results. The trend of the data indicates that graphitization starts at temperatures of 50° to 100°C lower than for diamond maccles under the same conditions.

Clear, inclusion-free, industrial-grade diamonds when heated under helium for periods of 50 hr (i) do not graphitize at temperatures below 1200°C, (ii) graphitize superficially at 1300°C, and (iii) show approximately 1 to 2 percent graphitization at 1400°C.

Diamond powders appear to start graphitizing 50° to 100°C below the temperature at which maccles graphitize under the same conditions. As the graphitization proceeds, the crystals become progressively darker brown in color. This color develops even at 900°C in crystals that show no graphite by x-ray diffraction examination.

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A Sensitive, Inexpensive Light Meter for Photomicrography

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The light meter described here can be used with 35-mm cameras and is suitable for determining the proper exposure for fixed slides or living preparations.

We found standard light meters to be inconvenient for photomicrography for the following reasons: (i) interference of incident light; (ii) inaccurate readings on light of low intensity; (iii) difficult to adapt readily to ocular tubes. The commercial meters made for photomicrography that cost between $92 and $110 seemed expensive. We constructed a meter from the following materials for between $20 and $25: photocell (Klett-Summerson type); 5× ocular tube; brass plate for mounting the ocular tube; Simpson 0-50 4-in. scale microammeter; contact switch; metal mounting box.

Figure 1 shows the method of assembly. The 5× ocular tube could be threaded into the plate, but Fred Lindow, the machinist of the Physics Department who aided us, simply pressed the ocular tube into a snugly fitted hole drilled in the plate. The fitting was sufficiently tight that the ocular tube did not need to be sweated in. Appropriate holes were drilled in the brass plate and metal box. These holes coincided with the holes present in the Klett photocell mounting. The microammeter was mounted to the metal box with metal screws, and the necessary electric connections were made.

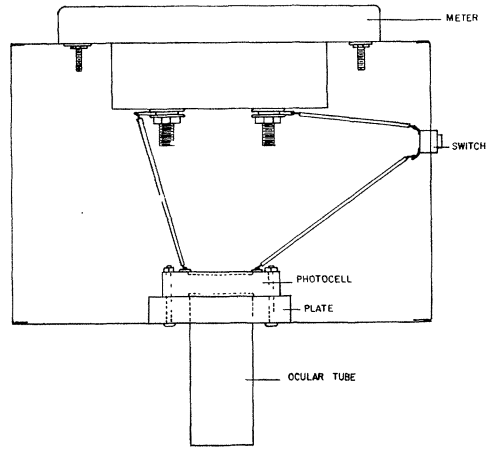

Fig. 1. Assembly of light meter.

The calibration was made with Plus-X, 35-mm film in a Leica camera, using a Micro Ibso attachment. Any other camera of similar type may be used. The calibration was made by controlling the light intensity with neutral filters to give the following meter readings: 1, 5, 10, 15, 20, 25, and 30 (Table 1). The exposed Plus-X 35-mm film was developed in a tank with Ansco Finex L developer at 20°C for 15 min and fixed in Edwal Quik fix for the required time at 20°C. The film was washed at 20°C for 20 min.

The correct exposure time was determined by visual inspection of the negatives and the printing quality on glossy, normal contrast, projection paper. The

Table 1. Calibration of meter using Plus-X film.

Meter reading	Exposure time (sec)			
1	1/10	1/25	1/50	1/125
5	1/50	1/125	1/200	1/500
10	1/125	1/200	1/500	
15	1/125	1/200	1/500	
20	1/125	1/200	1/500	
25	1/125	1/200	1/500	
30	1/125	1/200	1/500	

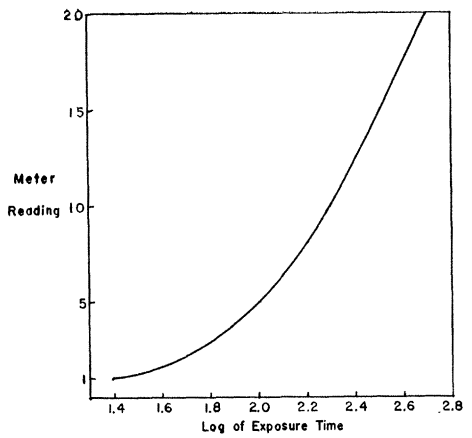

Fig. 2. Calibration curve obtained by plotting meter reading against the log of exposure time.

meter reading was plotted against the log of correct exposure time in seconds (see curve Fig. 2 and Table 2).

The exposure time was found to be constant for any particular meter reading, when the B Wratten (green) filter was used and when objectives were changed.

Table 2. Log of exposure time.

Meter reading	Exposure time (sec)	Log of exposure
1	1/25	1.398
5	1/125	2.017
10	1/200	2.301
15	1/320	2.500
20	1/500	2.699

This was also true for living tissue in agarslant tubes. After calibrating the meter, 36 exposures were made on Plus-X film at various meter readings using the exposure time indicated by the graph (Fig. 2). The resulting negatives were of equal density displaying the same printing qualities.

Some improvements were suggested after the meter was constructed. (i) The brass plate and steel mounting box could be made of aluminum. (ii) A 0-20 microammeter, 4-in. scale, with resistance shunts, may be used to some advantage. (iii) If additional sensitivity is required, a 1½-v dry cell can be wired in series with the microammeter.

This meter can also be used on bellows-type cameras when it is properly calibrated to the conditions employed. The calibrations should be carried out on newly constructed meters.

The meter was constructed in conjunction with research supported by the Cleveland area Heart Society and the Heart Institute of the U.S. Public Health Service. Suggestions from Joe Dereska of the Electronics Laboratory were appreciated.

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Effects of Adrenal Medullary Hormones on Antidiuretic Substance in Blood Serum

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O'Connor and Verney (*1*) suggested that adrenaline inhibits the release of the posterior pituitary antidiuretic hormone (ADH), but their evidence was indirect in nature since they made no attempt to measure antidiuretic substance (ADS) levels in blood. The present investigation (*2, 3*) represents an attempt to answer the question: Are the diuretic effects of adrenal medullary hormones in the rat (*4, 5*) due in any part to an inhibition of the release of posterior pituitary ADH?

The design of the experiment was patterned after Ames and van Dyke's (*6*) modification of the intravenous assay method of Jeffers *et al.* (*7*). The assay animals were rendered diuretic by the administration of water and ethanol, which anesthetized the rats and probably suppressed the secretion of endogenous antidiuretic substance from the posterior pituitary of the test animal (*8*). The rats used for assay, as well as the serum donors, were fasted for 18 hr. At the zero hour each assay animal was given 5 ml per 100 g of a 10 percent ethanol solution by gavage. After 30 min, 3 ml water per 100 gm body weight was given in the same manner. Within the following 45 min, the urethra was ligated, the bladder was cannulated, and a hypodermic needle was inserted into the saphenous vein. The needle was left in the vein, and a mandrel was kept in the bore of the needle except during the intravenous injection of the test material. The rat was placed (ventral side down) on a board equipped with a hole that supported a tuberculin syringe barrel (graduated to 0.01 ml) and a hardware cloth cage that served as a restraining device. A polyethylene cannula drained urine from the urinary bladder into the mouth of the syringe barrel whose tip was fitted with a three-way stopcock.

Urine collections were made and recorded at 10-min intervals. Test samples of serum or Pitressin were injected via the previously prepared saphenous vein. Estimations of antidiuretic activity were made by comparing the antidiuretic effect of material to be assayed with that obtained from known amounts of Pitressin in the same assay rat. Duplicate assays of the same dose in the same animal were in agreement.

Serum obtained from blood collected by draining the trunk of decapitated gentle rats did not exhibit antidiuretic properties. Antidiuretic substance (ADS) equivalent to less than 0.11 milliunits (mU) Pitressin per milliliter of serum, was present in blood obtained by decapitation from tranquil rats that had been injected with morphine sulfate, 1 mg/kg (*9*). No serum ADS was detected in the blood of animals that had been injected with diuretic doses of epinephrine or nor-epinephrine (*5*) 5 min prior to injection of morphine sulfate. ADS release that follows morphine ad-