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## A Simple and Practical Device for the Quantitative Evaluation of Spectral Lines.

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The recently developed methods using the quartz spectrograph in the quantitative determination of inorganic elements in biological fluids require some sort of an instrument for the accurate evaluation of the lines on the photographic plate.

Standard densitometers for this purpose are available but their cost is a handicap to laboratories where spectrographic analysis is being conducted on a comparatively small scale. We have tried to overcome this handicap by constructing a simple device from apparatus available in the laboratories.

Inasmuch as only a portion of the photographic deposit is measured it is called a micro densitometer. It is composed of a binocular microscope which serves as the optical system, a microscope lamp with a source of constant current, a sensitive photo electric cell, and a sensitive deflecting galvanometer.

The photo electric cell of the Voltaic type is mounted on one ocular of the microscope while the other ocular is used for vision of the field under examination. In order to measure only the light that is transmitted through the photographic deposit, the high power or 4 mm lens is used and also a metal field restrictor is placed in the ocular below the photronic cell. In the other ocular of the microscope a similar restrictor is placed which differs from its mate only in having a larger opening on each side of the slit so that a considerable portion of the field may be visible for orientation purposes.

A six volt automobile headlight bulb mounted in a microscope lamp and lighted from a storage battery is used for illumination. The microscope lamp is fitted tightly to the microscope and the light is uniformly diffused by placing a ground glass lens between the lamp and the condenser of the microscope.

The plate is mounted on the mechanical stage of the microscope; however, it must be cut in sections in order to fit the stage. For comparison of the results obtainable with this instrument and those obtained in industrial analysis using a standard densitometer, plates from solutions containing aluminum were obtained from an outside source. These plates had been calibrated by using a stepped sector disk and the calibration curve plotted. Molybdenum and tin were

used as internal standards. The working curves were plotted using a known solution of aluminum as the abscissa and the logarithm intensity ratio of the internal standards and the aluminum as the ordinate. The curves obtained by the standard densitometer and our instrument were naturally different owing to the greater deflecting of the galvanometer. However, the results were very comparable and were as shown in Table I.

TABLE I.

	Standard densitometer	"Micro"-densitometer
	Plate A. Aluminum.	
	g	g
Known solution (4)	.0042	.0042
" " (5)	.0082	.0082
Unknown solution	.0068	.0068
	Plate B.	
Known solution (3)	.0042	.0042
" " (4)	.0074	.0074
Unknown solution (1)	.0083	.0082
" " (2)	.0067	.0067
" " (3)	.0067	.0067
	Plate C.	
Known solution (3)	.0042	.0042
" " (4)	.0074	.0074
Unknown A	.0070	.0071
" B	.0066	.0066

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### Effect of Testosterone Propionate on Sex Differentiation in Pouch Young of Opossum.

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The young of the opossum (*Didelphys virginiana*) at birth are sexually almost undifferentiated. Histological differentiation in the gonads has just begun, wolffian ducts are present but müllerian ducts do not appear until several days after birth and are not fully formed until a head length of 9 mm is attained. At about 10 days sex may first be recognized externally by the development of the folds of the marsupium in females and scrotal sacs in males.<sup>1, 2</sup> On

<sup>1</sup> Baxter, J. S., 1935, *Cont. to Embryol.*, No. 145, Carnegie Institution, Washington.

<sup>2</sup> McCrady, Edw., 1938, *American Anatomical Memoirs*, No. 16, Wistar Institute, Philadelphia.