the introduction. Nothing is said of the periodicity of these spots, or of the relation of the sun-spot curve to terrestrial phenomena and to the shape of the solar corona. Although hydrogen and calcium flocculi are referred to and also shown in two illustrations, no explanation of these terms is given.

Similarly there is a lack of explanation in the case of some of the instruments used in the study of the sun; especially in the case of the spectroheliograph and the spectrohelioscope, which are not so well known as the spectroscope. Brief descriptions of the main features of these instruments might have been given which would not have been at all technical but would have made much clearer the sections and quotations about observations with these instruments.

The remaining four chapters discuss the corona and its observation, and give descriptions of various eclipse experiences. It hardly seems worth while to give up twenty-five pages of one of these chapters to the unsuccessful attempts to photograph the corona without an eclipse, when in view of our present knowledge the reason for these failures is so obviously due to the feebleness of the light from the corona compared with the brilliant light of the sun itself.

In the description of the cause of a solar eclipse, no definition of a partial eclipse is given, though mention is made of a partial eclipse of the sun on January 24, 1925, in London. Those of us who remember this as the total eclipse seen under such favorable conditions by so many people in New York and Connecticut may be pardoned if we are a little disappointed to find no other reference in this book to this particular eclipse.

The quotations from the personal eclipse experiences of the writer and other observers can not fail to interest all readers, and to make those who have not seen a total eclipse eager to have that opportunity. After all, no description can do justice to the thrill of actually seeing this wonderful phenomenon. The description in the last chapter of the eclipse of June 29, 1927, visible in England and Norway, gives an excellent picture of the numerous activities connected with the observation of a total eclipse at the present time. The attempts to observe the eclipse from airplanes were only partially successful because of clouds, but gave to those who were in the airplanes experiences that would always be remembered.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

MOUNTING CHICK EMBRYOS

IN elementary courses in embryology sagittal sections often present considerable difficulty to the student. One reason for this is the practical impossibility of getting a truly sagittal section extending the

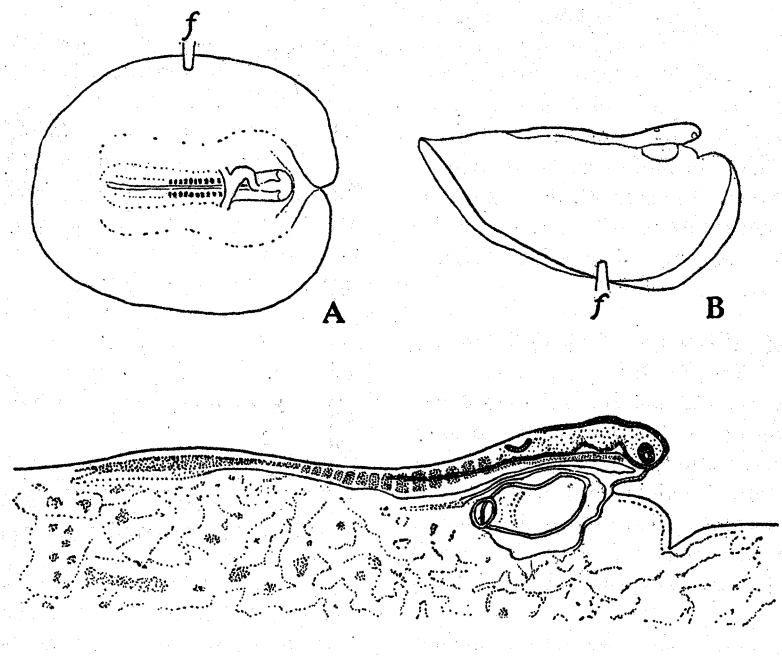

FIG. 1. Mounting chick embryos. A. Position of blastoderm in watch glass ventral side up, f, point at which forceps grasp edge of blastoderm. B. Folded blastoderm with right side folded over left side so that embryo lies along crease. C. Side view of embryo mounted as described.

whole length of the embryo; another is due to the fact that sagittal sections lack many of the structures which the student has come to regard as landmarks in his study of transverse sections. On the other hand, the preparation of sagittal sections presents difficulties for the technician.

The present writer has used for some years in his classes preparations which show the eight to fourteen somite (thirty to thirty-six hours incubation) chick in side view, in place of sagittal sections. Such preparations are scarcely more difficult to make than the usual whole mounts and help greatly the student in his attempt to visualize the structure of the embryo of this stage. The method has up to the present been used only on embryos before the beginning of torsion in the head region. It is possible, however, that it might be modified to apply to embryos of somewhat later stages.

The egg is opened in salt solution and the blastoderm cut from the yolk and floated into a watch glass in the usual way. It must then be turned over while still alive so that its dorsal surface is underneath (Figure 1, A). The lateral edge of the blastoderm directly opposite the middle of the embryo is then lifted with forceps and folded over so that the embryo appears along the folded edge and projects from it (Figure 1, B), while the half of the blastoderm which was lifted now lies over the other half which remained in position in the watch glass. The operation of folding the blastoderm can best be carried out under a binocular microscope. It is important to make the fold such that the entire length of the embryo lies along the crease. The salt solution is now withdrawn and the fixative added drop by drop directly onto the blastoderm. Such embryos can be washed, stained and mounted according to the usual method employed for "whole mounts." They show particularly well the general form of the embryo, including the head process, the foregut and the heart. Figure 1, C, shows a sketch of a chick embryo mounted as described.

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COLOR DISCS USED IN SOIL COLOR ANALYSIS

IN the study of a series of podsolic soils developed upon the reddish-brown colored Early Wisconsin drift of east central Minnesota, considerable attention was recently (February, 1927) paid by the writer to the question of the best method of expressing the color of samples of soil from the various horizons of the soil profiles, in order that their color peculiarities might be brought out.

Munsell Rotating Color Discs were used, as one means amongst others, of analyzing and expressing the color of the disturbed soil samples. These discs are essentially Maxwell's discs, of stiff paper, colored "Red," "Yellow," "White" and Black." They are made to rotate upon a motor-driven shaft, and provide a means of matching a very great number of colors simply by altering the relative proportions of the different color discs exposed to the eye. Each one of the four almost new color discs was examined with a Keuffel and Esser Spectrophotometer, with the results given in Table I. Their spectral distribution curves are plotted in Figure 1. Each value for relative brightness represents the mean of five closely agreeing photometer readings. The standard white used in the machine was a freshly scraped surface of a block of magnesium carbonate.

TABLE I. ANALYSIS OF COLOR DISCS USED IN SOIL COLOR ANALYSIS

Wave length	Relative brightness expressed as percentage			
	"Red" Disc	"Yellow" Disc	"White" Disc	"Black" Disc
	Per cent.	Per cent.	Per cent.	Per cent.
7000 Å	60.2	70.8	75.6	3.4
6500	55.6	66.2	73.8	2.5
6000	22.5	66.8	74.0	2.3
5500	5.8	63.0	74.0	2.3
5000	6.0	22.0	76.2	2.2
4500	10.2	22.2	80.5	3.0
$\frac{I_{6500}}{I_{5000}}$	9.27	3.01	.....	.....
$\frac{I_{6500}}{I_{6000}}$	2.47	.99	.....	.....

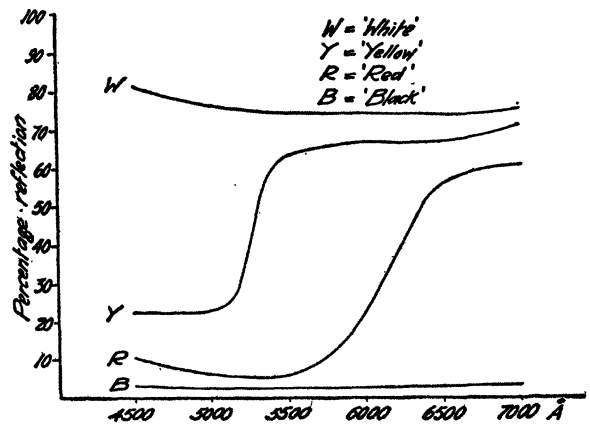

FIG. 1. SPECTRAL DISTRIBUTION CURVES PLOTTED FROM DATA OF TABLE I.

The purpose of this notation upon the subject is to point out the relative impurity of the color discs. This lack of purity of hue means that the percentages assigned