

the very wide discrepancies in academic preparation or in scholastic and social adaptabilities among visiting students, and awkward situations may have arisen from this circumstance.

Because the great majority of these students eventually return home as teachers and professionals to environments where readaptation is frequently equally difficult, it seems to me important that our university faculties should consider certain sociological aspects of these student migrations. Their complex repercussions may not be more than superficially apparent to many scientists in the United States. Yet these are problems which in the long run are bound to produce far-reaching effects in countries in the throes of rapid social change, and in ways now difficult to foresee.

The problems facing the universities and university students in one such underdeveloped country of crucial importance, India, have been succinctly and, in my opinion, ably and sympathetically discussed in a recent issue of a periodical which my colleagues in the sciences are apt to overlook. I should like to urge those interested in the potentially wider results of their teaching and counseling efforts to read "Indian students," by Edward Shils, in the British journal *Encounter* [17, No. 3, 12 (1961)].

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Exasperating Method

To induce a reader to _____ a book [see *Science* 134, 531 (1961)], give him some _____ what it is about.

(buy, idea) J.T.'s recent _____ of Holland and Skinner's *The Analysis of Behavior* left this reader wholly in the _____.

(review, dark) Through this _____ method, does the book instruct us in how to _____ our own behavior, or in how to instruct others to _____ theirs, or is it a handbook for _____ ethologists, laboratory psychologists, or _____?

(exasperating, analyze, analyze, budding, what) If in an earlier issue of your _____ I missed a _____ straightforward report on this same book, kindly _____.

(journal, more, forgive) Yours _____,
(sincerely) C. M. FAIR
Shushan, New York

8 DECEMBER 1961



NO. 2

DATA SERIES

Evaluating Spectrophotometer Performance

WAVELENGTH accuracy and reproducibility:

The precision with which the indicated wavelength corresponds to the true wavelength of dispersed radiation (accuracy) and repeats this indication (reproducibility).

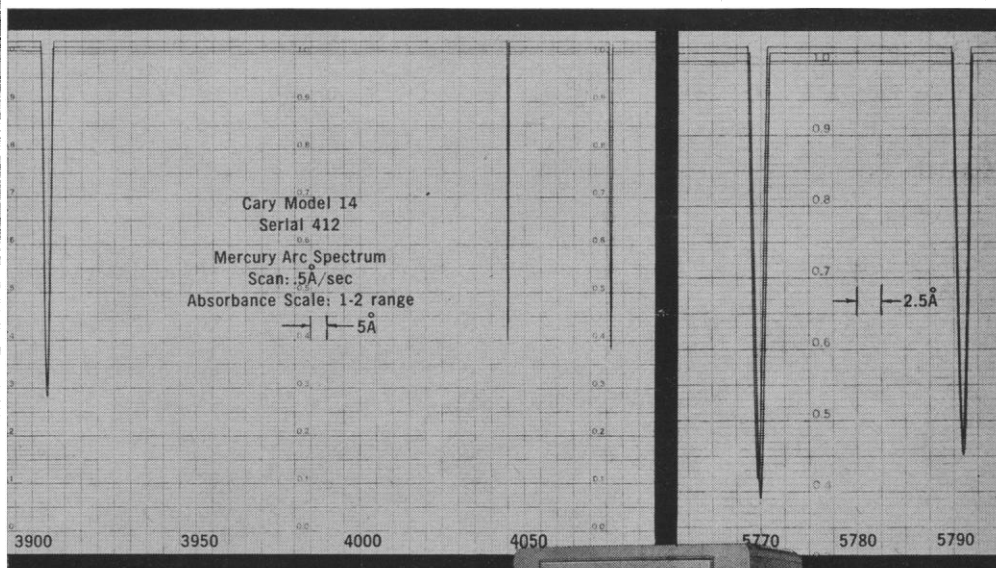


FIGURE 1

**Cary Model 14
records spectra
accurate to 4 Å,
reproducible
to 0.5 Å over its 28,000 Å range**

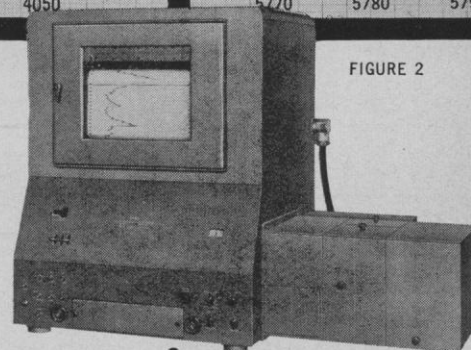


FIGURE 2

High wavelength accuracy assures recording of absorption peaks at their true wavelength. This is essential for differentiation of similar samples or identification of unknowns. It is equally important for quantitative measurements on mixtures where overlapping bands may distort band contours. The high wavelength accuracy of the Cary Model 14 is shown in the spectrum of mercury emission lines which appear at 3906.4, 4046.6, and 4077.8 angstroms. As shown in Figure 1, these are recorded to within 2 Å absolute or better.

Since sample absorbance is a function of wavelength, *high wavelength reproducibility* is essential to insure reliable quantitative results. The excellent reproducibility of the Cary Model 14 is illustrated in both Figures 1 and 2 which show three superimposed records (with the baselines arbitrarily shifted after each record). The two peaks (5790.7 Å and 5769.6 Å) shown in Figure 2 were recorded on a greatly expanded wavelength scale in order to observe any small error. (It is interesting to note that the scale expansion used would require a chart over 300 feet long to record the entire wavelength range of the Model 14). *The maximum deviation between the three records is only about 0.35 Å.*

Wavelength accuracy and reproducibility are just two of several important criteria on which spectrophotometer performance should be based. Others include: Resolution; photometric accuracy and reproducibility; stray light. Because the Cary Model 14 excels in each of these performance criteria, it is regarded as the finest instrument of its kind. A descriptive brochure is yours for the asking. Write for data file E22-121



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