed the prints, first in water, and then in salt and water, to remove free nitrate of silver. When taken from the *sel d'or* bath, the prints are a rich violet-purple or a purple-black, which, unless the action of the gold has been much pushed, is apt to change to a dark chocolate-brown in the fixing bath. If this is thought undesirable, it may often be obviated by substituting a highly dilute solution of ammonia for the salt and water used in removing the last traces of nitrate of silver previous to toning: the ammonia exercises a fixing action upon the proof, after which the tint is less likely to alter in the bath of hyposulphite. The proofs, when finished, are clear and vigorous, with considerable depth and transparency of shadow. The formula above given should not be implicitly followed. Much will depend upon the activity of the gold bath, since, if the original red colour is not perfectly subdued, the tint of the picture will be unpleasing. In dull weather, and with a feeble negative, the citrate bath may be stronger. With a bright sunlight and an intense negative better half-tones would be produced by diluting the citrate-bath with an equal bulk of water.

Ammonio-nitrate Process upon Citrate of Silver.—By substituting ammonio-nitrate for plain nitrate of silver, the sensibility of the citrate paper is greatly increased, and the result in every way improved. The following process is quite satisfactory:—

Dilute the bath of citrate and chloride to one-half, as directed for the negative process immediately to be described; proceeding in other respects the same as before Then sensitize by brushing with a 60 grain solution of ammonio-nitrate of silver. He found Towgood's paper to be very good for this process. The ammonio-nitrate papers are well adapted for printing from a feeble negative, and in a moderate light. The colour of the print, when finished, will be a shade darker than in the last formula, but free from that objectionable *blue* tone which is liable to occur when the citrate is omitted. Precipitate the oxide from 60 grains of the nitrate of silver, by lime water, baryta water, or pure potash; to this add 30 to 40 grains of crystals of nitrate of ammonia as free as possible from chloride of ammonium. Add distilled water to make up the bulk to one ounce. The olive-coloured oxide of silver collected by subsidence from the precipitated liquid dissolves instantly when added to the solution of nitrate of ammonia; whilst any chloride or carbonate present remains behind as a white deposit, which must be filtered out.

A Negative Printing Process upon Citrate of Silver.—Pure citrate of silver, free from chloride, admits of development by gallo-nitrate of silver after a short exposure to light. The paper so prepared, however, is insensitive, and does not receive a sharp and well-defined impression. The addition of a portion of chloride of silver is a marked improvement. The following formula may be used:—Pure citric acid, neutralized as before, 50 grains, chloride of ammonium 50 grains, gelatine 10 grains, water 10 ounces. Papier Saxe or Papier Rive may be floated on the bath from one minute to a minute and a half. Render sensitive with aceto-nitrate of silver, 30 grains of nitrate to the ounce of water, with half a drachm of glacial acetic acid; taking the usual precautions against the entrance of white light. The exposure to light, which is very short (three or four minutes in dull weather), is regulated by the colour of the margin of the print. On removing the negative the full outline of the image should be seen, but faint and indistinct. Immersion in the bath of gallic acid (three grains to the ounce of water, diluted to one-half in hot weather) rapidly developes the picture, and in two or three minutes it is fully brought out. It is of importance to hit the right time of exposure to light, as the *under*-exposed print developes slowly, becomes *jet-black* by continuing the action of the gallic acid, but shows no half-tones; the *over*-exposed, on the other hand, developes with unusual rapidity, and it is necessary to remove it speedily from the bath in order to preserve the clearness of the whites: when washed and examined it appears very red and pale without proper depth of shadow. A certain length of exposure is, however, essential in this process, and very few details can be developed which are altogether invisible before the gallic acid is applied. The action of the developer must be stopped at a point when the proof appears somewhat lighter than it is intended to remain, since the use of the gold bath adds a little to the intensity, and the print also becomes darker on drying. Tone with the sel d'or bath as before. The white parts of the impression will remain pure if the gallic acid be properly washed out, and the toning bath shielded from the light and acidified with hydrochloric acid. No time, however, must be lost in passing the print from the toning to the fixing bath, or there will be some danger of a decomposition and a yellowness in the lights.

Upon a comparison of the developed prints with others obtained by the direct action of light upon the same sensitive paper, he found that the advantage was *slightly* on the side of the latter. The *colour* of both is the same, or perhaps a shade darker in the developed proofs, which are usually of a violet-purple tone, but sometimes a dark chocolate-brown.

He did not promise any superiority in point of permanency over the ordinary modes of printing, the ultimate composition of the image not being, as he conceived, materially affected by the use of the citrate; it would therefore be essential to wash out all traces of hyposulphite of soda to preserve the proofs from fading. The principal use of the citrate would be to give the operator power of producing a warm shade of brown on any variety of paper, and to obviate that tendency to inky blueness often noticeable when the gold bath is active. It will also be serviceable for developing with gallic acid in dull weather, being, it is thought, superior in that respect to the *serum of milk*, the quantity of caseine in which is apt to vary.

It may be observed in conclusion, that the employment of citrate of silver in photography is strictly correct upon theoretical grounds. It is one of those bodies which admits of conversion into a red subsalt by the action of a reducing agent; being in this respect analogous to the albuminate of silver and to the compound of oxide of silver with caseine, both of which are used successfully in positive printing.

Mr. Frederick East exhibited an improved camera which he called "the camera chora." It had been in almost constant use for the last two years. It was made for pictures up to the half-plate size, and measured only 11 in.+8 in. Within this small compass was contained all that could possibly be required for a full day's work in the open air, allowing the operator to take six dozen views in that time. It contained a full-size tripod stand, which made its appearance on turning one of the knobs; the exciting bath for plates up to the half-plate size; a spare bath in case of accidents; iodized collodion for six dozen plates; developing fluid for twelve dozen plates; fixing solution for twelve dozen plates; transparent varnish for six dozen views; gutta percha bath for washing the pictures; gutta percha tray, with three dozen grooves for draining the pictures; drying stove (this will dry the pictures faster than they can be produced); six dozen glass plates 4 + 3, or three dozen half-plate size; one dozen and half glass tubes, six inches long, containing crystallized nitrate of silver in reserve for the bath; Tripoli solution for cleaning old plates; prepared colours; camel's hair brushes; test papers; liquid glue; Canada balsam, &c. &c.; and a graduated sand tube, from one to four minutes, for sensitizing the plate; large skin wash-leather, two towels, and silk rubber; diamond, rule, cutting cloth, and spirit-lamp. The above were so arranged that every article could be taken out, the stand erected, the camera ready for work, and the whole repacked in less than five minutes. This camera had nothing cumbersome about it: its appearance was such that a lady in a country ramble would feel no repugnance in carrying it from one point of view to another. Besides all the advantages of a tent or dark chamber, it allowed a full view and a complete command of the plate through all its changes; even in the bath the process of exciting may be seen, and the plate taken in and out at pleasure without injury. To ladies, perhaps, the great attraction of this apparatus, besides its neatness and portability, would be the *modus operandi;* the operations being performed by means of brass or ivory knobs attached to the outside of the camera, thereby preventing the possibility of staining the fingers or of spoiling the dress of the operator with the solutions. The lens was also mounted on a new principle; it works in a ball and socket, and like the pupil of the eye has a range in all directions; the glass plate had a corresponding movement where it was necessary. Within the brass mounting and between the lenses were eight moveable valves to regulate the admission of light upon the sensitive plate; four of these were coloured white, blue, red, and orange; three were diaphragms of various apertures, and one was a cap-valve, used when a very short exposure is required, as it might be opened and closed in an instant.

Mr. Mawson, of Newcastle, exhibited his patent portable camera.

Mr. Ottewill explained the advantages of his portable dark chamber for holding and changing excited collodion plates.

The Secretary read a letter from Dr. Percy, in which he stated, "There is one chemical fact which may turn out to be of some importance in a scientific point of view, and which I should be glad to mention to the Society through you. It may probably have been observed by many, and have been publicly recorded. It is, however, new to me. Some months ago, having occasion to make some chloride of silver by exposing silver leaf to chlorine gas, I was surprised to find that the chloride of silver so produced underwent no darkening whatever in light, even when fully exposed to sunshine. I have kept a specimen some months fully exposed to light in common air, and yet no darkening whatever has taken place. Perhaps some of the members may be able to communicate other facts which bear on the subject.

Photographic Portraits of Living Celebrities.—We have received a prospectus of a work to be published, price 3*s.* 6*d.*, containing photographic portraits of living celebrities, with appropriate biographical notices, written by Herbert Fry, Esq. Each number will contain one photograph on paper, (in the first style of the art,) of the size of eight inches by six inches, mounted on drawing paper by Messrs. De la Rue & Co., in their handsomest manner, and will be published, with its biographical sketch, in a neat wrapper. The artist-projectors and publishers of this series are of opinion that the high rate of excellence to which the photographic art has now attained, will be the means of enabling them to supply at a moderate price, unerring portraits of great public men, whose history is that of the age in which they live, and whose features may thus be rendered as familiar as their names, and, in due time, be transmitted with their works to posterity. Messrs. Maull and Polyblank, in proof of their capacity to produce first-class specimens of photographic portraiture, point with satisfaction to the success attendant upon the series of the Literary and Scientific Portrait Club, which includes some of the most eminent men of the present day, and which has received Her Majesty's patronage. The proposed series will be of the same size and style as that of the Literary and Scientific Portrait Club, copies of which (being distributed to the members only), may be seen at the Libraries of the Royal Society, the Linnean, Geological, Royal Astronomical, Royal Geographical and Chemical Societies, and at the Artists', 55, Gracechurch Street.

Mr. Mayall has taken some photographic portraits on what he calls artificial ivory, which he states to have all the strength and delicacy, and to be susceptible of the polish of natural ivory. It will admit of the photographs being finished up into miniatures.

SOCIETE FRANCAISE DE PHOTOGRAPHIE.

A meeting of this society took place on the 15th February, the President, M. Regnault in the chair. After the announcement of new members, and a number of donations of photographs, including a treatise on the crystallization of quartz, illustrated by plates engraved by Messrs. Salmon and Garnier's photographic process, (which we have given in vol. ii., p. 141) M. Mailand, the Secretary, read a report, including a statement of the accounts of the society for 1855. It gave a very satisfactory report of the progress of the society from its commencement. The accounts of the society shewed receipts more than enough to cover all expenses. The accounts of the *Bulletin* showed that for the first year it had cost the members six francs and some centimes (about five shillings) each; for the second year the distribution of the *Bulletin* to each of the members would not cost anything, and in a short time it might be expected that the receipts would furnish a capital for giving encouragement to photography. But the great advantage to the society was, that it had the command of its own reports, and could direct the *Bulletin* in whatever way might be most beneficial for the true progress of the art. The third account was a balance sheet of the affairs of the society up to the 1st of January, including the value of the important donations to the society by its various members. A committee was requested to examine the accounts and report, that the secretary might be discharged. A committee was appointed for that purpose.

The Secretary then called upon the society to fix the amount to be paid by the members. The council proposed to maintain the same rates for 1856 as had been adopted for 1855, viz :—for resident members 80 francs, with an entrance fee of 40 francs; and for corresponding members 40 francs, without any entrance fee: which was put to the vote and passed. The retiring members of the council were then elected.

M. Mailand then read a note from M. Poitevin relating to his process of Photolithography, in which he referred to the note sent to M. Balard, and read at the meeting of the 28th December, 1855, to establish the priority of his invention of a new process of photographic impression on fat ink, for which he obtained a patent in August, 1855. Having continued his experiments on the subject for some time he now offered to the society a description of his new process. Organic bodies, gummy or gelatinous, and their congeners, which had the property of easily dissolving in water, were used in lithography for the purpose of preserving the whites of the drawing from the fat or greasy ink. The same bodies became insoluble in water when simultaneously acted upon by light and some oxidizing agent decomposed by it, such as the salts produced by chromic acid. These had furnished him with the means of producing photographic drawings in fat ink upon paper, lithographic stone, or any other surface, positive or negative, as he employed a positive or negative for the production of the impression. To prepare the papers he covered them with a concentrated solution of one of these bodies to which salts from chromic acid had been added; after drying, he submitted it to the influence of the light direct or diffused through the negative which he wished to produce. After an exposure, varying according to the transparency of the negative and the intensity of the light, he applied, with a dabber or roller, an uniform layer of fat ink, typographic or photographic, and to clear it plunged it into water. Immediately the fat ink left those parts unaffected by the light, aud it remained only on those parts which had been affected, proportionally to the quantity of light which had traversed the negative. To prepare the lithographic stones he applied to the surface a mixture of organic matter and concentrated solution, and an equal volume of chromate or bichromate of potass. After drying, and exposure under the negative, he applied the ink as before, washed with a sponge, and removed the excess of ink with the roller or dabber. The drawing thus perfected is submitted to the usual lithographic processes. He presented to the society a photograph on paper obtained from typographic ink by the above process: a lithographic stone containing a drawing in preserving ink, which had furnished a great number of prints, some of these prints, and many photographic drawings on stone, impressed by this process. These first essays he hoped would show to the society that it was possible thus to obtain lithographs which should be perfectly satisfactory. He added that one of the lithographic drawings had been impressed through a negative by M. Louis Rousseau; from this about sixty prints had been taken, and he thought that these lithographic stones would yield as many prints as those drawn in the ordinary way.

The PRESIDENT said it was interesting to observe that one of these lithographs had been obtained from the same negative of the jaw bones of a lion, which had been reproduced by M. Lemercier by means of the process common to M. M. Barreswill, Lereboins, and Davanne. On that occasion M. Lemercier said that as soon as the printing had arrived at one hundred copies, it commenced to be industrial or became of commercial utility. Among the prints he had himself presented to the society, there were some from stones which had yielded many thousand impressions. He (the President) thought that working for a long time continuously always soiled the lights a little, although the middle tints were improved. He would like to see some experiments tried with negatives from white statues, that the precise degree at which these processes would furnish the middle-tints might be ascertained.

M. LANET DE LIMENCEY exhibited an instrument constructed according to the ideas of M. Secretan, and to which the inventor gave the name of *Lucimeter*. It was composed of a dark chamber, at one end of which was a glass, and at the other a disk divided into sixteen parts, and covered with thin paper successively from one thickness to sixteen. The opening behind was so contrived as to admit the light through only one of these divisions at a time, so that the power of the light could be measured into sixteen degrees: a greater number of subdivisions could of course be readily contrived. He proposed that it should be used both in measuring the direct light from its source, and the reflected light from the object on which it fell, and that the power of the light should be estimated from the mean between these two.

The PRESIDENT reminded them of the difference between luminous power and actinic force. This instrument would measure the former, but would afford no indication of the latter.

M. SECRETAN said that in presenting this instrument to their notice, M. Lanet de Limencey only wished to place before them a means of ascertaining how far an object was lighted. In many instances it would be of great use. In portraits it was sometimes very difficult to determine in what way the subject would be best lighted. This instrument would decide that in a few seconds.

M. BAYLE MOUILLARD thought it would simplify the matter, to place one of the disks before the lens itself, and dispense with the inconvenience of the rest of the apparatus.

The PRESIDENT thought that the instrument might furnish a starting point for a series of interesting experiments on the relation or comparison between the luminous power and actinic force of any given time. It would be sufficient to place behind one of these disks ordinary sensitive paper, and to mark the relations between the time of exposure, force of impression, &c.

M. DE CARANZA placed before the society a great number of prints taken by him in the East, and fixed by means of chloride of platinum, which he preferred to chloride of gold. It was remarked that two years had not caused the slightest change in them. He then gave an account of the process, which was mentioned and the formula given in our last number, from another source. He left the positives to develope themselves in the light until the whites began to assume a violet tint. He plunged them into a porcelain bath containing the chloride of platinum, (as given in p. 30.) He finished with a bath of hyposulphite of soda 100 parts to 600 of distilled water. (The other report said 500.) A quarter of an hour was sufficient to fix a proof, which was then to be well washed.

The PRESIDENT said that many persons, himself among them, had tried chloride of platinum, but no one had ever obtained results equal to those exhibited by M. Caranza. The blacks which he had produced were always a little grey; but it was true, he had employed the chloride of platinum after the hyposulphite of soda. The chloride of platinum allowed them to obtain beautiful blacks without the blue tones; it was sufficient to arrest the strengthening before the proof had arrived at the tone of black required.

M. DAVANNE presented a portable camera constructed by M. Relandin on the same plan as that exhibited before, but with some improvements. (See L. P. J., vol. ii, p. 13.) The frame or stretcher had been reduced in length one-half, it was divided by a groove, and the movement of the camera therein regulated by means of a metallic rack and pinion which rendered it very easy to manage. M. Relandin had perfected his panoramic slide, it occupied little more space than the ordinary slide, but would hold six proofs. The handle was no longer allowed to turn both ways, it would work only one way, and the photographers could not make a mistake. Another improvement consisted in the double folding of the shutter; this falls against the outside of the slide, and there is less fear of its shaking than in the ordinary slide.

M. le Vicomte Vigier asked if the cloth upon which the paper was placed in the panoramic slide would not get soiled and soil the papers, just as blotting paper used for any time soiled the papers to which it was applied.

M. Davanne said that those persons who have tried it had not found the inconvenience alluded to, but all that would be necessary to obviate it would be to place a thin paper between the cloth and the sensitized paper.

M. le Vicomte Vigier described his modification of the Talbotype. He poured into a glass or bottle 75 parts of water, 6½ of nitrate of silver, and 6 or 7 of iodide of potassium, with some crystals of iodide at the bottom to ensure the change of the nitrate of silver into iodide. He stretched upon a piece of white wood the paper he wished to iodise, and poured upon it the requisite quantity of solution, and spread it with a glass triangle. He then plunged the paper into water for 12 or 24 hours: this was essential to success. To sensitise he had two bottles, one containing 10 parts nitrate of silver, and 20 parts nitric acid, (evidently a misprint for acetic acid), the other containing a saturated solution of gallic acid; of these he put to 8 ounces of water 8 or 10 drops of aceto-nitrate, and 8 drops of gallic acid. The paper would keep for two or three days in the winter, but in the summer must be used the next day. The quantity of aceto-nitrate would vary with circumstances, the season, intensity of light, &c. In England it would be required to diminish the number of drops of aceto-nitrate, and to extend the time of exposure; generally from 20 to 25 minutes. He developed in a bath, one part aceto-nitrate, and two parts gallic acid; it should appear perfectly after about 12 minutes. He fixed with very concentrated solution of hyposulphite of soda. He found Turner's thick paper answer best. The works of Vicomte Vigier are well known and deservedly admired.

M. Porro then read three notes, the first upon the construction of lenses: one of which he called an *anallatic* lens, was to be constructed of a double lens and a single one; the other he called a *stenallatic* lens, to be composed of two achromatic lenses, one fixed, the other moveable, so as to allow of the focus being extended or decreased, and the size of the view enlarged or diminished. With a small lens made for experiment, M. Porro had taken in 1852 two views of *la Rue de l'Ouest*, one was an inch in size, and the other little more than the tenth of an inch.

M. Chevalier said that he had long since solved the problem put forth by M. Porro.

The second note of M. Porro referred to a new stand with five feet instead of three, but which were so arranged as to form a triangle.

M. Relandin exhibited his stand, which was capable of being packed into a very small compass.

The third note of M. Porro had reference to the photography of the heavenly bodies, and contained an offer from the Technomatique Society of the free use of the grand instrument which they had recently erected.

We find in the *Revue Photographique* for April 5, the following report of another meeting of the French Society on the 15th of February. [Query the 14th of March.—Ed. L. P. J.]

M. Durieu occupied the chair, which was afterwards taken by M. Regnault the President. M. Malone, professor of chemistry to the London Institution, was present.

M. Robert of Sevres, presented to the Society some magnificent proofs, for the most part representing vases and articles of Sevres manufacture.

M. Caranza explained a waxed-paper process, which he had found very successful. It was founded on that of M. Le Gray. He strained melted white wax through a well-washed linen cloth, and applied it with a large brush to both sides of ten pieces of fine paper. Between each of them he placed five pieces of plain paper and pressed them with a hot iron till the wax had penetrated them all. He then removed the surplus wax by placing in a pile about forty pieces of waxed and plain paper alternately, and pressed them with a moderately hot iron. In this way he could wax a hundred pieces of paper about 10½ in. by 8¼ in. in half-a-day. To iodise these he dissolved in a thousand parts of water,

Starch	3 parts.
Sugar of Milk	40 ,,
Iodide of Potassium	15 ,,
Cyanide	4·5ths.

He boiled these for a proper time, and strained the liquid while warm through a linen cloth and poured into a porcelain or gutta percha dish; the sheets are immersed to as many as one dozen at a time. In cooling the liquid he removed all air bubbles with a badger hair brush and agitated the dish; above all things never put a sheet of paper into the iodising bath unless it would be covered. When properly done they should be white, and might be kept for a month. To sensitise he poured into a bottle of black or blue glass—

Distilled Water	500 parts.
Nitrate of Silver	35 „
Pure Chrystallised Acetic Acid	40 „

Let them dissolve for an hour, shaking them up from time to time; filter it and pour into another large dish. In a dark place he immersed the papers one by one for four minutes constantly agitating them. He then removed them by a bath of distilled water, then by another of rain water, and dried them with blotting paper, or rather with unsized printing paper: they should be a milky-white, like opalescent glass. He stretched them while damp over a piece of white wood rather less than the papers, so that the edges might turn over to secure them: the trouble of this operation was fully compensated by the beauty of the photographs, which were far superior to those which were obtained on paper simply placed between two glasses in the slide. The papers would preserve their sensitiveness for eight days, even under the great heat of 30 or 35 deg. centigrade: with an ordinary lens, four minutes exposure to the light generally sufficed. He developed with a saturated solution of gallic acid prepared at the moment he wanted it, and fixed in a bath 100 parts of hyposulphite of soda to 500 parts of rain water.

M. de Caranza had brought to the meeting a collection of negatives and positives which were truly astonishing, and which all the world must admire. To operate thus on a certainty, to obtain such excellent negatives and positives with the middle grounds and extreme distances perfectly rendered; to produce at will positives of such rich tones placed him in the first rank of the most successful photographers.

INFLUENCE OF ELECTRICITY ON CHEMICAL AFFINITY.

By James Campbell.

When we speak of the influence of electricity on chemical affinity, we are dealing with a subject of almost infinite extent, and whose phenomena are not yet fully understood. It is known that electricity is produced by chemical affinity, and it is also known that bodies may in many cases be made to unite by means of electricity; hence the terms electricity and affinity seem to be, in a measure, convertible. The connection between them is in many cases apparently simple, but in others it presents phenomena which have puzzled the most experienced physiologists and chemists.

As it is in this field, however, that we must chiefly look for the advancement of electrical science, it may be profitable to briefly recount the principal facts known, and to endeavour to point out their application. The intimate connection between light, heat, and electricity, has frequently been adverted to in these articles, and it now remains for us to show the connection between electricity and affinity, and its importance to photographic science. We know that there can be no chemical combination between two or more bodies, without a disturbance of their electrical relations; and in fact, we know that there can be no disturbance of the mere physical relation of bodies, without electric disturbance.

From the researches of modern physiologists, it is certain that every muscular movement causes electric disturbance, and from very ingenious experiments made by Du Bois Raymond, at Berlin, it is rendered exceedingly probable that every evolution of the will, and the reception of every idea, is so accompanied.

We know that the rays of light proceeding from the sun are very active agents in producing chemical changes and promoting the growth or decay of organic bodies; but we also know, that the combination or evolution of the opposite positive and negative electricities, in the bodies so changed, is exactly proportioned to the change; and the same law holds true in regard to inorganic bodies, and is exceedingly active in promoting their combination or decomposition, according to the conditions under which the electric force is developed.

We hence recognise electricity as an ever-active and untiring agent in the grand laboratory of Nature, not only working in conjunction with light, heat, and affinity, but capable of producing either of them; not only active within the solid earth in producing changes in its structure, but also active in producing organic changes on its surface, as pervading and influencing all animal and vegetable organism; and as intimately connected with every particle of matter on the globe, and probably in the universe.

By means of electricity, the chemist may in many cases control affinity; he may cause bodies to unite, which otherwise could not combine without the intervention of light or heat; and he can also separate bodies which neither light nor heat, separately, nor in conjunction, could separate. In fact electricity is capable of sundering the strongest affinities between bodies which are capable of electrolysis—that is, of nearly every compound body which is capable of conducting electricity. In many of these cases, where the compound decomposed is formed from the union of two simple elements, the *rationale* is easy. In such compounds, one of the elements is said to be electro-positive, and the other electro-negative; the former seeks the negative pole of the battery, and the latter the positive. Thus chlorine is said to be electro-negative in regard to hydrogen, and passes to the positive pole, but it is positive in regard to oxygen, which is the strongest electro-negative body known.

One equivalent of electricity being required to decompose any compound, the elements of that body will, in uniting, disengage or evolve the same quantity of electricity required to decompose the compound which they formed; hence some able chemists have inferred that chemical affinity was nothing but electricity, and that the elements of any compound, when uniting, being in opposite electrical states, combined with and neutralised each other—the compound becoming neutral. This explanation does not answer so well in other cases, such as those of acids united to bases. One thing however is certain, that one of these forces cannot act independently of the other, though in many cases we are not apt to recognise but one.

Thus, when hydrogen is burned in oxygen there is evolution of electricity in an intense form; but only a trace of it escapes immediate recombination under the form of light and heat. In like manner, if carbon be burned in oxygen electricity is evolved, the positive passing off with the carbonic acid, and the negative resting on the carbon.

Some chemists think that the heat generated by combustion is owing to the union of the two electricities; for the discovery of many of these interesting phenomena we are indebted to Pouillet. Following out this train of investigation, the able and acute experimentalist Faraday has lately demonstrated that the electricity evolved during the combustion of a few grains of charcoal, or of an ordinary candle, would, if it could be arranged in a continuous circuit, exceed the effect of the most powerful batteries. The solution of this problem would place in our hands tremendous forces for the production of mechanical effect and motive power; also, the discovery of any substance capable of forming the negative element in a circle, of which carbon formed the positive, would give us a cheap method of forming the various carburetted hydrogens used for illumination.

If, then, electricity always accompanies chemical affinity, whether produced by the sun's rays or otherwise, its influence on the chemistry of photography is important, and should not be overlooked. What practical photographer has not observed the same chemicals work unequally at different times, under apparently the same amount of light and heat, and the same hygrometric state of the atmosphere.

If an atmosphere charged with negative electricity, or simply deficient in positive, is capable of producing the most serious disarrangements—often amounting to disease and death—in animal and vegetable organisms, how much more likely is it to affect the delicate and almost instantaneous operations of the photographer. I pointed out, long since, the marked effect of positive electricity in accelerating the action of light on the prepared plate, enamelled with chloride of silver. Here, on account of the comparative slowness of the actinic action, when unaccelerated, its influence is readily marked. It is probably not less effective in the quicker operations on metallic plates, nor is it without effect in the paper and glass processes.

We all know the readiness with which galvanic circuits are formed between different metals, or different parts of the same piece of metal, when its constitution is not homogeneous throughout, and it is in contact with acid or saline solutions. In like manner, electric currents may be generated between the metallic and other salts in solution, in the exciting and other liquids used in the glass and paper processes, and may materially influence the action of the light to which they are exposed. That this is the case I have no doubt; and I believe that a carefully conducted series of experiments, by some scientific man having leisure to give the subject a proper amount of time and attention, would be of material advantage to the science of photography.—*Humphrey's Journal.*

Application of Photography.—In France Photography has been employed to commemorate the peace by taking portraits of the Commissioners of the contracting parties. Photography is also to be made use of to preserve a record of the works at the Louvre. Photographs are to be taken of all the sculptures and decorations prepared for it, so as to form a complete record of the building.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir—Among connoisseurs of the fine arts, the quality of being best adapted for showing sharp, minute details is by no means considered a *sine qua non* in the tablet for receiving the actinic impression—whether paper, collodion, or albumen; as a variety of details seems, by their sparkling of small lights, to disturb the repose and breadth of effect of the piece. Anything which it is desirable to have considered a work of art, must conform to the peculiar laws of that art, or its claims cannot be admitted. If there be no such desire for considering an actinic production as *pictorial* art, then let the term "picture" be abandoned, and another sought for, which will indicate the particular merit of the kind of production; just as in architectural drawings of the description known as elevations, sections, &c., where every detail is given in its proper place, and of its true dimensions compared with the scale on which the particular drawing is made. Now, no architect applies the term "picture" to such productions, however elaborate the details, or however high coloured they may be; yet they derive as much pleasure and instruction, criticizing them as if they were the finest productions of *pictorial art*. They do not feel affronted at the term "picture" being withheld from them, for they possess in themselves advantages to *architectural art*, which no mere picture could exhibit, however talented the artist by whom a picture might be produced. Why then should actinic practitioners feel sore at the idea of their most *sharp* and intricate productions being refused admittance to the class of *high art?* To this they can have no claim in respect to their mere fidelity in reproducing all the intricacy of detail of the original object, for it was to this they directed all their energy by focussing on these very details, so as to have an equally hard outline on even the most distant parts of the background, aided still farther by adopting a diaphragm with an exceedingly small aperture in front of their lens, thus producing a *picture* (?) such as no natural eye can by any possibility see.

It is a curious fact, and ought by every actinographer to be considered instructive, or at least deserving consideration, that so far from any one who, previous to his commencing actinographer, has been an artist in any branch of *fine* art, cares for this exceeding sharpness of detail, he disregards it entirely; and to such an extent is this the case, that I have repeatedly heard it remarked, that the better the former reputation as an artist, the worse (?) the actinic pictures he could produce, from their being imperfectly focussed! Propriety of position, as well as breadth of effect, being regarded as of no value, so long as each individual hair was not distinct from its neighbours, and every pimple or freckle properly located like the trees of a park on a Lanscape Gardener's map.

I can readily imagine many cases where *fidelity* of detail is not only desirable, but also some in which it is the *only* desirable quality which can be wanted in the particular case; but in the formation of what is to be considered *a picture*, it is not only out of place, but a positive incumbrance and an irremediable defect.

Perfect accuracy of detail then may safely be confined to its own proper domain, viz., to single architectural subjects, and to objects of scientific research, as in the microscope.

Yours, &c.,

New York. WM. ROSS:

To the Editor of the Liverpool Photographic Journal.

My dear Sir—I am much indebted to you for your trouble in regard to my paper on the microscopic pictures, and beg to thank you for it. Since I wrote that paper I have further investigated the subject, and find that the picture is much improved under the microscope by not having the iodide of silver removed. I had found the glare of light through it too intense, which of course suggested the above amendment; I also now use Canada balsam diluted with turpentine as a varnish, and wish nothing better, the varnish used by photographers having a very bad appearance when magnified under the instrument. I enclose a view of the north-west front of St. Alban's Abbey, and had it not been for a most unfortunate circumstance I had now been able to send you the same from different prints, and many infinitely superior to this. The circumstance was this:—on taking up a plate box containing 10 views 5+4 taken at St. Albans, to my intense dismay and annoyance the bottom of the box came out and let them all through, breaking or otherwise spoiling all but this one.

I have got over the difficulty of the transparent spots in the honey plates: I find that the honey was not moved about and kept on the plates long enough, but I now find a great inclination to fog, I conclude from over exposure. For instance, last Saturday before the Victoria Tower, Westminster, I gave at 4½ P.M., in brightish sunshine, 2 minutes to 3 plates, and all were *underdone;* but of late I have found with a 3½ in. double lens, ½ in. diaphragm, 3 or 4 minutes without sun is too much. There is one other little matter I will trouble you with. The other day a friend of mine offered to lend me a proof before letters of "Queen Philippa interceding with Edward III." I accepted his offer, and proceeded on Tuesday to copy it, but on coating the plate I made a complete mess, as my hand slipped and the collodion ran over the side and up my sleeve, so by way of experiment I let that coat dry for a minute and *then poured on another*, and exposed (with old collodion) for 3 minutes with half-inch diaphragm; the success was extraordinary, a splendid negative was the result, which prints a picture admired by all. I will in my next enclose you a proof. I have once repeated this with equal success, and can confidently recommend a trial at your hands.

I am, my dear Sir,
Yours most truly,
SAM. FRY.

Mines Royal, April 11th, 1856.

To the Editor of the Liverpool Photographic Journal.

Sir—Before giving a description of the method of albumenizing glass plates, I will mention some of the reasons which have lead me to practice this process in preference to others which I have tried. I believe an albumen to be superior to a collodion negative in intensity, the blacks not having the bluish tinge which characterises collodion negatives generally, and which by allowing a passage to the actinic rays during printing, has a tendency to diminish the vigour and decision of the positive picture. I also think that distance is given with greater fidelity and beauty on albumen than collodion. As to the comparative facility of working *for the amateur*, there can be no doubt albumen has the advantage. Some of my best pictures were taken on wax paper, and a most beautiful process it is; but it has one great defect—the impossibility of obtaining distance with clearness. The same may be said of the Calotype. "Whipple's process" seems in favour with the Liverpool photographers; however well it may answer in some hands, it is difficult to understand the theory of having the sensitive coating soluble in water. I do not see how it is possible to avoid dissolving out the honey in the different baths, and some negatives I have lately seen bear me out in this remark, being full of minute holes though otherwise very good.

Now as to the method of preparing the plates. The glass I use is "flatted crown," which I find answers every purpose as well as patent plate, if it be carefully chosen and tried in the pressure frame before being albumenized. New glass may first be washed in water, and then finished with tripoli and spirits of wine. I imagine it is of some importance to have the plates well cleaned and free from grease. The coating of albumen is best removed from spoiled plates with a little ammonia and cotton wool. To prepare the albumen, take the white of one egg in a small glass vessel, and with a silver teaspoon separate *very carefully* the germ and non-transparent part, having a dark surface underneath to enable you to do this more effectually, and do so with each egg according to the number of plates to be prepared, reckoning at the rate of four eggs for every dozen plates size 10 in. + 8 in. Having put the albumen into a large bowl, add 1 dram of water in which is dissolved 6 grains of iodide and 1½ grain bromide of potassium for each egg, and beat the mixture with a silver fork to a stiff froth; cover the dish with a cloth, and put aside for 24 hours. The albumen will keep good a few days, but it is better to use it as soon as possible. A gutta percha holder and a wire forceps are required for albumenizing; the former is made by moulding *sheet* gutta percha into the form of a funnel about 3 inches in diameter at the top, (those sold in the shops will not answer this purpose, on account of the colouring matter, &c., they contain,) and then fastening a round stick in the tube of the funnel, so as to form a handle 6 or 8 inches long. The forceps is made as follows:—Take a piece of stout wire about 30 inches long and make a large hook at each end, then bend the wire in the middle until the hooks catch the opposite corners of the plate (10+8), so that you can suspend it by a string attached to the wire. To coat the plates, filter 2 oz. of the albumen from the bowl into a small measure glass through fine muslin, taking care that the albumen does not fall from any distance into the glass, as that would be likely to form bubbles; if any froth or impurity remains remove it with a small piece of blotting paper. Gently warm the gutta percha holder till it becomes sticky, and attach it to one of the plates; pour on the *whole of the albumen* in the glass measure as you would collodion, gently tilt the plate until the albumen has completely covered it, and pour the excess from one corner of the plate back into *the bowl.* When it ceases to run in a stream and *begins to drop,* incline the plate in the opposite direction till the albumen has covered the plate a second time, then let it flow back halfway across, now holding the plate *perpendicularly* spin it pretty rapidly for a minute or so, the albumen will fly off from the edges, and the motion has the effect of perfectly equalizing the coating. On restoring the plate to a horizontal position wipe the edges all round with a clean sponge, spin the plate again until the albumen has returned up to the edges. Now put the plate in the forceps, albumenized side upwards, and detach the holder by inserting the thumb between the glass and gutta percha, and suspend the plate over a stove (which I always use) or before a clear fire free from ash, allowing it to rotate gently, which may be done by hanging it under a bottle jack; in about a minute it will be quite dry, and the coating beautifully cracked all over. The cracks do not show in printing, and they will disappear if the plate gets slightly damp: that is of no consequence. The plate must be heated pretty strongly, until you are not able to touch it, or there is a possibility of the albumen blistering in the subsequent baths. The plates may now be stored up for future use, and will not deteriorate by keeping. I have now a stock which I prepared in the winter, and which I intend to use this season as I want them. The exciting bath must not be weaker than 50 grains nitrate of silver to the ounce of water, with one dram glacial acetic acid. Immerse the plate for half a minute, then place in a dish of hot water, and lift it up and down till the water runs off in an even sheet. The excited plates will keep *good* two months. I have seen a *fair* picture taken five months after excitation. About half an hour in sunshine with a landscape lens is an average exposure; no rule, however, can be laid down. It is much better to expose too long than too short a time.

Develope in a dish with a saturated solution of gallic acid, adding at first 20 drops of plain nitrate of silver (not aceto nitrate) to the pint, adding more afterwards as the picture seems to require it. After having fixed (in hypo not cyanide) and washed, when the plate is *perfectly* dry, gently rub the surface of the albumen with a silk handkerchief, which will have the effect of removing any deposit from the developing bath and brightening up the picture.

The three great enemies to the albumen process are germ, dust, and bubbles on the plate; the first must be overcome by most carefully separating all non-transparent matter from the white of the eggs; the second, by having the room in which the operation is performed carefully dusted and kept rather damp, and by dispensing with a *drying box*; the third, by being careful in pouring the albumen on the plate, and in avoiding, if possible, the use of a glass rod.

All who practice this beautiful process must feel obliged to M. Negretti for giving us the first *really useful* directions for manipulation. I do not presume to say that my method is an improvement, however it is an advantage to photographers to become acquainted with the experience of others, and as I have paid a good deal of attention to the subject, and coated successfully plates for my large camera, 20 inches by 16 inches, I feel less hesitation in making it public through your Journal.

Believe me, yours truly,

Leeds, April 7th, 1856. LYNDON SMITH.

To the Editor of the Liverpool Photographic Journal.

Sir,—Having tried with much success the following simple method of taking microscopic pictures, I beg to communicate a few particulars, in the hope they may interest some of the readers of your widely circulated and interesting periodical.

I would premise that to those who have only a small sized camera and lens, this process will be especially useful, enabling them to extend their operations in an entirely new direction.

The process is as follows:—I take a small negative, say 2¼×3¼, and place it inverted on the frame of an upper window so that the sky may be seen through it; then place the camera a few feet off, and focus by a magnifying glass. Before putting the prepared plate in place of the focussing glass, insert in the lens a ¼ or ½-inch diaphragm to prevent fogging from the direct light of the sky shining on the plate. This of course increases the usual time of exposure in the ratio of the difference of diameter between the diaphragm and lens, but being done *in doors, and at any season of the year*, this does not much matter. Develope either by a lens, or without if the eyes are sharp enough, with the usual developing agent, or by citric acid 10 grs., protosulphate of iron 25 grs., water 1 oz., the latter I rather prefer as not being so liable to fog if the picture is overdone. By this means may be kept in a space of a few square inches a complete epitome of a large collection of pictures, which may be thus made a means of very considerable amusement combined with instruction. Enclosed is a specimen; my lens is rather too large, 3½-in. diameter, as it requires in order to take a very minute picture to get further off than the limits of my laboratory admits; a small one is decidedly better, as being too far off detail is lost.

I am, Sir, yours obediently,

SAMUEL FRY.

Mines Royal Copper Co., Upper Thames-street, London, April 1st, 1856.

To the Editor of the Liverpool Photographic Journal.

SIR,—In your last number, in reply to a correspondent, J. B.'s letter, you state—"Cutting's patent process" to consist "in the addition of camphor to collodion," as this information is too brief to allow any amateur to practise it, may I urge on you to insert in your next number the full details of this so celebrated process; as one among many I feel a great desire to know all the details revealed.

Yours sincerely,

A CONSTANT READER FROM THE FIRST.

[Having prepared the Collodion in the usual manner, I take a pint bottle in which I introduce twelve ounces of Collodion, to which I add one drachm of Iodide of Potassium, dissolved in Alcohol. I then shake the mixture thoroughly, and add thereto eighteen grains of refined gum camphor, shaking the mixture again, until the whole is combined, then allow it to settle, when it is fit for use. The combination of camphor with iodide of potassium and collodion, as above specified, is adapted solely to the production of positive pictures on glass, and not to the production of negative pictures on glass, from which positive pictures on paper may be printed, as a sufficient degree of opacity is not thus afforded for that purpose.]

ANSWERS TO CORRESPONDENTS.

H. G. IVIE.—The developing solution is too acid; reduce it one half; the grey color appears to be a deposit of silver in excess.

[We do not know the composition of Mr. Shaw's developer; perhaps some of our correspondents may.—ED. L.P.J.]

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 29.—MAY 10, 1856.

We are still suffering under an *embarras de richesse* in a press of interesting matter, some of which will fortunately bear to be postponed; and to make room for the more pressing we have printed the papers read at meetings or sent to us for publication, in rather smaller type. Still we have been obliged to give four extra pages, for which we, according to our previous custom, make no extra charge. We have been obliged by Mr. Mawson with a wood-cut of his patent portable camera, with a description. It was mentioned in the last proceedings of the London Society, but not described. We have made a selection from a *fasciculus* of scraps sent to us by Mr. W. Ross of New York. It is on the proper situation of the diaphragm in relation to the lens, a most important subject to photographers. Mr. Corey brought Mr. Ross's actino-hydrometer, to which we have previously referred, before the meeting of the Liverpool Photographic Society, and gave a detailed description, which will be found in our report, with a valuable table and scale. As Mr. Ross has devoted himself to advance the art without endeavouring to secure any personal advantage out of his labours, and as delicate glass instruments cannot be transmitted without hazard, Mr. Chadburn has made an actino-hydrometer to the scale Mr. Ross has given, and will, we understand, supply any photographers who may want the instrument. Although the learned and proficient may not require such aids, they will be found invaluable to the amateur, and may serve to render experiments more precise. Mr. Llewellyn proposes, as an improvement upon Mr. Shadbolt's honey process, the use of oxymel (a mixture of honey and vinegar sold by all druggists), 1 part to 4 parts water, floated over the sensitized plate, in a horizontal bath. Mr. Hardwich, we understand, has come to a decision on the permanency of positives in favour of Mr. Shadbolt's and Sir. W. Newton's processes. We also hear rumours of professional jealousies having been manifested, which threaten to divide the London Society. We have frequently had cause to regret the tone adopted towards each other by distinguished photographers, but never have we been more surprised than at a letter in the last *Journal of the Photographic Society*, making an attack upon Mr. Sutton. The writer, under the name of "Old Hypo," quoting the statement, that Mr. Sutton had seen the printing of 250 prints in an hour and fifty minutes, converts this into 110 seconds and asks, "what magic process can cause the production of prints at the rate of two in less than a second?" He says that "he is not a Cambridge man, and his mathematical education has consequently been sadly neglected;" but what will be said of the mathematical education at King's College, London, when the son of the Principal, the editor of the *Journal* of the Photographic Society, can admit such a letter as this, and without a word of comment?

The very great convenience of Mr. Shadbolt's process renders every hint of value that will remove any hindrance to its success. The tannin contained in most varieties of wood, we are told by learned authorities, renders boxes and slides extremely prejudicial to the preserving of plates. A glass box, having the sides made of the thick ribbed and fluted glass now much in use, may be cemented together with marine glue, and bound with cord or caoutchouc; one of the lower corners being left open allows a perfect drainage from the plates, if the box be slightly tilted; and a cover is not needed, as a plate of glass laid over will keep out dust. This may be kept in the dark room; when ready to start the plates may be put in their several slides.

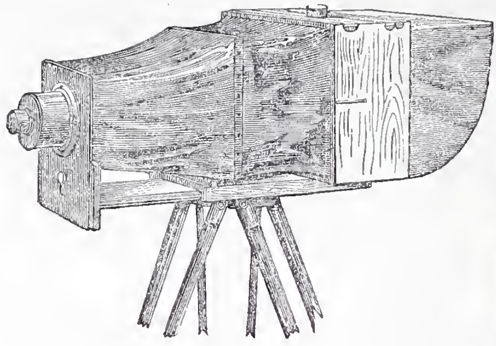


Fig 1.

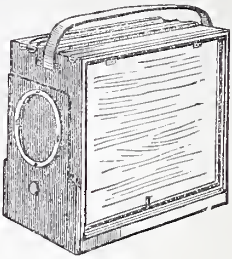


Fig 2.

MAWSON'S PATENT PORTABLE CAMERA.

The instrument figured above is designed to combine with portability those useful qualities which have hitherto been almost exclusively possessed by heavy and cumbrous apparatus, viz. *facility of erection and package, stability and convenient working.* It is available for every photographic process, and the same apparatus may be employed with lenses of long and short focus; the sliding front providing for the convenient change of lenses. Focussing is made extremely convenient by the screw at the back. It should be particularly observed that all parts of the apparatus have a permanent connection, there being no loose pieces. Fig. 1 represents the camera expanded. Fig. 2 represents the camera folded.

The base consists of a slide and sheath, forming a table of variable length; the sheath end of this table supports the main frame, constituting the back of the camera, which is grooved for the reception of one or more dark chambers and the focussing screen.

The slide end of the table carries the lens.

The body is composed of a durable cloth, impervious to light; one end of the wide portion of the body is fixed to the main frame or back, the other end is fastened to a light stretching frame, which, when the camera is expanded, is attached to the lens end of the sheath, and thus distends the wide portion of the body. From the stretching frame to the lens the body is continued by means of a conical sac, the neck of which is elastic, and contracts into a groove behind the lens.

The length of the base is regulated by means of a quick-threaded screw, which works in the slide, the head projecting from the sheath end of the table. Focussing is effected by turning this screw. The main frame or back is connected with the table by a thumb screw bolt, which passes through the bottom or side of the frame, and works in the nut, travelling beneath a slot plate fixed upon the sheath. This mode of attachment permits the folding and expansion of the apparatus without separating its parts.

Folding is effected by detaching the body from the lens, and packing it in the space between the dark chamber and focussing glass. The slide is then screwed in, and when released from the detent in front, the main front is turned square with the base.

NORWICH PHOTOGRAPHIC SOCIETY.

The usual monthly meeting of this Society was held on the 2nd instant, in the council chamber, Dr. Ranking, in the absence of the President and Vice-President, took the chair; and, after the formal business of the evening, gave a detailed account of the process on waxed paper, which he was in the habit of using with success. Some discussion on the various formulæ for waxed paper work followed, Mr. Stewart speaking in high terms of the urea process, which he considered as more rapid than the usual modes, and also as giving brighter and clearer negatives.

Mr. Parr mentioned that he had been trying acetate of soda in the preparation of waxed paper, and, with an ordinary lens, had succeeded in obtaining dense negatives in five minutes. A full account of this process was promised for next meeting.

Several excellent Photographs were exhibited by Dr. Ranking, Mr. Howes, and Mr. Pulley.

Dr. Ranking and Mr. Howes were requested to try the different modes for preserving collodion plates, in a sensitive condition, and report thereon at the next meeting.

The report of the French meetings came too late for any notice at length M. Pesme exhibited a negative re-produced by the plan of M. Jeanrenaud, and M. Girard presented a paper on the formation of proofs by salts of lead without silver.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The second meeting of the third session was held on Tuesday evening, the 6th instant, at the Royal Institution, Mr. Corey occupied the chair.

Mr. Forrest stated that steps had been taken which would, in future, ensure the notices being sent out in ample time.

Mr. Bell exhibited some collodion films which had been removed from the plates by Mr. Archer's method of using benzole and gutta-percha. The old process was attended with great difficulty, the film being liable to crack in the course of removal. Mr. Archer's process, however, enabled the film to be removed with greater facility. A second coating of benzole was applied, after the first coating had become cold, and the result could not fail to be perfectly satisfactory. Both coatings were dried with heat. There had first been some difficulty with the process, which, it appeared on inquiry, arose from having drained the first coating off much too quickly, and not giving the plate time to dry between the first and second coating. The experiments had since been successful.

In answer to a member, Mr. Bell stated that he had printed from negatives, taken this way, in ten minutes.

Mr. Rollason, of Birmingham, explained his patent process of transferring the collodion film, and exhibited a number of excellent specimens. They were sharp, possessed an agreeable tone, and the surface was protected by a bright glaze, securing the picture against injury as securely as a coating of varnish. The polish on all the specimens presented an unbroken surface, although some of them had been tumbled about in a portfolio for six or eight months. Mr. Rollason had been studying the process about eighteen months, but he did not satisfy himself with the method until the 7th of April last. He produced, among others, a print, taken in two or three minutes, on a dull day, from a negative, upon waxed paper. The polish observable upon the films was obtained from the surface of the glass. He then proceeded to explain his process of transferring the collodion film:—

The plate having been well cleaned, the picture is taken in the usual manner, and when dry, is covered with asphaltum, dissolved in any of its known solvents, which, when sufficiently dry, is again covered with a mucilage of gum and honey; the same mucilage being applied to the paper or other material upon which the picture is to be transferred. The two are then closely attached by rolling out the superfluous mucilage and air bubbles. It is then placed, paper upwards, to dry, and when, upon making the attempt at one corner of the picture, it is found to detach itself, one drop of distilled water is to be introduced, which, percolating, admits of the picture being finally withdrawn. If it is a large picture, two drops of distilled water may be required.

In reply to Mr. Corey, Mr. Rollason stated that the collodion lost none of its intensity by being transferred, nor did it present any appearance of dullness afterwards. For stereoscopic pictures it was very beautiful. They had all the brilliancy of silver-plate, with the portability of paper.

In some further observations, Mr. Rollason said he never experienced any difficulties with the process. Indeed, the operation was so rapid that, to fill up his time, he took manufacturers patterns, and received orders in large quantities, sometimes five hundred at a time. He produced several negatives of patterns of fancy breakfast ware, in which the engraved ornamental work was shown with great clearness and sharpness.

Mr. Foard wished to know whether Mr. Rollason's method required a coating of shellac and naphtha, in addition to the coating of asphalte and gum?

Mr. Rollason replied in the negative, but sometimes used turpentine to remove any previous greasiness by rubbing the plate with the finger till it disappeared. But in his process, by using benzole as the solvent of the asphaltum, he got rid of it at once. He had applied his process with success to waxed paper, prepared with common bees' wax. The picture came off well.

The Chairman: Could you print with that?

Mr. Rollason: Perfectly well.

Mr. Fitt thought the inequalities of the paper would interfere with the effect of the picture, and that the sharpness of the glass negative would be lost.

The Chairman: The question resolves itself into this. Can you get such fine lines with wax paper as with collodion?

Mr. Rollason: No, certainly not; but we lose little or nothing in that respect.

Mr. Bell observed that he printed some pictures with this, or a similar process, two years ago, but he could never depend upon the film coming off. He spoiled a good many pictures, and had to give it up.

At a later period of the evening, Mr. Burgess, who was not present during Mr. Bell's statement with respect to Mr. Archer's method of removing the collodion film, said the process of which Mr. Archer claimed to be the inventor (and to whom the *London Journal* gave the eredit of discovering this mode of transferring the film), was not by any means new. Both Mr. Areher and the editor of the *London Journal* had proved themselves to be long behind the Liverpool Photographic Soeiety in this particular braneh. The process was originally brought forward before the Liverpool Society by Mr. M'Innes. The editor of the *London Photographic Journal*, being now a paid man, ought to know all these things, and not claim for any partieular person, in these days, an invention whieh was laid before this Society two years ago. The various systems of dissolving gutta-percha, and first spreading it upon the pieture, and then upon the glass, the reverse way, had all been described to them by Mr. M'Innes. (Hear, hear.)

The CHAIRMAN bore testimony to this statement.

Mr. MERCER observed, with respeet to Mr. Rollason, that he had introdueed a novel method of removing the film, by means of a drop of water, inserted at one of the corners, between the paper and the glass. Mr. M'Innes dipped his in water.

Mr. ROLLASON apprehended, also, that there was another difference in his process. He thought his proeess differed from Mr. Archer's and any other person's, inasmuch as he fastened his pietures upon pieees of paper.

Mr. FORREST: So did Mr. M'Innes.

Mr. ROLLASON: And my proeess is applicable to negatives as well as to positives.

Mr. FORREST: And so was Mr. M'Innes's.

This terminated the discussion, and a vote of thanks was aecorded to Mr. Rollason.

Mr. FORREST laid before the Society a series of Ferrier's Albumen stereoseopic pictures, which had been lent for that purpose by Mr. Atkinson. They were wonderful speeimens of the art, the dioramic effect, when the pictures were viewed through the stereoscope, being very beautiful.

A vote of thanks was passed to Mr. Atkinson.

Mr. MERCER produced a novel Photograph, in the shape of "A view of the Bottom of the Sea, *taken under water*, at Weymouth," by Mr. Thompson, and forwaded to Mr. Mereer, by Mr. Penney, of Pool, with the following explanatory letter:—

DEAR SIR,—With this I send you the Photograph of the Bottom of the Sea, taken in Weymouth Bay, at a depth of three fathoms, exhibited at our conversazione; and also another one of the lower portion of the sea mouse, showing the application of photography to natural history. The one of the bottom of the sea was taken by the collodion process. The camera was focussed before being let down: it was placed in a leaden box with a window in it, and a slide to pull up. It was thus sunk, and kept dark until it reached the bottom. The slide was then pulled up by a string, and the place left exposed to the action of light for ten minutes. When taken up it was found the lead box had not proved water-tight, the sea water having forced itself not only into the camera but between the lenses. Two peculiarities occurred—one, the picture was not reversed, as is generally the case; second, the picture was fixed by the action of the salt water, but admitted of farther development by pyrogallic acid. It is evident the exposure was too long; and Mr. Thompson would probably have tried again but for the mishap to his camera. It is not very distinct, but I have no doubt but the lines or the light parts indicate washings on the sand, and the black portions masses of seaweed. You will observe the line indicating the surface of the water is pretty clearly defined.

Hoping this may prove interesting to your members.

I am, dear sir, yours truly,

Poole, May 5th, 1856. WM. PENNEY.

This remarkable pieture excited considerable attention as it was handed round to the members. It will probably form the subjeet of some future discussion.

Mr. MERCER then read a paper on "*The Recovery of waste Silver, Gold, and Platina.*"

He passed under review the different processes whieh have been recommended, pointing out their peculiarities, and the merits of those he considered the most feasible to photographers, whose knowledge of ehemistry is generally limited, and who have rarely the conveniences of a laboratory at command.

The reeovery of silver always involves two proecsses: its conversion, in the first instanee, into an insoluble salt, such as the sulphide or chloride, which by a second process is brought into the state of oxide or metallic silver. The eonversion of silver into the sulphide may be aeeomplished in various ways; by precipitation with liver of sulphur, as reeommended by Davanne; by boiling with solution of potassa, as reeommended by Lyte; by the addition of sulphide of ammonium, or any other soluble sulphide. Whichever plan is adopted the next step is to eonvert the insoluble sulphide thus obtained into a soluble form; and here the diffieulties of the inexperienced operator commenee. It may be done as Davanne recommends, by heating to burn off any free sulphur, and then by raising the temperature to redness to convert into sulphate; whieh is to be fused in a erucible with saltpetre, or some other flux, when the silver will colleet in a button at the bottom. Crucible operations are, however, impraetieable to photographers generally. There is so much judgment in the management of the fire and careful watching of the progress required, that it is only in the hands of persons accustomed to crucible manipulations and with the neeessary convenienees the result is at all satisfactory. The sulphide may also be deeomposed by treating with aqua regia and converting into chloride, but this plan is objectionable in the formation of another insoluble salt instead of a soluble one, and also on the score of expense. Mr. Mercer considered these to be the only two practical methods of decomposing the sulphide, and both wanting in the great recommendation of simplicity, and inferior to the formation in the first instance of chloride instead of sulphide of silver.

To convert the chloride into a soluble form, a variety of processes were referred to, and two illustrated by experiment—viz., its decomposition by contact with metallic iron; and its treatment with strong solution of potassa and honey, the formation of metallic silver in both cases being the result. To decompose the chloride by contact with iron, it is placed in a jar and covered with water acidulated with sulphuric acid, when a piece of iron being immersed, or iron filings added, decomposition takes place, and the chloride is quickly reduced. It is then to be well washed, and to obtain the nitrate, treated with dilute nitric acid, and crystallized.

The decomposition by potassa and sugar is effected by boiling the chloride with strong solution of potassa for about five or ten minutes, and then adding honey equal in weight to the chloride used, when brisk effervescence ensues, and the silver is entirely reduced to the metallic state.

Gold is most readily recovered from its solution in hypo by precipitation as sulphide with sulphide of ammonium. This metal has a very slight affinity for sulphur, and when the precipitated sulphide is dried and subjected to a gentle heat, the sulphur is driven off and metallic gold remains. If any silver is present, it may be separated by treating the precipitate with aqua regia, which will dissolve the gold and leave the silver behind as chloride.

Platina has lately been recommended as a substitute for gold in colouring positives. It may be recovered as sulphide similarly to gold, by precipitating from the hypo solution with sulphide of ammonium, drying and heating to redness. It requires heating to a higher temrerature than the sulphide of gold, as it has rather a more powerful affinity for sulphur. It may also be freed from silver by treating with aqua regia.

Mr. Corey (having vacated the chair and Mr. Foard having taken his place) read the following paper: *Description of the Actino-Hydrometer:*

Having been favoured by the kindness of Mr. Ross of New York with the actino-hydrometer invented by him, and conceiving it to be highly useful in determining the relative strength of about twelve of the saline solutions requisite for the careful practice of photography, I have resolved upon explaining its use and application to my brother members, leaving them to consider and decide upon its value. There is another instrument or series of bulbs for ascertaining the strength of spirituous liquids, such as æther, and alcohol and the acids, but their application to the present subject is not of recent date, and their results are rather general than precise, and subject to great deviations; these will be spoken of after. There is a full description of both in *Humphrey's Journal* of August last by the talented adapter, but as it is beyond the reach of most of the members, I have considered it better to transcribe and condense the matter of it.

The hydrometer is a glass tube with a scale of degrees rendered partially buoyant by the bulb of glass, and weighted in due proportien that it may rise and fall according to the strength of the solution to be indicated, whether the specific gravity of the liquid to be tried be either greater or less than water: the hydrometer is the most accessible instrument for determining whether it exceeds or falls short of the buoyant power of water; æther, alcohol, solution of ammonia, belong to the latter class, while the acids, syrups, solutions of the metallic salts, belong to the former; for each of these classes it is usual to have a separate instrument, the zero of each class being the same, *i. e.* water; but situated at different ends of the scale, in relation to the bulb of the instrument the 0 of the lighter liquids is nearest the bottom of the spindle, while the 0 of the heaviest bodies is nearest the top. In many instruments which are graduated for particular purposes, the 0 is not on the scale at all; but this is because it is beyond the range of the instrument, in order to make the degrees wider, or shorten the stem so as to make it more compact.

The actino-hydrometer is of course adapted only for liquids heavier than water; its 0 is distilled water at a temperature of 60°, and every degree of its scale indicates two grains of nitrate of silver, dissolved at the same temperature in 1 ounce of water. Its scale will include every strength from pure water up to 160 grains of the nitrate in each ounce of the liquid, by gradations of 2 grains at a time, and only a small quantity of solution is required to float it. In its applicability to acetic acid, it is believed that much mortification and disappointment will by its use be saved to the practitioner, as well as expense in the waste of costly materials. To explain its use:—First, make a solution of any known strength, say one of 40 grains of nitrate of silver to the ounce for an exciting bath; ascertain the quantity of water required to fill the bath to the proper level, so as not to overflow on immersing the enfilmed plate, which is best done by filling the bath with distilled water to the required height (it requires no measuring by fluid ounces), in this immerse the instrument which will float at or very near 0 in the scale if the temperature is about 60°. Pulverize to a tolerably fine powder some crystals of nitrate of silver, and then place the powder in the water where the instrument floats, stirring the liquid till all is dissolved; note the degree on the part of the instrument which is at the surface of the liquid, and this number will be exactly one-half the number of grains of crystals dissolved in each ounce of the liquid. Should it stand at any degree below 20° some more crystals of the silver salt must be added, and the liquid stirred with a glass rod till all is dissolved, when the degree at which the instrument now stands will indicate the additional strength of the solution. If it now exceeds 20°, *i. e.* if the 20° mark stands clear above the surface of the liquid, the solution is too strong, requires to be diluted with distilled water, gradually decreasing the supply of water as the 20° mark on the stem descends near the surface of the solution. In most cases a slight elevation of liquid is seen round the stem, which is caused by the adhesion of the solution to the wet glass; but the proper position of the mark will be enclosed in this film and at the general level surface of the liquid. Some solutions will not wet the glass stem, in which case there will be slight depression round the spindle; but in all cases the general level of the liquid is the proper place for the mark to be. Every one knows that a bath much used and kept open to the air loses a part of its volume in two ways: one by the adhesion of the solution to the enfilmed plate, and the other by evaporation. Each of these deficiencies require occasional replenishing; the first by water with some of the silver salt, and the latter by water alone, and either or both can be added at any time, so as to keep the solution at all times of precisely the same strength as has been found to work well—a desideratum which hitherto it has been exceedingly difficult to meet, except after many trials and much waste of time and materials. Any other solution can be obtained at its best working strength in the same way and with the same facility. As soon as that working condition is known and the buoyant power noted by the hydrometer, another spindle of the same size and of the same principle may be used for all liquids whose buoyant power is less than water, as æther, alcohol, aqua-ammonia, &c.; and whenever any artist gets *au fait* at the use of the actino-hydrometer, he will not be likely to abandon it, as it saves all weighing and measuring with their liability to mistakes. For collodion, the apparatus prepared will be found indispensable in determining the strength of the acids, alcohol, and æther employed, as well as their freedom from that enemy to success in cool or moderate weather—water. The presence of water in collodion is not so deleterious in warm weather, and it would appear from the authority of Monkhoven to be at such times rather advantageous than otherwise; but he insists on the collodion being strictly anhydrous in cold weather. It is only by means of a troublesome analysis that this can be determined except by a hydrometer or bulbs, which, for this purpose and to distinguish this apparatus from the hydrometer for more buoyant liquids, may be called the collodiometer, while the other may with propriety be called the actino-hydrometer. The collodiometer apparatus consists of five light bulbs for the æther and alcohol, with three heavy bulbs for the acids, and a short glass tube, all packed in a proper case. The practitioner should for ready use keep each bulb in the proper place which is marked for it, as by so doing he will save much time when about to use any, as well as have additional security against a mistake. It would be needless to say that each should be carefully cleaned and dried after use previous to being placed in its proper receptacle. As with this apparatus only a very small portion of liquid is necessary for any test, it should be thrown away and the tube cleaned when done with for the time. With the acids especially the tube when testing should be set in a small saucer half filled with water, into which the bulb may be dropped and washed on removing it from the tube after using it. For preparing collodion the proper strength of the acids used for converting the cotton into pyroxyline, as well as that of the alcohol and æther used for forming the menstruum in which the pyroxyline is to be dissolved, may in the following manner be as readily and accurately described as can be desired. The proper bulb is to be gently dropped into a quantity of the fluid to be tried, contained in the short tube packed in the same case with bulbs. The proper indications of strength is, for the acids, that the bulb will just float, and when pushed down will slowly rise again; while with the alcohol and æther that their respective bulbs will just sink so slowly as to be some time in reaching the bottom. For the acids there are three bulbs; one for the sulphuric acid, one for the nitric, and one for the mixed acids. The latter is not at all times necessary, for if both the acids are of proper strength before mixture they will of course be right when mixed and will require no testing. Bulb 1 with the red mark is for the sulphuric acid, in which it should just float; if it appear to have a strong buoyant power, do not dilute it with water till after the nitric acid is tested by bulb 2 with two red marks in the same way, because that may be from excess of water a little too weak, which may be corrected by the deficiency in the sulphuric acid. Or the contrary may be the case; the nitric acid may have extra strength while the sulphuric is too weak. In either case the proportion of the acids should be mixed, and while still hot from their mutual action tested by bulb 3 with a blue mark, which should just float if the excess of water in the one has compensated for the want of it in the other acid. If bulb 3 sinks rapidly the acids are too weak and ought not to be used, or the pyroxyline will be matted, gelatinous, only partially soluble in the æther, and yield a very opaque film which cannot give a good print, as it will be more or less impervious to light where it ought to be transparent. It will be just as bad if the acid mixture is too strong, for the pyroxyline may be dissolved totally or partially in the acid steep, and brown fumes will escape. What remains of the cotton is in this case exceedingly explosive and insoluble in the alcoholized æther. On this head the reader is referred to the papers of Hadow, and to the works of

Hardwich, Brebisson, and Monckhoven. The bulb 4 without a mark is the lightest of all; it indicates the strongest mixture of pure æther with alcohol; it is to be used in winter, or only when the thermometer is below 45° Fahrenheit, where the collodion is to be used whether in a room or the open air, as in that case the collodion ought to be as nearly anhydrous as practicable. The bulb 5 with one white spot is to indicate a mixture of equal volumes of pure æther and of the above alcohol: pyroxyline dissolved in this menstruum can be used when the temperature is from 45° to 75°. This bulb will also indicate a mixture of water and alcohol containing 98 per cent. of absolute alcohol. The bulb 7 with one green spot will indicate 93 per cent. of absolute alcohol. The bulb 8 with two green spots will indicate 87 per cent. of absolute alcohol. All the testing to be made at 60° Fahrenheit. Æther, in which No. 6 will readily float, is unfit for any collodion. Alcohol, in which No. 8 will float, is unfit for use except for fuel in a lamp. For ordinary purposes, in dissolving pyroxyline, it is unnecessary to have a test for the precise strength of a sample of æther, provided it is "a little stronger than strong enough." To ascertain this, pour about a drachm into the test tube and place in it the bulb proper for the temperature at which the collodion is to be used; should the bulb sink at once the æther is strong enough for the purpose. When to be mixed for use, put a portion of æther into a bottle containing a quantity of alcohol, in which the proper bulb is floating, until the bulb is on the point of sinking; should the quantity of mixed liquids not be enough, add a little æther and a little alcohol alternately till the required quantity is made up, taking care the bulb neither floats too lightly nor sinks too freely. The sample of alcohol should of course be tested previous to adding it to the æther, otherwise more water may be introduced than is desirable. For the low temperature the bulb 6 should just sink in the alcohol to be used; the bulb 7 for the medium, and 8 should sink very readily in that to be used in the warmest weather. To recapitulate, the bulbs 4, 5, and 6 are to sink very slowly in the mixed æther and alcohol, to correspond with the respective required temperature at which the collodion is to be used, viz.:—For low temperature, the alcohol in which bulb 6 will just sink is to have æther added till the bulb 4 will slowly sink; to this the proper weight of pyroxyline is to be added for solution. For the medium temperature water may be added to the above alcohol till the bulb 7 begins to ascend, and when well mixed add æther till the bulb 5 will just slowly sink. For the high temperature water may be added to the alcohol till bulb 8 exhibits a tendency to rise but still remains at the bottom, adding a few drops more alcohol to keep it down; then add æther till bulb 6 slowly sinks. The quantity of pyroxyline dissolved in each ounce of the menstruum should be the same for any temperature, and for adapting the collodion to different purposes. (See Hardwick's Chapter on "Preparation of Materials for Collodion Process.") It is of great importance that the liquids to be tried may be as near 60° the standard temperature as practicable, if a true indication of their strength is desired. A change of 5° of temperature will change the specific gravity of alcohol by a difference of one per cent. of its volume,—e.g., at 35° and 85° the buoyant power, as marked by the hydrometer, will show nearly ten per cent. of alcohol more or less; the same takes place at 60° and 40°. Every ten per cent. of the volume of alcohol of 99 per cent., added to a volume of æther, adds ·012 to the measure of its specific gravity.

A tabular statement is added of the buoyant power of the several solutions most in use in photography.

The bulbs represent, respectively, specific gravity thus, No. 1, 1·830; No. 2, 1·455; No 3, 1·615; No. 4, 0·761; No. 5, 0·780; No. 6, 0·804; No. 7, 0·828; No. 8, 0·844. I shall proceed to test its accuracy by immersing the actino-hydrometer in three or four solutions of previously known strength, referring my hearers to the pages of the forthcoming Journal for the figures by which a similar instrument may be rendered extremely useful. (See page 77.)

The description of this valuable little apparatus was listened to with great attention, and at the conclusion of the paper a general opinion was expressed as to its usefulness. Mr. Corey said he found it of great value. He never mixed nitrate of silver without it. In answer to several inquiries, he stated that the inventor was a Mr. Ross, residing in New York, related, he believed, to Mr. Ross, of Edinburgh. The instrument was as cheap as it was useful, the whole apparatus, with box, only costing about eight shillings. It was deemed desirable to import a number, and it was understood that steps would be taken for that purpose. A vote of thanks was accorded to Mr. Corey and Mr. Mercer for their communications.

Mr Forrest stated a hundred impressions of St. George's Hall had been prepared for sale for the benefit of the society; and Mr Atkinson had promised to lend the printing committee his beautiful negative of Furness Abbey, in order to have some impressions printed from it, for the same object. (Hear, hear.)

This terminated the business of the evening. The meeting was then adjourned.

At the April meeting Mr. Stanley Bent exhibited a large number of stereoscopic negatives, which were exceedingly admired for their stereoscopic effect and minute detail. These had been executed by the process brought before this society, at their third meeting, May 3rd, 1853, by Mr. Knott.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this Society was held on Thursday, April 3rd, Sir W. J. Newton, V.P., in the chair.

The Chairman read a paper on *Printing by Development.*

After thanking Mr. Hardwich for his chemical investigation of the effect of alum, in consequence of which he now used a strong solution in lieu of tho very diluted one previously employed:—he said that he could not give an opinion on the admissibility of alum into all printing processes, as his experience was principally confined to printing by development; but, as it had been proved useful in one process, and had considerable toning power, he thought it would be worth experimenting upon, in combination with other methods. With respect to Mr. Malone's observations at the previous meeting, he wished to remark that prints, by development, certainly did improve by time up to a certain point, not only in general effect, but in the appearance of tender parts and half-tints at first invisible; and this, not ouly in the lights but in the shadows. He could not say to what point the improvement would go, but he would state that they did not fade by a long exposure to the sun and ordinary atmosphere. He had no wish to persuade any one to adopt his process, but merely in compliance with many epistolary requests to give the results of his own experience in a process which appeared to be daily growing in popularity. He then gave his method of operating in detail, which differs only in the mode of using, from that given in our April number, p. 30, the quantities of the materials remaining the same. He now mixed the gelatine and camphor-water, and allowed it to cool, adding more camphor-water if the consistenco was too thick. He then added the white sugar, and mixed well in moderate heat, then added the oil of cloves, and after well shaking, submitted it to moderate heat for about an hour. He then dissolved ten grains of iodide of potassium in an ounce of camphor-water, and ten grains of bromide of calcium in another ounce of camphor-water, adding a drachm of each to every ounce of mixture. His sensitizing solution was prepared by dissolving fifty grains of nitrate of silver in one ounce of camphor-water, and adding 1½ drachm of glacial acetic acid, after which he added an equal quantity of camphor-water, which reduced it to a twenty-five grain solution. When the print was finished, he brushed it over with the gelatine solution, warm, but omitting the iodide and bromide. This gave strength to the paper and a *bearing-out* surface, like a varnish. He had been most successful with *papier rives,* but would prefer a close-grained and thin English paper, if he could get it.

Mr. Hardwich read a paper on the *Composition of the Photographic Image.*

After glancing at the difficulties attending the experiments on the subject, he said that the general plan pursued in the investigation was as follows:—First, to ascertain the composition of pure chloride of silver blackened by light; then of chloride of silver with organic matter, or of a mixture of chloride and citrate of silver; lastly, to determine, if possible, the nature of the change which the image experiences in passing through the fixing bath. In addition to this, he had included in the present paper, the relation which images developed by gallic or pyrogallic acid appear to bear to the same obtained by the direct action of light. Crystallized chloride of sodium dissolved in pure distilled water was added to a solution of nitrate of silver, care being taken to leave the nitrate in excess. The precipitated chloride of silver was exposed to the light in a glass-covered porcelain dish until thoroughly blackened. The properties of the substance thus obtained were as follows: a violet-blue powder which retains its colour when boiled with strong nitric acid, but is immediately decomposed by ammonia and hyposulphite of soda, the greater part being dissolved as protochloride of silver, and a small quantity of a grey powder remaining insoluble. The insoluble portion, after repeated washing in strong ammonia and in water, is grey and spongy, exactly resembling in appearance the silver reduced from chloride of silver by means of metallic zinc; it is unaffected by acetic acid or ammonia, but easily dissolved with evolutions of red fumes by nitric acid. It shrinks considerably on drying and becomes brilliantly metallic when rubbed. Exposed to a red heat it is whitened in colour, and one per cent. of volatile water (hygroscopic water?) is expelled. These properties correspond with those of metallic silver; and hence it is reasonable to suppose that chloride of silver acted upon by light is reduced to the condition of a *subchloride,* which, in passing through the fixing bath, is decomposed into protochloride of silver and metallic silver. It is possible that chloride of silver reduced by light may contain both suboxide and subchloride,—that it may in fact be a species of *oxychloride,* as many chemists have thought. The question is interesting to photographers only in so far as relates to the action of light upon chloride of silver *upon paper,* and in this case, viz. in presence of organic matter, we have proof, as I shall presently show, that a true suboxide of silver is formed, as well as a subchloride.

Pure citrate of silver with an excess of nitrate of silver darkens in the sun's rays to a chocolate-brown substance. which, when treated with ammonia or hyposulphite of soda, is decomposed, a small quantity of an intensely black powder being left insoluble, the properties of which, after careful washing, were these:—A flocculent substance resembling animal charcoal in appearance; divided excessively fine and possessing great opacity, so that when shaken up with water it renders the fluid inky black, and is very slow in subsiding. Insoluble in the strongest ammonia and in acetic acid, both hot and cold; imperfectly dissolved by nitric acid, leaving a flocculent residue. When dried it shrinks to a very small bulk, and becomes lighter in colour; the pulverulent mass assumes a dark metallic lustre on applying the burnished steel. When ignited, it gives off empyreumatic fumes, and a carbonaceous deposit condenses; at the same time it becomes white and metallic in appearance, amalgamating with mercury more readily than before. Analysis indicated that 6·5 per cent. of volatile matters were expelled by the ignition. A second experiment gave a result differing quantitatively from the first, but agreeing as regards the presence of volatile and carbonaceous matter. It is evident, therefore, that this substance, obtained by reducing, and subsequently fixing, citrate of silver, is not identical with the metallic silver left on treating pure chloride of silver in the same way. *It contains organic matter*, which cannot be separated without destroying the characteristic black colour by reflected light. I think it doubtful whether oxygen is present in any quantity, because the ammonia used in fixing tends, as before shown, to leave the compound nearly in the condition of metallic silver.

On applying the test of permanganate of potash to a plate of glass coated with pure chloride of silver in Sir John Herschel's mode, and to a plate coated with mixed chloride and citrate of silver, with a little albumen or gelatine to bind the parts together, and exposed to the light, the first is altered in colour but does not lose its intensity; the second which, under the operation of the light, was the blackest, is converted into a brownish yellow substance, pale and translucent.

The application of sulphuretted hydrogen discloses another remarkable peculiarity of the photographic image,—its *intensity* being lowered, and in some cases altogether destroyed by a continuance of the action; sulphuretted hydrogen, however, does not obliterate a layer of finely divided metallic silver! so far from doing so, it renders it *darker* both by reflected and transmitted light; and it will be found on printing an image upon pure chloride of silver supported by a glass plate, that it will *gain in intensity* by a prolonged immersion in a solution of a sulphuret. These two tests, viz., permanganate of potash and sulphuretted hydrogen, therefore, he thought, showed that the photographic image is not metallic silver, but that it contains silver *combined with other elements*, from which it cannot be detached without an evident and destructive alteration in the colour and opacity of the impression. In addition to oxidising and sulphuretted agents, he had tested, photographic prints with a variety of other destructive substances, and had invariably found them to yield, in a space of time from twenty to one hundred times less than that occupied in obliterating by the same test, an image prepared by Herschel's mode upon a glass plate.

The early researches of Sir John Herschel and others had established satisfactorily the *deoxidizing* tendency of white light; but these ascertained facts are often lost sight of in explaining the theory of positive printing. Too much stress is laid upon the *chloride* of silver and the loss of chlorine which it sustains on exposure to light. Photographic prints are indeed readily formed upon chloride and nitrate of silver, but they can also be produced with salts of silver containing no chlorine; and the ultimate result as regards general appearance and properties is not much affected by the change. Moreover, no chlorine remains in the finished proof, the violet-coloured subchloride of silver being *decomposed* in the fixing bath, so that the chloride plays only a secondary part, and that the image is really formed upon a *protoxide* of silver, which in contact with organic matter is reduced by the agency of light. The darkening of albuminate of silver or citrate of silver by the sun's rays may be taken as the type of photographic printing; and the result is the production of a surface of a brick-red tone, which contains a suboxide of silver. With the citrate or albuminate may be mixed *chloride of silver*, and the sensitiveness of the paper will be much increased, but after passing through the bath of hyposulphite of soda the same red tone will be seen. Next omit the citrate and use only chloride with nitrate of silver; the fixed print is then slightly darker, but still of a red colour, and possesses the same general properties.

It is important to notice that these organic compounds of silver which are reduced to coloured subsalts by the agency of hydrogen, are also affected by light, and *vice versa.* The conclusion, therefore, became almost inevitable that the two actions were similar, both being of a reducing or deoxidizing nature, and having this peculiarity in common, that the reduction is often suspended at an intermediate point, and does not necessarily pass into the stage of metallic silver. It may be supposed further that the suboxide of silver exists in the photographic print in a state of chemical combination with the organic basis employed to support the sensitive layer; for the chocolate-brown powder obtained by exposing citrate of silver to light, by the action of hyposulphite of soda, changes at once from red to black, and is greatly lessened in quantity, the bulk of the mass in fact dissolving in the hyposulphite. With a layer of citrate of silver *reduced on paper*, little or no alteration of colour or loss of detail will occur in the fixing bath, thus showing that the subsalt remains attached to the vegetable tissue, and is thereby protected from a solvent action which would otherwise destroy the existing compound by dissolving out a protosalt of silver and leaving a substance approaching more nearly to the character of a metal. The difference in the action of chemical tests upon *albuminized* and plain paper prints was a further proof of a positive chemical union between the reduced silver compound and the organic supporting basis. The albuminized print is slightly more soluble in cyanide of potassium and hyposulphite of soda, but considerably less affected by oxidizing agents and by chlorine. Careful observation seemed to show, almost certainly, that there was more than *one stage* in the reduction of sensitive chloride of silver by the joint action of light and organic matter; and that the first visible change of colour indicates a reduction much less perfect than that which succeeds. Between the half toues and the full shadows of the print there was not only a difference in *quantity of material*, but also in the relative proportion of oxygen and silver united to form the impression.

There were certain points connected with the chemistry of this subject which he was enabled to establish satisfactorily: 1st, that in the paper processes, when *iodide* of silver is used to receive the latent impression, the image after development, although lacking intensity of colour by reflected light, is more nearly in the coudition of metallic silver than when bromide or chloride of silver is substituted. It contains more of the metal in relation to a given amount of iutensity, and is less easily injured by destructive tests. A solution of a soluble sulphuret applied to a picture developed on iodide of silver, lessens its intensity, but does not *destroy* it in the same way as it would an ordinary positive print. 2ndly, that the properties and composition of a developed photograph are influenced by the nature of the surface used to sustain the sensitive layer, and that the image upon collodion is different from the image upon paper. Collodion contains pyroxyline, a substance which behaves towards reduced silver salts in a manner different from most organic bodies. By the introduction of an oxide of nitrogen in substitution for hydrogen, the properties of lignine are modified in every way, aud the resulting pyroxyline exhibits no tendency to combine with oxides of silver or to assist their reduction. 3rdly, the collodion image developed by pyrogallic acid is slightly different from that brought out by sulphate of iron. This latter salt employed in conjunction with nitric acid yields an image which the action of permanganate of potash shows to correspond the most nearly of all to the image upon *pure* chloride of silver. The superior opacity imparted by the use of pyrogallic acid may, he thought, allowing the correctness of the observations contained in this paper, be fairly supposed to be due to a portion of brown colouring matter left in combination with a low form of oxide, or with metallc silver. 4thly, in developing paper photographs, the red substance which is first deposited upon the vegetable fibre on applying the gallic acid, is different in its reactions from the darker precipitate produced by continuing the development. It is more readily acted upon by destructive tests, and from its easy solubility in hydrochloric acid may be supposed to contain a greater proportion of oxygen. Developed prints therefore, which are of a bright red colour after fiixng, will be found to correspond in permanency to positives obtained by direct action of light, more nearly than to collodion or even to Talbottype negatives. If the advantages obtainable by development are desired, the action of the gallic acid must be continued until the deposit forms a thicker layer and becomes blacker in colour.

In conclusion he observed that the point for discussion appeared to be this:—Does light in acting upon salts of silver reduce them at once and perfectly to the metallic state, or may the process be considered a gradual one, passing through the stage of suboxide before reaching that of metallic silver. It had been his object this evening to establish the latter view, and to show that it was the *use of paper*, and *the substitution of chloride for iodide of silber*, which made the essential difference in the composition and properties of photographic prints, as compared with those of collodion negatives.

Mr. Pollock said that all must be obliged to Mr. Hardwich, and that the discussion in the line he suggested should be followed out. Had Mr. Hardwich found that the colouring matter entered into chemical combination with sub-oxide of silver? if so he thought it conclusive that the photographic image was a true chemical combination of silver, or sub-oxide of silver, with organic matter.

Mr. Hardwich could not settle that point.

Mr. J. D. Harding said, with reference to Mr. Fenton's observations on the fading of water-colours, that if properly prepared, they would not fade.

Mr. Fenton's experience warranted him in coming to a different conclusion, and he instanced Copley Fielding's drawings among others.

Mr. Pollock said that the printing committee had determined to test the permanency of water-colours also, and he had a paper covered with colours, some that he knew would fade, as well as those supposed to be permanent.

Mr. Harding regreted that he could not give the result of an inquiry whether paper could be obtained without any preparation, such as chloride of lime, in it. Colours could be obtained which, even if exposed to the sun, would be permanent.

Mr. Lake Price suggested that photographs should be kept secluded from the atmosphere, in portfolios with flaps, or between two pieces of glass, the edges of which were closed up by a piece of tape dipped in india-rubber or gutta percha.

Mr. Absolon, the water-colour draughtsman, has written a letter in support of Mr. Harding's statement of the permanency of water-colours.

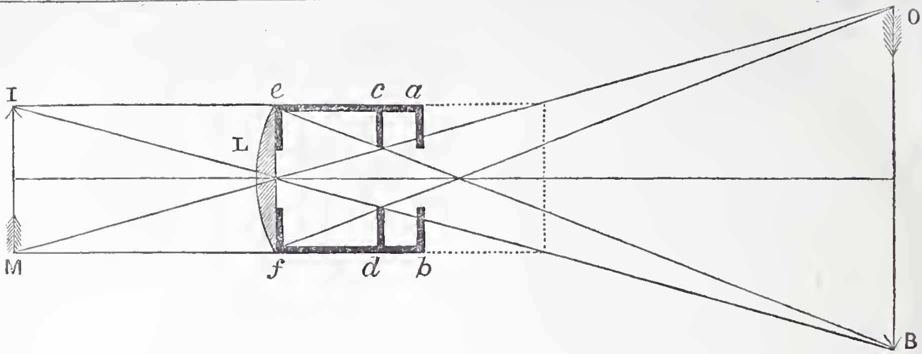
ON THE SITUATION OF THE DIAPHRAGM IN RELATION TO THE LENS.

By W. ROSS.

In order to practise any branch of actinic picture-making with success, it is of the utmost importance that, above everything else, the camera be of the most improved construction, and that, on oecasien, the artist may be able to modify its performance as his immediate subject may require. Where the optician has failed to perform his duty in the formation of the lens, no modification ef the practitioner can render it perfect, although by proper attention he may often ameliorate its defects. Yet there are occasions on which, when the optician has performed everything that could be done, enough still remains to exercise the skill and care of the person using it.

I am aware that the words *diaphragm* and *stop* are often used synonymously; but I should limit the term *stop* to the cap or other disc for excluding a large proportion or all the light from the lens, and *diaphragm* to a disc placed close to the lens and perforated with an aperture to permit access of light in any desired quantity to be refracted for forming the image by the lens. I propose to point out the peculiar effeets produced on the impression by these regulators of actinic action in the camera. B. Porta first recorded the formation of images by means of excluding all the light, except the few axial rays which passed through an exceedingly small aperture, and these few formed a sharp image at *any distance* from the aperture, compared with the distance from the same point at which the image was formed. When formed near the aperture it was small in size, but very luminous; while, when formed at a greater distance, it was of increased magnitude but of lessened brightness, because the same quantity of light was diffused over a larger area; and so in proportion as the size is increased the brightness diminishes, till, when at a great distance, it is lost in the surrounding gloom. From this it will be seen that the axial rays are of themselves able to form an image of any object of any size, and at any distance, as long as *no others* are admitted; for by slightly enlarging the aperture the sharpness of the image is disturbed, and when greatly enlarged it altogether disappears. If we now apply a converging lens to the enlarged aperture, we can, by proper appliances, see the image again of much greater illumination than before; but we also find that it has now lost the property of being sharply defined, except in one particular spot, and when we attempt to move the receiving tablet nearer to or farther from the lens, it becomes confused, and at length entirely disappears in a circle of light, instead of gloom as when the small aperture was used without the lens. By still further increasing the size of the aperture, we find the image is formed almost in the same spot as before, (but rather nearer the lens,) of about the same size, with much more illumination or brightness, but less clearly defined, or *sharp* in its outline. These gradations of change take place as we enlarge the aperture, until it is of the same size as the lens used; but the confusion of outline increases more rapidly than the degree of illumination, and very much more rapid than the increase in the diameter of the aperture, even when the lens is most faultless in its workmanship and fittings. On closely examining an image in this condition, we shall find that some portion of it is well defined, while another portion is rather indistinct, but which may, at the pleasure of the artist, be either the central or the marginal parts, according as he may adjust the lens. Every one understands that much of this is the effect of the image being formed on a concave surface, while the receiving tablet is a plane with which the focal image does not coincide; but much of it is also to be attributed to the circumstance, that the more *oblique* rays form an object which pass through the lens at a distance from its centre are not refracted so as to meet or cut the axial rays at the same distance from the lens as those which pass nearer its axis. Every elementary work on optics shows this to be the case, and it can be verified by diagrams which would be out of place here. Allowing this to be the case, it will follow that one or other class of rays will have to be excluded from taking part in the formation of any image by which a sharp actinic impression is to be made, and it is not only most convenient, but it is also better, that the more oblique marginal rays be those excluded. We have seen that the axial rays from every point of an object will of themselves form an image at any distance from the aperture, even without the use of a lens, while the aid of a lens is absolutely necessary to form an image with the others: consequently these axial rays are the most important to retain, and are so retained in almost every dioptric instrument in use. The means adopted for excluding the greater number of these oblique rays is by using the centrally perforated disc, known as *diaphragm*, and this excludes a greater or less proportion of them, while the aperture remains of the same area, as the *diaphragm* may be placed nearer to or farther from the optic centre of the lens. The following diagram will render this more clear than any amount of verbal description can possibly do without it. It matters not in this investigation whether the lens is achromatic or not.

In the figure, L is the lens, through the optic centre of which pass the extreme axial rays O M, B I, subtending an angle, say of 60° on each side of the lens, both before and behind it. As this is the extreme visual angle which the most perfect lens will include at once, it will follow that an imperfectly-formed lens cannot satisfactorily include so much in its field; yet it will be best to consider the included angle as 60°, as the same reasoning will apply to any other angle. If the shade which projects in front



of the lens be of a length equal to its intended diameter, no other *diaphragm* ought to be required where the whole of the object is nearly in the same place, as it will already exclude the light beyond this circle, *i.e.* all the extreme oblique rays from O, which would otherwise pass through the upper half of the lens, and all those from B, which would pass through the lower half, will be excluded. We thus get rid of at least one-half of the very oblique rays; but there are still some which are so oblique that it would be well to exclude them also. The rays from *o*, which would fall in the lens at *f*, as well as those from *b*, which would fall at or near *e*, are too oblique for forming a sharp image; to exclude them a *diaphragm* is required, and if what has been said of the importance of retaining the *axial* rays, and of getting rid of those which are too oblique is correct; the diagram will show that its proper position is at *e* and *f*, *f* close to the lens, and its aperture should be of such a diameter as may be most convenient for the purpose in view. Were the diaphragm at *c d*, with an equal aperture as in the first position at *e f*, it would *not* obstruct the very oblique rays of *b e* at all.

In this case it would be simply useless, as the shade already performs the office of *a* diaphragm in this position. Were it placed at *a b*, and with the same aperture as before, it would cut off the axial rays, which of themselves form an image without a lens, while it would admit all the oblique rays, which, in proportion to their obliquity, only tend to confuse the image, and this also in proportion as the diameter of the lens increases, and the distance of the aperture from it is greater.

Increasing the length of the shade beyond its own diameter, as shown by the dotted lines, produces the same effect of stopping out the important axial rays, while the disturbing oblique rays are suffered to pass.

Practical lens makers, who are not *opticians*, are addicted to placing their diaphragms as in *a b*, because on looking at the image in the field of the ground glass of the camera, it exhibits greater illumination than when nearer the lens, but every one knows that illumination alone is a poor quality in a camera compared with a properly defined image. A half-inch *diaphragm* as it is called, when an *aperture* of that size is meant, may thus permit the whole diameter of the lens to act in forming the image, whatever that diameter may be, while, in its proper position for forming a perfect image, only half an inch diameter of the lens can be used.

It is impossible within the limits which can be devoted in the Journal to this subject, to do more than just to suggest an outline, leaving it to practitioners to study the subject in their own cameras, and I would beg of them to try first to take a picture of some *one object* with the diaphragm in the several positions indicated, and report the result, considering the distinctness of the outlines as the criterion. When they have done this, they will be enabled so to place the diaphragm as to produce either a sharp or a vague outline as they may desire.

At the April meeting of the Liverpool Photographic Society, Mr. FORREST exhibited a camera, made by Mr. Atkinson, without any dark slide; in lieu of this he proposed a box to hold a dozen prepared plates, placed over a slit, through which they could be dropped as required, and drawn up again as soon as sufficiently exposed, upon the principle applied some time since by Mr. Forrest to a series of papers. Mr. FORREST then made some observations on collodion plates, and Mr. COREY exhibited the contrast between negatives taken on collodion with and without honey: the former being brown in tone, and the latter tending to purple, but affording much greater facilities in printing. A short discussion took place between Mr. FITT, Mr. FORREST, Mr. ROWLAND, Mr. COREY, and others, as to the cause of small holes in negatives which occasioned black spots in the prints. Some inclined to attribute them to the honey, others to peculiar defects in the collodion, but some of the members were convinced that it arose from too much silver being added to the developing solution to force out a faint negative.

TABLES AND SCALE FOR THE ACTINO-HYDROMETER AND COLLODIOMETER.

TABLE I.—*Per centage of Liquid Acids.*

Degrees.	Sulphuric.	Nitric.	Hydrochloric.	Acetic.	Degrees.	Sulphuric.	Nitric.	Hydrochloric.
1	—	—	2	2	41	20⅓	25⅔	70½
2	1	1⅓	3	4	42	20⅔	26	72½
3	1½	2	5	6	43	21	26½	74
4	2	2¾	6½	9	44	21½	27	76
5	2½	3½	8¾	12	45	22	27⅔	77½
6	3	4¼	10	14	46	22¼	28½	79
7	3½	4¾	13	17	47	23	29	80¾
8	4	5¼	14	20	48	23½	29½	82½
9	4½	6	16	22	49	24	30	84
10	5	6⅔	17½	25	50	24⅓	30½	86
11	5½	7⅛	19½	28	51	24⅔	31	87⅔
12	6	7¾	21	31	52	25	31½	89
13	6½	8⅓	23	34	53	25½	32	91
14	7	9	24½	37	54	26	32⅔	93
15	7½	9⅔	26	41	55	26½	33	95
16	8	10⅛	28	45	56	27	33¾	97
17	8½	11	30	50	57	27⅓	34½	99
18	9¼	11	32	*53 or 100	58	27⅔	35	100
19	9⅞	12	33½	60 or 98	59	28	35½	No liquid hydrochloric acid above 58°.
20	10½	13⅔	35	70 or 96	60	28½	36	
21	11	13½	37	80 or 90	61	29	37	
22	11⅔	14	38½	No liquid acetic acid above 21°	62	29½	37¼	
23	12	14	41		63	30⅓	37⅔	
24	12½	15	42		64	30⅔	38	
25	13	16	44		65	31	38⅞	
26	13⅜	16½	46		66	31½	39	
27	13⅞	17	47		67	32	40⅓	
28	14¼	17⅔	48½		68	32½	40¾	
29	14¾	18¼	50		69	33	41⅓	
30	15½	18¾	52		70	33⅓	41½	
31	16	19⅛	53½		71	34⅛	42⅔	
32	16¾	20	55½		72	34½	43⅓	
33	17	20⅔	57		73	34⅔	43⅔	
34	17¼	21¼	59		74	35	44	
35	17⅞	21⅔	60½		75	35½	44½	
36	18⅓	22½	62		76	36	45	
37	18⅔	23	64		77	36½	45⅔	
38	19⅞	23⅔	66		78	37	46½	
39	19⅛	24½	67½		79	37⅓	47	
40	20	25	69½		80	37⅔	47½	

*For anomaly in *Acetic Acid*, see Humphrey's Jour. vol. 7, p. 37.

SCALE.

TABLE II.—*Solutions of Crystals.*

Grains per oz.	Sodium Chl'de.	Barium Chl'de.	Ammon Chl'de.	Silver Nit.	Soda Hypo.	Potas Iodide.	Potas. Brom.	Potas. Cyan.	Tartaric Acid.	Citric Acid.	Sulph. Iron.
5	3°	3°	1°	2°	2°	2°	2°	2°	1°	1°	2°
10	7	7	3	5	3	6	6	4	3	2	4
15	10	10	4	7	4	8	8	6	5	3	6
20	12	12	5	10	5	10	10	9	7	5	8
25	14	14	6	12	6	13	13	11	8	7	10
30	17	17	7	15	8	16	16	13	10	9	12
40	21	21	10	20	11	21	21	17	12	12	15
50	26	26	12	25	13	24	24	22	15	15	19
60	30	30	13	30	16	32	32	26	18	18	23
70	34	34	14	35	19	37	37	31	21	22	27
80	39	39	15	40	22	42	42	35	24	25	30
90	42	42	17	45	24	48	48	39	27	28	34
100	45	46	19	50	27	53	53	44	30	31	38
120	51	53	22	60	33	63	63	53	36	38	46
140	54	56	24	70	38	74	74	61	42	44	53
160	58	65	26	80	44	—	—	70	48	50	60

Remarks on Table I.—The first vertical column is marked *degrees* which correspond with those of the scale of the actino-hydrometer. On its immersion in any liquid acid the degree of its scale, which is at the surface, will give the nearest per centage of the strongest liquid form in the sample tried, in the vertical line under its name, and in the same horizontal line as the degree; for example, if it stand at 49°, it will indicate, in sulphuric acid, 24, in nitric acid 30, or in hydrochloric acid, 84 per cent. of the strongest liquid-acids respectively.

Remarks on Table II.—In the first vertical column is given the number of grains *per ounce* of a solution of either of the bodies named in the table, and in the vertical column, under the different heads, is given the number of degrees at which the actino-hydrometer must float, so that a solution may be made of the strength indicated in the first column. For example, for a solution which will contain 20 grains per oz. of Chloride of Sodium, or Barium, the actino-hydrometer must float at 12°; in Chloride of Ammonium at 5°; in Nitrate of Silver at 10°, or precisely half the number of grains; in Hyposulphite of Soda at 5°; in Iodide or Bromide of Potassium at 10°, in Cyanide of Potassium at 9°, &c. &c. There are several other bodies used in the art, but in such dilute condition as not to influence the hydrometer, among these gallic and pyrogallic acids. The former saturates water with 10 grains per oz. and in that condition indicates only 3°.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—I am in the habit of making my own collodion, and usually succeed in making pretty good; lately, however, I have been much annoyed by finding it dry quite white and opaque, like chalk mixture. I imagine the cotton must be bad, and I suspect my sulphuric acid is at fault, as it is only since using my present sample that I have been thus troubled.

Can any of your correspondents throw any light on the matter, or suggest how to remedy the evil complained of? I should be much obliged by a reply.—Yours, &c. E. EGERTON.

Bolton, April 26th. 1855.

[The sulphuric acid is too weak. See Hardwich's 'Manual of Photographic Chemistry," p. 163.]

To the Editor of the Liverpool Photographic Journal.

Sir,—I for some time have been *trying* Taupenot's collodio-albumen process, and find it very easy of manipulation, but sometimes difficult to get a strong enough negative. This may be peculiar to me, but I do not know. However, after reading an article in *Photographic Notes*, on the development of the image, I thought that I might try the theory there propounded by submitting one of my weak negatives, which had been lying condemned, to the action of a bath of gallic acid and nitrate of silver. This would produce, I imagined, a deposit on the already formed picture of gallate of silver, and thereby strengthen it. I applied a gentle heat to the solution and immersed the plate, and was gratified in a few minutes by a dense coat of some salt of silver, I suppose gallate, which rendered the negative as dense as could be desired. I washed it and took it to the light, when I found that while the already developed picture was materially denser, the shadow portions of clear albumen were changed to a yellow colour, so that with no amount of printing could a proper positive be obtained on account of this change in the shadows.

Now what I would like to know is, the cause of this change in the shadow, and if you could recommend to me any other solution which would strengthen my pictures, and at the same time not injure the tenacity of the film or the clearness of the shadows?

When on the same process may I ask if any of the gentlemen in Liverpool, who have tried this process, have experienced blisters in the developing, and if they have discovered the cause? They always fall when the plate dries but leave a round mark which shows in the positive. I think they are caused by allowing the collodion, after it has been washed from all free nitrate of silver, to become too dry before pouring on the albumen, but of this I am not certain.

Taupenot's is a process, I think, which deserves to be tried by every amateur whose time will not admit of his preparing his materials just when he requires, as it will bear keeping sensitive a considerablo time. In fact I have found no difference in a plate used the next day and another seven weeks after being sensitised.

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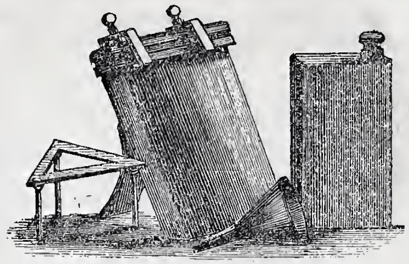
J. White.—The process has been used in Liverpool for the last two years.

A Constant Reader.—We do not know Mr. East's address; nor do we know the lenses in question.

Young Photo.—1. We know of none in England entitled to be called so.—2. We have heard the lenses highly spoken of.—3. 2s. 8d.



THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

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As usual, the difficult problem presents itself for our solution, What can we exclude from our pages without injury to the interest of the Journal, or the imputation of partiality? From the large amount of matter before us we find Mr. Hardwich's luminous paper to have engaged most attention. Judging from the scientific acumen and patient research therein displayed we had conceived but one view could have been taken as to his results; but we live to see the fable of the gold and silver shield every day exemplified. In common fairness, and that our readers may judge for themselves, we publish two communications from our English friends, and one from the French, by Messrs. Davanne and Girard, on this subject.

It is with great pleasure we refer to the very valuable papers of Mr. Hardwich upon the composition of the photographic image, and also the results of three months' exposure, to an atmosphere saturated with moisture, of a large number of paper photographs, with the detailed report thereupon. We would advise all photographers to preserve these papers in their entirety, and consult them frequently when engaged in printing paper positives.

Mr. Hardwich has, we think, satisfactorily proved that the image upon the positive paper print, produced by any of the ordinary photographic processes, is not metallic silver, but a mixture of sub-oxyde and sub-chloride before fixing, and of sub-oxyde in combination with organic matter, *i.e.* paper, after fixing. We believe him to be justified in his substitution of citric acid for paper or other organic matter in the examination, as the perfect solubility of unaltered citrate of silver in the fixing solution rendered the investigation more searching and severe.

The chemical composition of the image being ascertained, enables the photographer to choose such chemicals for the preparation of his paper as shall conduce to the permanence of his proof; and his fixing agent shall be so selected, that he may ensure the absolute solution and removal of every trace of the unaltered sensitive coating along with it in the final washing process.

The whole matter appears to stand thus—the paper employed must be primarily imbued with a chemical in solution, and allowed to dry; it is then in like manner spread over with a salt of silver, preferably the nitrate, again dried in the dark, when it is ready for use.

It is essentially necessary that the silver compound thus formed, shall be capable of a partial reduction by the exposure to light, and, as far as the investigation has proceeded, the paper should be salted with such a chemical substance as shall yield a basic rather than an acid combination with the silver salt; and also, that such compound shall be to a considerable degree insoluble in the silver bath, or in water.

It is at least probable that the salting (for example with a chloride) first opens the pores of the paper by permeation, and on dessication crystallizes, and thus renders the surface more absorptive. The silver solution follows into the opened texture, and coming in contact with the chloride particles, there deposits chloride of silver in a state of atomic division, in presence of an excess of nitrate.

On exposure to light, the reducing action of the chemical rays of light begins, and the surface of the paper becomes darkened by the production of a subsalt of silver, nearly insoluble in ammonia hyposulphite of soda.

The chloride may very possibly perform an office similar to the binoxyde of manganese mixed with the chlorate of potash in the preparation of oxygen gas, viz.—a conductor or communicator; of this we are assured, that no particle of chlorine in combination of silver exists in a properly fixed photograph.

The next operation is to remove by washing in water the unaltered nitrate of silver and nitrate of the base of the chloride employed, and then, if necessary, tone the proof with chloride of gold in sel d'or, again washing and fixing by new hyposulphite or solution of ammonia as the case may be, taking especial care that the hypo or ammonia shall be strong, so that the washing may carry away, without residue, the portion of chloride dissolved or decomposed thereby.

On carefully examining the report of Mr. Hardwich we find that this part of the process, toning and fixing, has been the source of nearly gauge medium plates of the old fashioned ordinary stereoscope, or shall we be allowed to produce views on 5 by 4 or half plates, to be viewed by semi-lenses of larger aperture, similar to the instrument before you?

After the reading of the paper an animated discussion took place in the subject, but as no material information was elicited to subvert the opinion on that topic, we refrain from taking up space to report it.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this Society was held on Thursday. May 1, 1856, Prof. HUNT, V.P. in the chair.

Before the regular proceedings commenced Mr. MATTHEW MARSHALL rose and drew the attention of the Society to an advertisement of a Photographic Association, which contained on its Council the names of some Members of the Council of the Photographic Society. He therefore called on those gentlemen for an explanation as to how far the new Association was likely to affect the interests of the Society, or was antagonistic to it; and if this were unsatisfactory, to retire from the Council.

Sir W. NEWTON observed, that the objects of the Society being purely of a scientific nature, and those of the Association being of a commercial character, he did not see, sorry as he should be to lose Mr. Fenton, how gentlemen could be on the Council of the Society, and also of the Association.

After a long discussion (in which Mr. Lake Price, Sir William Newton, Mr. Fenton, and other members took part), Mr. Price, Mr. De la Motte, Mr. Fenton, and Mr. Hardwich resigned their seats as Members of Council. Mr. Vignolles has since sent in his resignation as Member of Council.

Mr. HARDWICH read the following paper "*On the action of damp air upon positive prints*:"

An examination of the properties of paper photographs would be incomplete without a determination of their behaviour when exposed to air and moisture. This cannot be done correctly by the simple process of suspending the pictures, with water dropping upon them, on account of the accidental impurities always present in the atmosphere. I therefore enclosed each in a separate stoppered bottle, with a little distilled water placed at the bottom, in order to keep the contained air saturated with aqueous vapour.

More than six dozen half-prints, on every variety of paper, were mounted in this way in the early part of January in the present year, and removed at the expiration of three months. Some were exposed to bright daylight during the greater part of the time, whilst others were kept in total darkness. They were printed by various methods, toned in different ways, and mounted with or without such substances as appeared likely to exercise a deleterious action.

The number of prints operated on, and the care expended in their preparation,* will, I trust give a value to this series of experiments, and establish the confidence of the society in the results which have been obtained.

The list of experiments is as follows:—

No. 1. Seven prints developed on iodide, on bromide, and on chloride of silver, on plain paper; simply fixed in hyposulphite; washed in boiling water. *Unchanged.*

No. 2. Four ditto, ditto, the development stopped at the *red* stage. *Unchanged.*

No. 3. Two ditto, prepared by Mr. Sutton, of Jersey; negative process; toned by sel d'or. *Faded in the lightest shades.*

No. 4. Two ditto, Mr. Sutton's negative process; washed with boiling water. *Unchanged.*

No. 5. Two ditto, printed by Sir W. Newton; his negative process with bromide of silver; slightly toned without gold. *A little faded in the half-tones.*

No. 6. Two ditto, ditto; his negative process with iodide and bromide of silver; washed in boiling water; not toned. *Unchanged.*

No. 7. Six prints, on plain paper; simply fixed; washed in hot water. *Unchanged.*

No. 8. Eight albuminized prints, some simply fixed, others toned with gold; washed in hot water. *Some are unchanged, others have lost the gloss of the albumen and a little half-tone in isolated patches.*

No. 9. Three albuminized prints toned with gold; washed only in cold water. *The image almost obliterated by mouldiness; the gloss of the albumen has disappeared.*

No. 10. Five prints on paper prepared with caseine; simply fixed. *Faded in the half-tones.*

No. 11. Eight ditto, on plain, and on albuminized papers; toned in old hyposulphite. *All badly faded.*

No. 12. Twelve ditto, on plain papers; toned in a single bath of hyposulphite and gold. *A few unchanged; some have lost a little half-tone, others have faded badly.*

No. 13. Two ditto, printed by Mr. De la Motte on Towgood's paper *immersed* in a very dilute salting bath, and sensitized with ammonia-nitrate; toned in a single bath of hyposulphite of soda and gold; washed in boiling water. (N.B. The hot water makes the prints, prepared by this mode, very *red*. but the dark tones are regained by pressing the damp prints with a hot iron.) *Unchanged.*

No. 14. Six ditto, by Mr. Shadbolt; toned by sel d'or; fixed in ammonia; washed in cold water. *Uninjured in half-tones; a little change of colour in the English paper.*

No. 15. Two ditto, toned by chloride of gold; on foreign papers; size extracted (one being a

* The glass bottles were new and had never before been used; they were well rinsed with distilled water, which was afterwards tested and found to contain nothing. It is therefore certain that the positives have been fairly tested, and that no accidental impurities were present.

specimen of this mode of toning sent to the Printing Committee by Mr. Waterhouse, of Halifax.) *Unchanged.*

No. 16. Three ditto, slightly toned in hyposulphite; waxed with white wax dissolved in ether. *Faded badly.*

No. 17. Three prints, waxed; toned in bath of hyposulphite and gold (one, a specimen of the waxing process received by the Editor of the *London Photographic Journal.*) *All faded in half-tones.*

No. 18. Two ditto, varnished with spirit varnish; one toned in old hyposulphite, the other in a bath of hyposulphite and gold. *The former badly faded; the latter unchanged.*

No. 19. Two ditto, toned in a gold bath; coated with gutta-percha dissolved in chloroform. *Badly faded.*

No. 20. Six ditto, untoned; smeared on the surface, some with paste, some with starch, and others with resin soap precipitated by alum. *All badly faded.*

No. 21. Four ditto, untoned; a minute quantity of acetic acid, or a little alum, added to the water in the bottle. *All badly faded.*

No. 22. One photograph, previously converted into sulphuret of silver by chlorine and sulphuretted hydrogen. *Unchanged.*

In reviewing the above experiments, it may be remarked in the first place, that the tests to which these prints were subjected was a severe one. When we consider the important influence which *moisture* exercises in favouring oxidation, it may, I think, be concluded, that an exposure of three months in an atmosphere saturated with aqueous vapour would be equivalent to *many years* in air of the ordinary degree of humidity, and that therefore prints which have survived such an ordeal are safe as far as oxidation by pure air is concerned.

Now the experiments showed that plain paper positives which had been *simply fixed* in hyposulphite, remained uninjured. Whether developed in gallic acid or printed by direct exposure to light, the result was the same; and hence we may infer that the darkened material which forms the image of photographic prints does not readily oxidize in a damp place.

But if by a process of toning the colour and chemical composition of the image be altered, or when in addition to atmospheric air and water, certain deleterious substances are present, the experiments prove that the result is different, and that the print then becomes susceptible of oxidation. Let us discuss these two conditions separately.

First, *fading may be influenced by the mode of toning the print.*—SULPHURATION always has a bad effect. Out of several prints prepared in an old hyposulphite bath, not one retained its half-tints after three months' exposure to damp.

Toning by a single bath of gold and hyposulphite of soda may also leave the image in a less stable condition than before; for it was found in some of the prints prepared in this way that the first shades of darkening by light had faded. It is important to notice that this happened particularly when the gold bath, having been long used, *was not in an active state.* In one experiment, out of two prints produced by the same process, viz., with chloride and Iceland moss, one prepared in a quickly acting bath proved to be highly permanent, whilst the other, resembling the last in colour but toned in a feeble bath, faded when exposed to moisture. This proves that the view I have before advocated as to the change of properties which the fixing and toning bath undergoes by constant use, is correct, and that the solution at length tones by *sulphur* if the supply of gold be not well kept up. I found that the prints which faded in the moist air were far more readily injured by boiling water than those which did not fade, and this is one of the characteristics of toning by sulphur—that the tint quickly degenerates into a dull brown when treated with hot water.

Toning by means of chloride of gold appeared to be highly satisfactory. It would have been better, however, if a larger number of prints had been operated on. The sel d'or process also seemed to leave the print uninjured; no commencing yellowness or bleaching of half-tones being visible after exposure to the moist air.

Secondly. *Deleterious matter left in the paper may promote fading by moist air.*—This was evidently seen in two experiments in which positives, toned in an old gold bath, and washed in cold water were divided into halves, one of which was treated with ammonia, so as to extract the size. The result showed that the halves in which the size was allowed to remain *faded*, whilst the others were scarcely injured.

The albumen proofs, washed only in cold water, were rendered perfectly useless by an accumulation of mould. When boiling water was used, no mould occurred; but even in this case there seemed to have been, on some of the prints, a little *putrefactive decomposition* of the albumen, which destroyed the gloss in isolated patches, but affected the image less than might have been anticipated. When caseine was used in place of albumen, the result was also less satisfactory than with plain papers prepared without caseine; it seems evident that these animal substances, although stable under ordinary conditions, will, even when coagulated by nitrate of silver, undergo decomposition if kept long in a moist state.

Effect of coating the print with wax, &c.—From the experience gained in these experiments, I infer that when a print is prepared in such a way as to fade on exposure to damp, it cannot be protected by the application of a solution of wax to the surface. I found that the prints which had been waxed appeared to fade quite as much as, and in some cases more than, others which were left untouched. White wax is an article much adulterated, and turpentine, commonly used as the solvent, is liable to contain a principle possessing *oxidizing* properties, as may be shown by agitating commercial oil of turpentine with dilute solution of sulphate of indigo, the blue colour of which it often quickly bleaches.

Exposure to damp air will afford a ready means by which the photographer may estimate the permanence of his proofs. They should be enclosed in a clean glass bottle with pure water at the bottom; if at the end of three months the colour is unchanged, the slightest shades perfect, and the paper free from mouldiness, the mode of printing adopted is satisfactory.

A vote of thanks was accorded to Mr. Hardwich for his interesting paper, shortly after which the meeting terminated.

THE PHOTOGRAPHIC SOCIETY OF SCOTLAND.

The first monthly meeting of the Photographic Society of Scotland was held on the evening of the 8th of May, in the rooms of the Antiquarian Society, George Street, Edinburgh, the President, Sir David Brewster, in the chair.

Sir D. Brewster, upon taking the chair, congratulated the members on their success in establishing a society for promoting one of the most interesting and useful branches of modern science. Photography is pre-eminently a scientific art: it requires no peculiar genius in its cultivators. The painter and the sculptor must bring into the works those high gifts which qualify them for the practice of their divine art. There is no poetry in the pencil of the sun. The photographer cannot separate what is good and what is common. Owing to the imperfection of his instruments and materials, and the impossibility of fixing many of the objects of his study, he must often fail in holding his "mirror up to nature," but there is no process by which nature can be improved. The pencil of the artist must be called in, as it has already been, to give perfection and colour to the photograph.

An engraving may represent the minutest details in an oil-painting, or in a piece of the most ornamental sculpture, but it fails in giving those minute parts of photographs which sometimes require a microscope to make them visible.

Under these circumstances it is fortunate for the photographer that the very method which his art required has been very recently invented, and that his works may not only be rendered more extensively useful, but placed beyond the reach of decay. This new art, which has been called *Photo-Galvanography,* is the invention of a friend and correspondent of my own, Mr. Paul Pretsch, late manager of the Imperial Printing Office at Vienna. With the aid of a few enterprising partners from Manchester, Preston, and Bradford, he has established a company who have secured the invention by patent, and are now working it at Holloway, near London.

The following is the account of it sent to me by Mr. Pretsch:—

"The invention consists of a peculiar adaptation of photography in combination with the electrotype, resulting in the production of an engraved plate suitable for printing or ornamental purposes. The leading feature of the invention is the production from a photographic original of an engraved surface suitable for copper-plate printing or other purposes. A new mode and style of engraving, producing a tint superior to mezzotint or aquatint, results from plates made from photographic originals. Every detail and touch of nature is faithfully reproduced. The colour of photographs is sometimes liable to change, and in several copies from the same negative there is a want of uniformity in the shade of colour. By the new process this uncertainty of colour is obviated, inasmuch as the prints from the plate are taken with ink, and require only the attention of an ordinary printer to keep them in an uniform colour.

"The rapidity with which plates can be produced is another remarkable feature in the invention. From three days to three weeks is sufficient for the production of engraved plates, some of which, such as those from photographic originals, the human hand could never engrave, or if imitated by ordinary engraving, would require weeks, months, or even years."

The only other point to which I wish to direct your attention, is the method of taking photographic portraits, either single or binocular, for the stereoscope. In the camera for taking buildings and landscapes, large lenses are not necessary; but they have been introduced for the purpose of taking portraits quickly when the light is faint, or when the sitter cannot sit steadily for a sufficient time. The effect of these large lenses is to give hideous representations of the sitter; and it is doubtless from this cause, principally, that photographic portraiture is so extremely defective, exaggerating every feature, and producing pictures which vary greatly with the camera, and the lens or lenses which belong to it. The only remedy for these evils is to use small lenses; and when the sensitiveness of the photographic process is increased, we may hope to work with lenses not larger than the pupil of the human eye.

When these views were first made public, several professional photographers denied their accuracy. They refused to believe that a photographic portrait was a combination of a hundred portraits of the sitter, taken from a hundred different points of sight in the object-glass; and in order to prove this, I requested Mr. Buckle, the celebrated photographer, to make an experiment with his own camera, which placed the fact beyond a doubt.

So incorrect are the views entertained on the subject of photographic portraiture, that Mr. Alfred Smee, surgeon to the Bank of England, and a distinguished optical writer, has actually proposed it as a great improvement to make the camera move upon a conical roller through a certain angle while the portrait is being taken. This process, even if his lens were as small as the human pupil, obviously makes the portrait a combination of portraits taken from a series of different points of sight in the line of the camera's motion.

Before concluding these hurried remarks, I may notice the great stimulus which photography has received, and will yet receive, from the demand for binocular pictures for the stereoscope. The advancement of photography as an art must be promoted by the number of artists or amateurs constantly at work. So great is the demand for binocular pictures, that artists are employed in making them in every part of the world. The Stereoscope Company of London have advertised upwards of *a thousand*, including *sixty* views in Rome, and all the most interesting portions of Pompeii and Herculaneum.

As these binocular pictures are magnified by the instrument, they require to be executed with singular accuracy, and as *two* photographs are taken of every scene, we have the double chance of having a fine picture.

NOTES ON THE SULPHURATION OF POSITIVE PROOFS.

By MESSRS. DAVANNE AND GIRARD.

In our former work, presented to the (French) Society 19th October, 1855, we proved that the alteration of positive proofs fixed by means of hyposulphite of soda, should be attributed to a modification of the molecular condition or the hydratation of the sulphuret of silver which now forms the image upon the paper.

According to several persons this alteration will bring about the separation of the elements sulphur and silver; others admit the sulphurization of the proofs; others again, a combination of the organic matter and the silver,—a combination which will destroy the picture forthwith. We will examine in succession the question under all these points.

1st.—Is there a separation of the elements sulphur and silver? We do not hesitate to reply in the negative; for in the case where this separation will have taken place, an old proof plunged into hydro-sulphuric acid ought to blacken in consequence of a fresh formation of sulphuret of silver, for there is no argentiferous compound upon which hydro-sulphuric acid does not exert influence. Now if you take a proof completely faded, and submit it for some hours to a current of hydro-sulphuric acid gas, you discover no appreciable change. Still more, if you put into a proof-glass a positive faded yet possessing some black spots and leave it there for a whole day, you will find it more faded and the darker shadows completely passed away.

2nd.—Does black sulphuret of silver transform itself into white sulphate? We have just shewn that an alteration is produced in the light and shade in a current of sulphuretted hydrogen. Now we cannot admit in chemistry that a sulphuret of silver transforms itself into a sulphate in sulphuretted hydrogen, since the contrary ought to have taken place and has in fact taken place, as you can verify by submitting a paper impregnated with sulphate of silver to sulphuric acid gas, which immediately turns it yellow. Take a very red print just out of fresh hyposulphite or ammonia, dry it upon a stove at 100° (centigrade), submit it to the action of a current of dry sulphuretted hydrogen; it will blacken after some time—several hours will perhaps be necessary. The picture then will be composed of a black sulphuret of silver. Steep this proof in water, in a solution of sulphuretted hydrogen, in a bath of an alkaline sulphuret, &c., and it will rapidly become more and more yellow, the black sulphuret of silver transforming itself into a yellow sulphuret.

3rd.—Is there a combination of organic matter with the silver?

Mr. Hardwich proposes this theory—the shades of the image are formed by a combination of organic matter and silver, or oxyde of silver.

The sulphur, in virtue of its greater affinity, unites with the silver, displacing the organic matter; this when set at liberty absorbs oxygen or is otherwise modified, leaving the silver combined with the sulphur in the state of sulphuret of silver. The proof then soon fades.

Whether or not the combination of the silver with organic matter exists, the theory that we have proposed would remain not the less; for if there is a substitution of the sulphur for the organic matter it is in the toning bath it ought to take place, since it is there only the sulphuration operates. And how to explain then in the hypothesis of Mr. Hardwich, the successive changes of tints that the print undergoes by a longer or shorter time in a bath of hydro-sulphuric acid?

Must we then reduce these matters to analysis, and say the red impression is formed by metallic silver; the black in the toning bath without any salts of gold or platina is formed by one sulphuret of silver, and that the yellow or faded image is formed by another sulphuret of silver?

In the same bath of hydro-sulphuric acid we put two pieces of a proof, cut into three and fixed with ammonia—the third part was kept as a standard. At the end of about five minutes we took one of them out, it had assumed a rich violet hue; the other, at the end of an hour had become completely yellow. These two actions, so different, could only have been produced by one and the same cause, the sulphuration.

Now, is this a sulphuration more or less perfect? is it an hydratation? or is it an isomeric modification? It is difficult to decide.

We can say, that a proof toned to a violet black by the hydro-sulphuric acid alone, washed in a large quantity of water, and left in pure water during many hours became completely yellow; this seems to exclude the idea of an incomplete sulphuration at the first. Besides analysis has always given us the same quantity of sulphur in sulphurized proofs that would have been in proofs not yet faded; on the other hand a yellow print heated almost to the point of disorganizing the paper does not restore its black colour, this seems to exclude the idea of hydratation. In every case our conclusions remain the same. Every proof sulphurized or capable of becoming so becomes yellow by time or damp; here is the evil; as to the remedy, never employ the means for fixing and toning your proofs which can produce sulphur; get rid of all vapours of hydrosulphuric acid in the atmosphere, for this vapour every day manifests its power to our eyes by the alteration it effects in white lead paint.—*Revue Photographique, 5th June*, 1856.

REMARKS ON THE INFLUENCE OF DAMP AIR UPON PHOTOGRAPHIC PRINTS.

By J. T. FOARD, Esq.

Mr. Hardwich's paper on this subject, reported in the May number of the *London Photographic Journal*, offers a timely renewal of the discussion on photographic stability. The important, and indeed vital question—the "to be or not to be" of photography—still remains unsolved, and on all accounts it is desirable that it should as soon as possible be brought to some settled conclusion. Mr. Hardwich might have proved himself the Alexander to sever this Gordian knot, but unfortunately he has missed his opportunity. He has drawn attention, *memento mori* wise, to the brief life of photographic art, but he has not taught us how to prolong it, or escape its penalties by immortality. His paper, all but exhaustive in its choice of experiment, and which might have been conclusive in its deductions, is obscured by looseness of expression, and rendered well-nigh bewildering by its want of method. This is much to be regretted; not only on account of the intrinsic interest of the subject, but by reason of the probable benefit which would have accrued from its research. It may have been incorrectly reported, or injudiciously condensed, but to the report, the general public looks for information. Had it been as exact in expression as it was wise in selection, or indeed shown an ordinary care in this respect, the remarks we are now about to make would have been spared us. The importance of the subject induces us, however, to make a brief comment on the paper, with a view to protract the discussion.

Mr. Hardwich, in the early part of this year, commenced a series of experiments to test the permanency of ordinary photographic prints, under the influence of continued moisture. He, in January, suspended a number of proofs, more than six dozen, in bottles containing water, the atmosphere above which might be supposed highly charged with aqueous vapour; the effect of damp rather than of light being presupposed injurious to permanency. From twenty-two separate experiments reported he makes the deductions that plain photographic prints, whether by the direct or negative process of printing, which had been simply fixed in hyposulphite, remained uninjured—that toning is injurious—that "if by a process of toning the colour and chemical composition of the image be altered, or when in addition to atmospheric air and water certain deleterious substances are present, the experiments prove that the print becomes susceptible of oxidation." Accepting the word oxidation as representing fading, though any other word would be as accurate, it is obvious that unless we know what Mr. Hardwich means by the words fixing and deleterious, we are not clearly informed in his propositions. Fixing with photographers usually includes toning. A picture is said to be fixed when it has attained the hue considered necessary, that being the only presumed immediate test of the process having been completed. If it does not mean this it means nothing, for to say that a picture fixed remains uninjured, is mere tautology. Again, "if deleterious substances are present injury will result," is merely information of the same kind, for if no injuries accrue the substances are not deleterious. The next sentence, that "sulphuration always has a bad effect," with or without the context, cannot be understood, without an explanation as to the meaning attached to the word. If it means the effect produced by a too long immersion in hyposulphite which yellows the print—it might be readily admitted; if it means, however, as may be presumed from the general sense of the remarks, that sulphuration is intended to express the toning by hyposulphite, we are left, when this sentence is taken in conjunction with the preceeding one on fixing, in a delightful state of doubt and semi-despair, for the propositions united stand thus—if a picture is fixed it is fixed, but if it is fixed (toned by hyposulphite being included in fixing) it is not fixed. Here, as far as this portion of Mr. Hardwich's statements stand, we are compelled to leave the matter, and turn with more pleasure to the annexed deductions, as really valuable acquisitions and additions to photographic knowledge. That albumen and caseine are, when subjected to continued damp, liable to putrefactive decomposition, and therefore to be eschewed in prints intended for immortality—that care is essential in mounting—that the paste should be simple and not contain alum—that light has a comparatively small if any influence on photographs—that prints from which the size has been removed, either by boiling water or strong alkali, are, *cæteris paribus*, more permanent than those which have not been so treated—that washing with warm water offers more security than with cold—that the addition of gold in the toning process is no positive guarantee of increased permanency, *cum multis aliis*.

The discussion by Mr. Hunt (in the chair), Mr. Shadbolt, Mr. Malone, and Mr. Mayall (who advertised his royal patronage as usual) had reference chiefly to the chairman's statement, "That a print properly prepared and fairly exposed need not necessarily fade"—not a very compromising statement certainly, but if our memory serves us Mr. Hunt's original statement was more strongly worded, and was to the effect that a picture sufficiently washed, without regard to its production, is permanent; in other words, that the evils of photography were evils of washing alone. From our own experience—if the phrase ran, washed in hot water one hour, and in running water twelve—the word sufficiently being erased, we would willingly endorse what Mr. Hunt has thus stated without fear as to the result.

ON THE USE OF ACETATE OF SODA IN IODIZING, AS AN ACCELERATOR.

By W. D. PARR.

In Mr. Hardwich's excellent *Manual of Photographic Chemistry*, the properties of acetate of silver are explained, with its formation from the mutual decomposition of acetate of soda, and nitrate of silver; and the addition of a minute portion to the nitrate bath for collodion negatives is advised, for the purpose of substituting acetic acid in place of the nitric acid liberated, where collodion is used containing any free iodine; acetic acid having a much less retarding effect than nitric acid, during the exposure to light.

After experimenting with the nitrate bath in the manner indicated in the *Manual*, I was induced to think that a more extensive application of acetate of silver in negative processes than could be used through the medium of the silver bath, (the salt being so sparingly soluble,) might be attended with great advantage as an accelerator; accordingly, I applied a solution of acetate of soda to one half of a piece Canson's papèr, after it had been iodized and sensitized in the usual way, but not washed. This paper was exposed in the camera for ten minutes—a quarter inch diaphragm being used—and developed with gallic acid. There was scarcely any impression on the side to which the acetate was not applied, whilst the other, equally clear, was fully brought out. This method of using the acetate after sensitizing, is however inconvenient, and I therefore tried the effect of adding it to the iodizing bath, by which means any required quantity of the resulting actetate of silver may be introduced into the sensitive surface.

I will now describe the process followed in taking the three negatives exhibited:—

Immerse Canson's negative paper for three minutes in a bath of

Water	10 oz.
Iodide of potassium	75 grs.
Bromide of potassium	25 „
Soda in crystals previously neutralized with acetic acid	30 „

Free iodine sufficient to give a "strong colour."

Hang up to dry. When requiring to sensitize two pieces for the dark slide, the glasses (of which I use four) are removed from the slide; two of them are levelled, and about 2 drachms of a 30 grain solution of nitrate of silver (with 1 drachm of acetic acid to the ounce) distributed uniformly over each. The iodized paper is now to be floated thereon for three or four minutes, or until the dark purple tint of the paper is completely gone, when the superfluous nitrate is to be drained away and preserved for developing, and the margin of the glasses blotted off. They are now to be placed in the slide, with a second glass at the back of each; then a thin card board, with sufficient loose paper between the card board to keep all tight when closed. This process occupies about ten minutes, and the paper remains good and damp for five hours.

The time of exposure was from 5 to 13 minutes, according to light,—the former sufficing in full sunshine, an half-inch diaphragm and lens of 14 inches focal length being used.

The image is developed with gallic acid, the drainings from the sensitizing process being added at the last, if necessary. The remaining part of the process is the same as that usually adopted, but the waxing is made, instead of the first, the last operation after the removal of all the size from the paper. I had hoped to have made a favourable report of its application to collodion; the first trial with 4 grains of the dried acetate of soda and 4 grains of iodide of cadmium to the ounce of collodion, gave a strong impression in about one-ninth part of the time of ordinary collodion, and quite free from any symptoms of fogging; by the next day, however, the collodion had become so deteriorated that universal decomposition took place on applying the developer (pyrogallic acid), even when the plate had not been submitted to light. I fancy that it is the æther that is injuriously affected by the acetate, as the iodized papers prepared as above appear, if anything, to improve by keeping.

Having failed with collodion I was desirous of trying the effect of a still larger dose in the paper process. The small negative exhibited is the result obtained by the addition of 7 grains of the neutralized soda to one ounce of the former bath, making it 10 grains in all. This paper was prepared the same as before in other respects, exposed 10 minutes with a $\frac{1}{4}$ inch diaphragm, and developed 6 hours after by floating it on gallic acid on the slide glass. This is quite as well defined as the others and certainly as clean.

In conclusion I would remark that the papers will not keep many hours after being sensitized, and that the only advantages to be expected are a diminution of the times of exposure and development, and an extra density in the negative.

CORRESPONDENCE.

A "wise saw and modern instance."

To the Editor of the Liverpool Photographic Journal.

Sir,—If you think the following case of sufficient interest I shall feel obliged by your publishing it in your Journal.

Last week, in one of my morning rambles, I came upon a wheelwright's shed and yard, which looked so tempting in the bright sunshine that I immediately set up my apparatus to take a view of it. Whilst Phœbus was "doing" my picture I made a survey of the premises in search of the picturesque, and on returning to my camera I perceived that the workman had placed his saw against the door in such a position that the sun behind me was reflected from it with dazzling brightness. The idea at once occurred to me that the saw would print in any positive picture as a perfectly white unmeaning object, I therefore moved it, and proceeded to take a second picture from nearly the same spot.

In developing the pictures at home, (I was working the wax paper process,) I found that the lights of the first picture darkened before the development had gone far, just as if it had been exposed to daylight, which very much puzzled me to account for, until I remembered the spot of light reflected from the polished steel of the saw.

On examining the negative, which I removed from the developing bath when the lights became obscured, I found the only black part of it was the image of the sun, and that was intense. I think therefore I may fairly conclude that some of the rays reflected from the sun entered through the lens and darkened the picture, especially as the second picture developed clean and white.

If my conclusion is a correct one, the accident is of some importance to guard against, and may account for some of the mysterious effects by which at times all photographers are baffled; for in certain relative positions of the sun, the object, and the camera, I can imagine that a window, a vane, or any other smooth shining surface, may reflect rays of white light through the lens sufficient to darken the picture in the after process of development, just as the direct rays of the sun would.

I am, Sir, yours obediently,

GEO. S. PENNY.

Cheltenham, June 3rd, 1856.

To the Editor of the Liverpool Photographic Journal.

DEAR SIR,—Unavoidably absent from the meeting of the Liverpool Photographic Society last night, I take this opportunity of replying to the question asked as to the progress of systematic exchanges of photographs with other Societies. The Committee appointed at a late meeting, of which I have the honour to be chairman, has already transacted a considerable amount of business, having been the medium of exchanging upwards of one hundred and twenty photographs, many of them of surpassing beauty, and I believe to the general satisfaction of those interested. We should have beeu glad to have received from a larger number of the subscribers proofs of their work, but have no doubt the backwardness of the printing season has prevented their furnishing specimens, and we look forward to the period when our next exchange will be effected with confidence that we shall be able to give more satisfaction. It is evident from the inspection of those photographs sent us, that in the majority of cases, there is something more to be learned and applied, and that the negatives from which they were printed are capable of supplying better positives, and I am rather surprised that inquiries as to the processes employed by others have not been made to us by those who may have received superior photographs to some of their own. I need not say we shall be happy to put parties in communication with each other, or perhaps a better mode would be to make the inquiry through the medium of your publication. It was no part of our plan to systematize exchanges with other Societies — the difficulties in this case would be very great; but we considered the same object would be attained by effecting exchanges with individuals, and the result has fully equalled our expectations. I may mention, for the information of those who received the large photograph of the Hotel des Invalides, that it was taken on wax paper, by Le Gray's process, and that the time of exposure was one hour; diameter of lens 4 in., focns 22 in., and stop ½ in.; but the process is considered too slow in this country. The record we keep will be valuable hereafter; and we should be glad if contributors would afford us more information as to the processes they employ, time of exposure, nature of light, and any particulars generally useful, in which case I think the object we have in view would be more effectually carried out.

I am, dear Sir,

Yours very truly,

CHRISTOPHER BELL,

41, *Bridge-st.*, *Birkenhead.* Chairman Liverpool and National Photographic Exchange Club.

To the Editor of the Liverpool Photographic Journal.

SIR,—Allow me through the pages of your useful and instructive Journal to furnish amateurs and others with a real good black varnish for backing positive pictures.

Take any quantity of *benzole*, first dissolve therein a little powdered gum dammer, then add powdered asphaltum sufficient to form a varnish that will flow readily over the glass. I use this varnish without having previously put on any hard spirit or amber varnish, and seldom find it affect the whites of the picture.

This varnish is easily made cheap, and what is a very great object, dries in a *few seconds;* indeed while draining the surplus varnish off, the upper half will be found dry; heat is not necessary to quicken the drying.

I am, yours sincerely,

Glasgow, *4th June*, 1856. HUGH HENDERSON.

ERRATA.—At page 78 of our last number, 14 lines from the bottom of the first column, in both cases, for *ounces* read *grains.*

ANSWERS TO CORRESPONDENTS.

T. S. B. A.—All works of merit relating to photography are usually sent to us for review: now we have not seen any number of the *Photographic Record*, so we can pronounce no opinion upon it.

D. D. is referred to page 82 for an answer respecting his very appropriate letter on the preparation of Iodide of Ammonium.

W. ROSS.—Your enclosure came safely by a later mail. We will observe your injunction respecting the works enclosed. Mr. Sutton has explained the seeming difficulty of the 250 prints. The method of printing by clips has been used here. We purpose to requite our obligation, if possible, by next mail. If our article was too greasy, you will supply a salt quite caustic enough to render it soluble.

M. R.—Daguerreotypes may be very easily copied if you are careful not to let diffused light spread over the surface, as then they look flat and dim upon the focussing glass. To avoid this, fix the plate to be copied at the end of a box, having the top open, so that the only rays cross the buff marks, or rest it upright on its side, at right angles with a window, and by slightly inclining it forward, with a piece of black velvet in front, the same effect may be produced.

SAMPSON BRASS.—Pyrogallic acid has been used with iron for positives for more than two years in Liverpool.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 31.—JULY 12, 1856.

The late bright and truly photographic weather enlivened all who pretend to the use of a camera; and all who can, and many who cannot, afford the time, were busily employed in that branch of the art they most affect, and we may very soon hope to gain the result of their several labours, for photography progresses so rapidly that the novelty of one season is left far in the rear of freshly discovered facts, ere a few months be past. The several modes of conserving plates, by the plans of Messrs. Taupenot, Shadbolt, and Llewellyn, occupy the attention of most who operate upon glass, but there are not wanting those who are either regardless of an increased load, or who can command unskilled aid in carrying the increased bulk of a tent—preferring to watch the results of their pains, thereby assuring themselves of the fruits of their journey, in lieu of a box full of ill-timed or imperfectly preserved plates. The various modes of retaining the sensibility of plates under favourable circumstances are of inestimable value to the photographer who can only obtain chance shots at opportunities "few and far between," and we propose to consider them in their separate order, but commend us to an entire day of bright sun, in a picturesque country, with a kindred spirit, or at most two, to join you; the glorious panoply of plates, baths, and bottles all around, a secure tent, in a barn or coach-house, the plate, carefully sensitized, dismissed in the hands of a gaping rustic, to your friend, who selects the object and times the exposure, and sends the breathless urchin back, and then to see the blackening of the deeply intense negative growing under your hands, whose colour soon vies with the nigrescent silver, and too ineffaceably stained to be presentable at the frugal dinner, hastily snatched lest the precious daylight be lost; To those who can comprehend the insatiable desire for possessing first-class negatives; and we know there are many such, by the numberless intellectual men—aye, and women, too—we have met in these rambles, where so much of the sublime and beautiful has reminded us that

> God made the country—Man the town :—

to these especially, our information upon the subject of tents will be acceptable.

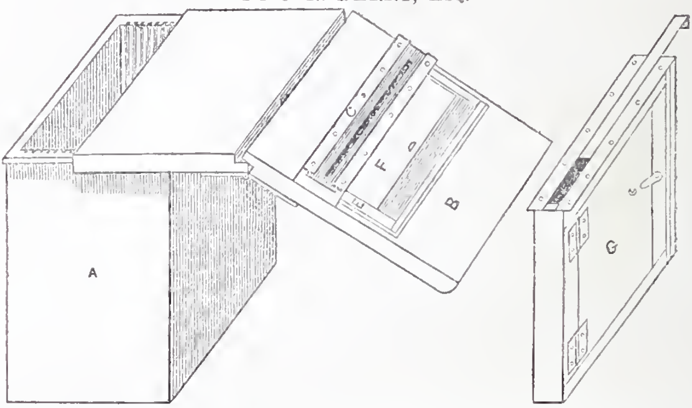
As impartial critics it behoves us to consider the means of running out when opportunity offers with plates, on which reliance may safely be placed. For large pictures, Mr. Shadbolt's is doubtless pre-eminent. For this the question naturally rises, to wash or not to wash; irreverent rogues say the process won't wash; but have they been careful to filter their honey, to make it only so thick that it will just filter, yet not run too quickly through—and be it remembered, that you may use Shadbolt until, by being overcharged with silver, you have transferred him into Maxwell Lyte,—(Peace to his manes! his loss is a heavy one,)—for we know that the latter much respected gentleman's formula quickened the process up to a certain point, and then its sensibility was lost; and who shall draw the line of demarcation?

Of the glycerine we would speak guardedly; much, very much, might be hoped from it, but ocular proof shews it decomposes the silver. Yes, so does honey, we know it; witness the familiar experiment of heating a globe containing nitrate of silver into which honey solution is poured, and the inner surface of the glass is covered with a coating of metallic silver; hence honey plays a more occult part than a mere preservative, so glycerine requires to be better understood. We do not wonder Mr. Llewellyn, with his characteristic sincerity, has cautioned operators against being too much led away with his oxymel process—it looks fair to view, but the formation of the very effective but changeable aceto-nitrate made all chemical photographers afraid of it.

We are fully persuaded that the process of Mr. Taupenot has not been fairly tried in this country at any rate, and need only refer to the specimens produced at the last meeting of the Liverpool Society for direct confirmation of this; except those by M. Ferier and others of the French school of photography—they were infinitely the finest that have ever been exhibited thus far north, and were singularly adapted for the stereoscope; and to this branch of the art, now especially fashionable, we conceive it to be suited above all others; and to sum up all, the operator has dispensed with one of the silver baths, using the same for sensitizing both collodion and albumen films; this is simplifying matters for all useful purposes.

CAMERA AND BOX FOR CARRYING A STORE OF PREPARED PLATES,

By G R. BERRY, Esq.



A box marked A, grooved for the requisite number of plates and of the approved size, is first made, having no lid of its own, but in lieu two bearers screwed in each side close to the top; these enable it to slide easily under the hinged table B, having a grooved piece to support the box. Nearly in the centre of the flat B is a long slit D, which can be covered at will by the sliding piece F travelling in the groove E, these are also covered by a brass dovetail C, the tongue or counterpart of which is affixed to the bottom of the dark slide of the camera G, through which there is also a slit the size of the plate, but covered over with a sliding door or valve. By means of the brass dovetail the dark slide is fixed to the shifting table covering the box, and pushed forward till, as marked by an index plate, the two slits are over a groove in the box; the box and slide are gently tilted up into an inclined position, until a plate, having its coated surface upwards, gently glides into the dark slide; the two valves are now closed, and the plate slide being detached, is inserted into the camera, and the plate exposed; this done, the slide is again attached to the shifting table, the valves opened, and the plate gently returned into its place; the table top is now pushed the extent of one groove farther forward, until the index marks it as over another plate; this is tilted into the slide as before, the valves being again shut, is detached as before, and another plate exposed, and so on until the store of plates is exhausted. The table top is hinged with a light tight joint, more like that of a mahogany table, merely for the convenience of carrying; and as the camera is a folding one, having a bag in lieu of wooden sides, the whole can be packed into an extremely small compass.

An example has been set in France that we would fain have seen emanate from some English Mecænas, in the act of M. le Duc Albert de Luynes, who has offered a premium for the encouragement of works that tend to perfect the process of this science. The duke, besides being a generous and discriminating patron of art, is also an archæological savant. Aware that photography, by its unerring veracity and minute reproduction, is so capable of representing and preserving to posterity monuments and other objects of antiquity, which time is every day crumbling to decay, and that it is greatly superior to engraving and lithography for its artistic effect and greater fidelity; yet knowing, unfortunately, that so many causes operate towards the fading of these prints, he has devoted his attention to every possible means of preserving heliographic prints from any destroying influence, whether of light or any other agents, for it is now admitted that proofs fade as much when in the dark as in the light. The premium offered by this nobleman is not less than ten thousand francs, and he has left it to a commission of the French Photographic Society to decide upon the merits of, and to adjudge the prize to, all the specimens that will be forwarded for their approval. The particulars will be made known at their next meeting.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The monthly meeting of the members of this Society was held on Tuesday evening, July 1st, at the Royal Institution, Colquitt-street. Mr. Corey was called to the chair.

Mr. Forrest proposed Messrs. M'Nichol and Hickson as members.

The Chairman introduced to the notice of the Society specimens of a new publication, now in coure of issue, and entitled "Photographic Portraits of Living Celebrities." The work is by Maul and Polyblank, of Gracechurch-street, London; and the specimens consisted of two portraits, one of the President of the Geological Society, D. Sharpe, Esq., and the other Professor Owen, the far-famed naturalist, with a vocabulary of other cognomens that would fill a page to particularise. The features presented, of course, the distinctness of outline which characterise the process; but there was an energy and softness not to be too much admired, and the drapery and other accessories were perfectly natural.

Some beautiful pictures were exhibited by the Chairman, taken according to the process of M. Taupenot, by Mr. Hooper, of Manchester. These were remarkable in an extraordinary way for their roundness of image, and for the intensity with which they were stereoscopic when seen in the instrument. Many of the specimens had been a week from home before exposure, yet they had lost nothing of their sensibility, whilst others had been a week before their development, thus proving that they are adapted *per se* to the use of stereoscopic arrangement for which it is so especially necessary, not that we should select a picturesque choice of subject merely, but one that by its dispoition of objects should so present marked figures to the view, which by being situated before or behind each other in their respective distance, should educate even the most unpractised eye to appreciate their relative condition, and make us know that it is not a flat image but a long vista we are contemplating. The successful operator has been enabled to reduce the practice of this process to a very simple form, and by using pyrogallic acid for the developing agent, has materially shortened the usual time of bringing out the latent image; he has promised upon the day of the next meeting of the Society to prepare plates in Manchester, expose them in Liverpool if the weather will permit, and develope them in presence of the members, and explain all the facilities he has been able to effect.

There were also some excellent specimens of the wax paper process, by Mr. Jones, of Liverpool, shown by Mr. Forrest; and *apropos* of one of those (the windmill on Holt-hill, Tranmere, now taken down), the Chairman expressed his regret that photography was not made available for perpetuating many of the old aspects of Liverpool: for instance, the entrance to Whitechapel before the recent changes, and the top of Bold-street before the widening process. He thought the Corporation ought to have provided for perpetuating those ancient parts of the town.

Mr. Newlands, the borough engineer, then took the chair, and Mr. Corey proceeded to describe his photographic tent, a secure means of taking accurate pictures by photography out of doors :—

I should not venture to engage your attention on so merely mechanical a subject as that now before you, but that it has been urged that the different methods of preserving plates have proved ineffectual in some hands at any rate, and also that the present genial weather may tempt photographers to issue forth in small parties, and the very natural desire to ascertain the result of your labours, and, therefore, to correct the evil of under or over exposure on the spot, as Fortune may have led you to a romantic plaee where it may be difficult to reach again. For this a contrivance such as this is especially desirable. The whole consists of three parcels, a very light load for as many persons, and is now as left when last used. The one, containing a large folding camera, round which is the covering, consisting of one layer of yellow glazed calico covered by two lengths of black ealico impervious to light, and technically called "Silesia;" the second parcel contains the framework and legs of camera; the third, a bath of gutta percha cased in wood and a box of plates 11 × 9, and the burden is completed by a small carpet-bag of chemicals of concentrated strength, the pyrogallic and cyanide requiring, when used, a dilution of one dram of each to one ounce of water. When unpacked it is found to consist, firstly, of four bars of wood, which by tenons and mortices inserted into each other form a frame of 3 feet by 2 feet 6 inches; through the corners of this pass four pieces of wood, 4 feet long and 1½ inch thick, turned so as to be round to within nine inches of their lower end; these when fixed at the top by four loose pieces of lath present the appearance of a four-post bed in miniature, and the resemblance is still greater when the drapery is thrown over, only the curtains have but one opening for the operator, who has also an extra loose piece to cover over that opening when he is inside, when it falls down his back, the opposite side having a square opening, covered by two plies of yellow calico, which admits a moderate and non-actinic light. The square frame has now a middle bar inserted, upon which, and in a rabbet running round the frame, three thin pieces of wood, that were packed between the camera and its slides, are rested: this forms an upper shelf for the bath to stand and the operator to manipulate upon. The coach-house at an inn protects the whole from the weather, permitting the access of light the while, and a half-door, borrowed from the stable, and placed horizontally on the end of a barrel, forms a second shelf, upon which the whole fabric is firmly placed.

Mr. Corey then proceeded to show some remarkably fine negatives thus taken, which were much admired for their being so intense, so varied in light and shade, and so free from blemish.

I will now show to you another form of tent, invented by Mr. Hooper before he used the collodio-albumen process. It consisted of a strong umbrella frame, from which the usual covering had been removed, the handle cut off, and the lower end inserted into a brass ferule on the top of a stout staff, strongly planted into the ground; upon the frame a round piece of water-proof covering was stretched, and a drapery of the same suffered to fall to the ground, and secured there by the lower edge being pinned by iron skewers to the ground, the whole being kept steady by four cords, like guys, passing from the point at top to other iron skewers also driven into the ground; it was then entered like a soldier's tent, only that the edges overlapped considerably, and would admit two persons to operate, but they must do so kneeling on the ground.

Mr. Forrest exhibited a new frame, for carrying prepared plates, consisting of a flat piece of ruby glass, half-an-inch larger all round than the plate, surrounded by a fillet of coloured glass of double thickness, constituting a rabbet which supported the coated surface from contact.

After some discussion on the various subjects, the proceedings terminated.

Testimonial to Mr. Scott Archer.—We are very happy to see that a tardy meed of justice is to be done to Mr. Scott Archer, and that his benefaction to photography is likely to be recognised. But for collodion, the talbotype or calotype process would have been still impracticable, and the thousand beautiful results it has opened, and its varied and admirable applications to portraiture would have remained unknown. As he has shewn so inviting a spirit of liberality in his gift, we hope that a hearty response will be made, and that the testimonial will be rendered as worthy as possible his acceptance. Subscriptions will be received by Mr. Foard, 34, Church Street; at the Office of this Journal; or by Mr. Fenton, Albert Terrace, Regents Park, London.

LONDON PHOTOGRAPHIC SOCIETY.

The ordinary meeting of this Society was held on the 5th of June.

Sir W. J. Newton, V.P., in the chair.

The Chairman announced that the Council had nominated the Right Hon. the Earl of Craven, the Right Hon. Sir George Clerk, Bart., Sir Thomas Maryon Wilson, Bart., Prof. Bell, F.R.S., and Wm. Crookes, Esq., as members of the Council, in room of P. H. De la Motte, R. Fenton, T. F. Hardwich, W. Lake Price, and C. Vignoles, Esqrs.

The Secretary announced that he had corresponded with the Secretary of the Royal Academy on the subject of the Amendment of the Law of Copyright, in order to procure its extension to the protection of photographic productions as well as other works of art; and that he had received a letter stating that Mr. Chambers, member for Hertford, was about to apply to the House of Commons for a committee of inquiry, and would include photographic pictures among the works of art which ought to be, but were not, protected by law from piracy.

Mr. Paul Pretsch, late manager of the Imperial printing-office at Vienna, communicated the following paper on "*Photo-galvanography.*"

In coming before this society, I feel it necessary to explain why I come so late. The reason is simple. I felt that eyes accustomed to look at such perfect productions as most of your photographic pictures are, might judge too severely the first specimens of my process. I am aware that some of the specimens which I have now the honour to submit are not quite perfect. Still I trust there is evidence of progress in all, and perhaps a near approach to perfection in some of the productions of the new art of photo-galvanography, which is now introduced to your notice.

During many years engaged in photography, I have been obliged to try several sorts of coatings for glass plates to be used in the art. Albumen, caseine, starch, glue, &c., have been used;—the appearance of some of the negatives obtained thereon originated the idea of the probability of producing, photographically, a picture in relievo and intaglio parts, instead of a mere picture made up of lights and shades. This led to the abandoning of etching or biting-in with acid, and the substitution of a photographic coating adapted for finally obtaining a solid metal plate to print from.

After many trials, I adhered to the use of glutinous or gelatinous substances, and found in these materials, mixed with photogenic chemicals, and exposed to the influence of light and atmosphere, very valuable properties. These are *to swell* in water and moisture,—*to contract* or *shrink* in alcohol,—*to become firm* in more or less degree by the use of astringents, or by a drying varnish,—*to become sunk* by the use of warmth,—*to be enlarged* or *magnified* by using acidulous solutions. Such properties are of great importance, and open an immense field for further investigations.

I think that my method may be applied in future, with great success to the three known printing methods, although it is yet chiefly applied to but one of them. Permit me, therefore, here to explain briefly how photography can be applied to these three printing methods.

You are well acquainted with surface printing; types and woodcuts are the representatives of the same, and the printers' ink, used in this case, is light enough to adhere only on the surface. The case is quite contrary in printing from intaglio plates; the picture or engraving is sunk, and the heavy ink is rubbed in the sunk parts, while the surface of the plate is carefully cleaned.

Lithography, or rather chemical printing, differs entirely from the two mentioned before. I call it chemical printing, because the printing surface is chemically prepared in such a manner that only the fatty parts of the picture take ink, but the other parts of the surface refuse the attachment of the ink. This mode of printing is generally applied on stone, but zinc, copper, and even an artificial material can be used for the same purpose. The drawing can be done with fatty ink on paper, and transferred on the plate; or it can be done immediately on the plate, with a fatty substance by means of a pen or brush, or with a peculiar kind of chalk, or with a point of steel or diamond; but the plate always requires to be chemically prepared in such a manner that only the picture itself attracts the ink. This is Senefelder's invention.

Now permit me to call your attention again to the various peculiar properties of glue and gelatine, mixed with chemical ingredients, and rendered by the influence of light more or less hard and soft. These substances can be made raised and sunk,—can be kept soft or made firm,—can shrink, swell, and become enlarged or magnified: certainly properties valuable enough to attract our full attention, and these properties form the principle of my method.

Returning to the object in view, I place before you a common photographic positive picture. This picture has been placed upon this glass plate covered with the before-mentioned mixture; they have been exposed in the usual way in an ordinary copying frame to the influence of the light; the picture on the plate has been developed or treated; has been kept raised and then moulded. This plate has served for this purpose. The mould has been made conducting, put into the electrotype apparatus, and a deposit of copper made thereon; this deposit forms the matrix. The same matrix has been placed again in the electrotype apparatus, for the purpose of obtaining finally the printing plate in intaglio. I have the honour to lay before you this printing plate, and also a print therefrom, which you may kindly compare with the original photograph. You see, therefore, here the various productions which must be obtained for the ultimate aim, the printing plate. At the same time, you will observe, gentlemen, that the result is in the wrong position, that is to say, it is reversed. This can be obviated by using a reversed positive on glass or paper, or by using a strong positive on thin transparent paper, and placing the same in the wrong way, that is to say, the back of it on the coated plate.

Permit me now, for the sake of clearness, to repeat here the different ways of producing an intaglio plate, viz.—

1. An ordinary positive on glass or paper.
2. The raised picture on the coated glass plate, reversed.
3. The mould, sunk—right position.
4. The first copper plate, the matrix, raised,—reversed.
5. The second copper plate or printing plate, sunk,—right.
6. The print, reversed.

Or another way, in which, for instance, the small cathedral door of St. Laurent's is produced, viz.—

1. The positive original on paper.
2. The coated glass plate with the raised picture thereon, reversed.
3. The copper plate, deposited in the electrotype apparatus immediately upon the coated glass plate,—it shows, therefore, the picture intaglio and right.
4. The print from it, reversed.

If the original is reversed, or if the original is used in the wrong way, face upwards in the copying frame, the result is in both cases that the print appears in the right position, as you see in several instances.

Allow me to mention here another mode of producing an intaglio plate, which mode I have not sufficiently exercised, and, therefore, I can only show you an inferior proof of it. Nevertheless, it is sure enough, and promises great advantage, viz.—

1. A positive original on glass or paper.
2. The coated glass plate with the picture thereon, sunk, caused by the use of a gentle warmth; the picture reversed.
3. The mould, raised—right position.
4. The copper plate, sunk—reversed.
5. The print therefrom,—right position.

Having described three methods for the purpose of obtaining intaglio printing plates, and having shown you specimens of each of them, I now proceed to surface printing. I must confess that I have been unable to execute anything good enough to be placed before this meeting, but the future may, doubtless, prove the applicability of the method for this purpose. For the sake of explanation, I proceed as before viz.—

1. Original woodcut, or drawing for woodcut, or in some cases a positive photograph on glass or paper.

2. The coated glass plate with the raised picture, reversed.

3. The mould, sunk,—right position. The picture appears intaglio: we can now build up all the raised (white) parts of the picture by a wax mixture, make the whole plate conducting, and place it in the electrotype apparatus; the result is,—

4. A raised copper plate, reversed; and finally,

5. The print by the common letter press in right position.

Or, after having obtained the mould No. 3, we place the same in the electrotype apparatus, and obtain a raised copper plate, the back of the same covered with fusible metal; it ought to be fixed on a block, and all the white parts cut out by the graver. The result is a block for the letter press for obtaining the print in the right position.

Or, after having obtained a raised copper plate, without building up the matrix No. 3, I place this raised copper in the electrotype apparatus, and obtain an intaglio plate, which ought to be built up, as mentioned before, for the purpose of obtaining by electro-deposit the raised block.

Or, after having obtained the coated glass plate No. 2 with the raised picture thereon, I make the coating firm by astringents and drying varnish, and send it to the stereotyper. He makes his mould from it in the usual way by plaster of Paris, and obtains a plate of type metal, upon which the white parts of the picture must be cut out by the graver for finally obtaining the block to print from.

I come now to the application of my method to chemical printing on stone or zinc. It is well known to every practical man that a print from a copper plate, especially if the same is done by a peculiar ink suitable for this purpose, can be transferred to stone or zinc. The print in this case appears in the same position as the print from the copper plate. Is the print reversed, the print from the transfer is also reversed, and *vice versâ*. Therefore, should we want to bring a reversed print from a copper plate to the right position, we are obliged to transfer this print first to prepared paper, and then from this paper to stone or zinc. In this process the last transfer is apt to lose some details, especially in the middle tints.

But a great advantage is offered by the chemical printing on stone or zinc, if we can cause the print to be transferred immediately from the coated glass plate with the picture thereon in sunk or raised parts. In doing so we save the process of making a mould, an electrotype matrix, and the electrotyped printing plate; and we gain, therefore, a great deal of time, about a week, or in some cases a fortnight, which is a matter of great consideration.

The desired result can be obtained in two ways. The first mode is to make an intaglio picture on the coated glass plate, and to supply it with ink like an engraved plate; the second mode is to prepare the coated glass plate with the raised picture upon it like a lithographed stone or zinc plate, in such a manner that only the drawing itself attracts the ink, and not the white parts. In both cases the impression from the glass plates must be done in a peculiar way, for the purpose of preventing the breaking of the glass.

Instead of glass, we may apply in future perhaps metal, or any suitable material for this purpose.

My attention has been called lately to a claim made by M. Poitevin, and Messrs. Rousseau and Musson in Paris, whose process appears to be similar, or rather identical with my own. My first English patent bears the date of November 9th, 1854, and my first French patent the date of June 1st, 1855, while M. Poitevin has taken out a patent in France in August, 1855, and the others, I think, have no patent at all. The priority of dates of my patents, therefore, evidence sufficiently the fact that I have been engaged in carrying out my method a long time before the above gentlemen, and the number of specimens before you may prove that I have been actively employed in perfecting the invention.

I have had little opportunity, and have been too much engaged with the applications described, to test sufficiently the use of this method for calico-printing, and for the production of plates for the wants of the potteries. Permit me, however, to direct your attention to the imitation of niello plates for the ornamentation of manufactured articles. The production of niello plates originated the invention of copper-plate printing, and the present method may be able to execute niello plates of a beauty and fineness never thought of.

Mr. Hardwich.—I had hoped that Herr Pretsch would have given us some information as to the mode in which the gelatinous film is prepared. He has stated to me, that if the gelatine plates are exposed to the light for a brief space of time only, and then treated with water, you have the reverse of the usual action; the parts on which the light has acted swelling up, and the others remaining depressed. It occurred to me that the presence of iodide of silver might have something to do with this alternating action of the light. I should like to inquire of Herr Pretsch whether the same result would arise if the iodide of silver were omitted. It does not appear theoretically what is gained by employing iodide of silver. Has it anything to do with the granulated appearance of the impression after treatment with water?

Herr Pretsch.—If the time of exposure be short, we get a reverse result on placing the gelatine film in water, but not so decided as the usual one. We have tried to avail ourselves of this fact in simplifying our present process, but at present have not perfectly succeeded in doing so. We use silver solutions and iodide of potassium, or ammonium, because we find that with bichromate of potash only the granulation is not so perfect. That is all I have to say on the subject; but I have here a written paper on the production of my pictures from negative instead of positive proofs, which perhaps the Secretary will kindly read to you.

The SECRETARY read as follows:

Taking positive pictures immediately by the camera has been tried in several ways many years ago. The modes of doing so are very interesting for the science of photography, but they have been, as yet, of very little practical result.

If we prepare a paper with chloride of silver in the ordinary way, and expose it to the influence of light, it becomes black. Now we may brush the paper with a solution of iodide of potassium (or with a similar hydroiodic salt), and expose it in the camera to the influence of light, but allow a longer time of exposure than usual. The result is a positive picture, because the use of iodide of potassium in connexion with the light produces a bleaching effect in this instance.

Another mode of obtaining a similar result is, to take a negative picture on paper in the ordinary way. Having exposed it a little longer than usual, it is developed strongly with gallic acid, and placed still moist in the light. It vanishes, and appears again as a positive picture.

Herschel published many years ago valuable investigations into various modes of obtaining positive pictures by juxtaposition immediately from the original; as also did Fisher in his "Photogenic Manipulations." But Mr. Robert Hunt, I think, made the most important trials in this branch, and it is a pity that his directions have not been more cultivated.

But all these modes of obtaining directly positive pictures, either in the camera or by juxtaposition with the original in the copying frame, give no clue for the application of the same to this method. I have made several trials in using a negative picture as original instead of a positive one, but I must confess that I have been unable to succeed so perfectly as I could wish. Here are two specimens of such a trial. The original was a negative on glass, placed upon my coated glass plate, a mould from which was made, and the mould placed in the electrotype apparatus. Two copper plates have been done by electro-deposit, one the matrix, and the other or second plate, which we use generally as the printing plate. You see here two impressions, one impression from the first, and the other from the second plate.

Time of exposure in this process is exceedingly important. But even if we find out the exact time, the result is very doubtful. The dark parts of the picture may have the strongest granulation, but in a negative picture these parts are very transparent, and, therefore, the light can act upon them, and make the coating beneath less sensitive to the influence of moisture. In using a positive, the light acts upon the unprotected parts of the coated glass plate, and renders these parts (the white parts of the picture) more firm and less sensitive to the influence of water, while the other parts, viz. the picture, become brilliantly raised.

Mr. Robert F. Barnes then exhibited negatives, with positive prints from them, taken by his dry collodion process.

LARGE *versus* SMALL LENSES.

As there is no error more frequent, so there is certainly none more delusive, than that which presumes on the folly and incapacity of others, and our own wisdom and infallibility. We are never so wrong, it has been well put, as when believing ourselves alone right; and the accuracy of this statement has, in no instance, been more completely verified than in the remarks made recently by Sir David Brewster on small and large lenses, in his address to the Photographic Society of Scotland. Sir David believes all the world wrong, leaving it to be inferred consequently that he alone is wise. Never was philosopher more mistaken. With such a belief however the wonder is, not that he should be at fault, but that he could possibly have fallen into such a credence—the special conviction ordinarily of imperfect deduction. Amid various remarks, displaying in their elegance, force, and utility, the affluence of his wisdom, and which we might accept as the natural expressions of his mind, he is reported to have said—"Large lenses have been introduced for portraiture. The effect of these large lenses is to give hideous representations of the sitter, and it is doubtless from this cause principally that photographie portraiture is so extremely defective, exaggerating every feature and producing pietures which vary greatly with the comera and the lens or lenses which belong to it. The only remedy for these evils is to use small lenses, and when the sensitiveness of the photographic process is increased we may hope to work with lenses not larger than the pupil of the human eye." The favourite nostrum of Sir David for some time past has been known to be this theory of small lenses, but we were scarcely prepared for such a proposed panacea, for the thousand ills photography is heir to, as is suggested in this last sentence, so little also were we prepared for such a series of blows at the art, quietly and effectively delivered, as is contained in the preceding paragraph. Were a less eminent personage in question, we might be inclined to characterise the entire passage as marked by an audacity of assumption and recklessness of assertion which should disentitle it to notice; but the most careless statements of this great man necessarily carry a weight removing them from the possibility of such an imputation. To say that photographers use lenses which give hideous representations of their sitters, is merely to assert that they and the public equally lack discernment—they for perpetuating deformity, the public for purchasing it. The epithet hideous implying something so palpably wrong that no state of mind short of idiocy on either side would explain their persistency. Sir David may imagine the world foolish enough to buy hideous pictures of itself, we do not. To reject these exaggerated expressions and accept the proposition they eoutain as truth, would be equally fallacious. If small lenses were preferable to large ones, photographers would adopt them. If large ones distorted the figure, the great body of artists, directly and indirectly, by taste and necessity, connected with photography, would speedily correct the taste of photographers, even assuming Sir David to have so much more accurate an eye than these last for drawing; but to assume that neither the public, artists, nor the educated portion of the profession know anything of drawing or of artistic principles, is really to assume too much. But the fact actually is the reverse of Sir David's statement, and the majority of errors in delineation, where such errors are caused by the lens at all and not by the position of the object relatively, are really caused by the use of small lenses tasked beyond their power. Whatever the difference that ought to exist theoretically, practically, the advantage is altogether in favour of large lenses. It is not correct that it should be so, but it is so. "It is against the constitution that you should be in the stocks," says the orthodox lawyer; "But I am in," replies the unfortunate delinquent. "But they cannot put you in;" "But I am iu," is the response. "No matter it cannot be done." Sir David Brewster tells us "that correct pictures cannot be taken with large lenses," but they are taken. "No matter; the human eye is the standard, and that is not an inch in diameter, therefore your lenses must be no larger." By a parity of reasoning, no merchant vessel should be bigger than a nautilus shell. Abstractly no lenses may be perfect—indeed are not; but for all practical purposes, for capacity and accuracy of delineation sufficient to satisfy the most captious and educated eye, the majority of large lenses in use by qualified practitioners, transcribe with sufficient fidelity. Where distortion occurs, it is more frequently from defective application, than from intrinsic imperfection. If the operator finds, as is frequently the case, his lens incapable of conveying a round or square, and an elliptical or merely linear object, with equal fidelity, he confines its use, as might be supposed, to those objects of which it transmits the image unimpaired. It may be perceived that "hideous" inaccuracy is shunned by all, and any, even the slightest distortion, by the majority. Where however the "hideous misrepresentation" is latent and invisible, as photographers appeal through the eye to the mind, the same care cannot be supposed to be taken—the small number of philosophers rendering it unnecessary that their taste alone should be considered.

In conclusion it may be averred, that although it is possible that the philosophic eye may detect latent deformity, it is probable that it cannot; for the presumption exists, that no person in the world can discriminate, in an image, whether it was produced by a large or a small lens. As the size of the lens cannot be ascertained by the nature of the image in any case, tho public may rest satisfied that the superiority of small lenses is not proven, and that the question of "small *v.* large lenses" is still open.

J. T. F.

REVIEWS.

A Manual of Photographic Chemistry, including the Practice of the Collodion Process.—3rd. Ed., J. CHURCHILL, LONDON.

BY T. F. HARDWICH.

It would be absolutely a work of superrogation to attempt anything in the commendation of this valuable and really useful work. Every practitioner of ability who really pursues the study of the art through its wonder-working ramifications, has long since made it his text-book. We may confess to something like previous regret that the studies that were being made in every fresh development of this growing giant would bid fair to outrun any effort of the press to record the rapid and changeful form of each new grace or added facility as it might be evinced; but our talented author has proved himself perfect master of his subject, for already a third edition presents itself, combining, with far greater judgment in the arrangement, a tact and ability to comprehend each freshly discovered wonder as it presents itself, and also to weigh and appreciate all that captivates the imagination or perverts the judgment. Much that would

"Mislead the unwary and inflame the weak,"

Is most carefully considered, and its value duly apportioned. We rejoice to find that the vague and widely diffused nature of the instruction on every topic has been apparent to the writer and that he has endeavoured to remedy the defect by repeated reference to other pages in the body of the matter, and though still we have to hunt through many chapters to sum up all the rich amount of information contained therein and even yet, there is a want of classification that will be severely felt by every anxious student. Under the head of collodion, for instance, there is reference to no less than twenty-two pages, ranging from 10 to 292. Now we willingly admit that this only proves the importance of the subject and the profundity of the views conceived upon it, yet we must deplore the original want of classification. To atone for this, the author has appended a most compendious and voluminous index, which must have involved a vast amount of labour and a most judicious insight into the multifarious details that would present themselves to the lore-seeking reader. Many chapters have been entirely remodified, and the benefit of the minute and pains-taking researches of the author upon positive printing are given to the reader with the frankness that makes us admire the acumen that conceived them.

Mr. Hardwich has greatly added to his celebrity by the large and judicious addition to his former pages, and we look forward to the result of his further lucubrations on the all important question of a safe and secure process of fixing prints after the labour and uncertainty of procuring them.

General Treatise of Photography, comprising the processes on metallic plates, upon glass, by collodion, albumen, &c., followed by the application of this art to the sciences, and to researches upon the chemical nature of the union.

By M. D. VAN MONCKHOVEN.

All photographers with any pretension to an earnest desire after a radical knowledge of the science, would look forward to a patient and impartial consideration of a work of this comprehensive character from an author so much respected as the above. It is much to be regretted that a copy has not reached us. The only account we have of it is from the French Journals; and they, usually so impartial, have imitated the Roman ladies of old, who, when a gladiator had acquitted himself well, turned down their thumbs, thereby adjudging him to death, either to see how well he would die, or mark their sense of his being wanting in some minute particular; thus, after qualifying every thing we hoped to find matter of interest therein, and in nearly every passage,

"Damning with faint praise,"

they wind up with the following:—

"Such is this new work, which abounds with excellent theories, novel views, and clearly defined observations. Despite its very high price (and this reproach we can apply to all the recent publications on photography), it ought to be consulted, read, and re-read by every photographer."

CORRESPONDENCE.

A ROLLER PRESS FOR ACTINIC PAPERS.

To the Editor of the Liverpool Photographic Journal.

SIR,—I consider an article of the following kind as being quite indispensable to all who make any number of actinic prints on paper. It consists essentially of a pair of rollers, something on the principle of a mangle, [American—ED. L. P. J.] as shown in the figure, and except the winch handle and the weight, is formed entirely of wood. The handle is fitted on the lower roller A, which must be high enough from the table on which it stands as to permit the handle to be turned without hurting the knuckles while turning it. The space under the lower roller is not lost, as it contains a space for holding the pads of bibulous paper used with it. The upper roller B is capable of rising or falling, as the pad to be passed may be thicker or thinner; while various degrees of pressure may be given, according to the distance of the weight W from the axles of the rollers, and which is accordingly moveable into either set of notches of the levers DD, which have a fulcrum EE in the uprights FF, and rest on the axle of the upper roller at each end. The sketch is such that any person can construct one from it without difficulty, taking care to make the rollers as long as the size of the pad to be used with the largest size of picture. The pad should be at least two inches longer and wider than the picture. The size of the board G between the rollers should be as wide as the pad, and about three inches longer in the direction in which it moves, as it ought not to be removed from its place unless the press is to be dismounted. The base K, which may contain a drawer for the pads, should extend as far backwards as the levers, and these again should be longer than the pad, so that the whole may be firm when the greatest pressure is on it, by the weight being at their extremity. The rod shown across the top of the uprights is to keep them in their places, and when the weight is removed, the press may be easily lifted by this rod to any other position.

Now for the use of the press. Instead of "blotting off" by hand after the paper is impregnated with any solution, or excited, it is done in the press. Where the object is simply to equalize the moisture, the weight should be placed in the notches of the levers nearest the upright, in which position the pressure is very moderate though even. Where the intention is to partially dry the paper, the weight should be in a notch farther from the uprights, so as to give greater pressure; and when the *greatest* pressure is to be given, the weight should be on the extreme ends of the levers. In using pads of bibulous paper, care must be taken to make them so that it may not be possible to use one for a purpose for which it is not fit, and this can be best done by folding the pad like a pamphlet, and enclosing its bibulous leaves in a sheet, hard sized, on which a name or mark may be placed to distinguish it from all others, beyond the possibility of a mistake. Every one will understand why this caution is necessary.

Let us put one sheet through the whole process, from its first impregnation to its last finish, and the use of the press will be more apparent. Have at least five pads all ready, and dry, in the drawer of the press. Take out the one to be used for the first impregnation, and open it on the rolling board; take the sheet from the dish in which it is steeping, or floating, and lay it carefully in the open fold of the pad, which is to be closed and the handle turned to pass the pad under the roller, seeing that the weight is close to the uprights. Turn it two or three times backward and forward if the object is partially to dry it, and then if a stock is to be prepared, lay it flat to dry. If intended to proceed to excite it immediately, the weight should be farther from the uprights, and on now removing it from the first pad, it may be placed immediately on the surface of the exciting bath. Leaving it here, remove the last pad, and replace it with the one to be used for the excited sheet, and place the weight, if not there already, in the notches next the uprights; as the object now is not so much to dry as to distribute the moisture equally. Pass it only once through, and place it in the dark to dry. When dried, exposed to light, cleared and toned, wash the print in water, and place it in a pad set apart for this purpose; pass it through several times, making it nearly dry, and again soaking it a short time pass it through the press again, increasing the pressure to the utmost, and after one or two such alternate soakings and dressings it will be ready for final drying, which is done between two sheets of planished tin, or two daguerreotype plates, warmed or not as may be most convenient or desirable, using the utmost pressure which can be obtained. Pass it back and forth several times, according to the degree of smoothness required. If intended to be coloured, this smoothing ought not to be given till the colours are on and nearly dry. Without pressure, it is exceedingly difficult to get the hyposulphite removed from the paper, even by long soaking, but with pressure in a pad of bibulous paper it is easily accomplished.

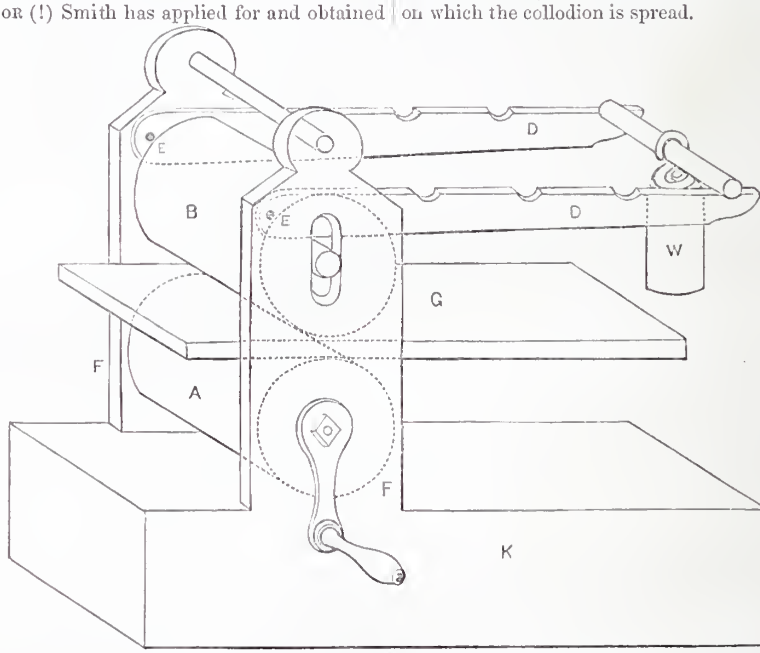
The rollers must be of close grained hard wood, although some who are very luxurious may have them of polished iron or steel, and set in a cast iron frame; but the whole of wood will be equally as efficient, except for giving the last and final gloss.

A practitioner in a large way ought to have two such presses, one lighter for the impregnations, which should stand in the dark room, and another heavier for expressing the hyposulphite, and for finishing, which should stand in the finishing room. The construction of such presses could not be expensive. The rollers of mine are three-and-a-half inches diameter, but I think four inches would be still better.

* * * * * * *

Professor (!) Smith has applied for and obtained a patent for taking pictures on sheet iron. I sent you a paragraph in relation to it under the name of "Pine-shingle-otype," and you will find his process the same as there indicated. I alluded to them as "Ferrographs," but I do not know what name he gives them. The sheet iron is covered with black varnish, and when dry it is used precisely as glass for a direct print with collodion. It is not at all likely ever to come into use, for the iron must be varnished all round with great care, or else it will spoil the exciting bath when immersed in it. Its only advantage is in not being so fragile as glass, but it is no better than my proposition for mahogany veneering, or even a fir shaving such as a lid of a pill box.

I enclose you a small specimen on talc for a transfer, and another on black glazed cotton, either of which I think you will like better than the Professor's sheet iron; however, all is a matter of taste, the process of taking and finishing the impression being the same in all, no matter what the material may be on which the collodion is spread. WM. ROSS.



To the Editor of the Liverpool Photographic Journal.

Sir,—In the printing of my letter in your last Journal, the following typographical errors occur.

In the sentence—"the saw would print in *any* positive," read "*my* positive." Further on, for "the image of the *sun*," read "the image of the *saw*," and for "reflected from the *sun*," read reflected from the *saw*."—I am, sir, yours, GEO. S. PENNY.

June 18th, 1856.

[We trust this will "set the saw" in such relation to the sun as will please our highly esteemed correspondent.—Ed. L. P. J.]

Want of space has compelled us to condense the following letter. The writer having tried Mr. Barnes's dry collodion process, adopts his basis of camphor as a preservative agent. He says—

I proceed as follows:—To each oz. of iodized collodion (I prefer Bland & Long's), add ½ gr. of camphor, and dissolve. In the bottom of the plate box should be placed a piece of thick flannel soaked in alcohol ½ oz., sulphuric æther 2 drs., water 4 oz. The plates being collodionized, immerse for only half the usual time in the nitrate bath, and place in the box; the prepared flannel will keep up for many hours a cold damp atmosphere, which with the camphor prevents the plates from drying, and not only so, but also preserves unimpaired the original sensitiveness. When the exposure and development occur within 2½ hours, all that is necessary is toplace the plates as usual in the slides or dark box, keeping them horizontal to prevent the nitrate from draining off. Dash the developing solution on freely, using no nitrate till the picture is well out.

By this most simple means I have during the last three weeks taken a very considerable number of pictures. Rising by half-past five, I have prepared three or four plates, and started for some favourite "bit," as Mr. Sutton has it, and returning by eight, have in 10 minutes or so developed them all.

I am, yours truly,

Mines Royal, July 2nd, 1856. SAMUEL FRY.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 32.—AUGUST 9, 1856.

The present season is, we should imagine, more fruitful in the field-practice of photography than in the evolution of new processes or new theories, and we believe that every true lover of the camera is more ardent just now in the successful application of the winter theories he may put in practice, than desirous to investigate the last new thing.

Practical photography on the whole seems at present in a comparatively healthy phase of its existence; the first stage of its childhood may be said to have already past, and the rapid accumulation of isolated facts, often apparently contradictory, to which everyone has contributed his quota at one time or other, has furnished for our use a mine of rich phenomena, which it is evident we are now beginning to classify and group together; to harmonise conflicting observations, and from past disasters and failures we are now enabled to reap the fruits of permanent success.

In our June number, we offered a few remarks upon the theory and practice of positive paper printing in connection with Mr. Hardwich's valuable tablature of the results of his investigation; we purpose now, in a similar way, to investigate the prospects of the collodion processes, dissimilar as they appear at first sight, but in reality almost identical; and from the rapid progress the various keeping collodion processes are making, we conceive we need make no apology for thus referring to them, especially as the various improvements all tend in one direction, *i.e.* to simplification, while the ordeals of research through which they have been passed have eliminated many new and important facts which may become very valuable in other ways than those contemplated by their discoverers.

The great drawback to the use of collodion in field work, was the necessity for the photographer carrying about with him his whole paraphernalia of chemicals, &c., inclusive also of a species of dark house, without which he would not be able to produce a picture, so that he became reduced to a state similar to that of the snail who carries his house upon his back, and proving his affinity to the Testacea by his testiness when irreverently poked up by admiring bystanders on a sultry day: to obviate these multifarious inconveniences, various schemes have been propounded.

All, without exception, agree in the absolute necessity for washing away as much as possible the free nitrate of silver from the plate, before the application of the panacea, and as, from the routine of analysis, dry collodion would naturally first present itself for investigation, we will take it in its order of precedence.

Many attempts have been made, from time to time, to produce successful results with a dry film, the records of some of which have appeared in this Journal, and which are scarcely needful to examine; we, therefore, revert to Mr. Barnes as a successful operator on dry collodion, pure. The employment of acetone in the collodion to prevent contraction upon the dessication of the plate, has evolved the important property it possesses of completely preventing the fissures in films prepared with many specimens of bad pyroxyline, and its use with dry carbonate of soda to restore old collodion to its pristine sensibility, is also another bye-product of that gentleman's labours.

Shadbolt's honey process has been very successful in our hands, the only drawback being the tacky nature of the honied surface rendering it very liable to attach dust and chemical vapours.

Taupenot's process, in its original complexity, involving an iodized collodion and an iodized albumen, each of which claimed its own bath and supplementary affusion with water, has, as our readers will perceive in our present number, been receiving violent treatment at the hands of its friends, much, we believe, conducive to the success of its results, and certainly most importantly simplifying its manipulation. Our friend Mr. Hooper has succeeded in making one bath suffice, and certainly the results he exhibited at our meeting were equal to any we have seen.

We now witness two of our French friends depriving the process of its double face, by means as antagonistic as could be imagined, and each declares the results to be perfectly successful. One, having doubted the necessity of the iodizing bath for the collodion and the albumen, decided upon using iodized collodion and plain albumen. The other, being possessed with the same single-minded view of the process, used plain collodion and iodized albumen. The most remarkable feature in the latter variation being, that the iodized albumen on plain collodion was as rapid as the original process. This we consider a very important matter, and look for results of experiment with great interest.

The other variation requires notice, and one which we view with great favour, although unable as yet to subject it to a fair trial. We allude to the process of Dr. Norris, of Birmingham, who employs a solution of gelatine in place of honey or ablumen to preserve his plates. He allows the gelatine surface to become quite dry, and finds the plates do not deteriorate in fourteen days, but will probably keep much longer.

We should imagine, from the facility with which gelatine softens and dissolves in water, that the development will be perfectly easy and free from stain.

We believe, from the foregoing remarks, it will be allowed that in all processes in which collodion occupies a place, the essentials are almost identical, and (the unnecessary peculiarities of M. Taupenot's process being removed), it takes its place among the class of keeping collodion processes.

"M. Girard read a note from M. Gaumè, relative to a modification of M. Taupenot's process. 'Whilst studying this method it occurred to me to inquire of what use could the iodide of silver in the film of collodion be, since it has been proved that the photographic impression is formed upon the surface of the albumen. I conceived, then, that the collodion was only of use for spreading the albumen evenly. Acting upon this I tried whether, on putting albumen upon collodion, not sensitized, it would answer as well and as quickly for pictures, and I proved it would by the small specimen for the stereoscope I send with this, wherein the albumen is badly fermented and thick, upon collodion above three years old, abandoned as useless. At the end of a small garden having lofty walls round it, I obtained one proof with sun and one without, in one minute, and this proved to be too long exposure, as is evident in specimen No. 1, although the child represented was in the shade in both. The development was effected as usual. It appears clear to me, after these experiments, made with materials badly prepared and without experience in Taupenot's process, that, not only you need not sensitize the collodion before pouring on the albumen, but that it is not even necessary to iodize the collodion, the albumen coating alone taking the impression.'

"M. Fortier spoke to having experimented by the proceeding above described, but was not able to affirm positively what time they might be kept. He communicated, moreover, another modification of the same due to Madame Lebreton, entirely the reverse of the last. Here the iodized collodion is spread and sensitized as usual, afterwards thoroughly washed, and covered with a coating of simple albumen, left to dry and exposed, but before developing it is plunged into the acetonitrate bath to coagulate the albumen which otherwise would separate. He added, it was a matter of interest to succeed with two processes, one the converse of the other."—*Societié Français.*

We have been favoured with a view of some singularly choice specimens of portraiture on paper, by Mr. Valentine, of Dundee, from plates 11 inches by 9 inches. They were developed by Mr. Sutton's process, and toned by gold. For softness in the half tints, delicacy of delineation, and force and vigour in the bolder portions, they far exceed any instances of pure untouched proofs that we have yet seen. Their price is unusually moderate.

Manual of Photography on Glass or Paper.—A very excellent brochure has been issued by Messrs. Bland and Long, and has already reached its second edition, it contains a large amount of valuable matter, written in a very terse and comprehensive style The formulæ given are all of the most approved character, and give evidence of very practical experience, for the most probable causes of failure in the manifold forms of photography it treats of are very carefully considered, so that to the enquiring student, most of the impediments to his success are remedied or removed thereby. We confidently recommend a very careful perusal of it.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The seventh meeting of the third session was held at the Royal Institution, Colquitt-street on Tuesday, Aug. 5, when there was a large attendance of members. The proceedings were of an unusually interesting character.

James Newlands, Esq., V.P., the Borough Engineer, having taken the chair, and several new members having been elected:

Mr. Keith, of Castle-street, exhibited two exquisite portraits of a lady taken in the vignette style, by a revolving disc, the great advantage of which is, that it gets rid of the harsh tones peculiar to photographic positives.

Mr. Cros exhibited a collection of large photographs by Messrs. Bisson Freres, of Paris, by the albumen process, which were acknowledged to be the greatest triumphs the art had hitherto accomplished, either as regards the size of the picture, the softness and beauty of the tone, the completeness of effect produced by the half-tints, or the marvellous fidelity of the distances. Mr. Cros was voted the thanks of the Society for affording the members so great a treat.

Mr. J. A. Forrest stated that a London friend had recently made experiments with camphor, as equivalent to honey in its conservative qualities. He used one grain to an ounce of collodion, the plate after sensitizing was kept about an hour before being exposed. There was no decrease in the sensitiveness, while in all other respects it was equal to preservation by dark honey.

Mr. Bell observed that camphor was one of the ingredients used by Mr. Barnes, and with which he had produced some superior specimens.

The Chairman asked Mr. Berry what was his experience?

Mr. Berry stated that it had been very different to that of other people. Indeed he thought they would demand further proofs before he assumed a *status* on the subject. With using the quick honey process he was prepared to take instantaneous pictures. By the ordinary honey process, plates would keep three or four days without depreciation, and then he found he could produce negatives in the same time as others with plain collodion. He added that one source of deterioration was the drying of the film. If the plate were kept in a box where no evaporation could take place, he believed the sensibility of the film might be preserved for a long time.

The Chairman said he kept his honied plates in a closed closet containing a moist atmosphere, which answered all the purpose.

Mr. Berry exhibited and explained an ingenious plate-box of his own invention, for preparing sensitive plates in the open air without tent or screen, and capable of being adapted to any camera. It was pronounced to be a valuable improvement, and he received the thanks of the Society.

Mr. Doyle gave the following account of his experiments in Photo-galvanography :—

Photo-galvanography is not an entirely new process; indeed the photographic portion of it is Mr. Fox Talbot's, a detailed description of which will be found in the *Athenæum*, April 30, 1853; also in No. 3 and No. 5 of the *London Photographic Journal*. The very limited success in the attempt to produce a printing plate by means of biting in with acid, as practised in aqua-tint engraving is not remarkable. In all acid engraving the grain is produced on the plate by means of gum or resin poured on in solution, and attached to the plate by the application of heat, producing a net-work all over the plate which the acid acts upon. I never thought it probable that success would follow from that mode of operation, the photographic portion of the process requiring certain materials which were not of a nature to resist the action of acids, or only to a very limited extent. Mr. F. Talbot therefore failed to produce a plate from the same cause—the difficulty of producing a grain upon it.

This process of photo-galvanography which has overcome the difficulty is precisely the same as that now practised by Herr Pretsch, as far as relates to the photographic portion of it. The happy thought of producing the plate by deposit on the photographic preparation, is, I presume, the novelty insisted on by the patentee, to warrant his exclusive use of the process. I fear that its development in a practical point of view is not likely to be attended with that astonishing rapidity which has hitherto resulted from the combined operation of those who have devoted themselves to our favourite pursuit.

Herr Pretsch in his paper has not given sufficient details of the process to insure an easy result; and the cause of that omission, from his own statement, is, that a great deal of uncertainty at present attends its operation, so much depending upon the circumstances of each case.

The process is as follows :—The ground-work of the plate consists, as you are aware, of gelatine (glue or isinglass, or a mixture of both), in different proportions, the precise quantities being immaterial, only for convenience I have found it desirable to aim at obtaining a solution that shall retain its fluidity when mixed with the salts, that give it a photographic action. It will retain its fluidity only for a certain period;

but I have found that the addition of acetic acid has restored the mixture after it has become congealed. I mixed with gelatine, as directed by the patentee, a saturated solution of bichromate of potash. The grain resulting from this preparation was very coarse and irregular. When dried, the bichromate also congealed the solution so completely, that it was difficult to re-dissolve it by heat, without further additions of some salts of iodine and silver. Mr. Talbot used isinglass and bichromate of potash alone. I have not tried his solution. I have followed Herr Pretsch's process as nearly as I could understand it. The grain of the plate being greatly dependent upon the nature of this photographic mixture, those who attempt the process should aim at obtaining as fine a grain as possible, as far as is consistent with the necessity of having a surface that shall retain the ink in printing. I have used, in the specimen before you, glue made thin, bichromate of potash dissolved to saturation, a solution of nitrate of silver, and iodide of sodium or iodide potassium. This mixture will naturally suggest the observation that we are working somewhat in the dark. Iodide of silver being precipitated by standing, it will be asked, of what use is the iodide of silver? These substances, in almost any proportions, give some photographic result. Experience alone will enable us to judge which is most suitable for our purpose.

The mixture is poured on the glass plate on a levelling stand, that an uniform thickness may be obtained. It may be dried by a gentle heat, or allowed to dry spontaneously. Cover the plate with a collodion negative, expose to the sun's rays, and develope in distilled or rain water.

This is the theory. With the practice of the process we are not yet prepared, and until some more facts shall have been observed to enable us to fix the proportions of these substances or others more suitable, we must be content to continue in this uncertainty. The aim we have in view must be our guide, viz:—*an even grain*, and a mixture as sensitive as possible.

It is most probable that views will be at once taken in the camera, when the process will be reduced to something like proper order.

The light renders the gelatine and bichromate of potash insoluble in water, but it is very singular that the plate is sometimes developed positively and sometimes negatively.

Mr. Fox Talbot observed this in the description of his process. He says sometimes his photographs develope negatively, sometimes positively, and sometimes there is a combination of both in the same plate. This is a difficulty he overcame afterwards by an admixture of bichromate of potash and gelatine. The plate I have produced is now ready to receive the deposit of copper.

In answer to the Chairman,

Mr. Doyle said he had not any prints with him. He wrote to Mr. Pretsch asking for a print from one of his copper plates, but that gentleman unfortunately had none of his own by him at the time.

Mr. Keith stated that he had one which he should be glad to exhibit at a future meeting. The price which it was proposed to charge for the use of the patent would be a very considerable bar to its general use, he thought. The patentee engaged to produce prints at the rate of 4s. per square inch, charging 6s. for copper, so that a stereoscopic engraving would cost about £3.

Mr. Doyle observed that several formulæ were given for applying the process on stone. He was himself prompted to make trial of one or two, but time would not permit him.

Mr. Newlands remarked that a few days ago he saw about a dozen specimens of photo-galvanic pictures, but whether produced by this particular process he could not say. They were exceedingly good, but had too much middle tone. The blacks were very good, but the high lights were nearly all wanting. He understood that the price of those was 2s. 6d. per square inch without any charge for the copper. They were in size about 15 inches by 10 inches.

Mr. Doyle said he had seen some stereoscopic pictures from stone. He had great faith in the process he had described, which he thought would take the place of the *aqua tint* process

Mr. Corey, produced some specimens of the glyphographic process from the earliest productions of Mr. Palmer. They bore out the statement of Mr. Doyle as to the inconvenience attending the process he had been describing, in the great difficulty of having a true apportionment of light and shade.

After some conversation the thanks of the Society were given to Mr. Doyle for his paper,

Mr. Hooper, of Manchester read the following interesting paper, descriptive of his *Modifications of Taupenot's process*, illustrated by practical experiments showing his mode of developement:—

My object in presenting myself before you this evening is, you are aware, to describe my mode of working the beautiful process of Mons. Taupenot—a process which I am sorry to say photographers generally seen to have cast aside as too troublesome or too uncertain—conclusions which must have been hastily arrived at. With a good collodion we may, by this process, be certain of eleven pictures out of twelve plates. I cannot account for its not being universally adopted, unless it be that those trying it have met with a bad result at the onset, and then cast it aside as worthless.

I always think, after trying a process and meeting with a failure, Well others can do it and so *will* I. I then persevere until I master its difficulties.

The greatest objection brought against Taupenot's process is the tediousness of the manipulation and the time it takes, but when the process is simplified we find there is not much time lost, nor are the manipulations so very tedious. I can coat with collodion, sensitize, wash, and dry (or bake would be a more suitable term according to the plan adopted by myself and Mr. Butterfield, of Bradford, one of the most successful operators I have seen with this process), one dozen plates in fifty minutes, say for a little recreation after the toils of the day—a day, a week, a month, or even three months before the plates may be wanted. The sensitizing of the albumen coating takes another twenty minutes, so we have twelve plates done at a time when we should probably have been doing nothing else, and these plates are as sensitive after the expiration of three months as they were the hour after coming from the bath. In a letter received from Mr. Ackland, at Messrs. Horne and Co.'s, in answer to one of mine enquiring the time he has kept plates, he says, "I excited a plate on the 5th of November, exposed it on the 12th, and by *accident* did not develope it until the middle of January, and the picture was as perfect as could be desired." This keeping quality is of itself sufficient to compensate for the trouble of preparation, without taking into consideration the minuteness of detail we obtain over collodion alone, and its convenience.

We will, however, proceed to the manipulatory part of the process. I purpose developing some plates before you. I will first, however, describe the manner of preparing the plates, &c.

It is essential to success that we have perfectly clean plates, more so in this than in the collodion process. I usually employ tripoli with a rather strong solution of cyanide of potassium for this purpose. The plate is coated and sensitized in the usual manner as for collodion negative, and after withdrawing from the bath is to be well washed with water to remove the free nitrate, for if any remains in the film we shall have a picture similar to this, (exhibiting one) which you perceive has a patchy appearance. In order to save time I employ a trough wherein to wash my plates. The use of this trough gets rid of (to me) the worst part of the preparation of the plates. A small quantity of the iodized albumen is to be filtered into a measure, the plate is taken from the top cell of the trough and placed on the plate below to which a rotatory motion is given with the fingers, and thus I get rid of nearly all the water from its surface. The albumen is now poured gently on the moist collodion surface so as not to generate bubbles, and made to flow over two or three times; the surperfluous albumen is then drained back into the measure (3 drachms of iodized albumen is a sufficient quantity for three plates stereoscopic size. I never coat more than that number with that quantity).

The plate is now stood on end to dry, and unless dried quickly blisters are almost certain to form when next sensitized. I always dry mine in the kitchen oven, resting on blotting paper with a piece of wood at the side for the upper corner to rest against.

With some sorts of collodion blisters will form, no matter how quickly dried; but with a rather thin collodion we avoid them. Horne and Co.'s collodion is the best I have tried, and a collodion made by Messrs. Maud and Wilson, of Bradford, Yorkshire, also that by Mr. Hepworth or Mr Dancer, Manchester, answers admirably.

I have come to the conclusion that blisters are caused solely by a thick collodion or slow drying. [M. Fortier advises thinning the collodion cent. per cent.—Ed.L.P.J.] I have now described the longest part of the operation, and I can get thus far, as I said before, with a dozen plates in from fifty to sixty minutes.

The plates as soon as dry are ready for immersion in the nitrate bath again, and the 30 grains acidulated with acetic acid till litmus paper is reddened, will be found to answer well for sensitizing both the collodion and albumen films; about one minute in the last bath is sufficient; the plate is then taken out, and washed and dried as before: should there be any free nitrate left on the plate it will cause stains in the development.

The length of exposure with quarter plate lens, double combination, four-and-a-half focal length, and ½ inch diaphragm, is from one to two minutes. Mr. Butterfield, to whom I before referred, gets such a degree of sensibility with this process, that with quarter plate lens of the same focus as before named, and quarter inch stop, he can obtain a picture in fifteen seconds with sunshine; we may therefore conclude that great results are to be obtained by modifying Mons. Taupenot's process.

It will not be necessary to occupy your time with describing the development of the picture, as I intend at once to proceed with the plate.

In reply to questions put by various members, Mr. Hooper stated that he used as little silver as possible when first developing, more might be used afterwards if necessary. The time his plates usually took to develope with the following solution was from ten minutes to a quarter of an hour. He never used distilled water, having found common water better.

Pyrogallic acid	7 grains.
Acetic acid......................	3 drams.
Alcohol	2 drams.
Water..........................	7 oz.

Mr. Hooper, in reply to the Chairman, said, with the albumen process he preferred to use cadmium instead of calcium. It required less quantity, and he got rid of the holes in the sky.

In answer to Mr. Corey, he further stated that he fermented his albumen with yeast. The process of fermentation occupied four or five days. To remove the scum he filtered it when fermented. He made about ten ounces at a time. He had at present some plates which were prepared in January. He always worked with one bath, and used the common acetic acid, about 7 or 10 drops to the ounce. He prepared the bath as if he were going to take a collodion picture.

On the proposition of Mr. Berry the thanks of the Society were given to Mr. Hooper for his interesting paper.

Mr. Hooper briefly responded.

Mr. KELSEY then read the following paper, in the shape of a letter to the Editor of the *Liverpool Photographic Journal, On Large and Small Lenses*:—

In reading the last number of your Journal my attention was arrested by a letter on the subject of "Large and Small Lenses," in connexion with the assertion of Sir David Brewster, that the size of the lens produced the distortion which, without question, in some cases becomes hideous. Now I am not going to couch my lance and run full tilt against Sir David; neither do I deny his assertion, though I do not think it correct. Discussion is the true road to advancement; dogmatic teaching can be no true friend to scientific progress; and if one of our friends has some faults he must not be angry if some one, Sir David or other person, points them out, hoping to help forward their cure. Now I suppose we must look on the camera, or rather the lens, in the light of a friend, though in the hands of those who are not acquainted with the peculiarities of his temper, he plays some unsightly tricks; giving young ladies that peculiar charm, a shoulder-of-mutton hand, or makes a quiet looking grandpapa appear desirous to rival the Wizard of the North by squeezing his head into a hat the size of a pint pot.

To my mind mere assertion is absurdity, and in these days of scientific research no man ought to make or receive an assertion without giving or receiving proof sufficient to establish the truth of the fact stated. Sir David asserts—your late correspondent objects—without, I think, sufficient grounds on either side. Theory proved that steam could not pass the mighty ocean—practice has done it. It is said of the merry monarch that he perpetrated a joke at the expense of the Royal Society, by demanding of them, why it was if he put a small fish into a glass vessel filled just to the point of overflow the water did not run over. It is said that after the society had wearied itself with theories to no satisfactory result, the king solved the problem by asking whether the thing was so. Now I think we may ask, is the distortion caused by the size of the lens, and has the use of a small lens, say 4-20ths of an inch in diameter, cured it? Whether Sir David has obtained an undistorted image by using a lens so small, I do not know; I think he has not. I sometimes think there must be some misapprehension as to the cause of the distortion of the photographic or lenticular picture. That distortion does exist we know too well, and we know in artistic hands this may be, to a great extent, overcome, indeed almost made imperceptible. Now why is it so? The reason is simply this, that the lens produces a picture the perspective of which is quicker than that formed in the eye. This is my assertion—a series of experiments are the proofs. I said my attention was drawn to your correspondent's letter; it set my mind at work on a subject rather congenial, the difference between lenticular perspective and that of the eye. Having long exerted my attention, the eye receives the image mathematically correct, the lens does not transmit it so; this is the cause of the distortion, consequently there is a great difference between that natural camera the eye and our artificial instrument. Conceiving such to be the case, the following experiments will prove the truth of my assertion:—

In the first place, I measured three feet on an upright surface, placing strips of black wood to mark the distance. The lens I used is 1¾ diam. 6 in. focus for objects tolerably distant. I placed the camera at the distance of nine feet from the wall to the front of the lens; focussed the strips of wood perfectly sharp, and then measured the image on the focus glass, and found it exactly 2 inches high. I then removed the camera and placing an eye piece at the nine feet distance obtained the perspective of the strips through a piece of clear glass placed at the distance of the focus, 6-27, and found the distance between them 2-22 inches; consequently the perspective by the lens was 22 parts of an inch quicker than the true perspective of the eye.

I then tried the lens on a distant view, in which there were two objects, the one at the distance of about one hundred and eighty feet from where the camera was placed, the second about two hundred feet further off. I focussed these clear, and found the altitude of the one, which I will call A, 126, the second, which I will call B, 62. I then obtained the true perspective by means of the glass plate, and found A as 151, and that of B as 83.

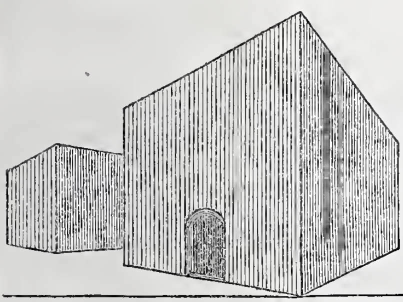
I then tried the experiment of getting an image on the obscured glass by means of a small aperture in cardboard, without a lens; the aperture was 1-24th of an inch, the image about as sharp as that by a single lens without a stop, but considerably less bright. In this image the perspective was perfectly correct, the near object being as 151, the distant as 83.

I then tried the lens again, covering it with cardboard having an aperture of only ⅛ of an inch, virtually reducing the lens to that diameter, I could not see or detect by measuring any less distortion than with a stop of ½ inch diameter.

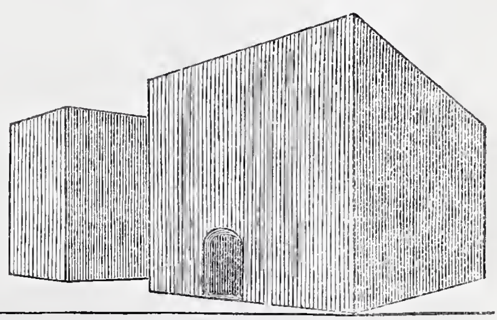
It therefore appears quite evident that the distortion is the result of the lens diminishing distant objects quicker than the eye, and not of the lenses used being too large. We all know that it is most observable if some of the objects in a picture approach very much nearer the lens than the other parts; we also know that if we take a portrait of the size of a quarter plate with a whole plate lens, the distortion can scarcely be detected, whereas if we task any lens to the utmost of its power and produce a picture as large as possible, we obtain, as Sir David says, "a hideous deformity." The question, therefore, is not of large or small lenses, as at present made, for by using the cardboard I really reduced mine to $\frac{1}{8}$ of an inch diameter without improving the perspective. The question remains, is it possible by any means to make lenses which shall produce a picture on the obscured glass or sensitive plate with mathematical correctness, as in the eye of man, or through a minute aperture without a lens, the pencils of light in this case truly representing proportional compasses—the points widest apart being the object, the closer the picture—correct as to drawing, but wanting in brightness and sharpness of outline?

Having two lenses, one single achromatic $6\frac{1}{4}$ focus, the other double combination $4\frac{3}{8}$ focus, producing pictures of distant objects of exactly the same size, I made some experiments as to the length of focus required to obtain an image the same size as that got by means of the small aperture in the cardboard. My object was to ascertain whether the picture obtained by the lens was smaller than that obtained by the simple aperture. I found that it was smaller, as the focus had to be lengthened about $\frac{1}{4}$ of an inch. The effect of this diminishing distant objects at a quicker rate than the eye, is the producing of a picture bearing some analogy to a perspective drawing taken at too short a distance. The

A

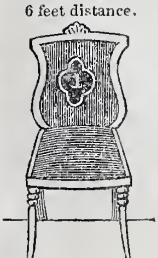


B

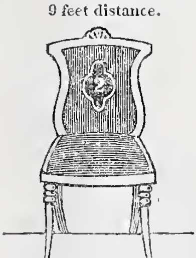


above diagrams, A and B, shew the effect of the perspective lines being shortened or quickened, and also shows the effect of the quickening of the perspective or shortening the proportion of the ground lines as they recede in the picture. I have diagrams from objects drawn on obscured glass by means of various lenses, and the small aperture in cardboard, and also by drawing on clear glass the perspective lines as seen by the eye. I find that lines obtained by the small aperture without a lens and those drawn on clear glass are identical, and they also agree with the perspective lines drawn by mathematical rules. The lines drawn from objects at a close distance to the camera, show how necessary it is, if you would have pictures that will not offend the eye, that you should not overtask the lens by getting too large a picture, thereby, in the case of portraits, bringing the sitter too near; the ratio of distortion being considerably lessened as the object recedes from the camera. It is a question whether a portrait should be taken at any time at a less distance than nine feet from the front of the lens, indeed I believe twelve feet would be better, for if a picture is drawn perfectly correct by mathematical rule, but the distance too close, distortion is produced, as shewn by three chairs, drawn by mathematical rule, at distances from the eye of the spectator of six, nine, and twelve feet. You will perceive that the difference between nine feet and twelve feet is not so remarkable as between nine feet and six feet. In the six feet distance you have

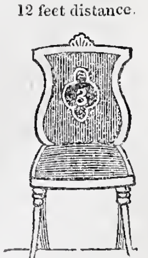
6 feet distance.

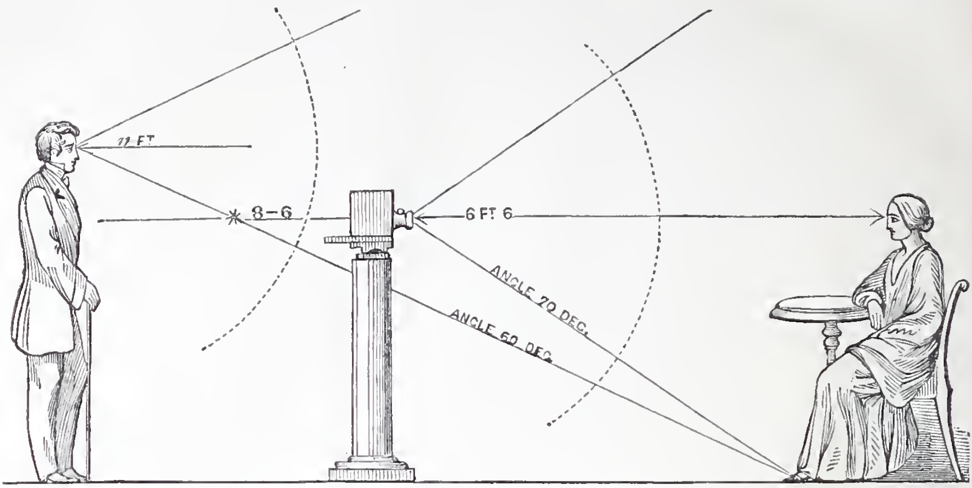


9 feet distance.



12 feet distance.





distortion. By the above diagram will be seen the distance a spectator should be to see an object in good proportion. The eye should never be less than twice the distance from the object that the eye is from the ground, or if the object is more than eleven or twelve feet less twice the height of the object above that height, added to twice the height of the eye of the spectator from the ground. I consider that the ordinary quarter plate lens is misnamed, as it only takes quarter plate portraits at the distance of six feet six inches, on an average, whereas it should take a quarter plate at the distance of eight feet six inches from the face of the sitter, in order that the pencils of light should enter the lens at the same angle that the eye receives them, namely sixty degrees. To get a quarter plate portrait with the so-called quarter plate lens the extreme rays come in at an angle of seventy or even more.

My deductions from these various experiments are, 1st, that it is not from the size of the lens used we get the distortion, but from the very property the lens possesses of reducing distant objects. 2nd, that as far as views are concerned, by getting as far off the object as possible, and using a lens of long focus, we remedy the evil as much as lies in our power. 3rd, that in respect to portraits we must not take them too close to the sitter, or expect the lens to cover an unreasonably large field, for you will find the field covered by the lens and that covered by the eye are nearly identical; the true field of the eye certainly not being more than a field the boundry lines of which come to the eye at an angle of more than sixty degrees to each other.

Having troubled you thus far with my ideas and experiments, I leave it with you to prosecute this inquiry further, knowing, as we all do, that it is the never-ceasing cry, which must be ever heard in the ranks among which the flag of science is unfurled, of "Forward, forward," that has achieved, and shall yet achieve greater conquests in science and art.

Mr. Doyle observed, an artist would have the same defects of perspective, if with the aid of the eye he drew the object at too near a distance; he would have a sharp perspective and consequent distortion.

Mr. Burgess thought Mr. Kelsey had misunderstood Sir David Brewster, who asserted what was perfectly true, namely, that lenses of a certain curvature were not fit for portraits. Of course they could not force a lens to do more than the eye can do, and that was all he had contended for. Sir David had never been understood—his objection to large lenses being the short focus at that time used: it was in fact the focus rather than the diameter that was in fault.

A few observations ensued in explanation by Mr. Kelsey.

Mr. J. R. Isaac, of Castle-street, attended for the purpose of stating that he had been appointed agent in Liverpool for the large and beautiful photographic prints of Bisson Freres in Paris, and that he should be happy at all times to submit his portfolio to the inspection of members of the Society, whom he should be glad to supply with impressions at cost price. When in Paris recently he went to the establishment of those distinguished photographers who employed about 200 persons, and had cameras which any one might sit in with the greatest ease, and used lenses of every size, some of 18 inches diameter. They were about to send out fifty gentlemen to various parts of the continent, more particularly to Venice, for the purpose of taking some of the views there. When he received copies of them he should be happy to submit them to the Society.

The Chairman having thanked Mr. Isaac for his courtesy, the meeting separated.

LONDON PHOTOGRAPHIC SOCIETY.

An extraordinary meeting of the Society was held on Thursday, July 3rd, the Lord Chief Baron, President, in the chair.

Mr. Hardwich read the following paper *On the Chemistry of the Photographic Image:*—

We are assembled this evening to discuss a subject which has a most important bearing upon the extension of the photographic art; for until the real nature of the action of light upon the salts of silver has been determined, it cannot be expected that the proper conditions for the preservation of the photograph will be ascertained. Very recently I attempted to show that the oxides of silver combine chemically with certain varieties of organic matter, and that the photographic image on paper consists of such a combination. More recent experiments have strengthened the view then advanced, and have enabled me to produce the colouring matter of the picture in a fit state for analysis.

The term 'photographic image' is perhaps rather an indefinite one, since the action of light produces effects upon sensitive surfaces variously prepared; and even if we confine ourselves to the common photographic processes upon the salts of silver, it is evident that there are great differences between photographs developed on collodion or iodized Talbotype paper, and photographic prints produced by the direct action of light upon paper prepared with chloride of silver. It is more particularly to the latter that my attention has been directed.

In printing paper positives, a mixture of chloride and nitrate of silver is used. The presence of the chloride has an effect upon the sensitiveness, and modifies slightly the colour and properties of the image; but the essential elements in the process are simply organic matter and oxide of silver—hence the image must necessarily consist either of metallic silver—of a low oxide of silver—or of a compound of silver, or one of its oxides, with organic matter.

There are some photographs which appear to consist of pure silver—such for instance as collodion direct positives developed with proto-nitrate of iron. The image in this case amalgamates with hot mercury, has a metallic lustre, and reflects white light. The paper photograph, on the other hand, has a dark reflexion, representing the *shadows* of a picture, and giving a negative copy of the original object.

Between these two varieties of photograph there is also an essential difference in properties. The bright metallic images are comparatively unaffected by cyanide of potassium, but the paper proofs readily dissolve in cyanide of potassium, and must be fixed by a chemical agent of less power, such as ammonia or the hyposulphite of soda.

The action of a soluble sulphuret affords another distinguishing test. Paper photographs fade and become yellow in a solution of a sulphuret; but metallic positives on collodion retain all their intensity after a prolonged immersion.

These striking differences in physical appearance and in properties seem to indicate a corresponding difference in composition, and in pursuing the investigation further we find that such really exists. The images, which are dark in colour, and lose their intensity when strongly sulphuretted, are, as a rule, obtained by the reducing action of light and organic matter combined; but the images which appear metallic after fixing are formed when organic matter is absent, or when, if present, it is of a kind which has little or no reducing action upon oxide of silver. I have previously shown that chloride of silver, supported on a film of dry collodion, when exposed to light, and treated with ammonia, gives a metallic image indestructible by sulphur; whereas chloride of silver *on albumen* yields, under the same circumstances, a non-metallic image with the properties of the paper photograph: the difference in the two cases depending upon the fact that pyroxyline has little or no reducing action upon the salts of silver; whereas albumen assists the deoxidizing action of the light, and combines with the product of the reduction.

The argument therefore may be stated as follows:—There are certain organic bodies which have an affinity for a low oxide of silver. If such substances are employed in a photographic process, the image, whether produced by the direct action of light, or by the joint action of light and a developer,* will not consist of metallic silver, but will be a compound of an oxide of silver with the organic substance, or a product of its oxidation. If no organic substance, possessing the required affinity, be present, the image, after fixing, will be metallic, and different both in colour and properties.

Amongst organic bodies, those of animal origin, such as albumen, caseine and gelatine, are remarkable for the facility with which they unite with oxides of silver. The following experiments will illustrate this:—

Take the white of an egg diluted with a large bulk of water, and drop in an excess of nitrate of silver. A white coagulum forms, which contains proto-oxdide of silver united with albumen, and has been termed "albuminate of silver." On exposure to a bright light, this substance assumes a brick-red colour, and undergoes an important alteration in properties, becoming almost insoluble in dilute ammonia, or dilute solution of hyposulphite of soda, both of which readily dissolve the unaltered albuminate of silver. The change in colour from white to red

* The properties of a developed image vary to some extent with the length of time the light has acted. In many conditions of the film (particularly so in presence of nitrites and some varieties of organic matter), over-exposure in the camera tends to the production of a developed image which is dark by reflected light, and red by transmitted light, and which reacts with tests more in the manner of a paper photograph. Under-exposure, on the other hand, favours the deposition of a metallic image, which may be burnished by rubbing.

is plainly due to a deoxidizing action of the light, since the same effect can be produced by passing hydrogen gas over the compound at a temperature of 212°. The result of the reduction, however, is not a mere mixture of metallic silver and albumen, as will at once be seen from the following statement of the properties of the red coagulum:—It is sparingly soluble in albumen, tinging it yellow; sparingly soluble in solution of nitrate of silver, forming a brown liquid; dissolved by ammonia at 212°, giving a deep red solution. Boiling potash, in which metallic silver and oxide of silver are insoluble, also takes up the red albuminate of silver without leaving any residue.

After repeated washing with dilute ammonia and water to remove the excess of silver salts, a red powder remains which communicates opacity to a very large bulk of distilled water. The red and turbid liquid treated with hydrosulphate of ammonia is first rendered much darker in colour, then assumes a greenish tint by transmitted light, and lastly becomes pale yellow and translucent, the changes in colour in fact being exactly the same as when an albuminized paper photograph is treated with sulphuretted hydrogen. Oxidizing agents also remove the red colour, converting the compound into a pale yellow substance. Strong aqueous hyposulphite of soda dissolves the red powder, but, unlike potash and ammonia, *decomposes* it in the act of solution. Cyanide of potassium also takes it up readily, forming a colourless solution.

Caseine resembles albumen in its action on nitrate of silver, but with the exception of the fact that the white coagulum first formed becomes brick-red on exposure to light, the properties of the compound have not been examined.

Gelatine produces no precipitate in solution of nitrate of silver, and does not accelerate the action of light upon the prepared photographic paper so strongly as the two bodies last mentioned. But if a sheet of gelatine be allowed to imbibe a solution of nitrate of silver until it has swelled up, the action of light produces a series of changes in colour, and modifies the properties of the compound. It first assumes a clear yellow tint, then becomes brown, and lastly, of a dark ruby-red approaching to black. When this stage is reached, the original properties of the gelatine disappear. When treated with boiling water it swells up and becomes granular on the surface, but does not dissolve. In other respects its properties are the same as those of the corresponding silver compound with albumen, and like it, it is soluble in boiling solution of potash, forming a clear red liquid, which is decolorized by hydrosulphate of ammonia.

It is therefore certain that the three animal substances mentioned, form chemical compounds with reduced oxide of silver, and as they are all constantly employed in the preparation of sensitive photographic paper, the true nature of the image is proved beyond doubt. Other organic bodies may be substituted for albumen or gelatine, as vehicles for supporting the layer of silver salt. Even pure cellulose, as occurring in Swedish filtering paper, will suffice to reduce the ammoniacal oxide of silver in a strong light, but the action is very slow and imperfect if no chloride be present. The gelatinous substance found in Iceland moss has a greatly accelerating effect. So also have citrate, tartrate, oxalate of silver, &c. In all these cases, the most characteristic properties of the image will remain the same as if animal matters had been employed, but the relative proportions of silver and organic matter will be liable to some variation, which may be shewn as follows:—

All photographs of the class of which we are now speaking, agree in being faded more or less by the action of sulphur, but inasmuch as the loss of intensity is more decided in some cases than in others, we are furnished with a means of estimating comparatively the actual amount of silver contained in the image; for in proportion as the quantity of silver is greater, so will the picture be more vigorous after the sulphuration is complete. This mode of analysis shows that the use of animal matters tends to give an image containing a minimum of silver; whereas an increase in the quantity of chloride of silver in the paper, and especially the use of ammoniacal oxide of silver in rendering the sheets sensitive, darkens the colour of the image, and adds to the proportion of silver. It is observable, however, that in those photographs which approach the most nearly of all to the metallic condition, such as the image developed on paper prepared with iodide of silver, the tones are deficient in intensity when viewed by reflected light, the organic element giving increased softness and depth of colour. If this were not the case, the Talbotype negative process would be the best adapted for photographic printing, since the image so prepared, possesses unusual permanence under the influence of sulphuretting and oxidizing agents, which are the main causes of the fading of ordinary photographs.

The action of sulphur upon the colouring matter of photographs is of such practical importance as regards the further development of the art, that the attention of scientific men cannot be too much directed to it. The point of especial interest lies in the fact that there is a stage at which the print is improved in appearance by the sulphur, but is yet rendered so unstable that by the simple action of air and moisture it passes from black into yellow, and becomes faded. The exact composition of the deposit in the early or black stage of sulphuration is not at present determined, but the faded prints appear to consist of sulphuret of silver in a state of minute division. The instability of the proofs blackened by sulphur, however, has no doubt been one of the principal causes of the deterioration of photographs by keeping, and if this point had been recognised from the first, it is probable that the majority of them would be as good at the present time as they were when first printed. Still it must be allowed that paper photographs are considerably less permanent under injurious conditions than engravings and paintings in oil. The quantity of silver they contain is infinitesimally small, and hence the action of sulphur destroys the picture. The association of the silver with organic matter also facilitates oxidation and the action of other destructive tests, so that to keep them from fading they must be protected from acid fumes and impurities of various kinds sometimes present in the atmosphere.

Prof. HUNT rose to question the conclusion at which Mr. Hardwich had arrived; though probably he might be quite correct. On a former occasion he stated his firm conviction, that in all cases the photographic image was formed by metallic silver in a state of minute division. Further experiments, however, appear to be necessary upon that point. We know that carbon is an element in all these organic bodies, and plays a most important part, not merely under the influence of light, but in absolute darkness, especially upon the salts of silver.

The most interesting, certainly one of the most instructive, experiments is to place a stick of fresh-burnt charcoal in a solution of nitrate of silver in the dark. If we try this experiment, we shall find in a short time, that is in about a week or ten days, that the stick of charcoal will be completely covered with a beautiful coating of metallic silver, or radiating from the charcoal in all directions we shall have acicular crystals of silver. This shows the important part which carbon plays in all these organic compounds.

The results we have seen of the extreme sensitiveness of the collodion process is in a great measure due to the instability of the elements of collodion, and that the carbon it contains under the influence of the solar radiation at once effects the reduction which gives rise to these instantaneous pictures. When we find that pure chloride of silver exposed to the action of light upon a glass plate quite free from organic matter *does* darken, and that the blackened matter is certainly metallic silver in what may be called an allotropic condition; when we find in all the processes (with the exception of albumen), that when the blackening action has gone on sufficiently far, the black substance upon the paper *does* act in all its chemical relations as if it were metallic silver, that is, it will not be dissolved by ammonia, as suboxide of silver would be, but that it will be dissolved with nitric acid—with manifestations of nitrous fumes: all these things appear still to render it highly probable, in the majority of cases at least, that the photographic image is formed of metallic silver in a state of minute division.

Dr. MILLER said the observations with which Mr. Hunt has favoured us appear to admit of being viewed in a different light. He alluded to an experiment of a piece of charcoal immersed in a solution of nitrate of silver, kept in the dark for some time, and the consequent reduction of the silver either in an amorphous or crystallized form. From that Mr. Hunt draws the conclusion, that the metallic silver is reduced by agency of charcoal. This admits of a different interpretation. Mr. Smee made a piece of charcoal the positive electrode of a voltaic battery in dilute sulphuric acid. Hydrogen will thus be evolved upon the surface of the charcoal, a mechanical combination of hydrogen with the charcoal will result. If this fragment of charcoal thus saturated with hydrogen be thrown into a solution of nitrate of silver, in the course of a few moments it will become coated with reduced silver. Now charcoal, even after it has been strongly heated, is known to retain a portion of hydrogen, and it is possible that it may act in the case alluded to by Mr. Hunt in a manner analogous to the way in which it is known to act when it is purposely saturated with that gas.

He was not certain that the blackened chloride of silver really does contain metallic silver. The circumstances under which the blackening takes place are such as would make, no doubt, such a conclusion. It is well known that the presence of free nitric acid in solution from which chloride of silver has been precipitated, though it retards greatly the action of light, yet does not prevent it. Take a dilute solution of nitrate of silver in free nitric acid, and precipitate a quantity of chloride of silver from it, and expose it to the action of light, in the course of a few hours the surface will be coated with a violet compound, which has no name, plainly resulting from the action of light. Now this, be it observed, is in the presence of a powerful oxidising agent, nitric acid, and hence it is highly improbable that this chloride of silver should contain metallic silver thus reduced, and therefore is doubtful that the black or violet compound is metallic silver.

Then with regard to the action of light upon albuminate of silver, supposing that this compound contains, as has been supposed by Mr. Hunt, metallic silver, why should it dissolve in potash, and produce the coloured liquid which we have just seen? If it contained reduced silver, such a combination with potash would be impossible.

Mr. MALONE had taken the greatest possible interest in this question of positive printing; and would beg to be permitted to say that it is peculiarly gratifying to have heard Mr. Hardwich's paper, especially that part relating to the action of sulphur, because it was clear that certain sulphuretting compounds were destructive to photographs. Many present would remember that the statement was at first met with scepticism. We were told that the hyposulphite of soda caused the fading, and if we avoided this the pictures were safe. But from having treated pictures with sulphide of ammonium, and having ascertained that they pass through those stages of colour demonstrated in the experiments, simply washing free from hyposulphite of soda was not sufficient. We should keep our photographs free from sulphuretting vapours. But there still remains much to be done with regard to the question of toning by sulphur. He mentioned here that some prints made in 1844 were fixed with hyposulphite of soda. They had the usual characteristic disagreeable red colour of the photographs of that time. They were then heated by passing a hot iron over the surface while damp, the picture still retaining a small amount of hyposulphite of soda. By this means a purplish tint was produced, which at the time was believed to be due to the action of sulphur, and yet those tints have not faded, although mounted in the ordinary manner, and exposed in a book in one of our London libraries. This was an exceptional case; but still it demands a full explanation as to how it happens that a print which has evidently been coloured by the action of a sulphur compound, has, when placed in an ordinary library, remained permanent from the year 1844. Because if we can discover the conditions which attended the preparation and preservation of that print, it is quite clear that we may use sulphur as a toning agent.

An animated discussion then took place concerning chloride of silver, of which it appears there are several varieties, differing of course in the proportion of their atoms, and all differently effected by light, Mr. Malone asserting one form to be darkened by its action, another unchanged by it, whilst a third dark originally became whitened by the effect of light. On the other hand, Professor Hunt supported the opinion that the photographic representation on the paper was metallic silver. Unfortunately the whole argument left the subject much as before, that the component parts were not satisfactorily agreed upon, and that whether toned by sulphur or gold most of the cognoscenti believed proofs would eventually fade away.

Meeting of the British Association at Cheltenham.—The following paper was read before the Physical Section of the British Association, on Friday, August the 8th, 1856:—"On photographs, illustrating a new process of introducing clouds and artistic effects," by E. Vivian, Esq. His plan of proceeding is to stop out the sky and lights of the negative completely, then take the positive print immediately it comes out of the frame, and, while still sensitive, place over it a piece of thin architectural paper (covering the whole) on which has been traced with a brush or pen, in black or yellow colour, clouds or other middle tints. The print is then exposed to the sun for a few minutes, and the result is an evenness of tone and general artistic effect superior to an unaided photograph. The specimens he exhibited were much admired. The following papers were to be read on Monday, Aug. 11th:—"An attempt to engrave collodion pictures by hydrofluoric acid, by Charles Pooley, Esq.; "On photo-chemical researches," by Prof. Bunsen; "On albuminized collodion," by W. S. Ward.

THE DUC DE LUYNES'S PREMIUM.

We give the following extract from the *Bulletin de la Societie Française* for August, 1856, on the Report of the Committee relative to the premium offered by the Duc de Luynes.

One of the most interesting applications of photography is the faithful and indubitable reproductions of monuments, and historical or artistic works, and since its first discovery archæologists have been much inclined to this important consideration of it; but whilst the art is capable of realizing their liveliest expectations, it is not certain that the copies it furnishes are lasting. Unfortunately the experience gained since its first introduction is far from assuring on this point; many prints which have only been a few years in existence are already fading, many altogether effaced. Photographers, justly alarmed at this state of affairs, compromising so gravely the marvellons effect of their art in so short a time, have commenced very earnestly a research into the causes of the alteration. Photographic societies have recorded numerous processes for fixing prints, which their authors present with assurance of indefinite duration, and there is reason to hope that the persevering efforts of many intelligent and zealous operators will bring about so desirable an end; but the truly lasting preservation of photographs can only be proved by the experience of ages, and archæologists hesitate to confide the subjects of their study to an art, the productions of which fail to give assurance of their durability, until time shall give incontestable proof, to assure them.

The chemical elements which compose the design upon positive proofs exists in the first instance in the solutions in which the papers are prepared, these are soluble in appropriate re-agents, and who can be sure they may not in their preservation encounter similar agents. No chemist can be certain that they may not undergo analogous alteration in the course of time; on the other hand the particles of metals which constitute the blacks and demitints are very minute and fixed upon the paper by very feeble affinity, no metal can thus be securely fixed in the high temperatures of our rooms, even the state in which they are kept in libraries, that is to say, inserted into books, or pasted upon card-board will facilitate their alteration, for presenting to each of the molecules of metal so many particles of paper similar to that upon which they are fixed, their greater diffusion is promoted.

Of all the chemical matters we are acquainted with, carbon is the most fixed and unalterable, it is only destroyed by combustion in the highest temperature. The preservation of the ancient manuscripts prove that the carbon fixed upon paper in the state of black smoke preserves them without alteration for many ages. It is evident that when photographs can produce blacks in their prints by the aid of carbon, they will have the same guarantee for their continuance as in printed works, the utmost that can be desired.

For the last few years many attempts have been made to transfer photographs on to materials that will serve for engraving or lithography. If they have not been entirely successful they are, nevertheless, calculated to inspire the greatest hopes, and leave little doubt of its ultimate perfection in the hands of artists devoted to these studies.

It is to forward an object so much to be desired, either that the process of lithography or other printing may reproduce the marvellous effects of photography without the intervention of the human hand that the Duke de Luynes has founded the prize of 8000 francs for the artist who shall, after three years, solve this problem to the satisfaction of the commission.

The object of the Duke being not only to stimulate the exertions of those who are engaged in their researches, but also to indemnify them in part for the expenses they will necessarily incur in case the commission are of opinion that none of the efforts sufficiently meet the conditions for obtaining the grand prize, they will be able to give, as a testimonial of encouragement, a portion of the sum in question, and of which they will determine the amount to the artist or artists who shall have made the most important steps towards completion, whether it be in the discovery of fresh means, or the greater advance to perfection in those already known.

Independently of this first prize of 8000 francs, the duke disposes a further sum of 2000 francs for the operator who shall, in the space of two years, have made the most important progress towards effecting durable positive proofs, either by new processes or by a complete study of the divers chemical and physical action which intervene in the processes used, or which influence the alteration of their results.

The competition relative to the prize of 8000 francs [£320] will close the 1st of July, 1859.

The competition for the prize of 2000 francs [£80] will close the 1st July, 1858.

The memorials and the specimens referring to either one or the other should be addressed "Au Siege de la Societe Française de Photography," before the expiration of these dates, which will be rigorously observed. The society do not require the methods addressed to them to be held secret, nor do they intend to deprive inventors of any benefit they may expect from patent-rights. Specimens and memorials must be sent in closed covers, which will be carefully preserved until the specified date when they will be opened.

In the sittings of 1858 and 1859 the society will name commissioners appointed to examine different methods submitted to them.

The specimens and memorials will not be returned but deposited in the archives of the society.

The President, in reply to a question of M. Jules Cloquet, stated it was the intention to open the competition to all the world, it was not merely a national but a general benefit that was sought for.

PHOTOGRAPHY FROM THE IODIDE OF LEAD.

By M. ROUSSIN,

Pharmacier aide Major to the Military Hospital de Teniet al Hand, Algeria.

None of the chemical treatises mention the action of light upon the salts of lead. All the chemists who, from time to time, have had occasion to make or collect this material would, no doubt, be surprised to learn that it is affected by light in a manner as clear, as distinct, as clear, and as quick as the salts of silver.

It is but a short time ago that I discovered this curious reaction; the time, means, and materiel (for I was attached to a far distant outpost for sixteen months) have prevented me from rendering this communication more complete and more worthy of interest.

If we precipitate a neutral salt of lead, such as the acetate or the nitrate, by means of a soluble iodide, it forms the well-known yellow precipitate the iodide of lead. Suppose the precipitate to be perfectly pure, let us observe what effect the light will have upon it. If the precipitate be moist, resting in the liquid at the bottom of the glass, no alteration of tint or preceptible change takes place on exposure to light, neither when dry is there any evidence of the action of the luminous rays; but when starch is introduced, or any matter in the slightest degree sensible to the least trace of iodine, there can be no longer any doubt as to the action of light. It will be seen then in fact that if some drops of starch water are let fall upon iodide of lead that has been some time dissolved, the mass assumes a slightly green tinge fully characterized. This tint is, as we may say, a combination of two colours, yellow and blue. In the present case the yellow is produced by the iodide of lead undecomposed, whilst the blue proceeds from the iodide of starch.

After having dissolved the acetate of lead in water strongly impregnated with starch a certain quantity was thrown down by the iodide of potassium, in a chamber lighted with a wax candle, and the precipitate preserved at the bottom of the vessel in perfect darkness, had not changed its hue at the end of two days though frequently agitated. The glass, for the sake of experiment, was then suddenly exposed to the sun's rays, when the action was visible literally in less than a second; all the surface that the light had struck upon assuned a green tint, which was augmented in intensity by longer exposure, and the aetion continued unceasingly ceasingly under the solar influence.

In this case, as in all preceding, the decomposition of the iodide of lead is spontaneous from the very commencement; the starch only gives evidence of the change, and continues the reaction. Does the atmosphere effect this? Two experiments made, one in hydrogen and the other in carbonic acid, forbids this supposition. In the two examples in truth the colouration under the influence of light was equally distinct and prompt without the contact of air.

Having prepared a certain quantity of iodide of lead, very pure, we mixed it whilst still moist with a thick jelly of starch, and spread this upon some sheets of white paper. This operation was performed by the light of a wax candle only. After having spread one of the sheets upon a cardboard, the yellow side upward, a piece of black lace was placed over it, and the whole brought suddenly into the light. At the end of a minute's exposure, we examined the result by candle light again: not only were all the details produced with perfect precision, but it was hard to distinguish the appearance upon the paper from the original. We were able thus to print all kinds of leaves, ostrich feathers, lizard skins, &c., in such a way that left no doubt of the value of the process, the only difficulty was to find a material to fix it.

Here follow the very simple formulæ which I use at present, and which gives excellent results. I prepare the three following solutions:

1.—Acetate of Lead (neutral)	300	parts.
Distilled Water	900	,,
Acetic Acid 10 degrees	5	,,
2.—Iodide of Potassium	300	,,
Distilled Water	900	,,
3.—Hydrochlor. of Ammonia	500	,,
Distilled Water, only so much as will make a saturated solution.		

These three solutions should be perfectly limpid, and preserved in closely stopped bottles; the dissolved iodide of potassium as much as possible kept in the dark, and if by chance it becomes slightly brown it should have added to it one or two drops of caustic potash.

The choice of the paper is extremely important; for we ought to reject entirely those that are sized with gelatine. The English paper, for example, gives no image; the French papers, on the contrary, are nearly all sized with starch, and answer perfectly: they must be selected with the usual care as to their smooth surface and even texture, cut to the desired size and marked at the back at the extreme edge. Commencing then by candle-light only, proceed as follows:—

Pour first the lead solution into a large flat dish, which should be moderately warmed. Secondly, the iodide of potassium into a similar dish, also warmed. Thirdly, the hydrochlorate of ammonia into another, which ought to be heated much more: a large pan filled with clear water, acidulated with a few drops of acetic acid, should be close at hand. The sheets of paper should be placed, face downwards, upon the acetate of lead. The essential point is preventing the liquid flowing over the back and pressing out the bubbles of air, two evils which may be easily avoided. When the sheet lies perfectly flat, that is to say after about five minutes, lift it by one of the corners and suffer it to drain at the opposite end. Place it then upon some folds of clean blotting paper, applying several sheets over aud dab slightly. reversing the surface, until the liquid no longer remains upon it. The sheet should then, with the same precautions, be deposited upon the bath of iodide of potassium, the surface impregnated with the lead in contact with the liquid; after three or four minutes lift by the corners and get rid of the excess of liquid as before. The sheet is now ready for use. For the production of an object no more operation is necessary than for the production of a positive proof upon paper, simply putting the object to be copied upon the yellow surface, covering with a clean piece of glass, and exposing to the light. The time varies according to the light; in the sun one to four seconds is enough, in the shade a few seconds to a minute. The image is soon visible but should be examined by candle-light.

All the parts in the object sufficiently dark to shut out the light, leave the yellow unaltered upon the paper; all the transparent portions, on the contrary, are formed by the gradations of these colours. The paper gives the clearest image when moist, when dried the effect is more difficult to produce and is less satisfactory.

It now remains to fix the proof; in doing this the tints are changed in colour, the yellows become white and the greens deep violet or deeper green. After several trials I found sulphate of magnesia, bicarbonate of potash and muriate of ammonia accomplish this; sea salt would no doubt answer, but sal ammoniac is the best; plunge the proof then into this solution until when seen by transparent no yellow is perceptible, wash well in the pan of water, aud haug to dry spontaneously.

We have also made further trials with starch solutions. The starch was disorganized by prolonged boiling with caustic potash, the liquor after being saturated with acetic acid, served, when filtered, as a vehicle for the iodide of potassium and the acetate of lead. The proofs gain a little in vigour, aud the exposure is shorter. Farther experiments are necessary. We are not able to say whether this method would auswer with the camera, not having such an instrument, but there is little doubt that negatives obtained by salts of silver would furnish proofs of artistic value by this processs.—*Revue Photographique.*

ANSWERS TO CORRESPONDENTS.

Ero—Was the specimen sent de facto a calotype from a paper negative? if so it is unique; but if, as it would seem, it is a print from glass, it is only ordinarily good.

Constant Reader.—Mr. Berry has not published his method of preparing pyroxyline from flax, therefore we cannot say if the quantity or quality of the acids would be the same as for Swedish paper.

W. Doyle shall appear in our next; we regret we have not room for his letter.

F.—Too much nitric acid produces the metallic appearance you complain of. Use nitric acid one drop, glacial acetic acid ten drops to each oz. You do not say what kind of salt you wish to add to your bath. The method of taking albumen negatives is described in the present number, and will answer either to print upon prepared paper, or a glass plate prepared as the negative was in this case; five secouds in diffused light is enough.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

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How much we are the creatures of habit, is too trite an observation for our purpose to dwell upon; it is patent to every one: our present example is, that though the weather, thus far north at least, has been anything but what would be likely to tempt the tourist or the photographer; yet, because we are accustomed to it at this season, every one must go away from home; hence a great dearth of what is likely to interest our readers. True we look forward with great expectation to the result of investigation, as to the certainty that may be hoped for in that great desideratum—preserved plates. Amongst the most promising are those of collodio-albumen: the almost apocryphal keeping qualities of this form of preserved plates, will fully atone for the increased labour of its preparation, or prolonged character of the exposure.

Our readers will find a very heterogenous compound for using collodion dry, communicated to the French Society, by M. Leon Cassagne.

The extreme simplicity of Dr. Hill Norris's process speaks strongly in its favour; and the specimens produced by it which we have seen, say much for its certainty. He has improved upon the original formula, and speaks confidently and eloquently of its superseding all other modes. An abstract of his plan of operations will be found in our pages. Very much may be hoped from this process, from the revelations which Mr. Hardwich has given on the effects of gelatine. There is a modifiation of Dr. Taupenot's by a member of the Societé Française; but we cannot go through the whole details which the auther, Argus-like, with his hundred I's, has given. The chief novelty, and which deserves stress to be laid upon it, is, that iodides from metallic bases are not suited to albumen. Whether the commixture of the several salts, as recommended—such as cadmium in the collodion, and ammonium in the albumen—will agree, remains to be seen. In another more promising form by Mr. Ackland, where free iodine is added, we fear that though the results may be more certain, the exposure in the camera will be augmented. We may speak confidently of the results, for our brethren of Bombay have been very successful with this form, as accounts have reached us.

Our shrewd friend, Mr. Sutton, has, we conceive, materially elucidated one of the most frequent causes of failure with preserved plates; to wit, the necessity for removing all traces of free nitrate from the surface, if we would really have them preserved. Now the presence of this free nitrate appears indispensable for a rapid picture; hence we may fairly presume a want of judicious exposure to be a fertile source of disappointment, the sensibility of the plates being still there, but so dormant as to require unusual exciting causes to bring it forth. With his permission we will quote his own words:—

"Before proceeding further I will mention an experiment which I made a few days since, and which seems to throw some light on the cause of the want of sensitiveness of the albumen and waxed-paper processes. It is customary in these processes to wash off the excess of nitrate of silver after sensitizing. This is not done in the wet collodion process; or if done the plate loses much of its sensitiveness. My experiment was as follows, and any one may easily verify it:—

"I prepared a sheet of paper with iodide and bromide of potassium in the usual way; then dried, and immersed it in a bath of aceto-nitrate of silver. I then washed one half of the paper in water, changed three times (holding the other half above the dish), so that a very small excess of nitrate of silver remained in the washed half-sheet. The whole sheet of paper was then pressed between blotting paper, until surface dry, and a picture taken on it. The half sheet which had *not* been washed, but merely blotted off, developed rapidly into an intense picture, perfect in all its details. The washed half sheet gave, on the contrary, a very feeble and imperfect picture. It appears, therefore, that the nitrate of silver plays an important part in receiving the impression in the camera, and the more free nitrate there is in the sensitive plate, or paper, to be acted on by light, the more sensitive (ceteris paribus) the plate or paper appears to be.

"We all know that the printing process on chloride paper leads to the same conclusion, viz., that without a large excess of free nitrate of silver, we cannot obtain a sensitive paper or a vigorous print.

"Here then is a clue to the want of sensitiveness of the albumen process. There is too small a quantity of photogenic material in the film. If we would increase the sensitiveness we must retain on the film, by some means, and if possible in a damp state, the excess of nitrate of silver. It would be well at all times to have the option of sacrificing the keeping qualities of the plate to the more valuable quality of increased sensitiveness. It is also not improbable that the hard wiry character of some negatives may be owing to deficiency of free nitrate of silver."

Mr. Hardwich has drawn attention to the important fact, that gelatine combines chemically with the oxide of silver, and that therefore the sizing of the paper has assumed a great importance; many of the occult influences that have proved a source of torment to us, in printing, are mainly due no doubt to this unlooked-for fact. Following out his theory, we have experimented upon the addition of gelatine to the salting solution, as applied to unsized papers, and had no difficulty in detecting a marked result in its favour. After all, Towgood's paper, without this gelatine, has produced the most beautiful of all that we have seen. It is to be regretted we are so much in the hands of the paper-makers.

Mr. Hardwich's formula for salting, containing citric acid and soda, is worthy the investigation of the pains-taking photographer.

We refer our readers to the very excellent subjects, so ably treated of by Mr. Ross, in the present number. We rejoice to find the question relative to large and small lenses is attracting the attention of our transatlantic brethren, and much wish they would devote a little of the time so much engrossed by "face mapping" to investigate the subject.

Some very curious specimens, none remarkable for their excellence of effect, have reached us. A negative upon talc has great recommendation for its portability and transparency, but the difficulty of obtaining pieces of sufficient size would be a barrier to its general use. This objection does not apply to one sent as a specimen on sheet iron. Here we are assured by our esteemed correspondent the price would be the obstacle, for it would be nearly cent. per cent. dearer than glass. The method of sensitizing is not imparted; the as back has not been touched by the solution, but only the upper surface, which had been previously coated with asphalte, we incline to the opinion it must have been floated horizontally, for it is very thin and slightly convex.

Application of Gelatine to the Preservation of Plates.—Dr. Hill Norris, who has benefited the cause of the perambulating photographer, by a liberal explanation of his application of gelatine to the preservation of plates, has given further details respecting its use. He says:—It is advisable to select a collodion not too dense, or contractive, such as that containing a large preponderance of ether or any chloroform, as these, as well as acids in the silver bath, render the coating hard, and not easily penetrated by the developing fluid: hence a larger proportion than usual of alcohol is necessary, if a quick development be wanted; on the other hand, contractive collodions, though slower in coming out, are more delicate in their details.

Having coated your plate, sensitize in a 30gr. bath perfectly neutral, wash thoroughly under a tap to get rid of all the free nitrate, then immerse for five or ten minutes in the following bath:

Nelson's patent gelatine ...64 grs.
Distilled water ....14 oz.
Absolute alcohol .... 2 oz.

Rear up, on blotting paper in a dark box or room, to dry: they will be found hard and horny, and may be laid in contact, yet require no washing prior to being immersed in a solution of gallic acid, to every ounce of which 15 drops of the exciting solution has been added. If this be poured upon the plate it is apt to stain: the dish must therefore be tilted, the plate laid in flat, and the fluid allowed gently and evenly to flow over it, by bringing the dish back to a horizontal position,—an especial contrivance, consisting of a dish and counterpart made by folding a sheet of gutta percha twice the size of the plate, and with upturned sides similar to a box, and deep lid, opened to an obtuse angle, is recommended. All good collodions, whether positive or negative, will serve, but some will require a longer time in the gelatine bath.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The seventh meeting of the session was held at the Royal Institution, Colquitt-street, on Tuesday evening, the 2nd instant, Mr. Foard occupying the chair.

Mr. J. R. Isaac, of Castle-street, Liverpool, the local agent for the sale of photographic prints, by Messrs. Bisson Freres, Paris, exhibited a portfolio of large prints by those distinguished artists, including views of the principal architectural beauties of that city, and several magnificent prints of Alpine scenery, remarkable for the beauty of the half tones and intensity of colour on vast masses. There were also numerous prints from photographs of paintings by the ancient masters. Their great merit was unanimously conceded, and in the course of a conversation initiated by the chairman, as to the process adopted by the operators of Messrs. Bisson, it was stated by M. Jules Valon, of Paris, who had frequently been present when views were taken, that the collodion process was invariably adopted, and that the pictures were always taken in the large size; two operators held the plate while a third poured on collodion; the same collodion was seldom used more than once. The lenses used by M.M. Bisson were 14 French inches, equal to 16 English inches, in diameter.

Mr. J. R. Isaac volunteered some observations bearing upon the early stages of Fox Talbot's calotype process. When that process first engaged the attention of the public, he, thinking that it might prove serviceable in connection with the art of miniature painting, which he was then pursuing, wrote to Mr. Fox Talbot, who referred him to Mr. Henry Collen, of London, with whom the patentee had made an arrangement for practising his process. Some specimens were sent with directions that to make complete pictures they required the manipulation of the pencil. He subsequently waited upon Mr. Collen, who, in his presence, took several likenesses, which he (Mr. Isaac) now produced, showing the result of the process as the picture came from the camera. [The pictures were mere dim shadows of the features, sufficiently perceptible, however, to enable an accomplished artist to produce a correct portrait.] Mr. Collen showed him some finished portraits which were certainly the most beautiful things of the kind he had ever seen. He (Mr. Isaac) tried to manipulate upon some of the likenesses given him by Mr. Collen, but it was so different to the process of painting on ivory, that he found he could not succeed; he, however, finished two specimens which he afterwards shewed to Mr. Collen, and that gentleman's criticism was to this effect:—"These may do for Liverpool, but they would not do for the metropolis." Mr. Collins then advised him not to entertain the idea unless he could get some one who could produce an agreeable and artistic picture. Acting upon that suggestion, he retreated, like Falstaff, "To live to fight another day." He thought he might claim the title of godfather to the calotype process in Liverpool. Mr. Isaac concluded his remarks by reading the advertisement which was issued at the time, describing the advantages to be derived by adopting the process.

Some photographs by Mr. Ross, of New York, were exhibited, their singularity being, that the collodion film had been taken, in lieu of glass, direct upon talc, iron, &c., and another had been transferred to black calico.

Mr. Atkinson exhibited and explained a portable camera of extremely ingenious construction, comprising facilities for carrying out a dozen prepared honied plates, and a contrivance for placing them and taking them out of the camera without exposure to the air or light, diagrams of which are given on page 121.

Mr. Atkinson also exhibited his patent stereoscopic camera. In reply to the chairman, Mr. Atkinson stated that the range between the two lenses was $2\frac{1}{2}$ inches, which he considered sufficient. An interesting conversation upon this nice question of the art ensued.

Mr. Forrest stated that Mr. Williams, who took the stereoscopic pictures at the Crystal Palace, had informed him that he never used a greater angle than two degrees.

The Chairman was surprised by this avowal, having seen as much as 1-9th of the gross distance between the object and the lenses taken.

Mr. Forrest said he invariably used a lens of four-inch focus. The angle depended very much upon the position of the object. If it were 100 yards away, it required the camera to be at a much greater angle than if the object were nearer in the foreground.

Mr. Foard still thought, notwithstanding what had been said of Mr. Williams, whose pictures, of course, were unsurpassed, that an angle of $2\frac{1}{2}$ degrees was not sufficient.

In taking portraits he invariably worked with two cameras, which he placed 18 inches asunder, and he had worked with them two feet apart.

Mr. Doyle was of opinion, that a portrait taken by such means must exhibit portions of the figure, which could not be seen by one person at the same time. In focusing an object they should only, he thought, focus those portions which would be seen by the natural eye, from one point of view. If that were so, then distortion must be produced by adopting the mode suggested by Mr. Foard. The sitter, in such a case, must appear as if partially turned round on each side.

The Chairman said, whatever might be the theory, he had never known distortion to arise. The human eye was no criterion of what might be done with lenses. The test was the object itself. If when an arm was distended it did not appear distorted in the picture, the angle was not exceeded; but if the object appeared too square, or the face too large, then the picture was distorted. It appeared to him more a matter for practical determination. The question of the human eye was a very debateable one, involving as it did so many considerations. We did not know the correcting process, by which we saw things in a vertical position, because the eye turned them upside down. There might be some power of the mind, or of the eye itself, distinct and different from a mere physical power, depending upon the shape of the lenses and the distance of the eye.

Mr. Doyle still thought, whatever might be the difference between the eye and a lens in a camera, that they could not see, with the human eye, the same representation of an object taken with two cameras two feet apart.

The Chairman reminded Mr. Doyle that in panoramic views distant mountains, by means of mechanical contrivances, were made to appear miles off, the effect produced being an entirely delusive one. So with stereoscopes, if by increasing the angle they increased the deception, he thought they were perfectly justified in doing so.

Mr. Doyle asked whether Mr. Foard considered that portraits, taken at an angle of $2\frac{1}{2}$ degrees, were sufficiently stereoscopic in effect?

The Chairman thought not.

A Member said, with such an angle, he had produced what he considered perfect stereoscopes.

Mr. Burgess observed that the stereoscope itself had much to do with it. They might take half-a-dozen pictures, taken by the same camera, and pick out one or two which would not be stereoscopic to him, but might to them. What suited many gentlemen would not be stereoscopic to him, until he used the stereoscope to relieve them, showing that there was also a great deal, in the eye itself, which had to be considered, in reference to the differences of opinion on this matter.

Mr. Forrest exhibited and explained an ingeniously-constructed portable camera, by Mr. Corey, which folded up in the shape of a carpet-bag, and could be set up for operation in a few seconds.

The camera was generally acknowledged to be extremely convenient as to portability, and admitted to be an improvement on a camera of similar construction exhibited some time ago by Mr. M'Kinlay.

Mr. Forrest said he was indebted to Mr. Corey for the following modification of Mr. Hardwich's formula for mixing a salting solution—a very excellent one—

Chlor. ammonia.........	160 grs.
Citric acid	100 "
Carbonate of soda......	100 "
Water	20 oz.

This solution gave exquisite detail and brilliant colour, and was, in fact, the best of any similar process he had seen. If Canson's paper were used, a little gelatine would require to be added, as it wanted size; but Towgood's paper did not require it. He had found the finest results from Towgood's paper, and he would advise every working amateur to procure it.

In answer to the Chairman, Mr. Forrest stated that the solution was not very thick, and that it made a fine glaze, looking much like albumen.

Mr. Leithead exhibited a specimen of metallic silver deposit upon a plate which had lain on a shelf in a dark closet, since March last. It had been used for a portrait, and then placed on the shelf, and when taken down the other day, the metallic deposit was discovered. The picture was immersed in a bath of nitrate of silver before it was thrown aside.

The Chairman said it was an extremely singular and interesting fact, and that the crystallization was very much like the deposition of silver by ammonia.

Mr. Atkinson said if they could discover the chemical law which had governed this crystallization, it would be possible to make metallic deposits by electricity with cyanide, and thus produce a greater surface of silver and obtain better pictures.

The meeting then adjourned.

Mr. Forrest was to have read a paper from Mr. Ross, of New York, "On apportioning the aperture of lenses," but the length of the sitting prevented his doing so. It will be found in this page.

LONDON PHOTOGRAPHIC SOCIETY.

This society having concluded the session for 1856, we have no proceedings to report.

ON APPORTIONING THE APERTURE FOR A LANDSCAPE LENS OF ANY FOCAL LENGTH.

By WILLIAM ROSS.

"As the aim of picture-making is to present the impressed image, under precisely the same conditions as the original object is seen by the naked eye, we must consider the mechanical conditions under which the impression is made on the retina. It is evident that pictures produced without attention to these conditions, must be more or less distorted, from what the original would be, as seen by the eye, in proportion as the circumstances under which they are produced differ from the phenomenon of vision.

"Dr. Brewster, in his Optics, gives the principal focal length of the lens of the eye as 1·73 inches, having its least convex side turned towards the object, and the most convex to the retina, on which the picture is delineated, under precisely the same conditions as on the ground glass of the camera; the curves of the eye lens being adapted for forming the image on a concave surface, while those of the camera lens should be adapted to form it on a flat surfaee. The horizontal range of the moveable eyeball is about 150° of the entire horizon, which is also that of the panoramic camera. Spherical aberration is corrected in the eye, by the varying density of the lens, but no provision exists for rendering it achromatic; the slight deviation of the different coloured rays occasioning so very little indistinctness of vision, as to render the correction unnecessary.

"All objects out of the central line, or axis of vision, are rendered indistinct in proportion to their distance and obliquity from the axis; for, when the eye is directed to any part of a landseape, only that point of it directly in the axis of the eye is distinctly seen in detail, the other parts being only sufficiently seen to produce their general effect. The extreme facility of moving the eye makes up for this defect, as every part can be examined in succession, which is not the case with a lens, which must necessarily, when its whole surface is exposed, produce impressions in which this defect is inherent. To remedy this indistinctness or want of sharpness in the image, the usual mode of removing the defect is, to use a diaphragm with a small aperture, the area of which is generally obtained empirically, without any reference whatever to the arrangement of the eye, by which it is to be viewed, and by which consequently the arrangement ought to be governed.

"It will be found on examination, that the diameter of the exposed part of the eye lens, is as nearly as can, under ordinary circumstances, be determined, between one-eighth and one-ninth of its focal length; hence, where pictures are required which will truly appear to the eye. as would the original objects from the same point of view, they must be produced by a corresponding portion of the camera lens, slightly increased, as the intensity of light is less, or decreased as its intensity increases, in the same way as the pupil of the eye dilates and con tracts by a similar alteration of the light.

"A lens, therefore, of any focal length should have a diaphragm with such size of aperture, placed at such a distance in front of it, as would leave only this proportion of the surface of the lens to receive the visual rays from the object. A picture formed by such an arrangement must present on the ground glass, the image of any object, precisely as it would be seen by the eye, so far as colour, form and position are concerned; while the actinic picture would present the two latter properties only.

'All other things being equal, the time of exposure in the camera is inversely as the square of the area of the lenses, and directly as the square of the distance from the lens at which the image is formed; *e. g.* when with an aperture of two inches, an impression is procured in eight seconds, at a distance of four inches from the lens, then with an aperture of one inch, and at a distance of two inches, the time will be eight seconds also. So, if the aperture is two inches, and the impression is made at eight inches from the lens, the time will be thirty-two seconds; or if the aperture is one inch, and the distance eight inches, the time will be sixty four seconds. In other words, by halving the area of the aperture, the time is, at the same distance, doubled; and should the distance also be doubled, the time required for an impression will be four-fold.

"No matter what may be the focal length of any lens of a number, all images formed by them of the same object, will, when formed at the same distance from the lens, be of an equal size, both with a lens of a short or long focus.

"No lens has more than one focal length for parallel rays, but the number of conjugate foci are infinite. One of the pair of each set of conjugate foci, must always be within the limit comprised, between the focal point for parallel rays, and another point situated twice this distance from the lens. Practitioners using a megascopic camera must always attend to this in copying pictures on any required scale to the original; always employing the focal length of the lens in use, as the unit of measure.

PROCESS FOR COLLODION IN A DRY STATE.

By M. LEON CASSAGNE.

M. Cassagne, who has already done good service to photographers by making cameras extending like accordions, has occupied the Societé Française on the subject of a dry collodion, which he avers has been most satisfactory in its products. After giving most minute directions in the preparation of his collodion, upon which he lays great stress, he continues: "This collodion, under favourable circumstances, that is to say, preserved in small bottles, and kept free from great heat, has given in the winter an excellent positive, in one or two seconds in the sun, or in ten to fifteen seconds in the shade, and a very fine negative in twenty to twenty-six seconds in summer, or forty to fifty seconds in winter; and does not lose its photographic qualities after being mixed a month or six weeks. Its composition is—

Collodion, simple .. ...grmmc.	125· 0
Iodide of potassium, finely powdered and dissolved in a little alcohol	0· 8
Fluoride of potassium, dissolved in the least possible quantity of water	0· 1
Iodide of ammonium, dissolved in a very little alcohol	0· 8
Bromide of cadmium and chloride of ditto, each	0·25
Saturated solution of chloride of soda	10 drops.
Benzoin of Colas in æther ...	5 ,,

Such is the collodion which, either perfectly or partially moist, or even in a state completely dry, after one, two, or three days from the preparation, I employ to obtain negatives possessing the most successful qualities."

M. Cassagne also pours over his plates diluted honey, after the manner of Mr. Maxwell Lyte.

"On returning to the preparing room, lighted only by a candle, I plunge my glass, collodion side upwards, in a dish containing the first water with which I have washed away the excess of nitrate—[no previous mention is made of washing—Ed. L.P.J.]—and after about one minute's immersion, I take it out and place the glass on a levelling stand, pouring quickly on the following developing fluid :—

	Grammes.	
Pyrogallic acid.........	0 3 =	$5\frac{1}{2}$ grains.
Citric acid..............	1 0 =	$15\frac{1}{2}$,,
Distilled water.........	50 0 =	12 drams.
Gallic acid...............	0 2 =	$3\frac{1}{2}$ grains.
Alcohol	2 0 =	$0\frac{1}{2}$ dram.

This should only be prepared a few hours before being used, and previously filtered; to it must be added from about one to two drams of a solution of nitrate of silver, about two per cent. strength; throw this quickly over, and when fully out, wash carefully and clear with cyanide; wash again with renewed care, and without waiting for its drying, pour over it pure albumen, and then leave it to dry, away from any dust.

It is possible to develop the latent image on dry collodion in the following manner, with proto-sulphate of iron :—After exposure wash the glass with filtered spring water, and pour over the surface a solution of nitrate of silver, five per cent. strength, so as to cover it entirely for about one minute; throw this off, and plunge the glass rapidly into a bath of sulphate of iron [strength not stated—Ed. L.P.J.]; the image appears immediately, with great softness of tint, and wanting nothing in vigour and sharpness. Certainly I have remarked the blacks, not quite equal to the former; in that they are as deep as lampblack, whilst in this, the iron gives a violet black, rather thin, but very fine."

SUGGESTIONS ON THE USE OF ACETIC ACID.

By W. ROSS.

In view of the difficulty of procuring acetic acid, of a uniform strength and purity, I would suggest that it be used in a condition much more dilute than the monohyrated or glacial acid. The standard strength I would propose is that of 50 per cent., or just *half* the strength of the glacial acid; requiring, therefore, twice the volume of this standard strength that would be required of the truly glacial acid. There would, therefore, be no difficulty in purchasing it of a strength which would require the practitioner himself to dilute it to bring it to this standard, which is that indicated at 17° of the actino-hydrometer, and is at the same time the *highest* strength that can be truly indicated by the buoyant power, which is the only property of a liquid, a hydrometer of any kind can indicate. The *purity* of the acid can only be known by chemical tests hereafter given.

I have said that 17° of the actino-hydrometer is the highest per centage of acetic acid, which can be truly measured by any hydrometer, for it is well known to chemists that at the buoyant power of 18° R.* s. g. 1·063 the per centage of the glacial acid in the liquid, may be either 53 per cent. or 100 per cent. In other words, the liquid at 18° R. may be the very strongest liquid form of the acid, and known as the true *glacial acid*, or it may contain only 53 per cent. of the glacial acid. At a buoyant power of 21° R., the liquid may contain either 80 or 90 per cent. of glacial acid, although judging from the hydrometer alone, we could not tell which of the two were correct. At 20° R. the strength might be either 70 or 96 per cent., as may be seen in my tables given at p. 77 in the number of last May.

No dependence can be placed upon a sample of acid which is impure, as its strength cannot be even guessed at by any use of a hydrometer; for a very small per centage of acetic acid may, by adulteration, appear from its buoyant power

* The mark °R. refers to degrees of the actino-hydrometer scale.

to be very strong; but the practitioner who wishes to produce a constant equality of effect, must be as certain of the constant purity of his acetic acid, as he is of its strength; and the process of determining this is not very onerous or difficult, while the increased probability of successful results, by using such acid, must more than compensate for the trouble of testing its purity, and of bringing it always to the same standard strength.

To the practitioner it is of no importance to know the nature of any impurity which may exist in his acid; to induce him to reject it he needs only to know that it is impure, and that, consequently, the buoyant power is no indication whatever of the strength of the acetic acid contained in it. The indications given by the following tests are independent of each other, hence they may be made in any order, and care must be taken that a fresh portion of the liquid acid be taken for each test, and also that each trial should be made in a *clean* test glass. If only one glass can be used for all the tests, it must be well washed from every trace of the former testing liquid, before a fresh portion is poured into it for another trial. If the first which happens to be used indicates impurity, it will be unnecessary to proceed with either of the others, as the samples ought to be rejected at once.

(*a.*) To a few drops of the acetic acid add a few drops of nitrate of silver solution; if it is made turbid, or a precipitate falls, the sample is impure.

(*b.*) If none, then to a fresh quanity of the acid add some sulphide of hydrogen, either in solution or as a gas; if a precipitate is formed, the acetic acid is impure, and should be rejected.

(*c.*) If none, then to a fresh portion of the acetic acid add a few drops of a boiled solution of indigo; the black colour will be discharged and the indigo bleached, if nitric acid or its salts are present in the acetic acid.

Should the acetic acid pass this ordeal it may be considered pure, after which its strength may be tested and water added by small portions at a time, until its buoyant power is reduced to the standard as already indicated. Acetic acid being volatile, when kept in partially-filled bottles, it will be well to keep the stock as strong as possible, and only to dilute a small portion at a time to the standard, as it may be required for use.

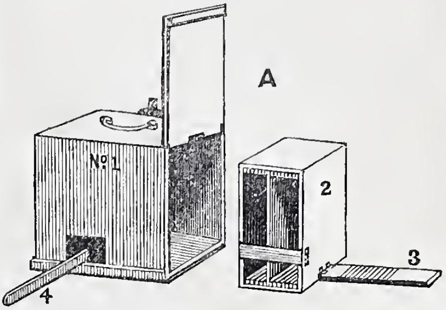
As the degree of dilution can easily be compensated for, by using a correspondingly increased volume of it, in connection with a similar reduction of the volume of water, used in the solutions to which it is to be added, there can be no difficulty in thus reducing it to a certain standard strength adopted by a practitioner, whatever his standard may be. It does not follow that every one will adopt the same standard, but the per centage of glacial acetic acid for every degree of the actino-hydrometer will be found in table I., at p. 77, already referred to.

PRESERVE PLATE BOX CAMERA.

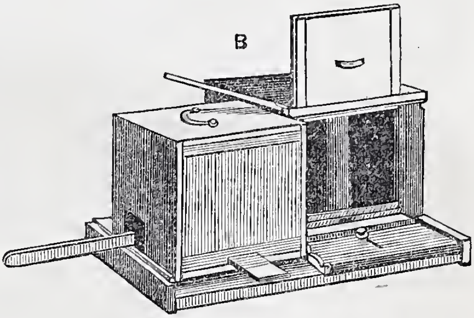
By Mr. ATKINSON.

The following is a description of this ingenious and portable instrument, as exhibited at the last meeting of the Liverpool Photographic Society:—

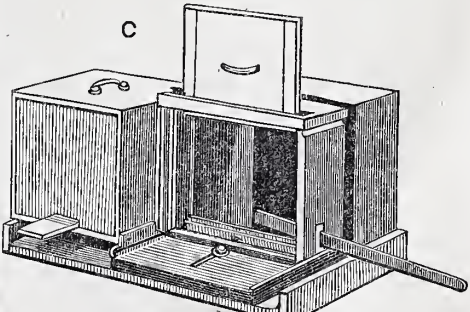
A No. 1 is the outer box for containing the plate box No. 2. The position of the plates is regulated by the scale No. 3, and the plates are introduced into the camera by sliding the guide rod No. 4.



B shows the camera with the plate in course of transference from the box to the camera. The aperture between the preserve box and the camera is opened by means of a slide which appears at the top corner of the camera, letter B.



C shows the plate transferring from the camera to the plate box.



As each plate is required it must be changed agreeably to its number on the index No. 3.

THEORY OF PHOTOGRAPHY.

By PROFESSOR FRANKLAND.

The chemical changes which are ordinarily manifest during the operations of photography, may be considered as five, and readily suggest themselves, viz.: preparation, exposure, development, fixing, and toning. The most simple of course are the preparation of positives; the paper, steeped in a bath of salt and dried, is put in contact with nitrate of silver; by the decomposition, nitrate of soda and chloride of silver are formed, the soda is dissolved out, the silver remains; and an excess of this is always needed, no matter what the preliminary salt might be, a form of silver, insoluble in water, remains upon the surface of the paper. The same theory applies also to collodion: here the result of the admixture of collodion and bath produces iodide, or iodide and bromide of silver, according to the contents of the collodion. But too frequently free iodine exists in the collodion, particularly if it be old; this, by forming an iodate of silver, materially retards the action of the light on the excited surface. Whence comes this free iodine in the collodion?—not from the presence of nitric acid in the gun-cotton, as supposed by some, because it has been observed where no gun-cotton has been added: æther attracts oxygen from the atmosphere, thereby forming acetic acid; this acting upon the iodide of potassium forms acetate of potassa and hydriodic acid; this farther decomposed by light forms hydrogen and iodine. A plate of cadmium will absorb this liberated iodine, and re-form iodide of silver when in the exciting bath. The same applies in like manner both to the calotype and daguerreotype processes; the action of light upon a sensible surface produced by the decomposition of inert substances and formation of new and sensitive salts. The effect of light in these is twofold, molecular and chemical; a much more feeble light will produce the first, than effect the second; and as the iodide or bromine is not thereby disengaged, M. Claudet has proved that it *may* return to its primitive state if exposed to red or orange coloured light. The daguerrean image is produced by minute globules of mercury attached to the exposed surface of silver: in like manner the molecular change takes place in the calotype, collodion or albuminized paper, but in either case the image is rendered visible by the deposit of metallic particles of silver upon those parts of the surface which have been crystallised or roughened by the action of the light. Most probably it is a sub-chloride or sub-oxide of silver, though many suppose it to be metallic silver. Mr. Guthrie from analysis believes it a mixture of both, but this does not appear satisfactory as relates to a short exposure, as for positives; for the dark parts of the image are easily soluble in cyanide of potassium — now metallic silver is only slightly soluble in this salt. Thus M. Wohler demonstrates the actual existence of subsalts of silver, both brown and black. Pyrogallic acid is a powerful deoxydising agent, and deposits reduced silver under a form much more minutely divided than the salt of iron does, whilst it also is decomposed, giving up acetic acid and a brown substance not yet ascertained.

The whitening by bi-chloride of mercury is a deposit of proto-chloride or calomel; the ammonia changes this into a suboxide of mercury; the same may be done with sulphide of ammonium, but then sulphuret of mercury is produced; these changes however are bad; it is better to convert the proto-chloride into proto-iodide by plunging it into a dilute solution of iodide of potassium: the sub-iodide of mercury is a bright yellow and quite impervious to the chemical rays of light, and yet preserves the demitints of the picture.

Of all the fixing agents, hyposulphite of soda is the most efficacious, as it removes the whole of the sensible salt unacted on by light. Where a chloride of silver has been used, ammonia may be used instead, but bromides and iodides are not soluble in ammonia; iodide of potassium and common salt will partially fix the image, but the salts of silver, formed by their combination, are not insensible to light; whereas all the salts of silver are soluble in hyposulphite, which, by forming a double salt of silver and soda, can be removed by a careful washing.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—In the last number of Photographic Notes, pp. 155, is a description of a new camera by J. P. Joule, Esq., F.R.S., in which the nitrate of silver bath is contained in the lower portion, the collodion plate being introduced in its frames,—the bath is made to flow over it by inclining the camera backwards. By reference to the first volume of the London Photographic Journal, pp. 96, June, 1853, will be found a camera essentially the same in most respects, but having this great advantage—the plate being developed in the camera, without the necessity for a dark room. I have often thought that a careful re-perusal of the various works extant on the subject, when the furor for invention is upon us, would save us much time and weariness of brain.—I am, Sir,

A FELLOW SUFFERER.

London, Sept. 9, 1856.

To the Editor of the Liverpool Photographic Journal.

Large *v.* Small Lenses.—Your correspondent J. T. F., in the number for July, last received; in holding the views expressed by Sir David Brewster before the Photographic Society of Scotland on this subject to unmerited ridicule, ought certainly to give some reason for inducing the readers of the L. P. J. to discard the philosopher's deductions from sound principles. The fact of the "unfortunate delinquent" being in the stocks, is no evidence of the lawyer being in error in saying, "It is against the constitution that you should be in the stocks." Neither is the fact of the universal use of large lenses for portraiture (face mapping), an evidence of the Doctor being in error when he asserted that the effect of large lenses, was to produce distortion and exaggeration of the more prominent features, in maps delineated by them. Why every one except professional face mappers, admit the fact to be as he stated, although they might demur to the forcible and pungent adjectives he used in enunciating their effect.

However, the terms, large lenses or small lenses are only used by Sir David in a *relative*, and not in a *positive* sense, for a lens of 3 inches diameter may really be a large lens, while one of 5 inches may be a small one, and *vice versa.* The 5 inch lens may be *relatively* even *smaller* than the human eye. Nor is there any thing paradoxical in this, because the focal length of a lens is the only unit of measure which can be used in justly comparing one lens with another. Hence, the 5 inch lens may be in a smaller ratio to its own focal length, than is the aperture of the pupil to the focal length of the eye. (See a short essay on this very point in *La Lumiere* for 17th Feb., 1855). I enclose a translation. A further reference to the article "On the situation of the diaphragm," &c., in p. 75 of your last May number will tend to render this more clear, especially with the following correction to make the last line of the first paragraph on p. 76 read as follows: "The very oblique rays *of B a, through the edges of the lens* at all," the words in italics being inserted.

The only advantage in favour of large lenses, is in the rapidity with which they form an impression, when compared with a smaller lens, but no one disputes the fact of a considerable exaggeration in the details of the image so produced,—although in a map of a single face it is not so obvious to those who will not see, as to be considered a defect. There is no accounting for taste in this, more than in other more weighty matters. But suppose we take the case as given by J. T. F. of the nautilus shell and the merchant ship, we shall find "by a parity of reasoning" that as the shell is large enough to contain every thing desired by the nautilus, so also may the ship be made large enough to satisfy the desires of the merchant. Claudet of London undertook to show Sir David he was wrong on the same ground as J. T. F.; but although he probably fancied himself victorious, I never heard or read of any philosopher who did not consider Sir David Brewster's position as being unturned. C. laid great stress on the fact of Sir D. having concurred in awarding him a medal at the World's Fair, but that medal was given for the best production afforded by precisely similar means as others had used, without producing such good results; while there is nothing whatever to show that portraits effected by a small aperture would not have been infinitely better likenesses of the individuals, than those to which the medal was awarded.

It will require something more than ridicule to convince those who know any thing of optics, that Sir David Brewster has hazarded his dear bought reputation in enunciating a false doctrine.

On writing thus far it occurred to me that I had seen something on this very subject in the L. P. J., and on turning thereto, I find in the report of the proceedings of the L. P. Society on the 3rd of April, 1855, an able paper read by Mr. Bell, its Treasurer, "On the comparative results of using large and small lenses," to which I would ask your readers' attention, including that of J. T. F. I owe you an apology for trespassing so far on your columns, but the subject itself must be my excuse.

Mr. Berry's Reserve Plate Box.—There has nothing come under my eye in the way of apparatus which is so novel and convenient as this article. It has filled a great vacuum, not so much in carrying the reserved plates, but for the manner of transferring them to and from the dark frame without the least risk of being reached by the faintest glimmer of light. I would, however, suggest two little mechanical improvements in it. A. Instead of the joint as shown with the hinges, a square joint will be better, having a hinge formed of leather the whole length of the joint. B. Instead of the slit having parallel sides, the one towards which the face of the tablet will be, should be *concave* towards the plate, so as not by any possibility to shave its prepared surface. The corresponding slit in the dark frame should be of this form also, and for the same reason, both being of the form of an elongated D. The slides for the covers could be parallel as now, as the *aperture* only would be curved.

Permanent Actinic Prints.—So much has been said on the instability of actinic prints on paper, that answers to the following queries would, I believe, be interesting to all connected with the art. They are predicated, on the supposition that a compound of silver is not only the best, but also the only one really available. Will some of your able readers give the subject their consideration, so as to throw what light thereon, they may be able, through the Journals devoted to the art?

In nature there must be some, at least *one*, permanent salt of silver, no matter how complicated its constitution may be. 1st. Can its nature and composition be ascertained? 2nd. Can it be produced artificially? 3rd. Can it be formed in paper? 4th. What is its colour? 5th. Is that colour desirable as the *shades* of a picture? 6th. If yea, can it be produced from any other preparation of silver which is sensible to light. 7th. If nay, what is the colour of the most permanent salt of silver which *can be produced* under the actinic conditions of sensibility, &c., and in what transparent body can it be enveloped to prevent its passing into any other condition or colour than that in which it may be developed? 8th. If such permanent salt would form the *lights* of a picture, what should be the nature and colour of the body to receive it, and form the shades?

I have every reason to believe that the secret of *perfectly permanent* prints is enveloped in the above queries, and that no reasonable amount of haphazard experiments will ever successfully lay it bare.

New York, July 16th, 1856. WM. ROSS.

To the Editor of the Liverpool Photographic Journal

Sir,—The construction and proper use of the stereoscopic camera is still an open question. I do not think that Mr. Berry, in his paper read at the June meeting of the society, has entirely decided it. There is one point of difference between us. He has constructed his binocular camera, with the axes of the lenses parallel to each other. The lenses are fixed; they have no angular motion: the consequence is, that his pictures are taken from two different points of sight. I am decidedly of opinion that the pictures should be taken from the same point of sight. To effect this the axes of the lenses must converge to the same point of sight, and the nearer the object depicted the greater will be the angle of convergence, so that for portraiture an arrangement of this kind is absolutely necessary. The pictures being taken from two different points, the same portion of the horizon is not contained in both, and inasmuch as they differ in that respect they cannot be stereoscopic. It would not be difficult to make a binocular camera on the above principle, for portraiture; I shall attempt it myself some day, time permitting. For a stereoscopic camera with one lens, I consider Mr. Cartwright's the most perfect, described in the Journal No. 5. I have made one upon the same principle, though differing from his plan, inasmuch as I have made my lens a fixture.

I remain, Sir, your obedient servant,

40, *Mount Vernon-road, Edge-hill,* W. DOYLE.
Liverpool, July 28, 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—In the *Art Journal* for July there is an article by Professor Hunt on Herr Pretsch's photo-galvanographic process. He there gives the names of the ingredients and how they are used, but not the quantities. Can you give any information as to these? Mr. Hunt says the pictures, after being developed in the water bath, are so very beautiful that one is sorry to destroy them by continuing the operation.

If these pictures are taken on glass, which I observe they can be, is there any way by which they can be fixed, as I suppose without some method of fixing them the action of the light would soon cause them to fade?—I remain, Sir, your obedient servant,

ROB. S. DAWSON.

Huntingdon, 6th Sept., 1856.

[We do not know Herr Pretsch's method of operating. Referenco to the June number of the *Revue Photographique* gives the following:—Pour upon a glass plate a coating of bichromated gelatiue, prepared as follows: dissolve one part of strong transparent size (qy. glue?—Ed. L. P. J.) in about ten parts of distilled water, a little less or more, according the strength of the size or glue, and the condition of the atmosphere; whilst the glue dissolves. prepare these three solutions, viz., a strongly concentrated solution of bichromate of potass, a saturated solution of nitrate of silver, and a weak solution of iodide of potassium: when the gelatine is melted by the aid of heat, add a small quantity of it to each of the two solutions of silver and iodide. The larger quantity of the gelatine remaining, is added to the bichromate of potass, mixing it with great care; add to this that containing the silver, unite thoroughly, and leave it to commingle fer ten minutes; afterwards mix in the second portion containing the iodide: the solution is then ready to be spread upon the glass or any other convenient material. When the coating has dried, it is exposed to the light, with the negative to be copied placed over it. On removing the plate after sufficient exposure, a very delicate representation of the original will be perceived upon its surface; the plate is now immersed in water, and then in a solution of borax or carbonate of soda, when the design will be found in relief throughout the entire detail, if the operation has been carefully conducted. The character of the impression varies with the nature of the original, which may be either from crayon, sepia, or Indian ink sketch, as well as from photographic production; however fine or minute the details the copy would be equally so. When sufficiently developed wash in spirit of wine, and dry off with blotting paper, then cover the plate with a layer of varuish composed of copal dissolved in turpentine; after a little while pour off the excess and plunge into a weak solution of tannin or other astringent; and lastly, when the detail is sufficiently brought out it is washed in water, and left to dry: it is now ready to be taken off in copper by means of the electro-type. In a recent number we gave an abstract of the paper read by Herr Pretsch himself in London, but in that instance, as in the present, the directions were so general, that none of the proportions of the different formulæ were given, and it is no matter of surprise that no one has as yet succeeded that we can hear of.—Ed. L.P.J.]

ANSWERS TO CORRESPONDENTS.

W. R.—An excellent paint for canvas, linen, or cotton, to exclude the light, when used as a tent curtain in the open air, may be made by shaving an ounce of common yellow soap in 6 fl. oz. of boiling water, and adding the solution, while hot, to 1½ lb. of oil paint of any desired colour. Fabrics painted with this may be folded close without injury.

Fanny Rose may command our best attention. It is extremely difficult to satisfy every oue by a formula for the best kind of collodion; most operators have a choice idea of their own, which their professional brethren scoff at. If our correspondent will say whether a letter will reach her, at the address given, we shall be happy to communicate by post.

Charles Jones.—In our next number.

W. Ross complains we have not noticed the Manual he obliged us with, compiled, not written, by H. Snelling. What can be said of it? That it is a tissue of typographical errors, made so painfully evideut by our correspondent's able and voluminous corrections, that the utter absence of anything novel in the matter, effectually prevents our wading through its pages. We canuot compliment our friend upon his specimen of a stereoscopic portrait in one image. To contemplate it, after beholdiug the intellectual representation in one sent, aud then behold the abortion in the other, we can only say, "Look on this picture and on this." Neither was any history given of its production. There was a degree of roundness in it certainly; but was this merely the effect of taking it upon the piece of glass ⅜-in. thick, and blackiug the figure ouly, at the back, or had two representations been by any mechanical contrivance projected accurately on the ono spot? We should be glad to know more of this. The other specimens sent are not quite equal to what can be produced, on this side the Atlantic. By the next packet that usually carries our communications, we propose, if possible, sending a sample of face mapping, with some of our own lucubrations on subjects more worthy the occupation of the photographer than portraits, which hardly ever can be said at best to do justice to the "human form divine."

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 34.—OCTOBER 11, 1856.

In our last month's issue we were able to draw very largely from an immense fund of information on the other side of the Atlantic, very much, we trust, to our reader's satisfaction; so now, upon the present occasion, we are greatly indebted to a like repertorium, on the opposite side of the globe, thus proving the extent of our resources, and also the wide spread of the art to which our pages are devoted.

The proceedings in India will be read with great zest by all who have the advance of Photography much at heart, and we have intentionally devoted much of our space to the purpose of laying large extracts of the proceedings of our Asiatic brethren before the public, as they have just come to hand.

We take considerable credit for our acumen and perception, in having, at the outset, predicted the certain prosperity of this very liberal and spirited society, for in the April number of our Journal of last year, the attention of the English public was called to the formation of this society, and auguries then hazarded upon the amount and interest of the additional information, upon this science, that would accrue to us; for the great difference of the character of the light they would have to work with, the probable retarding effect of the haze they are there subject to, and also the impeding influence of excessive heat, to which they must necessarily be subject, would assuredly entail a variation in their mode of operating, highly important and instructive to us of the region of the smoke and the cloud.

Our congratulations and prognostics were met in kind; for we, the Editorial *we*, in company with the talented *ci-devant* conductor of this Journal, as well as four other of the most influential of the Liverpool Society, were paid the handsome compliment of being elected honorary members of that society, a compliment so highly estimated by us, that no time was lost in reciprocating the attention, by electing the presidents and secretaries of the Bombay Photographic Society, and four other members, whose names were to be furnished; these names, unfortunately, have not yet reached us, consequently, as a matter of regret to all, they do not appear upon the records of the Liverpool Photographic Society. We recall these facts to our friends on the Malabar Coast, because, while they are lamenting the shortcomings of a contemporary society, a very graceful opportunity was lost of awarding us our just meed of praise for our ready perception, and prompt method of evincing it.

This society is now firmly established, and with a fostering care worthy of imitation, is extending the hand of an elder brother to other and rising societies breaking forth in different parts of the Indian Empire.

The names that figure in their list of council and ordinary members sound strange and outlandish to European ears, but are peculiarly gratifying as evincing the amount of native talent, and the society's readiness in acknowledging it,—all honour to every member of the Photographic Art in the Deccan.

We should scarcely notice the degrading form that the matter of polychrome pictures appears to have assumed, according to the sarcastic description of our esteemed correspondent in New York, whose letter we give, if it were not in some degree to combat the heavy fire of our friend's overwhelming ridicule. Now, without for a moment seeking to turn his position,—for he has taken ground that renders a flank movement impossible,—yet against his incontestible arguments we would advance one simple fact, viz., Have not every arcana of science been as severely treated? Without for one instant comparing the Rev. L. L. Hill to a Winsor with his gas, or a Fulton with his steam, may we not remind our readers that Messrs. Monkhoven and Becquerel have produced specimens where the refraction of the rays of light have reflected what has appeared amazingly like colour; for where, by an irregular surface, the rays of white light are shortened unequally, they will be broken up into their elementary constituents, why may we not hope that the solution of this vast riddle may not meet with an Œdipus at last? We ourselves, during our last visit to well-worked-out old Conway, saw an excellent photograph of its enduring remains, where the walls were red, the trees green, and the water almost white, so long as it was wet, but 'tis true this chromatic illusion vanished when it became dry. But we may remind our readers that less than 100 years may render this problem easier than our great philosopher Sir Isaac Newton found the securing of pictures by the agency of light. He could produce them, but he was in a fix, because he could not do as much for his pictures, and fix them too.

We shall not live to see this question settled, but if the world of shadows can look upon the workings of this nest of busy atoms, we may perhaps be permitted to behold, with the patient pity with which the invisible past regards us, the utter confusion of all finite speculation, as truth advances, and the greater wonders of the All-working Power become more manifest and better understood.

This world is made up of revolutions. We must not be surprised to find ourselves involved in their rotations; and after the fatiguing round of collodion, wet and dry, many are beginning to find great and irresistible charms in paper; Mr. Long's little work has revealed to us extraordinary perspicuity of detail, with unfailing success in the formulæ, and the reasons given with that alluring perspicacity, that nearly tempts the most ascetic to its syren wiles, when lo! the sapient philosopher, Sutton, steps forth and says all accessory forms are needless incumbrance, the simple compounds alone are the working principle; by these, stripped of all adventitious aid, shall ye succeed, and truly he has the knack of it, for with very unpromising, and as it would seem rude materials, the most happy results may be secured; weather, and all the adjuncts of needless chemicals disregarded, and by the sudden revelations of his magical process, the misery of dishes delusively clean, yet covertly dangerous, defied: commend us to the ever ready, unfailingly cleanly, and absurdly inexpensive paper trays. If we might recommend an improvement, it would be to lay them, in the first instance, on a large sheet or pane of glass; they may then be so turned in the hand that the developing agent can be made to flow in every way, over the fast appearing negative, and when that is fully revealed, in all its delicate tracery of detail, the whole of the now useless liquid, as well as the frail vessel that contained it, may be cast away into the waste jar, for the superabundant silver to be extracted from it at the first opportunity, with no fear of our next operation being marred by that great plague of Photography, imperfectly cleaned utensils.

Dr. Norris's method, in its extreme simplicity and general certainty, still offers great attraction to the casual photographer; the extreme neatness of the plates, and their duration of sensibility, greatly recommend them; but we should like to ask the learned Doctor, whether with all the fixing and clearing that he can effect, he does not find an ugly yellowness, that greatly deteriorates from the beauty of the negative to a practised eye, and materially impedes the action as well as softness of the printing?

The time is fast approaching when the Photographic Art will no longer be the mere expensive toy it has been too often regarded, but will nobly figure amongst the graver sciences, by being applied to decorations or embellishments. What more pleasing, for instance, than to shut out the gloomy brick walls, and reeking chimneys that surround our closely packed dwellings, and fill up the hiatus with relics of architectural beauty, or views of pastoral scenery, especially endeared to us by having been visited in summer sunshine, or when we could escape from the weary task of every-day's plodding monotony. The experiments of Messrs. Forrest and Berry will be looked upon with peculiar interest, by those who dabble with the salts of silver.

We (says Mr. Fitt) have seen and purchased a most ingenious plate box, for transferring Taupenot's or other plates to and from the slide, made by Mr. Hardy, of Elder Street, Edinburgh, which is decidedly superior to anything that has yet appeared, and is evidence of the assistance the ingenious mechanic can afford us in the appliances of our delightful art.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The eighth monthly meeting was held on Tuesday evening, October 7th, at the Royal Institution, Colquitt-street, Mr. Corey occupying the chair.

The Chairman exhibited several photographic prints of scenes in and around Liverpool, at Eastham, and elsewhere, upon two different kinds of paper—Towgood's, prepared with a simple salting solution, which gave a very black tone to the print; and Canson's, with Mr. Hardwich's formula. This latter ensured extremely beautiful details, but there was a redness about the picture when finished that was disagreeable to most, though he did not dislike it. He fixed with ammonia, which was better for preservation than hypo. The process was described by Mr. Forrest at the last meeting. The Chairman next detailed some experiments he had made with Hill Norris's process, using fine glue instead of gelatine. This was the simplest form of preserving plates yet brought out.

Mr. Forrest exhibited several specimens of collodion cotton, as results of experiments with Mobile cotton, which cost 6d. per lb., Ceylon, 9d., and Egyptian, 2s. Mobile, the cheapest, dissolved the best.

Mr. Jones, of Birkenhead, exhibited some wax paper positives by Mr. John Scott, of Roundstone, Galway, executed with Mr. Fitt's process. They were remarkable for the fidelity with which extreme distance was represented, and were much admired.

Mr. Forrest produced an improvement on Mr. Atkinson's portable camera box for carrying senitive plates, and transferring them to the camera without exposure to the light or air.

The Chairman called attention to an exquisite positive, the portrait of a boy, executed by Mr. Berry, who had recently embarked professionally in that branch of the business, in Bold-street. These positives were remarkable for the purity of the whites in the high lights.

Mr. Forrest read the following paper "*On the Adaptation of the Photographic Art to Stained Glass:*"—

The dignifying of the Photographic Art by investing it with an utilitarian principle in adapting it to the industrial sciences, must be regarded as a matter of the greatest importance to those who have watched its progress and traced its course from a merely speculative and amusing pursuit, until it promises to prove one of the most elegant and attractive embellishments. Its known fidelity has ever been its greatest recommendation, and it is now admitted to be superior to engraving, from its greater capability of depicting the fine lines and minute detail which constitute the charm of all ornamental designs, and this, too, with a rapidity that would defy the most indefatigable zeal of the pencil or the graver, and at a minimum of expense with which no artist could compete: thus placing the most tasteful of all designs, that is to say, an abstract of nature's works, within reach of the humblest of nature's children.

This conviction is so rapidly gaining ground, that we may congratulate the industry of this country upon a wide field being opened to its efforts before long.

In introducing the subject of this evening, viz., the application of photography to stained glass, I must bespeak your patience, while I endeavour to explain as clearly as I can a subject involving technicalities, perhaps difficult to render clear to the uninitiated, and describing experiments necessarily imperfect in this early stage of the attempt; the results of which are so pleasing, however, that I prefer offering them in their present crude state to any longer delaying the pleasure of imparting them to you. We are too apt to assume that the public are more deeply versed in all minute particulars relating to abstruse science than they are, because it may happen to be a subject that has engrossed much of our attention, thus falling into the error of supposing the world has been thinking much on what has occupied ourselves. To avoid the risk of being too obscure, I will trouble you with the entire history.

I do not arrogate to myself the original notion; it has long been spoken of by Mr. M'Innes and Mr. Corey, but with different modes of carrying it out. Mr. M'Innes has for some time been famous for his exquisite pictures, remarkable for the faithful repetition on a large scale of his tiny gems produced by his pocket camera; these he proposed to execute as usual on paper, and by transparent gums or varnish to transfer them to the surface of the glass, giving all the effects of etching or drawing upon glass. Mr. Corey's was more nearly like, in fact, was the germ of the present method, but his project was the simple application of the enlarged photograph to the pane of glass in the window, without ornament of any kind. He proposed to coat the centre of the back of a sheet of ground glass, to immerse the whole in a sensitizing bath, to cut off all that was not intended for the design by a mat of paper cut square, oval, or octagon, to fancy; enlarge a minute negative upon this, wash, fix, and varnish in the usual way, and insert over the ordinary panes in a window; but this would only have presented a view of the character of a vignette or sketch, and wanted the usual ornate florid style that painted windows always present; the idea, therefore, only remained in theory until Mr. Berry and myself reduced it into practice, and by experiments have been able to present it in its tangible form for your enlightenment.

I will now proceed to the *modus operandi*. Procure a square of ruby glass, the inside size of any of the windows you may desire to decorate; make a drawing of the scroll work or other pattern you wish to surround your photograph, cover the outer edge of your glass two or three inches wide, as the case may be, with the black varnish you use for positives, or better still, with the usual etching ground or wax, and draw through with a pointed steel or knitting needle, exposing the bare surface of glass, surround with a bank of wax, and pour on fluorie acid; the colour of the glass, being entirely external, is soon eaten away, and the white substance of the material laid bare, presenting a perfectly transparent copy of your pattern. The same may be done with amber, blue, or any other colour. The centre, of any shape or form that may be desired, is now laid bare in a similar manner, and is, after copious washing, ready for the reception of any enlarged or reduced copy of photograph you may have prepared. Formulæ might here be given for the making of the fluoric acid from its constituents, but as it is very deleterious when in its gaseous form, it is more advisable to purchase it from the operative chemists. Great care must also be observed to guard against its getting under the nails, and in any slight cuts or wounds in the fingers. I have now given you a rough form of the manner this was produced, and shall be glad to receive any hints or to examine the consequence of any further experiments you may be tempted to make on the subject. I may mention, before leaving, that I would prefer reducing a negative by transmission rather than enlarging one, and I see no reason why the picture so transmitted should not be coloured before varnishing.

Mr. Doyle thought the photographic image might be fixed upon glass by means of chromate of potash and gelatine. The flux, though clear, would be of a reddish brown, from what he had seen effected by gelatine mixed with chromate of potash.

Mr. Forrest was greatly obliged to Mr. Doyle for the important suggestion, and intimated that he would make some experiments.

Mr. Bell read the following :—

For a long time past I have been struck with the anomalies presented to the students in the various formulæ for sensitizing solution of silver in the calotype and wax paper processes, with respect to the quantity of acetic acid necessary, and to show that I do not exaggerate, I now detail the quantities in 10 formulæ which I have searched out in the various manuals, &c., published during the last few years :—

To each ounce of water add—

Nitrate Sil.	32 grs.	35	60	45	30	30	75	40	40	30
Acetic acid	48 drp.	40	90	60	60	30	60	60	20	30
Alcohol.. ..	,,	60	..	..	..	..	60	..	..	60

We had heard the reasons given "to prevent the whites in the negatives from becoming dull, but until I met the other day with a little work published by Mr. Long, I had not an idea of the chemical reason or cause of this preventive action. I consider it of so much importance that this should be more widely made known, that I have no doubt he will not object to my detailing it in his own words. As it is necessary that you should understand the substance upon which we are about to operate, I will read what he says on it :—

"If we precipitate an iodide of silver from a solution of the nitrate with an excess of iodide of potassium, we obtain a beautiful primrose powder, which, on exposure to light, does not shew the slightest alterations in its properties, clearly indicating that this particular iodide and silver is insensible to the influence of solar radiations. But if we precipitate the iodide of silver from a solution of the nitrate with a deficiency of iodide of potassium, we shall obtain a coloured powder, which being spread upon paper and subjected to solar influence, will at first turn brown and gradually deepening in tone, will finally assume a tint verging on black. It is quite clear that this latter compound is different in its behaviour under the same conditions to that before described, and further, that from its mode of preparation, it is of different composition. Now it is this latter compound, the sub-iodide of silver, that it is our endeavour to form previous to exposure in the camera. Now, what part does the acetic acid play in the sensitizing and developing solutions? Precipitate some sub-iodide of silver in two test tubes; let one of them be exposed to the light, and the other carefully secluded from it. That exposed will have become of a light buff colour. Now add to each a saturated solution of Gallic acid; both will turn nearly black, that which has been exposed being the first to shew the change, the difference being apparently only one of intensity. Such is not the case, for on adding a quantity of glacial acetic acid to each of the tubes, that which had undergone the influence of light will remain unaltered, while that which has been excluded from its action will become clear, and present as pure a surface of yellow iodide of silver as at first, clearly shewing that the acetic acid has the power of dissolving the oxide of silver that is let down by the action of the gallic acid, while it fails to disturb the deposit caused by the action of the solar influence."

Now this is a step in the right direction; but I think we ought to go further, and find out the quantity necessary to effect this result, and this is what I have aimed at. I find that it is not alone possible to procure this effect by adding acetic acid after the action of the light has taken place. You will see that I have here a deposit of chloride of silver from a nitrate bath which contained no acid; this has been exposed to light—this not; I add gallic acid, and you perceive both turn black; on the addition of acetic acid I have not yet found the result to differ to any great extent, a very small portion of yellow iodide may be discerned after a considerable time, but not to the extent of warranting any one to use a nitrate bath without the acid.

Proceeding with various quantities of acetic acid in the nitrate bath, we arrive at a point (having previously determined the relative quantities of the various salts to be acted upon, the mode of which I will hereafter describe,) when the result which Mr. Long mentions takes place, which I find to be 70 drops to the ounce. You will perceive in these experiments the fact as detailed. This is considerably more than that employed in any of the formulæ which I detailed at the opening of this paper; for although there are some with the same quantity, the relative strength, if I may so speak, of the iodide of silver, is different. I find that one-quarter size of Towgood's paper, or one-sixth sheet of Marion's, absorbs one-fourth of a drachm; $\frac{1}{32}$ of an ounce of the iodized solution, in which 20 grains of salts to the ounce have been dissolved, taking up, therefore, $\frac{62}{100}$ of a grain, this sheet, when dry, absorbs $\frac{1}{20}$ of an ounce of nitrate solution; and therefore, as the strength of this latter was 40 grains to the ounce, there are 2 grains nitrate of silver on which the $\frac{62}{100}$ grains iodides are to act. These are the proportions which I have experimented with, and I consider it necessary that each manipulator, if he wishes for success, should carry out the experiments for himself to ascertain the quantities he should use. You will observe in this remaining clear solution, in those proportions from which the iodide has been precipitated, there remains a very large quantity of nitrate of silver, as evinced by this precipitate on the solution of chloride of sodium, or on a further addition of iodide, which brings the deposit to the condition first mentioned by Mr. Long, unacted on by light, and to which cause, doubtless, so many failures in the wax papers are to be attributed. Now, the question arises, in what proportions are these 70 drops of acetic acid to be applied to the deposit on the surface and in the pores of the paper? If applied entirely in the solution of nitrate of silver, I think the result might be beneficial, but an extra amount of exposure must be calculated on.

"Prevention is better than cure" is an old proverb, and does not lose its force when applied to the treatment of development. If it be correct that gallic acid precipitates a metallic oxide from the sub-iodide of silver, and that acetic acid has the property of dissolving this oxide in some measure, let us prevent the precipitation by changing its nature with acetic acid; it is better to do this than to re-dissolve what has left a stain.

From the experiments I have made on the iodides I should say an immersion of the paper in a bath of the acetic acid, previous to the commencement of the development, would be the best preservative of the whites of the picture, but there are difficulties here to be overcome therefore the next best preservative is to add the acetic acid alone to the develope of gallic acid, and this you may do to the extent of 10 drops to the ounce of solution employed. There is an advantage in this, as you have the full strength of the acid each time, for I am quite convinced that repeated exposures of the aceto nitrate bath tend to diminish the preservative properties of the acid first put in, and I think I can prove this to you by these negatives, the bright ones being produced from the same iodizing solutions as the dull ones, but they happened to be the first excited papers of various batches.

I think the experiments you have witnessed, and the proofs now produced warrant the conclusion that more attention ought to be given to the acetic acid in the preparation of wax papers for the Photographer.

I wish I understood more of the chemistry of the science, but the knowledge I possess I can only communicate, and hope more able practitioners will follow in the path I have just been treading in.

The thanks of the Society were given to Mr. Bell and Mr. Forrest.

The Chairman acknowleged the receipt of some numbers of the Indian Photographic Journal, containing reports of the Photographic Societies of Bombay, Maulmain, and Bengal.

At the request of the Chairman Mr. Isaacs gave the following directions for the best method of mounting prints on cardboard. The wrinkled and corrugated surface is caused by the too great damping, and consequent unequal drying of the paper; to avoid this, dissolve gum with nearly an equal quantity of isinglass, to prevent the cracking of the gum; apply this equally over the back of the photograph, and pin it up to dry; when quite dried pass a clean moist sponge over the back, this damps the face of the gum without affecting the paper; if it be now pressed equally on to the card, the whole dries perfectly smooth and firmly attached.

Mr. Jones, of Birkenhead, exhibited some negatives, including one of the old mill on Oxton hill, recently pulled down.

Mr. Bell, the Treasurer, intimated that at the termination of the present year he should decline to be re-elected.

The Chairman expressed his regret that a gentleman who had been one of the pillars of the Society should withdraw from the office he had held since its foundation.

Mr. Kelsey exhibited and explained an ingenious little stereoscopic camera invented by himself.

The proceedings then terminated.

BOMBAY PHOTOGRAHIC SOCIETY.

The general meeting was held on Tuesday, 11th March, 1856, Captain H. J. Barr, President in the chair.

The Hon. Sir W. Yardley, Chief Justice, *Vice-Patron*, Dhunjeeboy Framjee, Esq., J. Hutchinson, Esq., N. Dajee, Esq., J. G. H. Hinton, Esq.; Mr. Crawford, *Secretary*, and several other gentlemen were present.

The Hon. Sir M. Sausse, Lieut. Jopp, and Mr. Gale, were duly elected members of the Society.

A general meeting was also held on Tuesday, 8th April, 1856, Captain H. J. Barr, President, in the chair.

Amongst the members present was Captain W. C. Anderson, Messrs. Johnson. Henderson, Hinton, Hutchinson, &c. &c.; Mr. Crawford, *Secretary*.

The President proposed,—That Sir M. Sausse be requested to accept the office of Vice-Patron, *vice* Sir J. Jackson, gone to Calcutta. This was seconded by the Secretary, and carried unanimously.

It was proposed by Mr. Crawford, seconded by the President, and carried,—That as our Treasurer, J. Stewart, Esq., has left the Presidency, another Treasurer be elected.

Mr. Crawford proposed, seconded by Mr. Johnson, and carried,—That the Secretaryship be henceforward placed on a new footing; that a Secretary be elected who may be empowered to nominate an Assistant.

Captain Barr then proposed that Mr. Crawford, who had filled the office of Joint Secretary since the formation of the Society, be requested to fill the office of Secretary. Seconded by Mr. Johnson, and carried.

Proposed by the Secretary, seconded by the President, and adopted,—That with the view of improving the utility of the *Journal*, and to ensure ample matter for it at regular periods, several members be requested to form themselves into a committee of contributors for, and to prepare the *Journal*.

Captain Barr then proposed, secouded by Captain Anderson, and unanimously agreed to,—That the following gentlemen be requested to form the Committee :—

Local Members:—Dr G. Buist, LL.D., Dr. F. R. Ballingall, H. D. Cartwright, Esq., Rev. A. Davidson, A. Robertson, Esq., J. W. Robertson, Esq., Capt. H. J. Barr, Dr. N. Dajee, W. Johnson, Esq., W. Henderson, Esq., and Mr. Crawford.

Corresponding Members:—Dr. Pigou, Bombay Army, Major Gill, Anderson, Bombay Army, Major Gill, Madras Army, Capt. Biggs, Bombay Army, Capt. W. C. Anderson, Bombay Army, Capt. A. J. Greenlaw, Madras Army, Capt. Kempt, Bombay Army, Capt. Herne, Bombay Army, and W. B. Wright, Esq., G. I. P. R. Company.

A letter was read from the President of a Photographic Society just formed at Maulmain, in Rangoon, soliciting the co-operation of the Bombay Photographic Society.

Resolved,—That a letter be addressed to the Maulmain Photographic Society, congratulating them, and expressing the hearty wish of the Bombay Photographic Society to co-operate with them in all ways which may tend to the furtherance of the objects they, in common with ourselves, have iu view.

Captain Barr then proposed,—That the President, the Secretary, and two Members of the Maulmain Photographic Society, be elected Honorary Members of the Bombay Photographic Society. This was seconded and agreed to.

The same resolutions and propositions were also adopted with reference to the Bengal Photographic Society, of whose formation at Calcutta a notice had appeared some time since in the local newspapers.

A letter from Messrs. Merwanjee and Co. was read and recorded, intimating that they were about to publish a Photographic Album, to be styled "The Indian Amateur's Photographic Album," and soliciting to be allowed to do so under the patronage of the Society.

The President observed that the letter had been laid before the Council, and it had been resolved to accede to the applicant's request; and, with the view of further patronisiug the undertaking, a copy of the Album had been subscribed for in the name of the Society. This met with general approval.

The following gentlemen were then proposed and seconded, and duly elected members of the Society:—Ardaseer Cursetjee Dady, Esq., Homusjee Cursetjee, Esq., and M. P. Tuback, Esq.

Captain Anderson produced a portfolio of negatives in Talbotype and waxed paper, some of a very excellent character, also a number of prints of the same, well developed and of a fine rich tone.

Mr. Crawford produced a portfolio of negatives by the waxed paper process; some of them were very clear and beautiful, and quite free from the granular appearance so much complained of in pictures by this process.

EXHIBITION OF PHOTOGRAPHS AT BOMBAY.

Photographs, many of a very high order, produced by all the processes most generally in use, were here in great profusion and variety, arranged upon long and round tables, and hung in frames upon the walls, to suit the convenience of spectators or the nature of the place. Negatives by the calotype, waxed paper, Flacheron's, the collodion, and albumen processes, were well represented by numerous excellently executed and finely toned prints, interspersed by direct positive pictures, taken by the collodion and albumen processes and daguerreotype.

The exhibitors in calotype were Capt. H. J. Barr, Capt. Biggs, Major Gill, Capt. A. J. Greenlaw, Dr. N. Dajee, Mr. W. H. S. Crawford, and Mr. J. W. Robertson. Of these the productions of Capt. Biggs—large views of the ruins of Beejapoor, 18 by 15 inches, and copies of inscriptions, placed for exhibition by the local government—carried off the palm. The process by which Capt. Biggs works his negatives is Buckle's, or that published in the *London Photographic Journal*, as he (Capt. Biggs) states, under the signature of Mr. Llewellyn. He uses plain ammonio-nitrate paper for his positives, and gives the final glaze by furbishing the face of the picture, first laid on a plate of glass, with a very smooth agate or cornelian. This process not only gives the rich gloss, so much admired by some in albuminized paper, but serves apparently to bring out prominently the fine half-tones and delicate details of a picture, without any risk of yellowing the whites, so liable to occur with albuminized paper.

The wood scenery about Bombay, by Capt. Barr, and the lake and other views at Oorun, with native coasting vessels, by Mr. J. W. Robertson, were very beautiful, both as regards execution as photographs, tone as prints, and in artistic effect, and were deservedly admired by all.

As an example of industry and diligence, combined with excellent execution, Dr. N. Dajee deserves great praise; there must have been at least two hundred views by this gentleman of scenery, temples, mosques, rivers, &c., in Guzerat, Ahmedabad, &c. All these pictures were not equal in execution, but some very fine, and quite equal to Capt. Biggs's in style, finish, and size. Many of the prints, we confess, are rather too warm in tone to suit our taste altogether; yet it is evident the negatives are capable of producing very rich pictures with due care.

The few by Major Gill, Capt. A. J. Greenlaw, and Mr. Crawford, were good, but not equal to the splendid collections just noticed.

By the waxed paper process, Mr. W. H. S. Crawford, Capt. Barr, Mr. J. W. Robertson, Dr. N. Dajee, Mr. W. Henderson, and Mr. Hinton had specimens on view.

Mr. Crawford has met with great success in this process: his large collection of views about Bombay were deservedly admired. He appears to have quite overcome that bane to the "waxed paper man"—the granular deposit, so much complained of. We, who have had the pleasure of seeing the negatives from which these prints were taken, have no hesitation in saying they are, as a whole, the finest and best collection we ever saw. For evenness and density in the blacks, clearness and transparency in the lights, and perfection of detail, they cannot be surpassed. The prints exhibited the various tones that may be produced by a careful photographer with the same kind of paper, prepared in precisely the same way, by the after intoning and fixing. Here we had the ink black, and blue, and purple black, and down through the dark and red browns to the pale brown red.

Dr. N. Dajee had some fine specimens, but we think he will reap his laurels from the Talbotype.

The specimens by Capt. Barr, Mr. J. W. Robertson, and Mr. Henderson, were very fair, and give promise of superior results hereafter. Capt. Barr, like Dr. N. Dajee, we think, excels in Talbotype, but the other two gentlemen will, we think, prove eventually "waxed paper men."

Mr. Hinton's negatives, judging from the uneven skies of his prints, are deficient in density.

Flacheron's process was exemplified by Capt. A. J. Greenlaw, and Mr. W. H. S. Crawford. Capt. Greenlaw's were good pictures, sharp, well focussed, and the minutiæ of detail perfect; but there was an apparent deficiency in the tone of his prints, and we should say but little gold had been used in their preparation. The only peculiarity in Mr. Crawford's solitary picture by this process was the apparent rapidity with which the negative had been taken. The subject was Bombay Cathedral, and the clock hands were distinct and perfect, with scarcely the slightest burr. On enquiry we were informed that it was done in twenty seconds—very rapid work for plain paper.

The exhibitors of the collodion negative process were numerous, viz., Mr. W. Johnson, Dr. G. R. Ballingall, Dr. N. Dajee, Mr. W. H. S. Crawford, Capt. A. J. Greenlaw, and Mr. H. Chintamon. Mr. Johnson, who has, we believe, devoted his energies chiefly to this process, deserves to be placed first on the list. His full plate portraits and groups were full of life and vigour—the positions artistic, the focussing and tone excellent. His view of "The Landing-place at Bombay" of the Governor-General elect, having dense masses of cloud, well depicted, over the high land in the background, was thought admirable, and elicited very flattering encomia.

Dr. Ballingall's "Temple of Umbernauth," for clearness of definition and minuteness of detail, together with richness in tone of the print, was second to none in the room; and those who know the difficulties of approach to Umbernauth, and the many difficulties in working there, will readily understand that only one well skilled in the art could have produced so favourable a specimen of that celebrated but now fast decaying monument of Hindoo worship.

The only exhibitors of the albumen negative process were Mr. J. Waterston, and Mr. W. H. S. Crawford. The former gentleman works by the new process, published same months ago in tho *Bombay Photographic Journal*, under the signature of "Amateur," and the results, as here shewn, indicate that that process may be brought to great perfection, and—worked with care—to equal in precision and rapidity the most sensitive collodion. His positives by this process must indeed have been taken instantaneously, for, in a group of children, we see the transient smile of a moment caught, and depicted distinctly and happily. These pictures were small; but the handling of albumen is so simple, and withal so economical, that we see no reason to doubt that large-sized plates could be worked equally well and perfectly.

Positive pictures on collodion were beautifully represented by Major Gill, Mr. W. H. S. Crawford, Dr. G. R. Ballingall, Mr. Hinton, Mr. Henderson, and Mr. H. Chintamon. The pictures were chiefly single portraits and groups, and the race lay between Major Gill, Mr. Crawford, and Dr. Ballingall. Major Gill, as having most on view, and all, without exception, perfect, may perhaps be considered entitled to the first place, although Mr. Crawford's portraits, and Dr. Ballingall's view of the Temple of Umbernauth, were not inferior to any one of Major Gill's. Major Gill, it is very evident, not only understands the detail of photographic manipulation, but evinces very high artistic skill. His "Dancing Girl," "Widow and Children," and "The Sisters," are perfect gems of the art, and he may be justly proud of them. By the memorandum which accompanied, wo observed they were taken in a fraction of a second. It would be interesting to be informed of the particular formulæ by which these pictures were taken.

Mr. Henderson's and Mr. H. Chitamon's pictures stood next on the list. They were well executed, and some of great beauty and interest. The "Boy Smoking" of the latter was very good.

Mr. Hinton appears to have rather overdeveloped his pictures,—they would otherwise have been much better.

In daguerreotype, Mr. W. H. S. Crawford and Mr. Hinton were the only exhibitors. Mr. Crawford has long borne a high namo as a daguerreotypist, and, as some of his best specimens were on view, it would be superfluous to say more; we may however mention that we were particularly struck with an admirable picture of a beautiful Jewish girl: the minute and extreme delicacy of detail and colouring were very fine.

Mr. Hinton has, we understand, devoted much of his time and practice to daguerreotype, and although his specimens are not of the first order, yet we have no doubt it needs only a little more experience to place him in the first rank of the devotees of this beautiful branch of the art.

In addition to the above-mentioned photographs, there was on view a large and very valuable variety of European photographs, amongst which might be found specimens by Buckle, Fenton, Mayall, Kilburn, Townshend, Ramsden, Stewart, Negretti and Zambra, Ferrier, Delamotte, Archer, Robertson, &c. &c. &c.; and our local members may not be a little proud that many of their specimens shewed in no unfavourable contrast with those of the celebrated names just mentioned.

The Bombay Society and its Journal.—In the last issue of the Journal, the arrangements proposed to be made for the Exhibition in February were explained, as also, that it was intended to invite Lady Canning, then imediately expected amongst us, to be present at the exhibition, and to become Patroness of the Society, Her Ladyship being herself a distinguished photographer, and admirer of and connoisseur in photography. The Town Hall Council-room having been kindly conceded by the Right Hon. the Governor on purpose, the Committee appointed by the meetings of the 8th and 23rd January, consisting of Dr. G. R. Ballingall, Mr. W. H. S. Crawford, Mr. Johnson, Mr. Hinton, and Mr. Henderson—proceeded to make arrangements. It was resolved, therefore, that members, as well as the public, should be admitted by tickets only; that as Lord and Lady Canning, Lord Elphinstone, and their party, considered four o'clock the hour fixed for the opening of the rooms, a convenient one, members alone should be admitted at this hour; the public at large were admitted with tickets half an hour afterwards. Soon after the doors were opened above 100 members with their friends made their appearance. It was about half-past four before the Government House party arrived. Lady Canning was introduced by Lord Elphinstone, the Patron of the Society, to the President and office-bearers. After the principal photographs on the various tables had been examined, Lord Elphinstone presented the well-stored portfolio provided for her Ladyship's reception by the Society, together with a richly-bound copy of the Transactions for the year, illustrated with small-sized photographs, requesting that she would do him the honour of becoming patroness. Lady Canning having stated her readiness to comply with the request, expressed the very great gratification she had experienced from what she had seen of the state of photography, and the zeal and assiduity with which this beautiful art appeared to be pursued in Bombay.

The *Revue Photographique* contains very little of novelty, except a description of the Photographic registration of the magnetic phenomena at the Imperial Observatory, and an account of the Exhibition at Brussels, which may possibly appear in our next. The *Bulletin Francaise* has not yet been received.

ON WAXED PAPER.

By G. R. Fitt, Esq.

A discussion (in *Photographic Notes)* on the causes of granulation, in wax paper negatives having recently occupied the attention of photographers, it may not be amiss to devote a short space to a consideration of the various causes assigned for this annoyance, and the relative value of the reasons given by various photographers, all of whom may be supposed to possess experience in the matter. I still incline to the opinion that the cause I stated in *Photographic Notes* for September 1st, is the correct one, at least in the great majority of cases. Having just perused an ingenious and interesting letter by Mr. C. A. Long, in *Notes* for October 1st, I will first notice this gentleman's theory, which I must think is the least probable of all, as Mr. Long seems entirely to misapprehend the meaning of "granular" negatives, and enters into an elaborate and ingenious, and I believe correct explanation, of the "pin holes" in the skies.

He must allow me to say that this is entirely foreign to the subject, and is a source of annoyance entirely distinct from granulation, and one I never met with, except in trying Mr. Crooke's process, where iodide of potassium, iodine, and water are alone used. Iodide of *potassium* causes the same annoyance in the albuminized glass process, and probably Mr. L. is quite right in his theory respecting it; but if he will examine a *granular* negative, he will see that the two faults are *entirely distinct.* In the case treated of by Mr. Long, we have a negative in which the blacks are *full of minute holes,* caused probably by a crystallization of the iodide which, as he says, prevents the formation of the sensitive iodide of silver at the spot where it exists, just as any other mechanical obstacle might prevent the action of the silver solution on the paper. The *whites* of the negative are however *smooth,* and the *detail good.* The prints from such a negative being full of *small black spots.* The appearance of a print from a granular negative is entirely different: we may have a sky perfectly white and clear; but it is in the *half-tones* and *lights* of the negative, and the *half-tints* and *shadows* of the positive that the defect exists—the whole is rough, and the finer details for this reason obscured.

With regard to what Mr. Hele says about impure wax, I think that his supposition is negatived in this way—were the fault owing to the wax or other substance used to render the paper transparent, we should get rid of the appearance on heating the negative, and *while heated* the fault would not exist. But it is quite my experience that this fault is not even temporarily removed by heat, or by re-waxing. It exists *entirely* in the metallic silver constituting the picture, owing, as I said, to that silver being reduced from an iodide, which, from *slow formation,* is *coarse* and *crystalline.* Paper may be "waxed,"—to use an Hibernicism—with tallow, oil, spermaceti, or stearine; and though these are not equally available, they may be used with varying degrees of success. Bad paper is another cause of failure; and I incline to the opinion, that its unsuitability consists in its being insufficiently permeable to the solutions, and the iodide being consequently slowly formed. I have now before me a negative which is slightly granular in the *centre only;* and this is one made sensitive, with several others, in a dish the bottom of which was higher in the middle than at the sides; the solution would be in this part more scanty, and the same effect ensue.

In the summer of 1855 I lost many weeks of fine weather from being without good paper. My bookseller, who obtained his Canson's paper direct from Paris, had exhausted his old stock and got in a fresh supply; this sample waxed readily, and looked good; but both myself and a friend failed in getting really good negatives with it, and on some occasions it darkened all over in developing. At length I got, amongst a lot of this paper, *four sheets of the old sort,* which I knew in an instant, from its having a yellow tinge, while the new paper was *blue.* I divided these sheets into quarters, having therefore 16 pages 11 inches by 9; one I gave to my friend; one I have now waxed, but not iodized, as I keep it for a sample; and the remaining 14 I have now before me, in the form of superb negatives, taken under all circumstances; one in particular having been exposed in the worst and dullest light in which I have ever tried to get a paper negative. It is one of the finest and most brilliant negatives I ever took or ever saw, and was exhibited at the Liverpool Society in January last.

Lately I met with a sample of paper direct from Paris, and seemingly some of Canson's *old make.* I found it equal to any I ever had, and secured a quantity of it. In the absence of this, I have found "Papier Rive" excellent; being I am sure more sensitive than Canson's, and giving better half-tints than some of the latter.

Bad light is a great cause of failure in the wax-paper process, if distant objects be attempted, and there is any thing like mist or smoke between the objects and the lens. This however holds good with collodion at least as forcibly; but you may have a bad negative from this cause, the whites and half-tones of which are quite free from granulation or wooliness, but the objects appear as they really were in nature, fogged or misty.

(To be continued.)

PROCESS OF HELIOGRAPHY.

By M. Niepce de St Victor.

We present our readers with the following abstract of this novel and striking process:—

M. Nicéphore Nièpce composed his varnish with bitumen of Judæa dissolved in essential oil of lavender, and made it up into an unctuous paste, applying it to the plate with a buff. M. Niépce de St Victor has modified this process by making a liquid varnish which can be more easily applied.

The essential oil which gives the most beautiful heliographic results, is that of the pure citron. The varnish formed with it is very homogeneous, dries very readily, and is more sensitive to light. The composition of the varnish is as follows:—

Anhydrous benzine..............90 parts.
Essen. oil of pure citron-juice 10 ,,
Pure bitumen of Judæa......... 2 ,,

This varnish, which is very fluid, has the advantage of giving a thin coat; and the thinner the coat, the quicker is the effect produced by the light, and the better are the half-tints.

The plate must be perfectly flat, as the first condition in operating by contact; and well polished, which is indispensable in working the camera. It should be scoured or cleansed with benzine, then rubbed with a buff of cotton wool steeped in alcohol at 40 degrees, and powdered with very fine emery dust, which polishes the plate, and in time makes the steel plate like a silver plate for the daguerreotype. When the plate is sufficiently polished, it may be covered again with tripoli diluted in rectified alcohol, and left to dry completely before removing the coat.

The spreading of the varnish may of course be done in various ways, and the experienced operator in collodion or albumen will find no difficulty. The plate need be varnished only a few moments before operating, and as soon as the varnish is dry it must be kept from the light; it may, however, be *spread* in diffused light.

To reproduce a picture, a photographic copy must be first made of the same size, or reduced, either on paper or albuminized glass, according to the subject. For a picture from nature, as a portrait, or from an oil painting, a positive on thin and white paper gives as good a result as albuminized glass, admitting of less harshness of outline and more half-tints.

The exposure to the light is never very long, but it varies according to the subject to be reproduced, the intensity of the light, and the sensitiveness of the varnish. On an average, the time does not exceed a quarter of an hour in the sun, and an hour in diffused light. As much sun as possible and dry weather are of course preferable.

A solvent is required to remove the varnish from all those parts which have been kept from the action of light, those which have been affected by the light being insoluble. The metal is thus stripped of all those parts which correspond to the shadows in the engraving or picture, still preserving all the half-tints.

To remove the solvent, water must be poured on the plate, and it must then be dried. The solvent is composed of—

Rectified Naptha ....4 parts.
Benzine........................1 part.

If the exposure of the plate be too short, the quantity of benzine must be increased; if too long, the naptha should be lessened. The solvent should be applied immediately after the exposure. It acts with great rapidity, and it is generally necessary to stop its action immediately, by washing it off. This is done by pouring water over the plate in a stream, or by plunging it into a large basinful and shaking it about in it for some seconds; next putting it under a tap of water to wash off completely the solvent, and then removing any drops from the surface with a pair of bellows. To dry the plate, it is exposed to the air or warmed slightly.

The application of the graining of Aquatint is indispensable for the reproduction of a photograph representing architecture, landscapes, portraits, or the like; but not for engravings, plans, or linear drawings. To apply the graining, put resin finely powdered at the bottom of a box constructed for such purpose, and blow it up with a pair of bellows so as to make a cloud of dust, which is left to resettle on the plate. The plate is then warmed, and the resin forms a network over the whole of the engraving; this consolidates the varnish, which can then longer resist the corrosive action of the mordant. The method of applying the mordant is as follows:—After having edged the plate with mastic, and covered again with varnish the parts which ought not to be attacked (as in ordinary engraving with aqua-fortis,) water mixed with acetic acid should be poured over the plate, beginning with water to 1 degree and advancing successively to 12 degrees, according to the resistance of the varnish and the depth required. The water must be changed several times, without increasing the quantity of acid.

When the biting-in appears sufficient, the action must be stopped with clean water.

On plates of zinc the biting-in acts in the same way as on steel; but copper requires acid of greater power.

The time of exposure in the camera varies from half an hour to an hour in the sun, and from two to six hours in diffused light.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—We have the Hillotype at last! I am in hopes that Mr. P. Henderson will give me credit for promptly acknowledging the fact of the existence of actino-polychrome pictures, for I have actually seen the productions of the Reverend Levi L. Hill, of Westkill, Greene County, in the State of New York.

I some time ago sent several copies of the Reverend gentleman's circular to Britain, of which one was directed to you, another to Sir David Brewster, &c., and had I known Mr. P. Henderson's address should have sent him one also. The circular announced the fact that the book was for sale containing the whole process (and much more) of producing pictures in "the natural colours" for the insignificant price of 25 dollars!! Since then I learnt the pictures themselves were to be seen in this city; I hastened to the spot, and saw what I did see. I know you are all curiosity to know what that was, but you must wait till I have time to recover my breath, so you must perforce calm your impatience. I am sure Mr. Henderson will new feel a foot taller than I am (six feet), since the pictures have at length appeared "in all their chatoyant play of colours," and with every thing in proper focus.

My anxiety to tell Mr. H. how to produce such as I saw is so great, that you and he must imagine what I did see from carefully reading the process I proceed to give in full for procuring "*pictures in natural colours.*" First, procure a *thickly* coloured French lithograph, in which reds, greens and blues predominate; next, procure a tin or Daguerrean plate, or the bottom of an old coal shovel, if nothing better can be obtained. Procure also some common transfer varnish of the shops, and smear the shovel or tin plate with it. When nearly dry, place the lithograph on this, face downwards, till its face adheres closely to the varnish in every part. Let it thoroughly dry, and then rub off all the paper as usual in making such transfers on work-boxes, leaving the coloured picture on the old shovel, after which it is to be well varnished over several times and dried. It is then finished and ready for framing, and is now *a picture in natural colours!* To be sure it is, for are they not the *real colours* of the original object? If not, may I ask what they can be? Now, can you or Mr. Henderson guess what I saw? I think you need no further description. I have not seen the book myself, nor have I heard of any one who has.

While on the subject of polychrome pictures, can some of the believers in them not lay down some principle or other on which their *probability* might be looked for, even if they could go no farther? I have already elsewhere stated the conditions on which I believe their *possibility* depends, and which I may as well recapitulate as follows:—To produce on any surface an actinic impression which would shew each colour in its various shades and tones as seen in nature, would require a *sensible* compound of such a complex, heterogenous, unstable constitution, as to be capable of being simultaneously decomposed into as many distinct compounds, and into those only, as there are tints in nature, or at least in the object from which the impression is desired; and further, that the actinic force of each particular original tint will be just sufficient to decompose it into a compound possessing the same tint and no other. These conditions cannot be supposed to be readily met, but they are still more restricted by the necessity of the heterogenous compound being originally *black* when laid on the tablet; for the reason that black objects produce no actinic action,—consequently, any black required in the impression must pre-exist on the tablet when exposed to light. Without such a miraculous compound actino-polychrome pictures are *impossible*, even were it well known that the chromatic and actinic forces are distinct from each other.

Yours respectfully,

26, *Second Avenue*, WM. ROSS.
New York, 15*th Sept*., 1856.

To the Editor of the Liverpool Photographic Journal.

Dear Sir,—I had hoped long ere this to have announced through your columns that we had made another distribution of photographs to the members of the Liverpool and National Photographic Exchange Club, and can only suppose that the exciting pursuit of negatives has taken up so much of their time as to prevent their attending to their positive duties; many of our members have not yet sent one proof for exchange; this is not treating their fellow members fairly, and to give them an opportunity to contribute to the spread of their knowledge, and the satisfaction of others, we have fixed a rather distant day for the next exchange operation, viz., 15th Nov., and we trust that our trouble may be increased considerably in the distribution. We have on hand already some very beautiful proofs, a few of large size, which are well worthy the attention of those working cameras rather above the usual size. We should be glad to see a few more proofs from albumen negatives, the majority being calotypes, and it is difficult therefore to distribute such, as our object has been to shew to each worker of a particular process what others are doing in the other processes. If you would call attention to the distribution above announced, you will oblige. Your obedient Servant,

CHRISTOPHER BELL,
Chairman Liverpool and National
41, *Victoria-place*, Photographic Exchange Club.
Birkenhead, Oct. 1*st*, 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—I observe in a report of the Liverpool Photographic Journal a short discussion as to the merits of camphor added to collodion, for its conservative qualities. I venture to say (the worthy chairman being desirous of experience), that I have tried it, in the proportions mentioned by Mr. Forrest, one grain to the ounce, for positives, and the result is so far very satisfactory; but when I come to varnish in the usual way, with French varnish, the picture, to my dismay was wholly dissolved, and ran over the plates like mud; the camphor being dissolved out by the spirit of the varnish, and seems to act as a menstruum in re-dissolving the collodion at the same time. Thus it will be premised that unless some other method of varnishing be adopted, the addition of camphor to positive or negative collodion is useless, indeed worse than useless; because it is most disappointing when you are most expecting; however, I like the appearance of the positive pictures so much, that I am unwilling to give up the use of camphor without trying a remedy, and am of opinion that if the pictures are first gently sized with a solution of isinglass, gelatine, or gum arabic, by means of a soft brush, or poured on, and then varnished, the desired result may be gained.

I remain, Sir, your obedient servant,

CHARLES JONES.

51, *Bridge-street, Birkenhead*,
19*th August*, 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—The following few remarks are written by a friend, to whom I sent some of my prints. They may perhaps be suggestive to many of your readers, and if carried out some may agree with him in the better effect aimed at in producing Photographic Pictures:—

"Now you will understand me when I say that there is a difference between a good *photograph* and a good *picture*. My own view of the case is this—a man may go and take a view or a bit of scenery, the latter *suits photography;* but, I think, if he attempts to get everything into a line, and consequently everything sharp, the resulting *picture* will appear flat, as it were, with nothing to throw it out, or rather to throw the distance back; in fact the whole picture must be *distance* in *reality*, brought closer to you in the picture than it ought to be.

"In copying a large piece of architecture, or such like, of course everything *must be sharp*, and is another matter altogether. *Street scenes* are also different. Now my task in a *photopraphic* picture is this—I look at it from some little distance, and *of course* as *some part* of the picture must be sharp, I look at *that part, and of course that part must be made sharp which is intended to be* looked at. In looking at that part all the other parts come in the view by *oblique pencils*, and consequently need not be sharp, inasmuch even if they were, you must take your eye off the *one part* to perceive that they are so. Now laying aside the fact that we can not *get very near* objects *sharp at the same time* with those *farther off:* I will shew you that it is not making a *virtue* of *necessity* in having a part either distant or near out of focus. *Go to nature.* Fix your eye, in looking up the street opposite you, upon some 'distant part,' and you will find that the near houses are in reality *out of focus;* but still you *see* them *obliquely*. To make them sharp you must put your eye upon them, and the 'distant part' will still be in the position it formerly occupied. In taking a photographic *picture* of the same, if you focus the 'distant part,' the nearest objects may be a little out of focus, but still if it were not for the near objects, the 'distant part' would not be *thrown back properly*. This is the effect I allude to—you must have something in the *foreground* to throw what *you wish to take back from the surface of the* paper *as it were*, and give it proper perspective. What I argue is this—you must have something in the foreground, and that something must be out of focus on account of the nature of the lens; but its being *out of focus* is *true* to *nature*—that is to say, if you *wish* to focus a distant object.

"The public I know like everything sharp, and many views may be taken in which everything is sharp; but I think that as a rule the best effects and pictures are those in which you look at the thing you intend to depict, and having something in the foreground (never mind its being out of focus, it will be a mass of light or shadow) to throw the object back.

"You will find in taking pictures in the way I mean, that when your eye once rests on the part you intend to be viewed, it will not leave it; if you take it off, place it on another it will find no rest until it gets back again to the one spot as it were; it must therefore give more value to that one spot. A bit of a bank, or a heap of large stones, or any thing of this sort in the foreground has a wonderful effect. I do not mean to say either that it is necessary that the thing in the foreground should be out of focus; but I must say that a picture must have a foreground of such a character as to act in the way I mention, whether it is sharp or not."

Speaking of the *amount of light*, he goes on to impress on the minds of *Beginners in Photography*—"The *absolute necessity*, if they wish to get good pictures, of *not exposing in sunshine* the whole time. I know by experience they cannot get a good result if they do. Never mind a long exposure; where you *can* take time, take it, and I am certain that the best results are derived by working in a nice moderate diffused light, *exposing* long enough to get the *darkest* parts, or those parts the centre of which has least effect on the sensitive surface impressed, or very nearly so, and *then close the lens, waiting for a gleam of strong sunshine to prick out the lights*, not giving it too much; as for myself, I would not waste my paper if the day was so bright as that the sun shone all the time, for you cannot get a *good picture*. What have you to guide you. How can you expose *long enough* to get *sufficient detail*, even [I don't want too much detail] if the lightest parts are all glaring in the sun, and consequently solarizing themselves on the sensitive surface? The only result is patches of black and white, or a loss of all detail in the highest lights, which is much the same thing. I dare say you have noticed what I say, and if not, I hope it may prove another hint whereby we may improve one another in the *principles* of obtaining pictures by *photography*."

My friend asks, "if I have ever *over-exposed* (in wax paper), and what effect does it produce? He does not think he has." He says, "Mr. Fitt always got my black negatives both to look through and at. I think his paper to the Photographic Society led me astray with the exposure. He said *sixteen to eighteen* minutes was his *average*, and half an hour the most he ever had given. Now his subjects must have been such as not to have required it; because I defy any one to take some of the bits of scenery down here in that time, or even much longer. I tried to get a ravine from the sea the other day, a beautiful thing; it ran up about sixty yards, and the upper end was a small cave like underground, with a little hole at the extreme end leading up to the outside again. I gave it half an hour, long stop, and underdone much. I was in the cave one hour, and the sea came up so that I could not get out to seaward; and after a great deal of scrambling I got safe out of the small hole. I am going again; it will be a fine picture if I can get it. The exposure will take one hour and (say) twenty minutes and more."—Yours, &c.,

CHARLES JONES.

51, *Bridge-street, Birkenhead.*

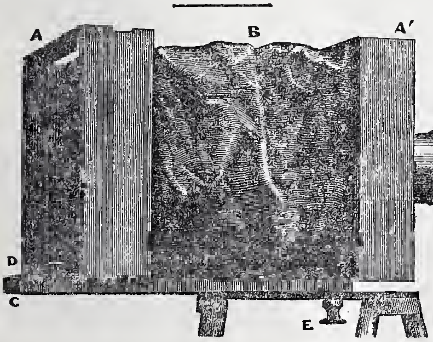
To the Editor of the Liverpool Photographic Journal.

Sir,—The partial fading of photographs appearing to have shaken the public confidence with respect to their permanency, I am induced to address you on one of its probable causes, that your hundred-tongued monthly, by calling attention to the too frequent tendency of slighting the all-importaut part of final washing and fixing the proof, may awaken the dormant attention of philosophers in general to the much to be deplored misfortune. Very frequently have I had cause to battle out with a brother amateur the danger of merely giving an otherwise good calotype positive a few hours' soaking with a couple of changes of water, or it may be, three at the most; at other times I have been called on to explain the sad mishap of the disfigurement, or threatened total disappearance of the portrait of a beloved relative, now perhaps become the resident of a far distant land. The effect of the first mentioned neglect I have had cause to regret in the spotted appearance of valued paper proofs, the works of absent friends. Of the second, the cause has been too evident to admit of doubt, for, on taking the glass plates from their cases, I have found in some the black backing to have cracked or split up in a thousand irregular lines, irreparable if on the collodion surface itself; and in others, of the portrait having been enclosed just as it came from the developing stand, without even an attempt at rendering it more secure by an hermetically sealed coating of varnish. In one instance the picture was the prized property of a fond mother, not troubled with a superabundance of this world's riches, and consequently one obtained at the cheapest mart, and it may be advanced in extenuation for the inattention that the picture was good enough, or as much as could be expected for the money. Now, surely this is not a right state of things—a state that should not be allowed to go on without some little remonstrance, seeing that the poorer classes of the community, blessed (it may be unfortunately), with as sensitive a state of feeling as the more wealthy, are induced to make the purchase in the belief of its permanency; besides, in a more selfish point of view as regards the cheap working professional photographer, the evil in question is perpetually tending to bring his art into disrepute, for although he may be more immediately benefitted by the quantity rather than the quality of his productions, yet eventually the practice must lead to a lack of employment, solely the result of his want of a little judicious forethought. That the above described sleight-of-hand work is doing, irrespective of its injustice, a great injury to our art, there can scarcely remain a doubt, and the hope that its greater publicity may in some degree check the growing evil, is the cause of my offering the above hasty and imperfect remarks to your notice, leaving it to your better judgment whether the subject be a suitable one or otherwise for insertion in your widely spread and very instructive journal.—I am, my dear sir,

Yours very truly,

HENRY H. HELE.

Ashburton, Devonshire,
Sept. 28, 1856.



To the Editor of the Liverpool Photographic Journal.

Sir,—During the early months of the past summer I took several photographic trips, using an ordinary expanding camera, but much to my fatigue, the weight of the whole apparatus being so great. At length I determined, not being able to meet with a portable camera to my mind, to endeavour to construct one that should be as efficient as portable, and at the same time inexpensive—three very important essentials. One drawback to most (if not to all) of the portable cameras at present made, is the complexity of construction, which makes the process of erecting and taking down a camera somewhat tedious. I think my camera obviates this difficulty, for its very merit lies in its simplicity; and as it can be set up in half-a-minute, it cannot be considered a troublesome affair. The camera I have made is for views 9 in. by 7 in., but of course larger or smaller sizes could as easily be constructed. I will now describe it by referring to the wood-cut above, which is taken from a photograph. AA.—The back, and front of camera with moveable adjustment, vertical and horizontal, so as to regulate the proportion of foreground and sky. B.—Body of camera composed of India-rubber cloth. CC.—Moveable table, with groove along the centre, for adjustment of camera. D.—Screw to work in groove of table to regulate the focal length. E.—Screw passing through triangle and table to fix camera to tripod. FF.—Flexible bands to go round camera when closed. When shut up it is 5 in. thick, and the weight only 3 lbs; it is as much adapted for portraits as views, and it can be turned on its side if the steeple of a church, or any high building, is to be taken, the sliding front regulating the foreground. The lens and focussing cloth may be packed inside when closed. Such is a description of the Portable Camera, which I have used repeatedly, so that I am positive it answers.

In conclusion I may say, that Mr. E. G. Wood, Philosophical Instrument Maker, of 117, Cheapside, London, will shew and explain the Camera to any who may be desirous of seeing it.

I am, Sir, yours obediently,

CHARLES JEFFREY MORGAN.

4, *Morgan's Place, Liverpool Road,*
Islington, London, Oct. 8, 1856.

To the Editor of the Liverpool Photographic Journal.

Sir,—I quite agree with your correspondent "Fellow Sufferer," that all photographic inventors should make themselves acquainted with the labours of others before rushing into print with an account of a camera, a plate holder, or a tent, which has been in existence for years; it is even worse with *photographic processes*, persons who are not well acquainted with the subject are induced to spend their time and money in processes published as new, which perhaps have been tried and discarded years ago.

In the present instance, however, your correspondent's sufferings are fancied, rather than real, as the description of the camera in the *London Photographic Journal* in 1853, is by Mr. Joule, as well as that in a recent number of *Photographic Notes*.

I am, Sir, yours truly, ANOTHER FELLOW.

Manchester, Sept. 24th, 1856.

ANSWERS TO CORRESPONDENTS.

E. G. is reminded that our early numbers contained a glossary of terms then in vogue; increased knowledge may have brought others into use, so perhaps a dictionary would be desirable.

W. Ross.—Our parcel could not go by the Persia, but is despatched by the following mail. Enquire at the following address:—C. B. Richards, Foreign Express Office, 150, Broadway, New York.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 35.—NOVEMBER 8, 1856.

Photography is fast approaching to its state of hybernation. Those who live in a clear country atmosphere, may hope to grub on with the fruits of negatives, stored up in the season of plenty; but we of the close pent-up street and murky cloud, can only look over our hoards, and pine for long days and clear skies. The glittering glass cases, filled with prim white faces, and sombre dresses, that glare upon us at every turn, strike us very forcibly what a trade it has become, and consequently how great the stagnation that must necessarily ensue from the winter withdrawal of the great photographic power, the glorious light-giving—we had almost said, though with all reverence, the life-giving sun. Few who are so accustomed to the show-cases gradually springing up in every street and every corner, can imagine the immense rivalry of this most numerous class of positive workers; nor were we, who see so much of the working of this rivalry, prepared for the pitch to which an instance lately revealed to us has extended, viz. that an enterprising speculator of this class writes up over his door, in one of the leading thoroughfares through the suburbs of London, "a photograph and an ice for a shilling!"

It is already apparent that the followers of the two branches of art are gradually resolving themselves into two distinct classes. Many excellent operators whom we could particularise, if it were not invidious, are making a determined stand, to preserve the exalted condition of their positives, but we fear eventually that the multitude will bear them down, and positives become a bye-word and a scoff.

Though the season of out-door photography is nearly over, as Mr. Sutton says, it is a source of great gratification to find that he has nearly perfected a new process of printing, which he promises, with a candour that has characterised many an intellectual professor before him, to reveal to the world in his next number. This new method appears to possess a charming simplicity, for it requires no serum, no gold, no toning. In what may so wonder-working a principle consist! we are on the tiptoe of expectation. Unhappily our expectancy has this alloy, that our talented friend was so very confident, so urgent to persuade the world to adopt his former mode; and Mr. Hardwich's experiments certainly supported its claim to infallibility; but if it possessed all the qualities that were so strongly insisted upon in its behoof—that it was the epitome of all that was rapid in execution, clear in detail, and unfading in durability—why, we ask, has its projector abandoned it, or at least become insensible to its charms?

It is hard to say which is most distressing to behold—men, of the very highest rank of intellect and acquirements, cavilling and contesting for priority of invention; or to contemplate the necessity there is to make a stand in defence of the honour of that priority. We make no apology for publishing in our columns a transcript of letters from the *Times*, because, strange as it may seem, our pages will be read where that mighty journal will not be looked for; and also because it affects a question interesting to every practitioner: the merits of the diverse claims must be settled by the public at large; for ourselves, we are not called on to offer an opinion or to decide between two such learned "pundits," beyond the fact, as it has always appeared to us, that Professor Wheatstone introduced the reflecting stereoscope, and Sir D. Brewster the lenticular. Now, as their construction is widely different, however analogous or even identical their effects may be, the question of chronology is hardly worth debating. In a contemporary journal we have also Mr. Maxwell Lyte contending for the palm of first applying honey to collodion plates. As his intention was only to quicken the operation, and not promote the preservation of them, whilst Mr. Shadbolt's was just the converse of this, we here also conceive the controversy not worth the trouble it takes; as each gentleman's name must ever be identified with the object for which the honey is applied, that is to say, if the use of honey should be continued; and of that, the far greater success of subsequent inventions tempts a very strong doubt. Now comes our own turn to put lance in rest, to run a tilt in behalf of our own rights to priority, not absolutely to an invention, but to the operators of Liverpool being among the earliest in the field to apply that invention. We learn that a certain Padre Secchi of the observatory at Rome, has at length succeeded "in obtaining a pretty good photographic image of *part* of the lunar surface." We congratulate the good father on his success; for if he has been unremitting in his endeavours, (since not merely a photograph of *part* of the lunar surface, but many parts, was publicly exhibited in this town,) why, he has had two years good practice, and might be expected to succeed at last. At the meeting of the British Association in Liverpool, just two years back, several very perfect photographs, enlarged to fifty feet diameter, were exhibited before, and highly commended by, that erudite body; on which occasion Mr. Corey had the honour of reading a paper, descriptive of the unceasing pains taken by Mr. Hartnup, assisted by Dr. Edwards, Mr. Forrest, and Mr. Berry. The xylographs, so produced, were afterwards very faithfully enlarged by Mr. McInnes. On our writing table now lies one then shewn: where Copernicus is visible, another has Tycho Brahe, and a third has Aristarchus; two of them bearing date September 10, 1854. Now the Padre might well find a difficulty in following the motion of the moon, as his exposure was from six to eight minutes. Mr. Hartnup found a like difficulty with an exposure of two minutes. As the hand had to be used in both cases, in lieu of the equatorial adjustment, the chances of success with a larger or shorter exposure are sufficiently obvious without comment.

The feud that existed between the artist and the photographer has been a "sore let and hindrance" to the perfect colouring of positives, whether on paper or on glass. All the instances of coloured photographs that we have hitherto seen have been entirely devoid of artistic taste; masses of colour heaped on, to the entire extinction of every trace of the original, so that they have been actual compositions, possessing all the crudities of crayon without its softness; the reason is sufficiently apparent, photographers are not artists, and these for the most part set their faces against the art, until finding the public had become accustomed to infinite minutiæ, from the too acute fidelity of the camera, they have rushed into the painful and sordid detail of every leaf in a tree or every separate hair in a fur tippet *usque ad nauseam*, till pre-Raphaelitism is in every mouth; but as these extravagancies always effect their own cure, we may hope ere long an amnesty may be declared. We have the first evidence of this in some most accomplished specimens submitted to us by Mons. Mansion; here the colour was most exquisitely touched on, for the pencil appeared scarcely to have rested there, imbuing the delicate lines of the positive rather with a dye than a colour. This it may be argued, is easy enough: water colour readily admits of all this delicacy of touch; but the marvel does not end here, for precisely the same translucent quality was imparted to oil colour; the same minute detail which, unless judiciously toned down and softened, becomes so offensive to the artistic eye, was by refined taste subdued and blended into one harmonious whole. Mr. Foard, of Liverpool, has evinced great discrimination in bringing this admirable style of colouring more prominently before the public eye.

Photography by Artificial Light.—A very brilliant light has been produced by directing a stream of oxygen gas into a flame of coal gas which had been previously passed through cotton, saturated with naptha in order to surcharge it with carbon. Using a reflector with this light, a photograph of an engraving was taken by the camera in a very short period; and Professor Böttger states that he has succeeded in obtaining good daguerreotypes and photographs by the light of phosphorous, or sulphur burnt in oxygen.

Answers to Correspondents will be given in our next number; want of space obliges us to defer them.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The ninth meeting of the session was held at the Royal Institution, Colquitt-street, on Tuesday evening, November 4th, Mr. Corey presiding.

Mr. Forrest produced and described one of the transfer boxes for sensitive plates, invented by Mr. Hardie, of Elder-street, Edinburgh, and Mr. Berry described a box for the same use, invented by himself. They were both very ingenious and were much praised.

A series of beautiful stereoscopic views, forwarded by Mr. Duckworth, were circulated about the room. One, a view of Balmoral, taken by G. W. Wilson, of Aberdeen, was much admired.

Mr. Berry exhibited a large-sized and effective photographic portrait, by himself, of the Rev. Mr. Stewart, Vicar of Hale; and Mr. Jones, of Birkenhead, produced several pictures taken with the wax-paper process.

An interesting conversation was originated by Mr. Doyle, in reference to Dr. Norris's dry (gelatine) process. One gentleman said he had tried it, and had found it very successful with a small lens and very short focus. The picture required to be exposed about a minute, but it took three hours to develop. He found none of that objectionable yellowness. The process produced very intense negatives. He had tried the honey process and others, but he had found nothing to answer so well as this, it was superior to any in effect and convenience. He was of opinion that the yellowness in question arose from the use of inferior gelatine.

Mr. Forrest had tried the gelatine process and he admired it very much, having been particularly successful.

Mr. Corey added his testimony to the simplicity, efficiency, and usefulness of the process. If the collodion was anything like the medium quality, success was ensured. He had tried glue, isinglass, and gelatine, the latter had not so much of the disagreeable yellowness.

Mr. Forrest remarked that Mr. Cauty went to Manchester very recently, the weather was quite thick, and he thought his journey would be a fruitless one; but he exposed two plates about three minutes each, and when he returned home he developed them and found that he had two exquisite pictures.

Mr. Corey said he had experienced the same unexpected gratification in Liverpool. He exposed a plate on a very dull day, but he obtained a picture as full of detail as if it had been taken in sunshine.

Mr. Jones, of Birkenhead, made some experiments by dipping various kinds of negative paper in iodised serum solution, for the purpose of shewing that some were more liable to the defect of spotting than others. Some, when dried, were covered with spots, the most free from spots being Canson's negative paper.

The Chairman was obliged to Mr. Jones for his experiments which were of that practical and useful kind which he had often urged upon the attention of the members. Photographers were too much in the habit of working blindly, because some one had been successful in using a particular paper or a particular solution. Experiments of this description were particularly valuable as enabling them to account for those natural obstacles which presented themselves in the way of photographers. In a similar manner Mr. Fitt, in a letter in the last number of the *Liverpool Photographic Journal*, called attention to the way in which some kinds of paper would vary,—that even in the same quire would be found a number of sheets very good, and an equal number perfectly useless. It tended to set the mind of the photographer at ease if he knew that his failures arose not from faults of his own. Until the paper makers had ascertained something like a fixed method of preparing paper, photographers would continue to have (especially with waxed paper) immense difficulties to contend with.

Mr. Berry read the following paper on "The Production of Pyroxyline," illustrated with a series of experiments :—

The principal object I have in view, in bringing this subject before the society, is to demonstrate that the particular variety of pyroxyline, which of all others best fulfils the desiderata of the photographer, can be made by him at all times and under all circumstances without failure, provided he has the necessary chemicals at command, so that his experiments shall in nowise fail from that fatal defect—bad pyroxyline. Various have been the methods, and many the substances and chemicals employed by experimenters, in the pursuit of a satisfactory basis for collodion, a very good synopsis of which will be found in Mr. Hardwich's Photographic Chemistry, to which I would refer those curious on such matters.

The numerous varieties of pyroxyline are what are called by chemists substitution compounds; that is, one chemical element is capable of displacing another without (as in the case before us), altering the outward form or appearance, but imparting properties in some respects vastly different from the original compound operated on, while the characteristics of the active agent are totally modified or masked. Cotton fibre, or flax fibre, are two examples of the substance termed by chemists lignine, consisting of carbon, hydrogen, and oxygen, both yielding upon analysis an identical chemical composition. The microscope, however, reveals a marked difference in the shape and character of the fibre, the flax being short open tubes, while the cotton is long, transparent, horny, twisted and flattened.

If we take a sample of the one or other of these and plunge it in strong nitric acid, warmed, it will be dissolved, but with a change of composition, having yielded a portion of its hydrogen, to an atom of oxygen from the nitric acid, forming water, while the peroxide of nitrogen, resulting from its decomposition, takes the place of the ejected hydrogen, forming the new body pyroxyline, which dissolves in the surplus nitric acid.

Had the process ended here we should have been yet ignorant of collodion, but the employment of sulphuric acid to absorb the water always present in nitric acid, thereby subjecting the lignine to its action in its most concentrated state, conduced incidentally to the production of explosive cotton, which, by subsequent modifications, has enabled us to produce the most useful variety of pyroxyline at will.

Those who have tried the various formulæ extant, no matter whether a mixture of nitric and sulphuric acids, with or without water, or, as it were to do away with all uncertainty, the use of pure dried nitrate of potash with sulphuric acid of a definite strength, can well bear witness to the mortifying failures they have experienced, at the very time they have been most confident of success. I can only say I am surprised the failures were not more numerous than they have been, of which more anon.

Several varieties of pyroxyline have been described as the results from different variations in the relative strengths, quantities, and temperatures of the acid solutions employed. I now quote from Mr. Hardwich the result of Mr. Hadow's valuable paper on the subject. Four varieties are described, the first and fourth of which, although the most opposite in chemical constitution, yield results to the photographer so nearly identical in their unfitness for his use, that those only who have manufactured for collodion, on a large scale, have been able with certainty to discriminate between the two, when both alike are bad.

It is the two middle varieties, termed by Mr. Hadow B and C, with which we have to do, and from which we may hope to draw successful results. It would be well for us to examine the whole, so that the various phenomena, good or evil, may be identified. A, the most explosive, contains the largest per centage of peroxyde of nitrogen, and is produced by employing the strongest nitro-sulphuric acid, the volumes being one sulphuric, three nitric—of not less than 1·510 specific gravity; it is scarcely soluble in alcoholized æther, the film produced being white and pulverulent. D, the product of possibly equal volumes, or even two sulphuric to one nitric, burns slowly, leaving a black ash, its solution in alcoholized æther, having a white film which is frequently broken up into innumerable small fissures, producing a result, when employed in collodion negatives, so marvellously like the grain of an aqua-tint engraving, that I would earnestly recommend it to our photo-galvanographic friends, if they yet require more of that veil which seems hitherto to have beclouded their productions.

I now turn to the middle compounds, and these, I hope to demonstrate, can be produced with absolute certainty and with very little trouble. The necessaries for success are these—nitric acid, specific gravity not less than 1·500; sulphuric acid, specific gravity not less than 1·840; and, for the sake of economy, some ordinary nitric acid of commerce, specific gravity 1-38 to 1·40; and I would now insist on the important part played by the quantity and strength of the sulphuric acid in the process. It has been shewn that this acid has the power of preventing the solution of the pyroxyline in the nitric acid employed, and it is this peculiar property, which it possesses in so high a degree, that has led to tho confounding of the A and D compounds.

I have found by experiment that pyroxyline is formed much more conveniently from bibulous paper than from cotton fibre, or even linen or lint. It is not so clear, that is owing to the paper being made from flax, but in practice I find that unsized white paper, the ordinary white blotting paper of the shops, always yields definite and satisfactory results, and far better than the tangled mass of cotton wool.

The conditions necessary for the production of soluble paper yielding transparent films are, that the acids shall be mixed in the following proportions:—sulphuric acid one volume, nitric acid two or two-and-a-half volumes, and the temperature must be 130 deg. Fahrenheit; the paper to be immersed five minutes. The nitric acid must be composed of two volumes acid, specific gravity 1·50, and one volume acid, specific gravity 1·38 or 1·40.

The acid I employ for the experiments I now make before you has that composition, and I have no doubt the pyroxyline produced will yield, when dissolved, a transparent film.

Mr Berry then poured the acid into a capsule, heated it by a spirit lamp, and produced in a few minutes several specimens of pyroxyline, which he handed to the members for trial. He placed one portion in alcoholized æther, in which it speedily dissolved; and the solution, when poured upon a plate of glass, yielded a perfectly transparent film when dried.

A vote of thanks was by acclamation passed to Mr. Berry for his paper.

LONDON PHOTOGRAPHIC SOCIETY.

The first meeting for the winter session took place on Thursday, the 6th of November, 1856, Professor Wheatstone in the chair.

After a cursory recapitulation of the business of the last meeting, a plate-holder was exhibited by a member, which was thought to be a simplification of those now in use; it consisted only of a round piece of sheet India rubber, having in the centre a loop of the same material, to pull up while the finger presses the pad.

A small piece of apparatus was then exhibited to dispense with a loose cap to the lens.

The Secretary announced that the council of King's College having kindly placed rooms at their disposal, a soiree would be held there on December 17th, at which a large attendance was invited; also that the exhibition would take place at the usual time in the rooms before appropriated, in Suffolk-street, Pall Mall. He also stated that the council were in treaty for rooms to form a permanent home for the society, in Uxbridge House, the only obstacle to the conclusion of which was the limited finances of the society; this however was likely to be overcome.

Mr. Shadbolt than rose, and after stating an expected communication from Dr. Hill Norris, of Birmingham, had not arrived, proceeded to give, at some length, his own experience of the gelatine collodion process, to which he asserted we might look for perhaps the best results yet attained by any dry process. The speaker observed that the molecular condition of the film was of such vast importance that the attention of photographers ought to be strongly directed to it, and that the gelatine process seemed at present to preserve the film in such a manner, that, on being re-wetted, the collodion assumed a condition more nearly assimilating to the original undried, than was yet obtainable by any other process. He then described some experiments made by covering plates of ivory with collodion and exposing them to the camera. When the coated ivory was first employed it was found it possessed extraordinary sensitiveness, and on examining it under microscopic power, it was observed that the whole surface was rough to a considerable extent; it was then carefully repolished and tried again, when the sensitiveness was greatly diminished, but on roughening the surface again it was restored. He also exhibited a negative by the process transmitted to him by the learned doctor, but unfortunately broken in transit; the fragments, however, shewed that the process is fully capable of magnificent results; the time was one and-a-quarter minute on a bright day, 14 inch focus, $1\frac{3}{4}$ inch stop; this, Mr. S. remarked, was equal to wet collodion. Dr. Norris had found that the molecular condition of old and new collodion varied much; the new, when precipitated by water, giving a stringy residuum, which might be compared to the pulp of an orange, whilst the old gave a powder. The doctor has, he states, discovered the means of disturbing the molecules of the new collodion, so as in a few hours to produce the latter result, in which state he finds it well adapted to his process, in fact much more so than the new.

Mr. Hardwich was rather disposed to differ from Mr. Shadbolt with respect to dry collodion, doubting whether the molecular condition, once altered, can be sufficiently restored to admit of good results, and adduced his own experiment in the oxymel process, in which he found great difficulty in getting intensity, even though theoretically the grape sugar present ought from its reducing power to give it; and he gave as his opinion that the free nitrate being removed in Norris's process, it must necessarily be slow and give a weak negative.

Mr. Shadbolt replied by referring to the daguerreotype process, in which no free nitrate of silver is present, the picture being on the pure iodide.

Mr. Malone however denied the last statement by saying that the sensitive coating on the daguerreotype plate was an entirely different and far more abstruse combination than would be understood by referring it to pure iodide.

The subject then dropped, and attention was drawn to a series of views in Oxford, by Professor De la Motte, but the gem of the evening was a splendid sea piece, by an artist whose name did not transpire, and comprising many miles of water, with numerous ships; the waves were most perfect: but perhaps the grand point of the whole was the extraordinary light in which it was taken, the sun being on the point of bursting forth from a dense heavy mass of clouds, cast over a part of the picture a strong and peculiar glare, whilst other parts being merely illuminated by a moderate light gave to the whole picture "Turneresque" appearance, exemplifying, in a striking manner, the justness of his effects, which have so often been called in question.

PHOTOGRAPHY ON PRESERVED PLATES.

By M. HUMBERT DE MOLARD.

Some particulars on the subject of a new kind of preservation of collodion plates will not fail to interest all classes of operators.

M. Dubois de Néhaut has just received from an intimate friend, M. Franck de Villechole, a distinguished amateur of Barcelona, the instructions concerning it; we have followed these directions implicitly, and have constantly succeeded: the method is extremely simple. Take of

Distilled Water (cold)............200 parts
Acetic Acid .... 30 „
Linseed .... 20 „

Let these macerate in a glass vessel for about twelve hours, and then strain through fine linen. The mucilage thus acidulated will keep above eight days without undergoing decomposition; it ought to be colourless and slightly viscous. Upon taking out from the sensitizing bath, the plate collodionized as usual is immediately covered [without washing—Ed. L.P.J.] with the above-named mucilage, which is poured on and off until it presents a perfectly even surface without marblings or striæ: the plate should be set up at an angle to drain, and loses but little sensibility on drying. In a good light a portrait was obtained in about 30 seconds, in an hour after preparation. Four or five hours after, and when consequently dry, it proved as satisfactory as moist collodion—that is to say—a good picture in about 30 seconds in the sun, and about a minute in variable weather. The next day, or about 24 hours after, it procured fine specimens of monuments after about 1½ minute exposure. Probably, it would be possible to conserve for a longer time, but as yet no attempt has been made. When returned from exposing the plate, the development may be effected either by pyrogallic acid or a bath of iron, without any *previous washing*, to soften or remove the mucilage; and the operation completed under favourable circumstances, as with ordinary collodion, without fear of its spoiling by desiccation when the exposure is long, as in the case of dark coloured or dimly lighted monuments, requiring some hours' delay in the camera. This offers also all the advantages looked for from honey, oxymel, glycerine, and deliquescent salts, without fear of contracting dust or contamination in the slides, besides presenting such great facilities in the development.—*Revue Photographique.*

ON WAXED PAPER.

By G. R. FITT, Esq.

(Continued from page 143.)

In the last number I gave some of the reasons which appear to me to account for various faults in waxed paper negatives, and there still remain some points to be noticed.

A common cause of imperfection is, no doubt, that in using a fresh bath of silver the sensitive iodide is dissolved out from the paper, and I used often to be annoyed with this in my early pictures; the appearance is, however, very *distinct* from granulation. Portions of sky and of the dark parts in the negative will remain almost white, more or less, but the general *structure* of the negative is smooth, sharp, and perfect; the negative might be likened to a sheet of letter-press in which some of the types had been *insufficiently inked.* I have seen negatives where the solvent action of the new nitrate bath had been *universal*, and then the negative would be very faint, and it would be found impossible to develop it by any length of exposure in the gallic acid. During the last summer I went to Roslin Castle with two papers made in a new bath; I exposed them the usual time, but one entirely refused to develop, except the sky which was faint, and the details of the picture were only just visible. The difference between this and an under-exposed negative is, that in the latter it would have been quite easy to get the *sky* and *high lights perfectly opaque* though the other parts might be wanting; but no length of development would bring up the picture I mention. The other paper was imperfect only in parts. It must be remembered that the lights of both these negatives were *smooth and clear.*

Until I took these negatives, I was never quite clear about certain former failures of a similar character, and I now see the reason, and have since always saturated a new bath with iodide of silver, as Mr. Long recommended. I consider all photographers are greatly indebted to Mr. Long for his valuable suggestions, which will point out the remedies for two kinds of failure, but he has not comprehended what I and others mean by granulation. Mr. Sutton has also done essential service to this, as to many other branches of the art, in his Journal. The latter gentleman has no doubt hit upon another cause of granulation, or upon a secret which will eventually elucidate it. In his remarks on the appearance of prints on bromized paper I have *sometimes* found in experiments with this, that a yellow deposit was formed in the lights of the picture which a prolonged action of hyposulphite only partially removed, and what was left formed a granular appearance by reflected light, very similar to the appearance of granular negatives by transmitted light; but as I always employ the *same iodizing solution which contains bromide,* and which in 99 cases out of 100 gives no such appearance, I think I may conclude that bromine cannot be the cause of granular waxed paper negatives. I can now account perfectly for every granular negative I have got on good paper, and also say that I can produce a granular negative at any time, by following the conditions I mentioned in my letters to *Photographic Notes.* I am *certain,* that there is *more than one cause of granulation;* and I am also convinced that one fertile cause is bad or unsuitable paper; but as the causes I give, viz. slow action, or insufficient strength of the silver solution, will unquestionably produce this fault in *first-rate paper,* I think photographers will admit that I am right in my deductions, which are exclusively the result of long experience and careful observation, combined with a close study of the chemical changes involved in this and other processes.

THE STEREOSCOPE.

Sir David Brewster, in a letter to the *Times* on this subject, having weighed the claims of Mr. Elliot and Professor Wheatstone, says :—

"I believe, therefore, that Mr. Elliot and Mr. Wheatstone are independent inventors of an instrument or method for uniting two dissimilar pictures, and thus producing relief, but that neither of them discovered the principle of the stereoscope. Mr. Elliot lays no claim to such a discovery. Mr. Wheatstone does on the following grounds. After quoting a curious experiment on binocular vision, in which Leonardo da Vinci was on the eve of inventing the stereoscope, he makes the following observations :—

"'Had Leonardo da Vinci taken, instead of a sphere, a less simple figure for the purpose of his illustration, he would not only have observed that the object obscured from each eye a different part of the more distant field of view, but the fact would also, perhaps, have forced itself upon his attention that the object itself presented a different appearance to each eye. He failed to do this, and no subsequent writer within my knowledge has supplied the omission; the projection of two obviously dissimilar pictures on the two *retinæ* when a single object is viewed, while the optic axes converge, must therefore be regarded as a new fact in the theory of vision.'"—*Philosophical Transactions*, 1838, pp. 372-3.

"Now, this claim to the fundamental principle of the stereoscope is groundless: Euclid knew it; Galen knew it, and explained it. Baptista Porta quotes Galen's explanation, and illustrates it with a figure. Aguilonius in various parts of his *Optics* does the same, and in his chapter on the vision of solids he is puzzled in explaining how the two dissimilar pictures give a distinct image in relief. Early in 1852, and more recently, in my *Treatise on the Stereoscope*, I have quoted the passage from these authors to prove their knowledge of the principle in question, and Mr. Wheatstone has made no reply to the statement. It is doubtless strange that he was not acquainted with the researches of Galen, Porta, and Aguilonius, for he tells us (*Phil. Trans.*, 1838, page 372), that, 'after looking over the works of many authors who might be expected to have made some remarks relating to this subject, he was able to find but one which is in the *Trattata della Pittura* of Leonardo da Vinci.' Among these works were those of Porta and Aguilonius."

Alluding to a letter in which the professor alleged Sir David Brewster was aware he was preparing for publication on the subject; he continues, "I therefore call on Mr. Wheatstone to produce that letter, and if it contain anything relating to the stereoscope, I pledge myself in future to urge his claims in preference to Mr. Elliot. * * * As the inventor of the lenticular stereoscope, I am interested in the subject, involving, as it does, nice questions on the theory of vision; and in the *Edinburgh Transactions* for 1843 I have given the true and demonstrable theory of the stereoscope, after Mr. Wheatstone had wholly failed and acknowledged his failure (*Phil. Trans.*, 1838, p. 360). That theory has now been before the scientific world for nearly fourteen years, and has never been controverted. When the paper which contains it was written, I believed that Mr. Wheatstone was the sole inventor of the principle of the stereoscope, as well as of the reflecting instrument, and I never failed to give him the credit of both. He himself knows how I was compelled to investigate the subject, and to establish the claim of others—of ancient authors to the principle, and of Mr. Elliot to an instrument for exhibiting it."

To this Mr. Wheatstone replies :—

"I have already proved by incontrovertible dates my priority both to the discovery of principle and adaptation of the instrument. Sir David in his reply fully admits these dates, yet requires proof of my having constructed a stereoscope at the time my discovery was first announced, and unless additional evidence be adduced will continue to advocate the claims of Mr. Elliot.

"The undue prominence given to Mr. Elliot's single experiment may lead some persons to imagine that the results he obtained were at least as perfect as those which I had previously produced; but it appears he did not proceed so far as to give the representations in relief of any solid body whatever; his attempt, as described by Sir D. Brewster in his recent work, was limited to represent three different flat distances, to either of which the eyes might be converged at will. The name 'stereoscope' is quite inappropriate to an instrument exhibiting this effect alone.

"Sir D. Brewster calls upon me to publish the letter I alluded to in my former communication, or 'any part of it that has the least reference to the stereoscope.' The correspondence, consisting of my letter and Sir David's reply to it (dated November 3, 1832), would be too long for insertion here. From the former I extract the following passage :—

"'I propose in the ensuing session of the Royal Society to present two papers—one on the acoustic figures, of which I gave a short account at the meeting at Oxford; and the other on binocular vision, in which I shall describe a series of very curious optical illusions, which I believe to be perfectly original.'

"But Sir D. Brewster, not content with disputing my right to be considered the inventor of the stereoscope, denies, even if that were to be admitted, my claim to the discovery of the principle on which it is founded. The real fundamental principle of the stereoscope is that clearly stated in my earliest announcement—namely, the apparent reproduction of a solid object by simultaneously presenting its two perspective projections, artificially delineated, one to each eye. I have yet to learn that any philosopher, either ancient or modern, had made this discovery before me, or had even nearly approached it. What Sir D. Brewster assumes to be the principle of the stereoscope is very different to this, and his endeavour to show that the facts that he has alluded to were already known to Euclid, Galen, Porta, and Aguilonius does not at all affect the point at issue. I shall not enter into any discussion on this collateral and comparatively unimportant subject, but proceed to show that Sir David, when he was uninfluenced by his present feelings, took a very different view of the originality of the principle in question, even when generalized so as to include the phemonena of the binocular vision of real objects, than he now does.

"In the *Transactions of the Royal Society of Edinburgh*, vol. xv. part 3, 1843, he says:—

"'In prosecuting this subject, my attention has been particularly fixed upon the interesting paper of my distinguished friend Professor Wheatstone, on some remarkable and hitherto unobserved phenomena of binocular vision. It is impossible to over-estimate the importance of this paper, or to admire too highly the value and beauty of the leading discovery which it describes—namely, the preception of an object of three dimensions by the union of the two dissimilar pictures formed on the retinæ.'"

Much follows wherein Mr. Wheatstone complains of great misrepresentation on the part of Sir David, and concludes thus:—

"He makes no mention of some of my most important results, and, when he does borrow from my memoirs, unless he has a depreciating remark to make, he omits all mention of my name; and further he entirely ignores the memoirs of those eminent writers who since my first publication have treated of the stereoscopic phenomena; and the names of Bruecke, Tourtual, Prevost, Moser, Volkmann, Dove, Rogers, Serre, &c., who have all brought much thought to bear upon the subject, are not even once mentioned in his pages."

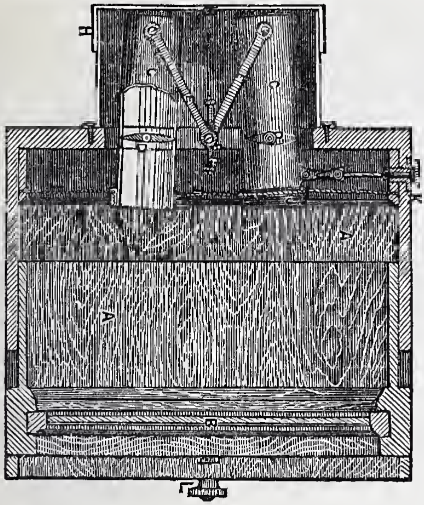
The "Scott Archer" Testimonial.—We some time ago drew attention to the fact, that a testimonial had been proposed to Mr. Scott Archer, as an acknowledgment of his generosity in imparting his valuable discovery of the uses and application of collodion to the photographic world. It is probable that one brief notice, made in haste, may have escaped the observation of many of our readers; and we now again draw attention to the circumstance, as we believe it requires to be but known, to meet with a very hearty response. Mr. Archer's disinterestedness cannot be too highly or substantially complimented. Had the secret of the medium employed in the production of his pictures been kept, or its use under restrictions, merely allowed, he would have unquestionably maintained in his own hands a great power, which might have conduced to his own great pecuniary advantage. Estimating it by its applications to the benefits it has conferred, it would not be too much to say, that the discovery might have been worth a fortune. There can be no question, that it forms the most valuable improvement ever made in photography; that it has opened out a wider diversity of uses and applications of the art; given employment to a greater number of hands; and diversified the powers and results of photography more completely than any auxiliary aid or addition it has yet received. To collodion we owe the large size of the present generation of photographic portraits and landscapes; the more frequent use of single lenses, less distorted and less expensive than many of the double are; the comparatively low price of photographs; and on the other hand, the extraordinary perfection attained by artistic aid in the colouring of photographs. But for collodion, the stereoscope would have been shorn of half its glories. In every direction indeed in which we turn, we perceive alike its value and the generosity which bestowed it—free as air—on the public, for the public good. It is not of course probable that Mr. Archer could have foreseen all the advantages likely to accrue from the use of his agent; but many were obvious at first sight, while many of its superiorities over every other menstruum in use, were immediately discernible. To acknowledge the value of the gift and the spirit of the donor—for adequate reward would be impracticable—we would therefore call particular attention to the subscription list, now open at our office, and announce that we shall be happy to receive further contributions.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—Since reading my paper on Pyroxyline at the last meeting of the Liverpool Photographic Society, I have been favoured with a view of some of the latest productions of the Photogalvanographic Company, and was very agreeably astonished at the beauty of the prints. I feel bound in all fairness to retract the rather slighting remark I made in that paper; and am convinced that so beautiful a process will soon supersede the ordinary photographic printing, guaranteeing, as it does, the absolute permanence of the proofs. The most minute details were faithfully given, and with a greater amount of half tone than would be produced from the finest collodion or albumen negative by an ordinary photographic printer, in the majority of his copies.

I am, Sir, your most obedient Servant,
GEORGE R. BERRY.



To the Editor of the Liverpool Photographic Journal.

SIR,—Having constructed a very convenient and useful camera for taking stereoscopic pictures, I send you a sketch and short description, thinking it may interest many of the readers of your valuable Journal.

The accompanying engraving is a horizontal section of the instrument, with a part of one of the tubes broken away to show the position of the lenses. The camera box A, and slide B, are very similar to those of most cameras, except that they are wider and shallower, to suit the glasses for the double pictures of ordinary stereoscopes. The novelty in this camera consists in the lenses being only three-quarters of an inch in diameter, with a focal length of four and a half inches. A simple lens, made of rock crystal, with the relative curvature of its sides as one to six, is mounted with the convex side outwards in each of the two tubes C. At D these tubes C are made to swivel horizontally upon pins above and below the centres of the lenses D. The centres of the lenses and tubes are placed at the distance of two-and-a-half inches apart, which is equal to the distance between the centres of the eyes. The tubes C are connected together by two links E, of equal length, each jointed at one end to the outer end of one of the tubes C, and at the other end to each other by means of a pin and small bush-piece F, which last is made to slide upon a rod G, placed centrally between the two lenses, and in a horizontal position at right angles to the line passing through the two lenses, and to the slide and plate B. The tubes, with their connecting links, are fitted inside a rectangular brass frame, which is screwed by a flange to the front of the box A, having a casing projecting forward to receive a cap H, which entirely excludes light from the lenses when required. A diaphragm, I, of thin opaque India-rubber cloth is attached all round to the sides of the box A, by means of slips of wood, and is formed with two apertures through which the inner ends of the tubes C are passed, the cloth being secured between flanges J upon the tubes. This arrangement prevents all light from entering the camera except through the lenses, when the cap, H, is removed for the taking of the photographic picture. The operator, when taking the same object for a stereoscopic picture, has simply to turn the screw K, which passes through the side of the box, and is attached by a swivel nut and short link to one of the tubes C. This action causes the tubes to assume any desired angle to suit the distance from the camera of the object to be taken, the proper position being easily seen by means of the images thrown upon the ground glass at B. The two pictures are then focussed by means of the screw L, which adjusts the back part of the box A, carrying the slide B. The two views are then taken in the usual way as one picture, in the same time and under precisely the same circumstances.

It will be seen that this instrument possesses many practical advantages over most cameras now in use, for taking stereoscopic pictures, combined with great simplicity of construction and easy means of adjustment for taking views at any distance, and for taking two views of the same object simultaneously and in a proper manner. For giving the true stereoscopic effect no calculation is required, as the distance of the object or the angle of the lenses to suit each particular distance; in fact, this improved instrument reduces the taking of stereoscopic pictures to nearly the simple mechanical operations necessary for taking ordinary photographic pictures.

I am, Sir, yours truly,

GEORGE THOMSON.

26, *Glassford Street,*
Glasgow, 27th Oct., 1856.

To the Editor of the Liverpool Photographic Journal.

SIR.—Photography, after much labour, patient investigation, and unwearied application, has at last passed the fiery ordeal which innovations on old plans and practices have commonly to battle with, and now occupies the seat filled by the portrait miniature painter In the following remarks I have attempted to justify the position taken and held by almost universal consent, and it now only waits a more successful rival to dethrone it.

A portrait, whether the work of the pencil, the brush, or the sunbeam, should have poetry for its basis; this should be seen in every feature, fold, and accompaniment, but how rarely do we meet with artistic pretensions, to say nothing of artistic excellence. Instead of this there are distorted proportions, ungrateful combinations of colour, with features in the one case untruthful or flattened in photography, representing the original as escaped from a madhouse or pining at the temporary absence of his lady-love. Who would spend his critique on the claptrap runabout (?) who even impudently takes as much as twelve pence for a hideous deformity? or, what artist who invites the sunbeam to fix his friend, when expressing the choicest sentiments of the mind, that would criticise on the tyro who paints toes for fingers, stone for flesh, and anything to serve for drapery? All, drawing comparisons between painting and photography, should surely do so only where poetry breathes as it were from the production, who follow art for the love of it to a great extent rather than gain.

Both miniature and photographic portraiture have distinctive merits, but the latter so far excels the former that it has driven it out of the field of competition, and justly so, for it accomplishes quicker and better, nearly all that the painter can, and wherein it falls short is of little importance or not discernable by the most fastidious eye. Where is the artist who ever copied the human face with perfect truthfulness? A defect scarcely applicable to photography, a defect, too, of the highest importance, greater or lesser according to the ability of the artist, but manifest in all, and one which poetical license will never remedy. A photograph often displeases its owner because of its truthfulness; the camera (refusing to take liberties with its patron) represents what is set before it, whilst the painter is unjustly extolled because, to hide his own defects or to please another, he flatters or misrepresents.

A painter takes a likeness of one having the most speaking feature of the face, wider than is congenial with ordinary notions of beauty; what an error would be committed should there be a compliance to the letter of the request; consequently, regardless to some extent of truth, your painter submissively bends to poetical license, a request truly laudable in its place, but most unlawfully tampered with, on the subject in question. In the majority of cases other features and expressions are similarly tampered with, though it is a fault admired by many most interested in the likeness, for reasons which need not be named.

Photography does nothing of this kind; it copies correctly what is set before it, inviting the operator to aid by his judgment with artistic effects. He studies artistic attitude, artistic dress, and artistic accompaniments, and, above all, the characteristic expression most commonly assumed, and thus the likeness is secured without, as has been falsely asserted, exposure to a glaring light, in less than two seconds, sufficiently short to catch an expression though more than commonly volatile.

It has been said that it is impossible for a person to sustain an expression the most favourable for certain likenesses, even less than a second; I shall not comment on this assertion, being persuaded that it is indulged in from ignorance, or vexation of spirit at the encroachments, or superiority of a sister art. Some may disregard and count these remarks as valueless, but facts already prove that photography has all but driven the miniature painter from the field of competition, and long ago would he have been *non est*, did not flattered features keep it alive.

As to the superiority of collodiotypes when tinted, I have specimens which, as to artistic effect and characteristic development of mind pourtrayed in the countenance, far exceed the production of first-class mintatures. Our rival from some cause, we stop not to ask what, acknowledges photography as a help, and courts our aid wherein he fails. We claim the lead, just reversing the order of things, merely borrowing the brush to complete what in other respects has so nearly reached perfection. The days of soot and whitewash are gone, as is also the reversed picture as applicable to the face, hair, and hands, with other difficulties which the art had to contend with in its embryotic state.

I may name another reason or two why miniature painting, at best an imperfect art, should, as well as must, be lost sight of. I allude to the expense and enormous sacrifice of time it involves. I have heard that Sir J. Reynolds had fifty sittings from a late noble duke, probably two or three hours a sitting: that Canning's head cost the artist longer than this: a nobleman sat twelve times for his cravat alone: a lady had to be motionless as a statue in order to transmit her dress to posterity. If an artist who stood almost alone, as a successful painter, required so much time for one picture how few could possibly benefit by his best productions, some dozen or two of which would occupy a lifetime to execute? And then how few could afford two or three hundred guineas for a picture. But what becomes of the second, third, and fourth rate artists? Surely I do not exaggerate when supposing that, what with rubbing out and rubbing in, half a dozen portraits during a lifetime would be as many as one man could reasonably hope to finish. These difficulties, of course, are no objection to an art, simply as an art, but they make it practically valueless to a certain extent. Again, where so very few are at the best of times to be found competent to follow the art successfully, it is probable that at certain times the country would be left minus an artist who could hand the "phiz" of our friend down to posterity.

The above remarks would probably not have been penned had not our rivals told us that a photograph likeness was a sham rather than a reality, especially as contrasted with portrait painting.

Unfortunately the country is inundated with hundreds of mere mechanical tyros styling themselves photographers. I should not have insulted the art by naming it in connection with such, did not our rivals, I fear at times, point to them as proofs of what a most beautiful and perfect art does daily accomplish.—Believe me, Sir, yours respectfully,

JOHN HELE.

Ashburton, Devon, Oct. 25th, 1856.

To the Editor of the Liverpool Photographic Journal.

SIR,—Mr. Jones, of Birkenhead, communicated in your last number portions of a most excellent letter from a mutual friend, Mr. John Scott, of Galway. In this letter Mr. Scott says he thinks I have misled him in my paper, as to the time of exposure required in the waxed paper process I use, and that his subjects require much longer exposure than any mentioned by me. I can only reply that I exhibited various negatives when I read my paper, and gave the several times of exposure correctly, stating the subjects, light, &c.; and from all I have seen of the work of other photographers I am sure I have not stated anything but facts.

Mr. Scott then speaks of a ravine extending from the sea, with a cave underground, &c. Now it must be self-evident to any photographer that a subject like this would require far longer exposure than an ordinary object lighted by the direct rays of the sun, and I am not surprised that he found it underdone with the exposure he gave. As a parallel instance, I may mention that during the past summer I took, one morning, with collodion, some fine negatives of Edinburgh Castle, from the esplanade in front, in two seconds, but on attempting to take a gateway under the castle rock, with the rock on one side and a high wall on the other, though I gave ten seconds, at the same hour, and with same lens and stop, I found on developing only a weak *positive*, though I gave five times the exposure of the other *negatives*. Many photographers do not sufficiently bear in mind the difference of subjects they take, and I conceive it due to myself to give this explanation of Mr. Scott's difficulty.

A practical photographer having mentioned to me a difficulty he had met with in preparing his collodion, and having requested me to give a reply to his queries in the Journal, I think it will be best to do so in a form which may be of service to other photographers. His difficulty was, that having employed iodide of *potassium* in iodizing, a portion remained undissolved, or as I have repeatedly found in my own experience, precipitated, on a lowering of the temperature. Now, I stated, on seeing the collodion, that the alcohol and æther employed were *too pure* if potassium salts were used in iodizing. Iodide and bromide of potassium require water for their solution; they are *not soluble in æther nor in absolute alcohol*. The corresponding salts of cadmium, ammonium, calcium, &c., on the contrary, will dissolve in a mixture of *pure anhydrous* æther and alcohol, and it is therefore quite possible to obtain, with these latter, an *anhydrous collodion*, but collodion iodized with potassium salts *must contain a portion of water*. Now, my advice to my friend was to employ a remedy, which I have often used with success, viz. to add a drop or two of water to the collodion; the exact quantity is difficult to determine, but he appears to have exceeded it, as he informs me that the film is now reticulated, "*especially in the dark parts*." Here, I may remark, *en passant*, that it is in the *darks* of a negative that reticulation *must be seen if it exists*, as its essential nature is the separation of the film into fibres, through the interstices of which the light passes, forming a reticulated film. After speaking of this fault, he goes on to say that after trying various experiments, he added *caustic potash* to the collodion, which removed the superfluous water, and with it of course the reticulation; he then adds that this seems opposed to my theory, and requests explanation. Now it seems to me that his experiment proves only that he added *too much* of a remedy, which he must admit was successful as it removed the previously undissolved salts. When the caustic potash was added to the collodion, it removed a quantity of *water*, but at the same time, no doubt, all the iodide of potassium, which was *before* insoluble, became after the action of the potash, withdrawn from the collodion, and dissolved in the aqueous solution of potash, leaving the collodion of course more weakly iodized than before, and probably in the same condition as if he had poured off the collodion at first from the undissolved salts. One thing is, I think, from long experience, *certain*, that you cannot dissolve potassium salts to any extent in anhydrous collodion; and the quantity of water necessary to dissolve some four to five grains of potassium salts, to each oz. of collodion, approaches *so nearly to the amount*, which is sufficient to *injure the structure of the film*, that great care is required to preserve the exact equilibrium. I have always myself used potassium salts, they being more stable than ammonium, and giving I *fancy* more intense negatives than cadmium or calcium, (though I am not prepared to say this is necessarily or always true,) but I have often found it difficult to prevent, on the one hand, injury to the film from too much water, and on the other, from precipitation of the salts; when collodion, iodized with potassium salts, is saturated with them, a slight change of temperature will cause a cloudiness sometimes hardly perceptible, but if collodion be used in this state, the picture will be full of spots. These facts seem to me to point to the advisability of using other compounds instead of those of potassium. I do not wish to be accused of trying exclusively to make practice suit theory, and overlooking *practical facts*, but rather to adapt our practice to sound chemical principles, which are in their turn derived from the observation of experienced philosophers, and I hope this short paper may do something towards this very desirable result.—Believe me, dear sir, truly yours,

23, *St. James's Square*, G. R. FITT.
Edinburgh, Nov. 3rd, 1856.

THE

LIVERPOOL PHOTOGRAPHIC JOURNAL.

Vol. III. No. 36.—DECEMBER 13, 1856.

It has long passed into an adage that photographers are notoriously of a gregarious habit. There is scarcely a pursuit of a scientific character that leads men so much to congregate, for the interchange of ideas as this. The rage for societies, therefore, is greatly on the increase, and Birmingham has at length imitated Manchester in following the example set by Liverpool, three years ago. As the taste for its practice is in the same ratio as its farther adaptation to the purposes of usefulness, and its greater expansion on the score of pleasing effects, it may be expected that ere long every town in England, will boast its enthusiastic coterie, displaying the work of their deeply-dyed digits. Accordingly, exhibitions are springing up in every quarter—unfortunately most of them occur at the same time—and the bewildered operator scarcely knows where to astonish the public gaze with his pet productions. We have inducements held out for the London, opening on the first day of the ensuing year; the Paris, about the same time; and the Edinburgh, the 20th of December, the particulars of which we will endeavour to find space for, whilst we regret their arriving too tardily for our last number.

The most earnest endeavours are everywhere being made, to secure some really conservative form that may be safely relied upon, to enable the casual practitioner to return with success after an expedition with a portable form of apparatus. Our last number contained a formula from the French, by M. Molard. We present another from Dublin, by Mr. Sparling. Both are very promising in appearance; but having tried the first without success, we fear the second also, because it, too, contains the ingredient that induced that failure. We still persist in the idea that the presence of acetic acid in any process is antagonistic to its keeping qualities. This may be obstinacy—ignorance if you like,—but we think so. We have the authority of Dr. Dundas Thomson, and others, for regarding æthers as "compounds of organic radicals, and an acid," therefore of a saline character. How, then, can their integrity be preserved by a prolonged addition of a farther acid? The hypothetic character of æther is oxide of ethyle; in the case of methylated æther, now generally used, there would also be an oxide of methyle. The admixture of acetic acid must evidently decompose and alter its entire condition; but if the objection be deemed too theoretic, we have a very material one in the fact, that it renders the most substantive film rotten and tender. It is argued, that the collodion has parted with its æther in the bath—and the cotton is partially soluble in the acetic acid: whatever be the conjecture, the effect is indubitable. Now, the excellent preservation of the film, by use of the gelatine, greatly enhances its qualities; but even to this, we would again, in part, demur; so greatly is it to be depended upon, that any cavilling at it will make our readers exclaim—

"Rank heresy by this light."

Granted, *by this light!* no objection can be raised to it. No process that we have tried is so suited to the feeble light of winter; but, query—with the bold contrasting light of a summer day, what say ye? How many of us have been lost in admiration at the intensity of the shadow, the brilliancy of the high lights, and the quality of the delineations; but who has seen a soft or artistic print from one? Do they not too vividly recal the days of soot and whitewash; and where honey would act, capricious ingredient that it is, nothing like this could be urged against it. A very able and discriminating communication appeared in the

Notes, to the effect that honey was preservative, just in proportion as it was spontaneously liquid: that the correspondent had tried three portions of the same sample, the first liquid and pellucid, the second partially so, requiring to be diluted with water to separate it; and the latter, the thick crystalline mass at the bottom, requiring actual solution in warm water to render it fit for use. The first was uniformly successful, the second partially so, the third almost a total failure Can any one endorse this by confirmatory experience? For ourselves, we think, "*se non e vero e ben trovato*," and are very desirous to put it severely to the test.

A brief tribute to the excellence, richness, and durability of the proofs of the photo-galvanographic company, was offered in Mr. Berry's letter in our last; but a farther inspection of the admirable specimens submitted to us, demand much more impressive notice; yet nothing that can be said in so short a space will do more than scant justice to their beauty. The subjects selected were such, that nothing but the unimpeachable fidelity of the camera would delineate; such as trees full of leaves, or the reflection of innumerable objects in calm and placid water. Though we are assured that the process undergoes repetition, as many as four times in the form of production and re-production, so that the delicate tracery might be expected to be lost, or at any rate blurred, thickened, or distorted; yet the whole is rendered in all its original variety. The bold, deep, indelible black of printing ink, repeating as faithfully and as infinitely as the camera had done, all that attracted the eye of the artist. Nor had the temptation, which the great facilities for re-touching that the graver offers, been yielded to, except in trifling instances, to make good slight defects, which we may all deplore, in the best negatives. One, the Venus de Milos, from a wax-paper negative, 14 × 9 inches, we are positively assured, was wholly untouched, and rivalled the best copper-plate we have ever seen.

The effect of seeing photographs in printed ink, as has been tersely said elsewhere, has in it something remarkable, and may offer much matter for gratulation; whilst we have so little reason to consider our productions lasting, till chemistry has accomplished more imperishable results, we may be thankful for the aid of the sister science, electricity; her work at least is something tangible, and better fitted for the hard wear and tear of the printing frame. The severe critic may yet find fault with the placing and general effect of figures As a leading paper has remarked, in photographs of whatever kind, either the pictures represent the city of the dead; lonely deserted solitude, no trace of "the human form divine" being visible: or else, figures in ungainly, impracticable attitudes, busily affecting to do nothing, and evidently, by their constrained position, ardently desiring to be in motion; so that though they were ready enough to cluster into groups, such as no accident or worldly matter could possibly have congregated them in, the inevitable consequence to all parties is disappointment and dissatisfaction at the want of harmony produced.

Now if anything could justify the etching tool it might be to introduce something more life-like in the animate parts of a fine picture: on the same principle that good landscape artists get brothers of the pencil who excel in anatomical proportions to work in human figures or animals for them; it is scarcely within the province of a work on photography to advocate this, but it deserves consideration.

Our present number should be inscribed with the letters P. P. C., for the time has come, "*pour prendre congé*," on the part of the present proprietors: the Journal will pass into other hands, and our readers will know us no more. Commenced just three years back, under most unfavourable auspices, by two or three daring individuals, who, like Nelson, on finding himself unfaithfully reported or altogether neglected, determined to have "*a gazette*" of their "*own*," this serial has, by untiring zeal and unflinching impartiality, won its way through most unpromising circumstances, into a world-wide reputation. As the object of the promoters has been so entirely eclectic, every process that has been promulgated has been inserted either with the name of its proposer, thus leaving the public to judge of its merits, or if the questions were at all debateable, the most discriminating judgment has been brought to bear on it, and it has been tested by repeated experiments. As all are fallible, doubtless many errors have crept in; for this we apologize; but our best assurance is the share of public favour received. As every consecutive number has been arranged and concocted over the same circular piece of mahogany, we may confess to much of the like sorrow that the Arab felt for his cherished steed when it was passing into the hands of strangers; but the unlettered child of the desert had only to combat with the mere cravings of poor humanity, and might still retain the object of his regard; to us, however, the hard exactions of civilized life are inexorable; to the claims of the community we must succumb. The circumstances that induce this change are detailed in the proceedings of the Liverpool Society, and need not be expatiated on here; our only remaining duty is to introduce our successor To do this with effect we have but to mention his name. Mr. CROOKES has already rendered himself famous to all the world by his intelligent and talented experiments in photography: into his hands we resign our task, wishing him all the success his enterprise, and that of the future proprietor, so richly deserve.

We now leave Mr. Crookes to speak for himself.

With this number the present management of the *Liverpool Photographic Journal* ceases, and I take this opportunity of introducing myself to its readers as the future Editor.

My name has so frequently appeared in the Journal, side by side with the names of those skilful and energetic fellow-cultivators of our fascinating art, whose contributions have so materially enriched its pages, that it seems as if I were, by this step, converting previous acquaintances into friends, rather than forming acquaintances for the first time; and I feel convinced that in asking for the kind indulgence and continued support of the former readers of, and contributors to, the Journal, I shall receive that assistance which has hitherto been so liberally bestowed.

Another change, long contemplated, will be carried out at the same time; that of issuing the Journal bi-monthly, viz. on the first and fifteenth of each month. The new and important facts which are almost hourly coming to light in every nook and corner of our island, seem to demand something more than a monthly report from a Journal which has the high honour of being, not only the photographic organ of the provinces, but also no mean rival of its great metropolitan contemporary.

It is also intended to devote somewhat more space to the answers to correspondents than hitherto. Many minor difficulties, trifling when satisfactorily cleared up, but till then amounting to little less than a total stoppage of work, may often be set right in a few words, when the aid of older experience or greater scientific knowledge is invoked. It shall be my endeavour, to the best of my ability, to render aid in such a manner that useful information may as much as possible be given to all. A long and practical acquaintance with most of the experimental sciences, together with the advantages which a residence in the metropolis necessarily affords me of acquiring scientific information at the fountain head, are such as to render any great deficiency on my part, in carrying out the above intentions, rather a fault than a misfortune.

WILLIAM CROOKES.

All Editorial communications for the Journal are requested to be sent to MR WILLIAM CROOKES, 15, STANLEY-STREET, BROMPTON, LONDON. *All correspondence on the* business *of the Journal to be addressed to* THE PUBLISHER, 16, CANNING PLACE, LIVERPOOL.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

THE usual monthly meeting of the Society was held at the Royal Institution, on Tuesday, the 2nd of December, 1856, Mr. Corey being called upon to preside.

The "Transactions of the Historic Society, for the session 1855-6," were received as a donation from the Rev. Dr. Hume, Honorary Secretary of that association. The thanks of the Society were ordered to be transmitted to Dr. Hume, and recorded in the minutes.

The CHAIRMAN observed that he had been trying the new process of M. Molard, described in the last Journal. He had found the film very brittle, whether from the addition of acetic acid remained to be seen. A new preservative process, mixing dextrine with honey, with a large amount of iodide of potassium, had also appeared.

Mr. FORREST thought that Dr. Norris's gelatine process would answer the best expectations of photographers. It was extremely simple, and he believed the want of half-tone, so much complained of, arose from not covering their lenses rapidly enough, as the process was very much quicker than some seemed to imagine. He had seen some negatives taken by Mr. Cauty and a gentleman from Manchester, which were exquisite in half-tone.

The CHAIRMAN thought Mr. Forrest's suggestion very good. He himself took a gelatine picture on the 28th, and succeeded tolerably well, although the sun did not shine any part of the time. [Mr. Corey produced the negative so taken.]

Mr. FORREST, after looking at it, pronounced it to be a very good negative, but noticed indications of small cracks in the sky, and asked if any gentleman could point out the means of preventing them?

The CHAIRMAN would be very glad if any one could do so, the cracks being a defect to which some kinds of collodion were unfortunately peculiarly liable. Many suggestions had been thrown out by experienced photographers, but he believed this defect was as great a mystery as ever.

In answer to Mr. Forrest, as to the formula employed, the CHAIRMAN said that the gelatine process was only dissolving four grains of gelatine to the ounce of water, and steeping the plate in the solution seven minutes, having previously well washed it. Reference to the September number of the *Liverpool Photographic Journal* would give the full particulars as at present known from Dr. Hill Norris. He (the Chairman) had experimented with every available form of gelatine, but had found that fine artists' glue gave by much the finest, most transparent, and most susceptible kind of coating. The exposure of the negative produced was four minutes on an extremely dull day, the plates having been kept four days before. On a summer's day one minute was sufficient.

Mr. THOMAS said he had tried the gelatine process in four instances, and he had obtained a good negative every time.

The CHAIRMAN also produced negatives of Seacombe Ferry and Church, Conway Castle, and other views, taken by the gelatine process. They were very fine as negatives.

Mr. BERRY wished to have it recorded that positives from gelatine were not equal to what they might suppose negatives would yield. He desired that to be borne in mind, and, indeed, he asked whether any of them could say that he had yet seen a satisfactory print taken from a gelatine negative. He, for one, had never seen any such thing. There were some propositions from Mr. Shadbolt, in the last week's *London Photographic Journal*, which seemed to strike at the root of the possibility of success with the gelatine process; and from what he (Mr. Berry) had seen of the results of the process, he was induced to think that there was great truth in it. It was this—they had their glass plate coated with collodion and immersed in the silver bath as usual; it was then taken out and all the superfluous silver washed away, and it was then put into a bath, or a solution of gelatine was poured over it. It had always been understood that, to produce a soft and rich picture with collodion, they must use a certain portion of free nitrate; if that was all washed away, they had illustrations of the consequence in the hard pictures which had been exhibited. The Chairman had referred to a new process, by Sparling, of Dublin, which was a counterpart of Taupenot's in another form; the success of which latter Mr. Shadbolt had attributed to the double coating of sensitive matter—there was first the iodized plate sensitive, and then the albumen. He (Mr. Berry) thought there was a great deal of force in that.

The CHAIRMAN asked Mr. Berry whether he supposed they could preserve as well with honey as gelatine, when washed as well, and if the positives would then be as hard as those obtained with gelatine? Whether, in fact, it was the washing away the free nitrate that constituted the hardness?

Mr. BERRY replied in the affirmative.

Mr. FORREST begged to make a remark before that *dictum* went to the world. He did not think that the gelatine required more washing than the honey plates. It struck him that justice had not yet been done to the printing from the gelatine negatives, and at the last meeting he asked them to suspend their judgment until he had printed from one of Mr. Corey's negatives.

The CHAIRMAN: It is indispensible with gelatine that it must be thoroughly washed, or there would be very objectionable staining. The pictures he had produced had a strong gush of water poured upon them from the tap.

Mr. BERRY observed, with regard to Shadbolt's honey process, that it was usual to wash the plates in a weak solution of silver, so that some of the nitrate was always left on.

Mr. FORREST said this question was of the greatest importance to photographers, and he could not allow that opportunity to pass without expressing his admiration of the conduct of Mr. Shadbolt for giving the gelatine process a good name, though the author of the honey process himself.

The CHAIRMAN produced a number of photo-galvanographic prints, and read the following description of the process:—

"A positive photographic print is first taken, generally on paper. In order to produce from this a copper-plate, the following operations are employed:—

"1. A sheet of glass is coated with gelatine containing bichromate of potass, and othe, chemicals. When dry, the positive is laid on it face upwards, and it is exposed to light in a pressure frame for a few hours. The time of exposure of course depends on the intensity of the light. Sunshine is preferred, but is not necessary. The picture on the gelatine is developed in raised and sunk parts by immersion in a fluid, the principal constituent of which is water. Where the light has *not* acted, the gelatine swells and forms a ridge, or a series of minute granulations. Where the light *has* acted, the gelatine is hardened and does not swell. The picture on the gelatine is very curious, and resembles a positive by reflected light, the shadows and dark parts being rough, and the lights smoothed and polished.

"2. A mould of the picture on the gelatine is taken in gutta percha. This mould is an intaglio picture, precisely resembling the finished copperplate. The gutta percha mould is about half an inch thick.

"3. A copperplate is made from the gutta percha mould, by means of the electrotype process. This part of the process is very slow, occupying perhaps a week or two. The copper-plate thus obtained is called the matrix. It precisely resembles the original gelatine picture.

"4. The copper-plate from which the proof is to be printed is now obtained by the electrotype process from the matrix. This is a slower process than the last, because the copper is much thicker. It occupies about three or four weeks.

"The entire process therefore occupies about six weeks in the production; but every stage admits of reproductions, for many copies may be taken of the gutta percha matrix; these, repeated, by multiplication of the electrotype, so the pictures may be furnished *ad infinitum:* no amount of detail is an impediment, neither are the subsequent stages dependent on light. Chemistry and electricity will do more in a few weeks than the engraver by the labour of many years."

The prints were much admired.

The CHAIRMAN drew the attention of the members to a notice calling a special meeting of the Society, on the evening of the 23rd inst., for the purpose of considering what steps should be taken in consequence of the retirement of their excellent friend Mr. Bell, the treasurer. He was glad to announce that the Society was now out of debt. Numberless shortsighted, he might say invidious, persons, had been ungenerous enough to assert that the proprietors of the *Photographic Journal* had used the Society's funds for carrying it on. He begged distinctly and emphatically to declare that the reverse was the fact. After the sacrifice made by the trustees there still remained a balance of £60 against the Society, and the proprietors of the *Photographic Journal*, finding that all their appeals to the members were not responded to in the manner they could have wished, had sacrificed the Journal, by selling it to pay off the liabilities of the Society. The Journal was no longer the property of any member or members of the Society, but had passed into the hands of Mr. Greenwood, who was the chief claimant against the association. He (Mr. Corey) had had the honour of partly conducting the Journal from its commencement, and entirely from April last to the present time, but it would in future be under the management of Mr. Crookes, whose name would be familiar to them all. He begged also to intimate that the Society would have to seek another corresponding secretary, as he found he could no longer devote the time to the duties of the office. At the meeting, on the 23rd instant, it would be for the members to say whether the Society should be continued on its present basis, or whether they would accept an intimation which had been thrown out to join the Historic Society.

Mr. FORREST said it would be well to state that the Journal never was the property of the Society. The Society, misguidedly, had refused the responsibility.

The CHAIRMAN, in reply to a question from Mr. Burgess, stated that the present proprietor was most anxious to keep up the impression that it was the organ of the Society; its pages would be open to every member as heretofore, and in all probability it would be published fortnightly, in order to record the meetings of the London, as well as of the Liverpool, Photographic Societies.

Mr. BERRY intimated that he should also decline to be re-elected next year. With regard to the proposition emanating from Dr. Hume, as to their joining the Historic Society, he observed that if any member waited upon Mr. Forrest he would give them every information in his power touching the matter.

Mr. THOMAS suggested that any information which the Society might possess, might be laid before the public in the newspapers.

Mr. BERRY observed that, seeing the officers had already paid about £200 out of their own pockets, he did not think they would be justified in going to the expense of advertising.

Mr. THOMAS thought it might appear as a matter of news.

The subject was then allowed to drop.

Mr. FORREST described a number of experiments he had made with the new process published by Mr. Sutton.

Mr. BERRY then proceeded to lay the following important observations before the members, on printing in general, but having especial reference to Mr. Sutton's new process:—

"I wish to throw out a few preliminary practical observations on photographic printing in general, before entering upon the discussion of the new development process, requiring 'no toning by gold or old hypo,' believing, as I do, that a vast proportion of the fading impressions might have been prevented by attention to the chemical changes involved in the various formulæ for producing positive photographs, more especially as regards the perfect removal of the silver compound, unaffected by light or development, as well as the secondary chemicals remaining, formed by the primary preparation of the paper. I would suggest, as a preliminary experiment, that a piece of ordinary photographic paper be soaked in any coloured solution, such as sulphate of indigo, bichromate of potash, saffron, &c., or anything that is capable of being completely removed by the affusion of water without any chemical reaction taking place.

"Take a piece of paper thus coloured, and dry it in the usual manner, and then attempt to abstract the colour by washing in the same manner as photographs. I apprehend the difficulty of completely removing the colouring material will indicate, by comparison, how very imperfect the fixing of positive prints has been.

"We may now examine the chemistry of the ordinary printing formulæ, and then compare with the baryta process just now in vogue.

"1st. The paper is salted with either chloride of sodium or ammonium, and dried; it is rendered sensitive by the application of solution of nitrate of silver in excess. The chemical changes are as follows:—

"Chloride of sodium or ammonium, with nitrate of silver, produces chloride of silver and nitrate of soda or ammonium; nitrate of silver being in excess.

"The residuary chemicals, nitrate, soda, silver, to be removed by washing, are in this formula very soluble in water, and when toned by the *sel d'or* bath, the unaltered chloride of silver is easily soluble in the hyposulphite of soda, which is to be removed by the subsequent washing.

"For a very considerable time, *vide* Hunt, the chloride of barium has been proposed as a salting chemical, producing excellent tones in the finished photograph, long before the gold toning was introduced by Mr. Sutton, and also long before colouring by the old hypo bath was comprehended. Its peculiar properties, according to its most recent advocates, were, that photographs thus printed, either by the sun or development, yielded pure blacks with a new hypo bath without gold or any other toning agent. Let us see whether the results produced are satisfactory in a chemical point of view. We will take, first, the ordinary sun printing process. Paper salted with chloride of barium, sensitised with nitrate of silver, contains in the dried sensitive paper,

Chloride of silver,
Nitrate of baryta,
Nitrate of silver.

This is exposed in the printing press, and commonly, without washing, plunged into a solution of hyposulphite of soda, the resulting finished proof being generally of a black tone. If we take Sutton's new baryta development process, the same decompositions result, with this addition, that the reducing agent, gallic acid, is even more likely to aid the liberated nitrate of baryta to exert its intense affinity for sulphuric acid, thus decomposing the hypo solution, liberating sulphur compounds, so that the finished proofs are toned with sulphur, and, from the limited solubility of the baryta salts, rendering it almost impossible to thoroughly wash away the residuary chemicals."

A vote of thanks was, by acclamation, voted to Mr. Berry for his valuable practical observations, and the meeting adjourned.

LONDON PHOTOGRAPHIC SOCIETY.

The second meeting of the session took place on Thursday, the 4th December, 1856, Sir W. J. Newton in the chair.

The minutes of last meeting were read; new members were then ballotted for; notice was given of the Exhibition in January, in reference to which the chairman wished to remind exhibitors that they had but a very limited space at their disposal; that they had to refuse many valuable photographs last year, and he hoped they would not cover the walls with white paper; the size of margin ought not to exceed, with their frame, three inches.

A paper was read by C. A. Long on Modifications of the Calotype, Waxed Paper, and Printing by Development. The two former were merely recapitulations, with a little modification of his work, the latter a trifling alteration of Mr. Sutton's, adding only a few drops of lemon juice in the nitrate bath, which, by substituting citric for acetic acid, as Mr. Hardwich has shewn, has the effect of keeping the picture more on the surface; the base is barium dissolved in gelatined water, developed with gallic acid alone. No toning bath is required, the colour becomes equal to gold, the fixing bath consisting of only 2 ozs. hypo in 20 ozs. water. There is no fear of sulphur being left in the print. The proofs he exhibited were very fine.

A paper was read by the Secretary, from Dr. Hill Norris, enlarging on the subject, with further details, and giving the reasons why old collodion is preferable to new for his process, explaining the cause of failures, and suggesting their remedy. The learned doctor is prosecuting enquiries, and does not doubt but that it will at last be found as sensitive as moist collodion.

A paper was read by Mr. Hardwich, on the cause of the decomposition of the iodized collodion. This he attributes to an element in the pyroxiline, irrespective of acid or alkali, and he hopes soon to have more to say on the subject.

This finished the meeting.

MR. SPARLING'S DRY PROCESS.

At the meeting of the Dublin Society, on the 5th instant, Mr. Sparling gave the following detail of his Dry Collodion Process:—

Nitrate Bath.

Water	16 oz.
Nit. silver	480 grains.
Nit. acid	5 drops.
Acetic acid*	1 drachm.

Preservative Mixture.

Water	6 oz.
Dextrine	2 „
Honey	1 „
Iodide potassium	1 drachm.
Alcohol	½ oz.
Acetic acid	1 drachm.

Mix, first, the honey, iodide potassium, acetic acid, and water; boil and skim, then add the dextrine, giving another boil; and, before the mixture cools, add the alcohol, stirring it in well. It should be made some days before using, and filtered until quite clear, and refiltered afterwards whenever it shews a want of perfect clearness.

Developing Mixtures.

A.

Water	6 oz.
Nit. silver	5 grains.

B.

Water	6 oz.
Pyrogallic acid	18 grains.
Acetic acid	½ oz.

About 2 drachms of solution B and 10 drops of A are mixed for developing.

After coating a plate with the collodion, allow the latter nearly to set before immersion in the nitrate bath. The plate, when sensitized, is transferred to an upright washing bath, which

* Query: Beaufoy's acetic acid fortis?

is replenished with fresh water for each plate: it may be left in this bath while another plate is being sensitized; the plate is washed under a tap or stream of water, and drained with a "shake." The preservative mixture is now poured on, and caused to flow in a wave about four times up and down the plate, then poured off into a separate vessel, and the plate placed immediately in the drying box, the drying being conducted quickly, with the view of preventing the blistering of the film.

The plate is next to be re-sensitized by immersion for one minute in the same nitrate bath, and washing and drying quickly as before. After exposure in the camera, the plate is to be thoroughly wet (Qy. with water—Ed.) and the mixed developer poured on, increasing the amount of nitrate in the developer if required.

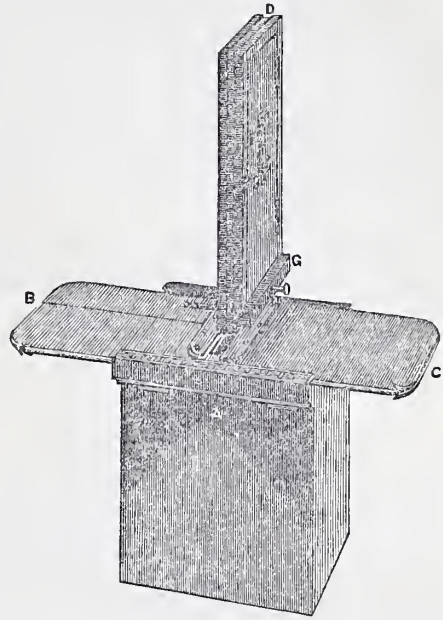
The drying box is made of tin plate, the under part is a water bath, warmed by a small gas-light placed underneath; the plates are held in a nearly vertical position resting on blotting-paper at one corner. The preservative mixture once used, is somewhat diluted by mixing with the water on the plate, but it may be restored by adding to its strength and re-filtering.

Mr. Sparling stated, that plates prepared by this process may be kept for almost any length of time before being exposed, and afterwards developed at convenience. To prove the latter, he has deposited an exposed plate, which he proposes to develope at the next meeting of that Society.

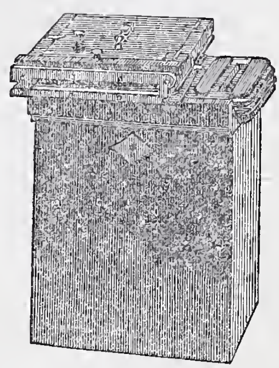
Ghosts in the Stereoscope. — Sir David Brewster says: For the purpose of amusement the photographer may give a ghostly aspect to one or more of his figures, and exhibit them as "thin air" among the solid realties of the stereoscopic group. While a party is occupied with what is serious or gay, a figure, male, female, or animal, may be made to appear in the midst of them with all the attributes of the supernatural. The figure might occupy more than one place in the picture, and different individuals might be made to gaze upon one or other of the visions before them. For this purpose the individuals in the group must have their portraits nearly finished in the binocular camera, in the attitude and with the expression appropriate to the occasion. The figure or figures, suitably attired, must then walk quickly into the places assigned them, stand a few seconds in the proper attitudes, and retire as quickly as they entered. If the experiment has been well performed the intruding figures will be shadowy and transparent and will have the appearance of supernatural personages. If one of the lenses of the camera be shut up during the latter part of the operation, the shadow figures will be formed only on one of the pictures, and they will be flat and without relief, if required. The beautiful effect of dissolving views may be obtained by executing binocular dissolving pictures, and combining them in the stereoscope, so that all the figures and objects may appear in true relief.

TRANSFER BOX FOR KEEPING PREPARED STEREOSCOPIC PLATES.

By Mr. HARDY.



A represents the box for holding the plates; B one of the lids; C the other lid containing the groove for attaching the dark slide; D the dark slide of camera; E a bolt and spring for keeping the plate in its place while exposed to the camera; G a small brass door.



A small table and camera accompanies it. The dark slide is so constructed that it will suit any other camera.

The mode of using the box is remarkably simple—the dark slide is attached by a groove on the lid, the under lid is drawn out, the box is then turned upside down, and the plate falls into the dark slide, the under lid is then moved into its place, and the dark slide is ready to be conveyed to the camera. The plates are returned by the same process, and removed to the next mark on the index, and so on till all the plates have been exposed.

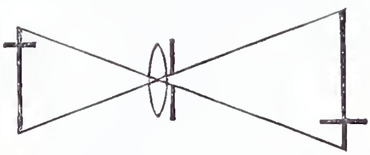
LARGE *v.* SMALL LENSES.

By Mr. W. Ross.

The large lenses are invariably plaintiffs in the suits between the above parties, and as a consequence, the small ones are put on their defence.

In reply then to the position of the plaintiff that "those who have discussed the subject have overlooked the circumstance which in practice produces the greatest diffusion, viz. the greater inclination of the marginal pencils when incident on the tablet when the smaller lens is used, and when the central oblique pencil occurs in comparison with the excentrical peucil employed when the larger lenses are used."

In reply, then to the above position, I would submit that every one admits the formation of a *sharp* image by the axial rays alone of this diagram, with-

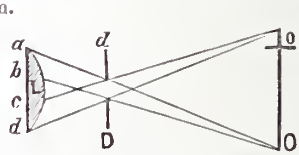


out any aid whatever from any excentrical pencils; and this even independent of any lens, large or small. I have no doubt all will understand that what I mean by an *axial* ray is intended to apply to the ray forming the axis of the cone of rays from any point of an object which has the surface of the lens for its base; which is always an *oblique* cone, except from that point of the object which coincides with the axis of the lens itself: in other words, the axial ray is that which passes through the optic centre of the lens.

An image would also be formed by the excentrical rays passing through a narrow zoue of the lens at its extreme margin, which would be greatly more illuminated than that formed by the axial rays alone; but I have never yet fouud a lens which would give so well-defined an image as that formed by the latter, and this also notwithstanding their greater obliquity of incidence on the tablet or plane of delineation. The exposed zone of the lens is understood to be of precisely the same width as the semi-diameter of the central aperture, the greater area of the zone admitting a larger quantity of light, while its aberrations (in a perfect leus) ought to be about equal to that of the central aperture when the diaphragm is close to the lens. As no lens will refract any rays from an object which exceeds an obliquity of more than 30° ou each side of its axis, it follows, that, until a shade is continued farther in front of a lens than is equal to its own diameter, none of the oblique or excentric rays will be obstructed; but after this distance is exceeded, not only are these rays entirely stopped, but the extent of field covered by the lens is also lessened in proportion as the angle subtended by the opening of the shade at the optic centre of the lens is less than 30°. The case is not precisely the same with a diaphragm having an aperture of less diameter than the lens, as the extent of field covered is not entirely dependeut on the diameter of the aperture; for this may be placed so far in front of a lens as to render the optic centre of a lens practically useless in forming an image, except from a very few poiuts immediately contiguous to the axis; the rays from these points thereby creating a circle of greater intensity and lightness on the impression, larger or smaller as the size of the aperture, and more strongly marked as the aperture is less, and more distant from the lens. In the diagram in the May No. of the *Liverpool Photographic Jouraal*, p. 76, is shewn three several positions of the diaphragm, whereby the stopping out of various rays are shewn, as at *a f*, where none but the central pencils are permitted to pass; at *c d*, where both central and excentric rays may pass; and at *a b*, where only oblique or excentric rays are permitted to pass, the central pencil being entirely cut off, as well as all the axial rays, from the extremities of the object.

The reason assigned by those who fit up lenses in this way, is, that the excentric pencils which pass through the margiu of the lens fall on the plane of delineation of the image with less obliquity than do the central pencils, as may be seen by the diagram referred to, where the rays B *e* I & O *f* M fall nearly perpendicular on IM, the plane of delineation. It would seem to be forgotten by them that these are the rays which are most amenable to *spheric aberration*, and that although they may fall more perpeudicularly on the tablet after sufferiug refraction, they yet fall most obliquely on the lens itself, previous to being refracted. As the actinic force is universally admitted to be the most refrangible of all the knowu forces in the solar light, is it not reasonable to suppose that this force is much more retarded or neutralized by its oblique incidence on the lens itself, than is lost by the secondary radiation or diffusion on the tablet after refractiou? When subjected to the test of direct experiment on collodion tablets, which are more easily prepared, of an equal sensibility thau those by any ether process, this will be found to be the case within all reasonable limits for the operator's practice. For all useful purposes where the excentric rays are used, the central portion of the lens may be perfectly opaque, aud indeed had better be so, if the central circle of light, already mentioned as being formed from the points of the object which pass in or uear the axis of the lens, will be considered as detracting from the effect of the impressiou. Experimenters who may wish to test the point, whether the axial or exceutric rays produce the best impression, can easily do so without requiring any further explanation.

That the excentric pencils or rays cannot form so clear an image on the plane of projection, as will those of the central or axial rays, is shewn by the figure where L is the lens, *Oo* the object, and *Dd* the diaphragm.



It will be seen that the peucil of rays from the point O will fall on the portion of the lens from *a* to *b*, aud cannot, from the nature of an ordinary leus, be refracted to the same point in the plane of delineation, so as to form a clear image, while the similar rays from *o* at the other end of the object will fall on the portion of the lens from *c* to *d* with the like result, and hence the necessity for as small an aperture as possible when the marginal pencils of a large lens are used for au impression iustead of the central rays of a small one.

Every writer on optics shews that the central pencils have less aberration of any kind than the marginal peucils, aud this deterioration of effect must be increased as the margin is distant from the axis of the lens, or in other words, as the diameter of the lens is increased in proportion to its focal length. Add to this, that lenses are indisputably less perfectly formed at their margin than at their centres, and an additional reason is thereby given for using the axial instead of the marginal rays of any lens; thence the inexpediency of employing large instead of small lenses, which latter are much thinner in their material, and much less costly in every way. Indeed the only *real* reason I can see for using the marginal rays of large lenses, is, that the larger area of the outer zone than of the central circle, lessens materially the time of exposure in the camera, although everyone knows such impressions are never so clear or distinct as when formed by the central pencils of a lens of any size.

CORRESPONDENCE.

To the Editor of the Liverpool Photographic Journal.

Sir,—Will you permit an old friend and subscriber to your journal to make a few remarks on the letter of your correspondent, Mr. Hele, contained in your last number? My object in so doing is not to widen dissension, but rather to calm the troubled waters. Mr. Hele has evidently been bitten by some rabid artist, or he would not have volunteered such an onslaught upon the unfortunate portrait painters, and especially upon some nondescript he calls the "portrait miniature painter." I have been referring to several of the late numbers to discover, if possible, some grounds for offence, but can see none. Whatever might have been the cause, I think it is to be regretted that any "feud" should have existed between the sister "arts" so well calculated to flourish harmoniously together, and at the same time to improve each other; but this desirable object can never be effected by encouraging such antagonistic feelings as appear to prevail in your correspondent's letter. Mr. H. appears to look with a jaundiced eye upon the whole fraternity of portrait painters; but I was not aware that the continued encouragement of portrait painting could be any bar to the successful career of photography, nor did I know that the knights of the easel were so near their final extinction until enlightened on the subject by your correspondent's letter. It is evident, however, if his predictions are well-founded, that their doom is fixed, they had better take warning in time, and (as the transition will not be difficult) turn photographers in self-defence.

Mr. Hele is evidently alive to any rivalry in his art, and he will pardon me in thinking that his remarks appear to be tinctured with a slight degree of vanity, as "*we take the lead*," "*it* (portrait painting) *should and must be lost sight of*," "*our* art," &c., are prominent passages in some of his paragraphs.

But let us examine for a moment the grounds whereon he predicts so confidently the downfall of portrait painting.

I will make no remark on "*his critique*" on art and photography, but simply recommend it for attentive perusal to our brother photographers. I may, however, remark, *en passant*, that the same subject has already been ably handled by Mr. Foard, a fact with which Mr. H. is doubtless acquainted.

Mr. Hele insists that portrait painting may be dispensed with, "because the camera can fulfil quicker and better *nearly* all the requirements of portraiture," which I respectfully take leave to deny. It is the province of art to accept the agreeable and reject deformities, an axiom especially applicable to portraiture. The camera, however, refuses to bend to such "poetical license," consequently its productions, though truthful in form, or nearly so, are, in other respects, generally crude and unpleasing.

The camera is an old friend of mine. I was acquainted with it before it commenced business as a photographer. I know well what it can do, and what it *cannot* do. One instance of its incapacity occurred here the other day. An Hibernian gentleman was desirous of sending his portrait to a lady in America. He had recently *had a difficulty* with a friend, and his nose, in consequence, had sustained a little damage. He was desirous, notwithstanding, that his nasal organ should be depicted in conformity with its original outline, but this request the camera positively refused to comply with, and his magnificent whiskers (so splendidly red that William Rufus might have envied them) the camera persisted in presenting to him black as jet! 'Tis true the photographer, to remedy the disaster, volunteered, as Mr. Hele observes, "*to borrow the brush*," smear them over with vermillion, "and *thus complete what, in other respects, had so nearly reached perfection*;" but this idea could not be tolerated for a moment. Here, then, was a legitimate case for the portrait painter, who was next appealed to, and who executed his commission to the entire satisfaction of his patron. This, no doubt, will be classed by Mr. H. amongst those dishonest practices wherein "*your painter submissively bends to poetical license*," but where is the harm in't?—surely a man may do what he likes with his own.

Some of Mr. Hele's *other reasons* why portrait painting should be extinguished appear to me to be rather frivolous. He has "*heard*" that a late nobleman gave Sir Joshua fifty sittings for his portrait! a gentleman sat twelve times for his cravat! and a lady had to sit motionless as a statue to have her dress handed to posterity! I should be sorry to give offence, but I cannot help thinking that the people in Devonshire are sometimes rather credulous. We, who are further north, sometimes reason on what we *hear*. For myself, I think I should understand it thus:—A late nobleman paid Sir Joshua fifty *visits* during the progress of his portrait; a *second* visit for the cravat, for obvious reasons, could have been of no service to the artist; and the lady, unless she had especial reasons for so doing, need not have sat at all, as artists generally have lay figures whereon to pose the draperies, in order to paint them with greater convenience. And pray, Mr. H., are not ladies placed in the stocks and desired to sit motionless as statues for their photographs also? But all this must have happened a *long time ago*. Artists are more expeditious at present. I can find a gentleman in Manchester who will paint Mr. H. a portrait in one sitting. He also objects to portrait painters because so few are to be found capable of understanding their business. "A portrait," exclaims Mr. H., "*whether of the brush or the sunbeam*, should have *poetry* for its basis." That is very true, and it is lamentable to think of the enormous amount of poetry which hangs neglected at the corner of every street. The concluding paragraph in your correspondent's letter I take to be a sneer at Mr. Hele's brother artists, who imprudently take twelve pence for their deformities. I advise Mr. H. to cultivate a more friendly feeling towards them. They may be striving for an honest crust, and their customers have feelings as well as the rich; and let me tell Mr. H. that some of these "clap-trap runabouts" are not to be *sneezed* at. I have just seen a beautiful photograph of a lady taken here for sixpence!! I was at a loss to know how the *artist* could make it pay until I was informed (but oh! tell it not in Gath!) he vends coals during the week and *photogises* on Sundays!!

In conclusion, I may just remark, for the satisfaction of those concerned, that similar predictions to those of Mr. Hele were hazarded sixteen years ago, on the introduction of the daguerreotype *All* artists were thenceforth to have been annihilated; and it may be remembered that two or three suicides were committed in consequence thereof. And how have these predictions been verified? I need not state that the *daguereotype* is all but annihilated, and the fine arts were never so flourishing, and likely to flourish, than at the present moment.

I am, Sir, your obdt. servt.,

JNO. BARNES.

St. Ann's Square, Manchester,
20th November, 1856.

To the Editor of the Liverpool Photographic Journal.

SIR,—Many photographers who do not puzzle themselves with statistics will doubtless be somewhat surprised, like myself, at the results I arrived at in examining the catalogue of the Photographic Exhibition, now open at Norwich, under the auspices of the Photographic Society of that city.

This exhibition contains (according to the catalogue) 360 photographs; some of these numbers represent two or four photographs in one frame, making the aggregate about 400. These are not purely local photographs, but embrace England, Wales, and Scotland, the Norwich photograohers being very inadequately represented according to the number of their members. Therefore we may take this exhibition as a very fair type of the state of the art, statistically, in Great Britain.

Out of 360, or more, photographs, there are a little over 60 from waxed paper negatives, about 25 calotypes, *only two* from albuminised glass; the remainder, about 300 in all, are collodion, as all the frames containing duplicates give the advantage to collodion.

This result surprised me, considering the many inquiries in the journals about the paper process, and the unalterable attachment professed by many of our brethren to the very worthy and orthodox calotype, and the belief which has, I know, taken root in the minds of many that the albumen process on glass was finding favour in England. The question arises, What is the cause of this neglect of the paper process? And is this result conclusive in shewing that photographers have found paper to be unable to do them and their subjects justice? Can we not find some useful hints from the figures above quoted? Both glass and paper have great and equal claims, and we should employ the two media respectively in the cases to which they are best suited. For near objects, where great rapidity is not required, paper negatives of the *first class* are so nearly equal to collodion in every respect, that the artist will generally be unwilling to incur the trouble and expense of carrying chemicals and glass with him on his journey, and the serious risk of having good negatives upon a material so annoyingly liable to accident. This is a serious objection, and adds to the more numerous class who adopt *paper* from motives of economy. Many of the subjects in the Norwich exhibition seem equally suited to paper as to collodion, yet the many eminent contributors have preferred collodion. Why? Not, as I believe, from the necessary or inherent defects in the paper *process* as such, but from difficulties they have met with, in uncertainty of result, in bad quality of negative, independent of its sharpness or otherwise, and last, but perhaps not least, from the length of time required to obtain a sure print *from* a paper negative; which difficulties it ought to be our earnest endeavour to overcome, as they doubtless may be, by the application of chemical knowledge to the subject on the one hand by the photographer, and by some scientific paper manufacturer on the other. No opportunity more suitable than the present can be offered for bringing these points under the notice of the photographic world. We have results before us shewing what paper in its present state can do, an exhibition shewing how little numerically it has done; and we have a long season of comparative inaction before us, in which we should try what *we can* do to bring the paper processes, beautiful as they now are in their results, to still greater perfection. In the present state of affairs I consider a very successful paper operator more highly than a very successful collodion operator, for the former has difficulties to contend with which are unthought of by the latter, and which probably cause many whose names appear in the journals as unfledged pupils seeking some one to raise them from their miseries, to give up before they attain to the full-fledged and much-to-be-wished-for condition of being the happy possessors of an "infallible" paper process, and of swelling the lists of *successful* paper photographers.

If excellency be desired, both paper and collodion require constant demands on the skill and foresight of the operator; and still more on his chemical knowledge, not only of the process he is employing, but of the wide circle included in an acquaintance with the varying states of the atmosphere, of the effects of temperature on chemical action, and of the effects and nature of actinic force under various conditions. All these must form part of the acquirements of the true photographer, and are fully as necessary in paper work as with glass. If using paper, still other requisites are necessary for success: we must take into account *what paper* we are using,—whether English or foreign, new or old, thick or thin,—whether sized with starch or gelatine, waxed or unwaxed, good or bad. We are, perhaps, confined against our will to one of these, or are unwillingly perplexed with all; and in either case we have at least, when tyros in the art, devoutly thanked our stars for the most remote trace of, or resemblance to, the object at which the camera was pointed, among the many incomprehensible marks existing on "the negative." Thrice happy collodion, with you we have no fear of all this; a little foresight and care will ensure a tolerable picture, and should a mist perchance overspread the film, there is often a sovereign remedy in a drop of nitric acid to our bath.

If the photographer be careful about the selection of collodion, he is, (I mean as far as mere manipulation is concerned,) safe, and his attention is therefore the more at liberty to be given to the other necessary points. We have two desiderata in the paper processes, which yet remain to be fulfilled; one rests with ourselves, the latter with our papermakers. If the latter will supply us with a uniform material, without sulphuret of sodium or specks of metal, or of starch, and at once thin, tough, and more transparent than any we possess, they will have done their part, and that a most important one, towards the solution of our difficulty. We may hope that a material such as this, purer and thinner than we now possess, would enable us to assimilate our process more to the collodion, and to attain thus greater sensibility; but should this not be enough for photographers, who, insensible to the charms of the landscape they are depicting, or of the Scott, Byron, Hardwich, or Sutton in their side pocket, wish still further to shorten the exposure of a "paper negative," then must they retire to their laboratories during the winter season, and endeavour to fulfil this last condition, of sensibility, by diligent chemical researches.

Paper photography, or rather, photography on a flexible medium, has not had its chance because of the imperfections of the only generally available substance. Give to photographers a fabric which shall be semi-transparent, uniform, and pure, and they will no longer use glass, except where they absolutely require collodion for the delineation of living objects; or glass, for rendering objects very distant, which paper will not do. Mr. Sedgefield's "Dinner in the Market-place, Salisbury," is a subject which, of course, demands the use of collodion, and he has in this case made good use of it, as is evident from the number of small figures in the distance, which are most faithfully rendered.

I hope the foregoing remarks will be taken in the same spirit in which they are made; not with any wish to question the judgment of those gentlemen who prefer collodion to paper, but to arouse the photographic world in general to do all in their power to advance so useful a process as the latter. I must not be understood as being an exclusive advocate for paper, though it is on this subject that I have chiefly written, both in this journal and elsewhere. I consider myself as *au fait* at collodion and albumen as at paper, and during the past summer I have taken above 300 perfect negatives on glass, and not one-fifth of the number on paper. The catalogue of the Norwich Exhibition shews me to be only "a paper man," whereas I sent to that exhibition several photographs from *collodion negatives*, and only one appears in the catalogue, and that is marked (No. 253) as waxed paper; why, I know not, as it happens to be a panoramic view of the city of Norwich, which would be a simple impossibility on paper of any kind.

I would, in conclusion, suggest that the committees of photographic societies might make their catalogues much more valuable if they inserted fuller particulars of the processes employed. The abbreviations "Coll." "Cal." and "Wax." require interpretation to non-photographers, and convey no information to the initiated, for in the case of collodion there are so many "preservative" and "dry" processes now employed, that these, as well as collodio-albumen, should be distinctly specified, and I consider that photographers will generally agree with me in thinking that a more explicit statement in this respect would make the catalogues of exhibitions a valuable record of the progress and state of the art, at the time the exhibitions were held.

I hope that the catalogue of the exhibition which is to open in this city (Edinburgh) on the 20th inst., will be more complete in this respect, for I am not singular in my opinion, that a well-drawn-up catalogue of a good photographic exhibition is the best record we can possess of the practical results of our labours. GEORGE ROBERT FITT.

December 7th, 1856.

STEREOSCOPIA.

To the Editor of the Liverpool Photographic Journal.

I see, by Mr. Doyle's communication, in your September number, that "Stereoscopic relief," "Stereoscopic angle," &c., &c., is not yet set at rest, as I had supposed it ought, by this time, to have been, if those afflicted with *cacoethes stereoscopi* would but make the experiment with their *eyes*, instead of their pen, especially such as are not satisfied with Mr. Berry's essay, as given in the June number, page 83.

Distant objects cannot, and do not, of themselves, exhibit any appreciable appearance of solidity, unless a new object is also included, as instanced by Mr. B., by which only can a stereoscopic appearance be given in a picture. Such an object can seldom be in focus at the same time as those in the distance, unless a lens, of very short focus, is used; and, in such a case, the stereoscopic effect is very homœopathic indeed. If the object is to show a picture, as seen, at once, by the two eyes in one individual's head, the optic centre of the lenses employed must be at the same distance apart as the same points of the eyes of that individual; and taking my own as the measure of that distance, it is two seven-eighth inches. On looking at a building, the near gable of which is 120 feet distant from my eyes, and taking as objects the chimney tops, on each gable, which are 23 feet apart—the far one being 143 feet distant, I find the stereoscopic effect on the *far* chimney, does not amount to the thickness of the mortar in one of the vertical joints of the brickwork, when eclipsed by the *near* one. On examining the far chimney, closely, I could not accurately determine the particular joint which was stereoscoped; but the *widest* of all of them was not three-eighths of an inch, so that, whether looked at by the right or the left eye, the joint was still seen against the corner of the near chimney—thus shewing the stereoscopic effect of my eyes to be *less* than three-eighths of an inch on objects so far apart.

I next took an achromatic lens, six inches diameter, and covered it with a disc of black paper, having two apertures of one and a half inch each, the centres of which were one seven-eighth inch apart, being equal to that of my own eyes. By this arrangement, I took an impression of the same two chimneys, and when developed, laid it aside, and then removed from the lens the *binocular* disc, and substituted a *monocular* one of the same diameter; *i. e* a disc with a central aperture, and took one impression of the same chimneys, from the same spot, as before, which, when developed, was also laid aside. Afterwards, still retaining the same disc, I moved the camera, exactly one foot to one side, and took and developed another impression as seen from this spot.

I was now in a condition to test the several effects, which were as follows:—In the first impression I could not perceive any other difference than the reversion of the shades and azimuth (the impressions were on paper), as is the usual result, from what I could see with my eyes when looking at the chimneys themselves. The second impression differed from the first only in being more sharply defined, and nothing whatever of stereoscopic difference that I could perceive—the same joint being still seen against the edge of the near chimney, as seen by the eyes, and in the first impression. It is to be noted that from the length of the focus of the lens, (42 inches) a sharp image of both the chimneys could not be seen at once, consequently the focus was set on the far chimney. The third impression gave, not only the whole of the far chimney, but also a narrow strip of clear sky between the two, of apparently the width of a brick! Was this sufficient stereoscopic relief? The two eyes, when used singly, did not make a difference of three-eighths, if even a quarter of an inch, yet this side motion of the camera made not less than eight inches; but then this latter is not, according to some authorities, a sufficient lateral movement, as may be seen in the Journal of the Photographic Society of London, vol. 1, p. 66, where, for every fifty feet the object is distant from the camera, the impressions are to be taken with a lateral movement of two feet, and for one hundred feet, four feet, and so on. This is said to be "always directly proportionate to the distance of the nearest object." Farther on we read—"Extraordinary relief of distant objects may be obtained by arranging the cameras with special reference to them. Thus, views taken across the Thames, by placing the cameras twelve feet apart, produce an astonishing effect. In such views, of course, no near object must be admitted!" An astonishing effect! Why *Domine Samson* would have pronounced them "PRODIGIOUS!" It is well also that near objects be excluded, for a wherry or barge in mid river would appear *stereoscopically relieved* from the right margin of our impression, to the extreme left of the other! and this, too, without itself changing its position in the least.

As the above is given in the *London Journal* without any author's name, or even a pseudonyme, it cannot fall under the saving proviso of the council, but must be taken as the direct expression of *their* deliberate convictions on the subject.

Mr. Berry, on the contrary, insists that "we dare not much separate the first point of sight;" and he is right. He further says that a highly stereoscopic effect may only be produced by having some object in the *immediate foreground;* and herein he is also right; but the difficulty arises in getting the focus satisfactorily with a long focus lens on this near object, while the more distant objects are sufficiently sharp to be well made out. In short, stereoscopic pictures are hardly worth the trouble required to produce them. WILLIAM ROSS.

26, *Second Avenue, New York*, 18*th Oct*., 1856.

To the Editor of the Liverpool Photographic Journal.

SIR,—As a photographic printseller and publisher, permit me through your medium to suggest the propriety of a catalogue being made of all photographs intended for sale. It is an old saying, that what is everybody's business belongs to no one in particular, and, perhaps, few have the capabilities of making such a thing so well as myself. If, therefore, photographers will send me a list of their productions, with the size and price, I will make a classified catalogue, and if it is found, as I believe it will be, of sufficient importance to print such a work, it might become an annual publication.

Should my project be favourably received, I will make a printed form of arrangement in order to save trouble to the writers, and the same to preserve the necessary uniformity, which papers might be had on application.—I am, Sir, your obedient servant,

5, *Haymarket, Nov*. 18*th*, 1856. J. HOGARTH.

ANSWERS TO CORRESPONDENTS.

Want of space prevents us giving any reply to "M. R. A." and several other correspondents until our next number.