

traveller pays for his railway ticket before commencing his journey, or for his concert ticket before listening to the music.

The photographic societies have all commenced their winter sittings. The London Society had an interesting conversazione at the opening of the exhibition in place of a meeting. The North London, in the absence of a paper, had a conversational meeting. At the South Mr. Pearce read a modest and interesting paper on natural backgrounds and open air effects in portraiture, upon which an interesting discussion followed. At the Edinburgh the annual meeting was held for reporting progress and appointing officers. A capital suggestion was made in the "curator's" report, to the effect that every member should present to the society his card portrait with his autograph appended, and so form a gallery of the members. At the Manchester Society the chief business was an interesting magic lantern display.

Foreign Miscellanea.

At the last meeting of the French Photographic Society M. Pachelo again called attention to the formation of spots upon positive prints, which he attributed to some injurious material in the mounting boards, whereupon M. Girard stated that as the cardboard is manufactured in the same factory as the mounts with gilt edges, it is very possible that the injury complained of arises from finely-divided metallic particles deposited upon the card, as pointed out by him some time since.

At the same meeting, M. Despaquis exhibited several transparent carbon photographs mounted upon glass, and obtained by means of a film of so-called leather collodion (*collodion-cuir*). The material is well adapted to the production of pictures of this description, as favourable results are obtainable even from inferior negatives; a film of the material is merely exposed under a negative, washed in warm water, and then mounted upon glass. The pictures have created so favourable an impression that many of the principal photographers of Paris are experimenting with it—to wit, MM. Disderi, Reutlinger, Lejeune, &c.

MM. Geymet and Alker, in a letter to the *Moniteur de la Photographie*, state that in dull weather they can use the magnesium light for their enamelling process.* For printing a negative, a pose of forty seconds' exposure will give an image sufficiently good for transferring; and for reproducing designs by means of the camera, an exposure of two minutes is necessary.

Under the title of "Recent Progress in Science," a series of articles have been published in the *Revue des Deux Mondes*, by M. Radau. One of these articles, on Photographic Chemistry, although containing no novelty, is, on account of its simplicity and clearness, worthy of perusal by photographers. Referring to a ray of light which is decomposed by a prism into six principal colours—red, orange, yellow, green, blue, and violet—M. Radau says:—"These rays, which affect the retina of the eye, constitute what is called visible light. They are warm rays, and capable of acting chemically upon certain substances which are called impressionable (sensitive), but they do not produce all the calorific and chemical effects obtained with sunlight. The visible spectrum is prolonged on each side by obscure rays; beyond the red line extends the region of obscure heat; and beyond the violet are the chemical or ultra-violet rays. The latter become visible under certain conditions, when they appear of a light-grey lavender tint; they do not produce heat, but they exert a powerful action upon impressionable substances."

* This was done by Mr. Joubert a year or two ago.—Ed.

In stating that the theory of photographic phenomena is still enveloped in obscurity, M. Radau proceeds:—

"Nevertheless, one may endeavour to group known observations and effects under several general categories. There are, first of all, the reducing agents. Under the influence of solar rays, oxygen and haloid bodies have a tendency to abandon the metals. Chloride and nitrate of silver become decomposed, and it is the same, generally speaking, with chlorides, bromides, iodides, cyanides of the less oxidisable metals, the oxides, or suroxygenated acids, &c. In these cases light has the effect of destroying the affinities. There are, besides, the combining agents, in which affinities are, on the contrary, brought about by light. Oxygen, chlorine, bromine, &c., have a tendency, under the influence of light, to combine with hydrogen and organic bodies. A mixture of chlorine and hydrogen may be preserved for an indefinite period in obscurity, but if exposed to light it liquefies and gives birth to hydrochloric acid. Bitumen of Judea becomes insoluble under the action of light, because it absorbs oxygen; and a large number of essences and varnishes likewise become oxidised by light; gum-guaiacum assumes a bluish tint on oxidising. In mixing together a substance which tends to become decomposed under the action of light with another inclined to absorb one of the bodies which is separated, more energetic effects are produced. It is in this manner that organic matter facilitates the reduction of salts of silver by absorbing the oxygen disengaged. But what is most remarkable is the fact that if one only of two sensitive substances is exposed to sunlight, and both are afterwards placed in contact, the molecular action developed by the sunlight continues after the withdrawal of the substance from exposure, and, by bringing together the two substances, the same effect is produced as if they had both been subjected to the direct action of solar rays. Thus, for instance, in order to facilitate the reduction of iodide of silver, it is placed in contact with gallic acid after one of these substances has been exposed to sunlight, or even both have been exposed together. The effect produced as regards intensity is nearly always the same. Photographers denominate as *sensitive*, or *impressionable*, any material which receives and preserves the action of light, and give the name of *developer* to any substance capable of developing the image or completing the chemical reaction; but this distinction is of no essential value, inasmuch as the roles played by the two descriptions of bodies may be inverted."

Collodio-chloride paper is now made commercially in Germany, and advertised largely for sale. Each sheet is stated to contain three grammes of nitrate of silver, which is in most part recoverable from residues. The prices asked are somewhat high, being twenty-four shillings per quire of sheets 20½ by 12, or six shillings per gross of papers suitable for printing cartes-de-visite.

At a recent meeting of the Berlin Photographic Society, M. Stolze stated that he had experimented with good result upon a silver bath with permanganate of potash; the bath contained 4,000 cubic centimetres of solution, which was quite unserviceable, giving rise to pinholes and other imperfections. To this it was found necessary to add as much as 200 cubic centimetres of saturated permanganate solution in order to impart to the bath a red tinge. The precipitation and discolouration did not take place so rapidly as M. Stolze had been led to expect, as hours elapsed before the red colour changed to yellow. After a few days a yellowish turbidity of the bath was perceived, although the solution had previously been filtered, and it was not until the liquid had been sunned and treated with a few drops of cyanide of potassium that the difficulty was overcome. M. Stolze recommends the employment of permanganate for restoring silver printing baths to which sugar has been added for the purpose of preserving the whites of the albuminized paper.

M. Johannes Grasshoff publishes in the *Mittheilungen* a few remarks upon backgrounds and effects. He criticises the carpets generally used by photographers, intimating that as