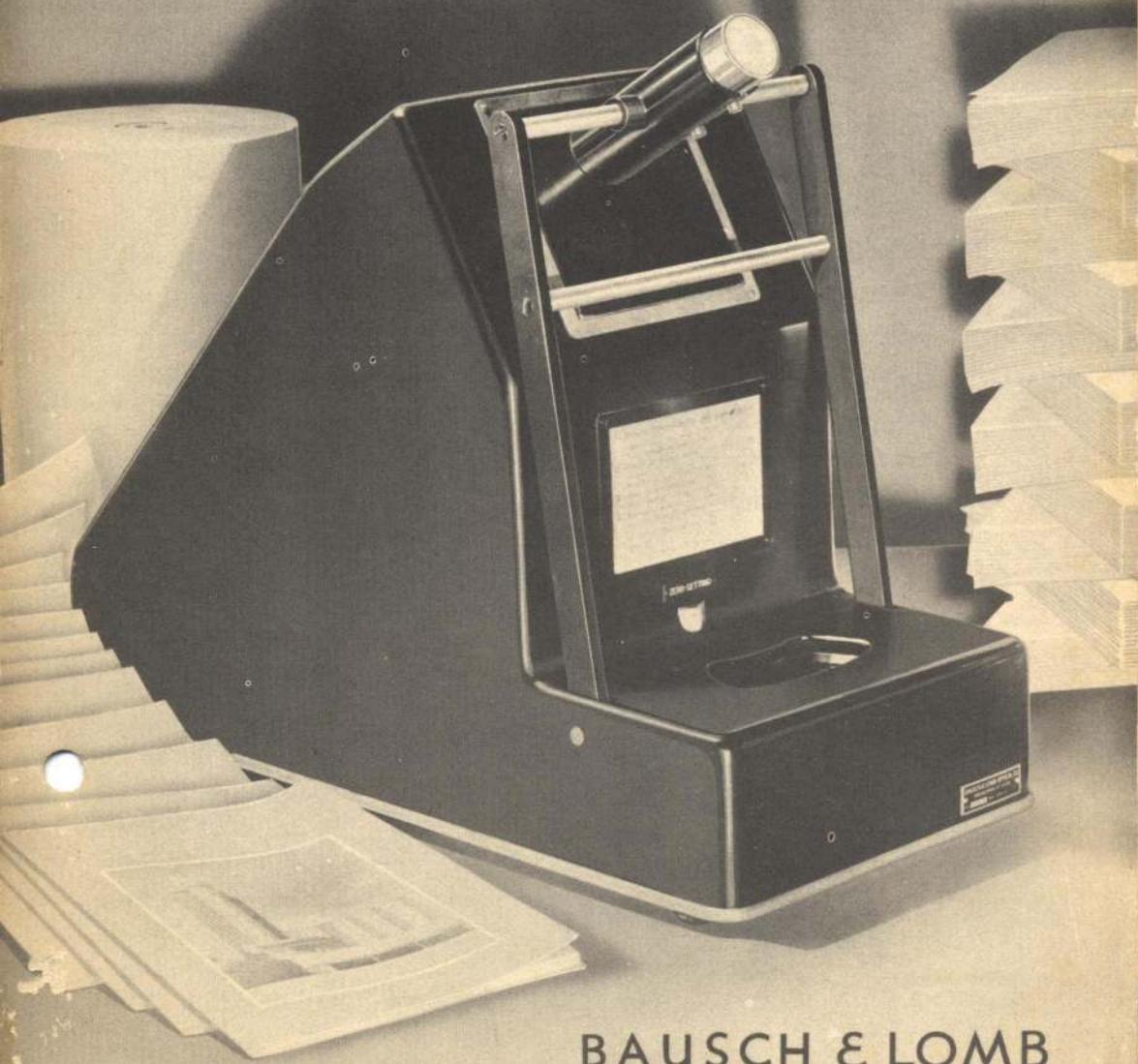


TO MEASURE THE  
OPACITY OF  
PAPER



BAUSCH & LOMB

# the Executive

*The Executive knows how much easier it is to sell Opacity Controlled paper—all the headaches saved by knowing the run is right. He also knows of the mill economies possible through reduction of "broke." The Bausch & Lomb Opacimeter does its work speedily and accurately, saving time and materials.*

A new instrument—a photo-electric Opacimeter—has been developed by Bausch & Lomb after the design of Dr. M. N. Davis of Kimberly-Clark, Research Laboratories. The advisory assistance of the Institute of Paper Chemistry was also obtained—that the finished instrument would meet the need felt in industry.

With the Opacimeter anyone can quickly make a reading and determine the opacity of a sample of paper. One reading is sufficient; it is accurate; no personal factors such as eye fatigue influence results; there are no tangents to look up, no preparation of samples. Yes, this new instrument will check accurately readings made on the official visual instruments and no disrupting changes in mill or laboratory procedure are necessary.



*A special transformer maintains the constant intensity of the lamp, an essential feature in a photo-electric instrument.*

to measure the

# OPACITY OF PAPER

with accuracy, speed, convenience  
EVEN ABOVE 85

The instrument reads either printing opacity (as defined by Davis) or contrast ratio (as defined by TAPPI official methods) direct without any computation and is to be preferred to transmission types of instruments since it actually reproduces "show through" conditions with which printing paper manufacturers are working. Transmission instruments are possibly of use in mills making glassine, wax wraps, etc., but are sources of trouble in the mill making print stock. The B & L Opacimeter is equally useful on the less opaque papers.

The instrument is built around a photo-electric cell and an illuminating system. The light from the illuminating system is focused on the sample and reflected into an integrating cube into which is built the photo-electric cell. Current generated in the cell is indicated by a meter built into the instrument. On the swinging arm, in a reversible carrier are carried (a) the white body (magnesium carbonate), (b) the black

body (felt lined tube) for securing the two readings necessary for determining the desired ratio.

To use the instrument the sample is placed over the aperture with the white body pressed against the sample. Naturally a lot of light is reflected into the integrating cube, and the meter responds accordingly. This reading is always set to 10 on the meter, by a knob conveniently near the right hand. Then the body carrier is reversed and the black body brought next to the sample. This will always give a lower reading on the meter, and is equivalent to determining the ratio of the latter number over 10. In other words, the ratio of the two readings is determined directly by always having the denominator the same.

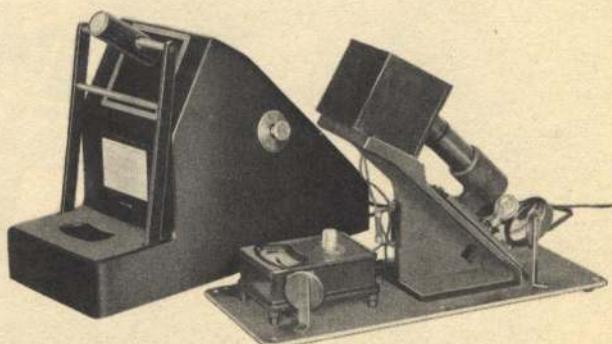
This is the method used for all white print stocks. For high opacity dark colored stocks, it may sometimes be necessary to take the two readings and derive the ratio by division in the usual manner.

*In the Laboratory the speed and accuracy of the Bausch & Lomb Opacimeter—the fact that you are positive of your readings, even above 85 make it an essential. Then, in addition, no dark room is needed—no skilled technician. Samples are not specially prepared and destroyed in testing.*

Brightness ratio or total reflection from paper can be obtained by taking readings from the white magnesium block and then the sample. This has been useful in answering many questions regarding brightness.

The Bausch & Lomb Opacimeter is very compact, measuring  $8\frac{1}{4} \times 19\frac{1}{8}$  inches. It accommodates samples of any size or shape and the aperture is so placed as to provide a "reach" of more than 9 inches in from the edge of the paper without cutting or folding. The instrument never requires calibration and is self-compensating. Results obtained on different instruments will check exactly, enabling close cooperation of different mills or suppliers regardless of distance apart.

*Showing the internal arrangement of optical and electrical parts, sturdily mounted on a heavy casting.*



# the Superintendent says

"It's great to KNOW your opacity is right from samples tested right at the machine."

1. It means MORE paper from pulp.
2. Less "BROKE."
3. Accurate metered opacity.
4. More uniform "Brightness."
5. More profit and less worry from those contract runs for the "Big Fellows" with critical specifications.
6. And it's so easy for any of the men to test a strip torn from the machine, any color, any size, and accurately check against specifications from the laboratory, customers or other paper mills.



## SPECIFICATIONS AND PRICES

Code Word	Catalog No.	Specifications	Price
<i>Klerx</i>	33-88-12-02	Opacimeter with Voltage regulating Transformer for use on 60 cycle 110 Volt Alternating Current	\$350.00

# Bausch & Lomb Optical Products

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 Microtomes  
 Periscopes  
 Telescopes  
 Centrifuges  
 Microscopes  
 Colorimeters  
 Photometers  
 Optical Glass  
 Range Finders  
 Spectroscopes  
 Sport Glasses  
 Refractometers  
 Saccharimeters  
 Reading Glasses  
 Reducing Glasses  
 Ophthalmic Lenses  
 Optical Machinery  
 Projection Lenses  
 Searchlight Reflectors  
 Ophthalmic Instruments  
 Metallurgical Equipment  
 Binoculars (Stereo-Prism)  
 Spectrophotometric Outfits  
 Spectacle and Eyeglass Frames  
 Photomicrographic Apparatus  
 Gun Sights for Army and Navy  
 Industrial Optical Instruments  
 Photographic Lenses and Shutters  
 Projection Apparatus (Balopticon, etc.)

D-209, VI-35

**Bausch & Lomb Optical Co.**  
**ROCHESTER, NEW YORK, U. S. A.**  
 New York, Chicago, Boston, San Francisco, Los Angeles  
 London, Frankfurt a/M

