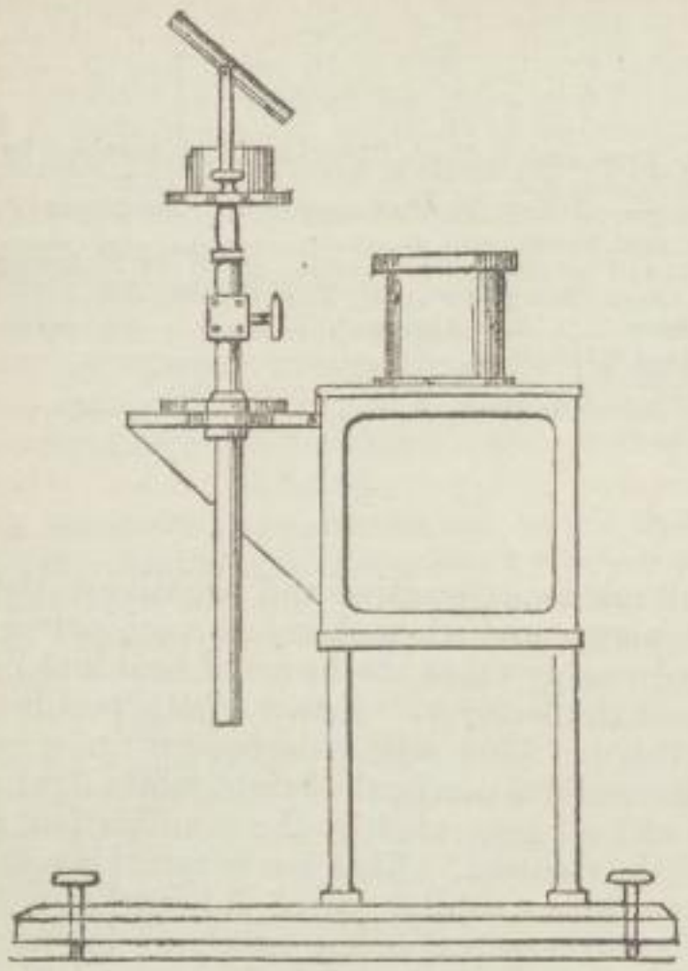
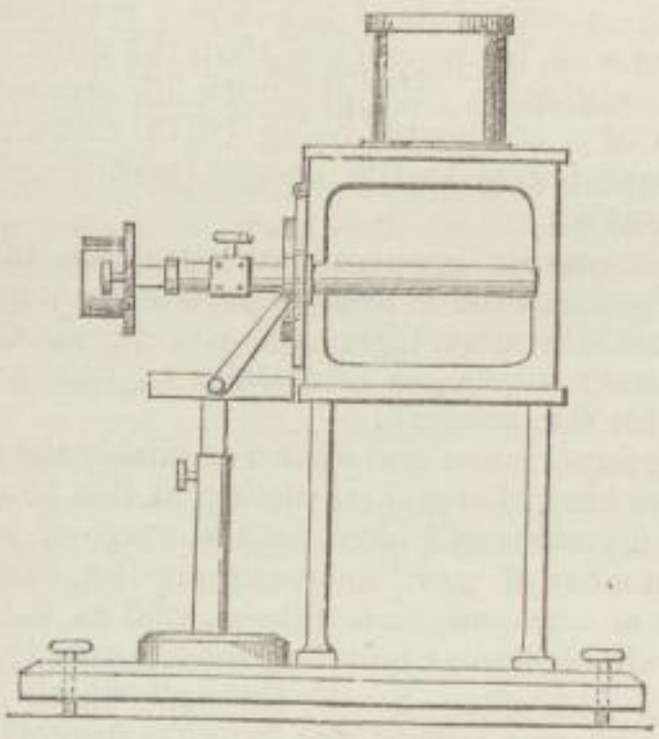
A spectrum was now projected on the screen, and its action on the plate was again referred to. It was explained how it may be expected that when any molecule is acted upon by a ray of light having a rate of vibration synchronous with its own, the extent of the swing is



increased; but a ray which is not synchronous with the vibration of the atom may be expected to diminish the range of the swing. This was illustrated by blowing



periodically upon a pendulum. It was next pointed out that it is quite conceivable that in some cases not only the extent of swing, but also the rate of swing, might be modified by the impact of light vibrations; and to enable those present to form some kind of a mental picture of the way in which this may happen, a pendulum consisting of a weight suspended by an elastic thread was shown; this vibrating more slowly as the swing becomes greater, owing to the stretching of the thread. So it may be that light rays may act on the atoms, even though the rate of swing may not be identical.

The action of light on the sensitive plate may be increased by assisting it with the motion of heat; the increased swing due to the action of heat is taken up and still more extended by the action of light, and to illustrate this a plate was warmed by placing a slightly heated flat iron outside the dark slide containing it; after which the plate was exposed to light and developed. The increased action on the heated part was shown by the appearance of the outline of the warm iron.

The use of the thermopile in searching out and mapping the distribution of heat in the spectrum was then illustrated and explained; and it was pointed out that only one-hundredth of the total radiant energy of the spectrum exercises any photographic action, except so far as the heat rays may help indirectly. Now it is easy to understand how it is that the eye of the camera does not see the colours of the spectrum just as the human eye sees them.

An interesting experiment was now made. The colours of the spectrum were first united by means of a lens, and it was shown that white light results. Afterwards, those rays which are of little or no photographic value were cut out, and the essentially "photographic light" was exhibited on the screen, when it appeared as a beautiful rich blue, with a tint recalling (but differing from) sea-green. Other experiments were made on the combination of colours, and the lecturer pointed out that an apparatus such as he was using could be used with advantage in experimenting on the best light for the dark-room.

The results obtained by varying the form of the slit-aperture were then exhibited, the much-overlapping spectrum obtained by the use of a mere round hole being first shown, then the results with zig-zag slits and ring slits.

The second lecture, which will take place next Monday evening, will deal with the diffraction spectrum, and the formation of the photographic image.

PLATINOTYPE PRINTING.

THE paper by Mr. Richard Keene on the "Platinotype Process," which appeared in a recent issue of the PHOTOGRAPHIC NEWS, will have been read with interest by many, as it describes the practical details of working the process on a considerable scale. It is probable that, when the platinotype process of printing becomes the property of photographers in general, and may be worked by them free of all restrictions, it will be one of the most popular of all printing processes.

Probably all photographers are sufficiently familiar with the platinotype process to know that in it the paper is coated with certain salts of platinum and of iron; that in the printing frame a faint image in the iron salt is obtained; and that subsequently, by a development which may be called one of "substitution," metallic platinum is reduced from the salt and is deposited on the paper in a very fine state of division, forming the image.

The greatest advantage of the process is that the results are regarded as permanent. This is a matter which is certainly not so much considered by photographers as it should be. This ought to be the first question asked of a printing process, "Are the results permanent or not?" We fear it is generally the last. Witness, for example, the manner in which the printing process which gives probably the most fleeting results of any—namely, that of silver printing on albumenized paper—has held its own against all others.

In talking of the permanency of prints, it should always be borne in mind that *permanency* does not mean *indestructibility*. We think that a print on paper might fairly be called permanent if it can be said of it that, subject to ordinary atmospheric conditions, the image will last as long as the paper on which it is supported. There can be little doubt that this can be said of the platinotype process, and likewise of the carbon process.

The appearance of a platinotype print must be known to all. The surface is without gloss, and the colour is either an engraving-black or an approach to sepia. Comparisons are proverbially odious, so we shall avoid comparing the appearance of platinotype and silver prints. The question as to which kind of print is the most pleasing must remain one of opinion. There can be no doubt, however, that the decision of artists of the brush is, as a rule, decidedly in favour of platinotype prints.

The facility of working the platinotype process as com-