REFLEX ATTACHMENT
with
POLAROID
LAND CAMERA BACK

CAT. NOS. 42-14-29-30
42-14-29-31
42-14-29-32

REFERENCE MANUAL

BAUSCH & LOMB
OPTICAL COMPANY
ROCHESTER 2, NEW YORK

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BAUSCH & LOMB OPTICAL CO.
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B&L REFLEX ATTACHMENT WITH
POLAROID LAND CAMERA BACK

The 42-14-29-32 reflex attachment, shown in Figure 1, fits the 42-14-42 Bausch & Lomb photomicrographic camera Model L and is directly interchangeable with the 42-16-27 reflex attachment and the 42-16-26 plain attachment for 5x7 inch film holders. This reflex attacment is also applicable to the camera of the Bausch & Lomb Balphot Metallograph (Catalog No. 42-31-22), and is directly interchangeable with the plain attachment normally supplied.

To Attach the Reflex Attachment

The procedure for attaching the 42-14-29-32 reflex attachment is the same for the camera of either the Model L photomicrographic equipment or the Balphot Metallograph. In the case of the Model L camera, the attachment can be mounted in either of two positions for most convenient operation. It may be mounted with the ground glass screen facing the microscope end of the base, or facing away from the camera supporting column. When mounting the attachment in the first mentioned position, the bar to which the front and back supports of the camera are clamped should be moved downward until the upper end of the bar projects no more than 4 inches above the rear frame of the camera bellows, with the bellows set at the extension desired. With the ground glass screen turned toward the microscope end of the Model L camera base, the minimum bellows draw available with the reflex attachment is 13″. When a shorter bellows extension is required it is necessary to locate the attachment with the ground glass facing away from the camera support column. The reflex attachment can only be attached to the camera of the Balphot Metallograph with the ground glass facing upward.

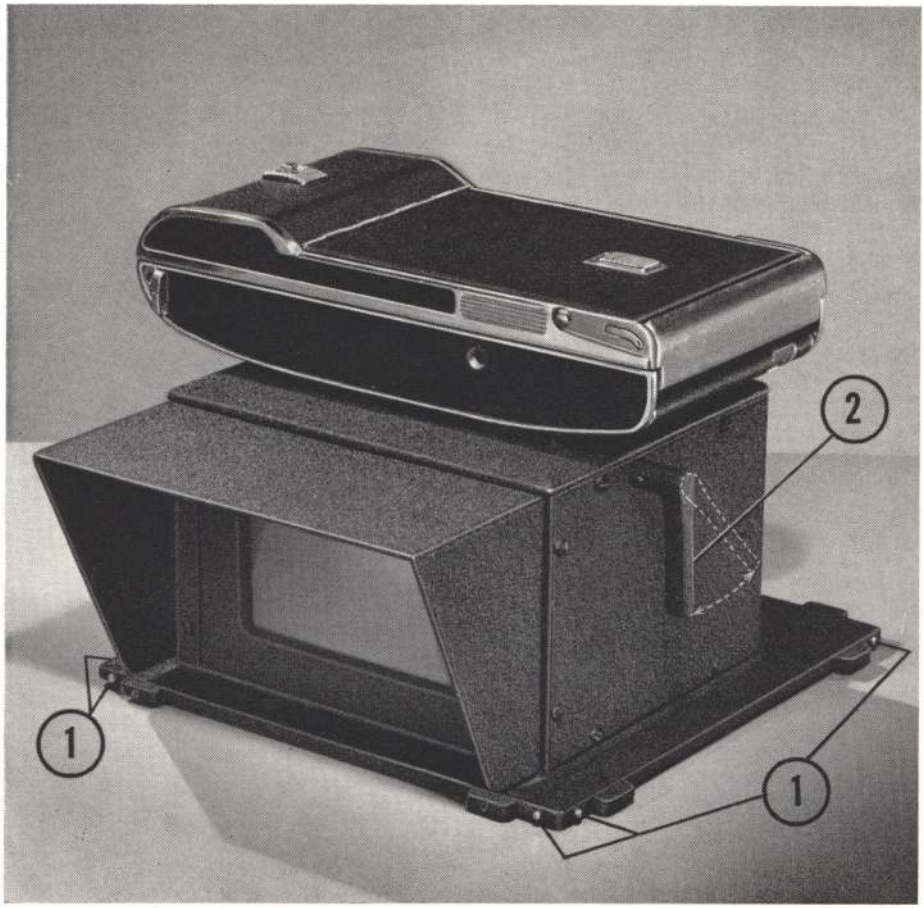
To attach the reflex attachment, first hold it at a slight angle and set one edge of the bottom plate against the rear frame of the camera bellows so as to engage two of the locating pins 1, Figure 1, in the holes of the two rigid metal strips attached to the frame. Now press outward on the two flat springs on the opposite side of the frame, letting the bottom plate of the reflex attachment seat against the frame. Release the springs which will then engage two corresponding pins in the bottom of the reflex attachment. The reverse procedure is used to remove the attachment. Tabs are provided near the corners of the bottom plate. The back is easily released from the camera by pressing upward on the tabs nearest the springs, using the finger tips of both hands while pressing outward on the springs with the thumbs.

The reflex attachment with Land camera attachment accounts for 6 inches of bellows extension, as does the No. 42-16-27 reflex attachment for 5x7 film holders. In the case of the Model L camera the measuring tape reads bellows extension directly when either of these reflex units are attached. In the case of the Balphot Metallograph, it is necessary to add the 6 inches to the scale reading on the camera bed.

The Reflex Mirror

The handle 2, Figure 1, serves to position the mirror. When the handle is pointing downward as shown, it is in the *photograph* position, and the image is projected to the camera film. Turning the handle back to the position indicated by the dotted outline places the mirror at 45°—*focus* position—directing the image to the ground glass screen. In this position the mirror blocks off all light from the film compartment and the reflex attachment can then be removed from the photomicrographic camera if desired, even though it is loaded, without exposing the film.

Figure 1—Reflex Attachment 42-14-29-32



Use of this reflex attachment does not affect the usual photomicrographic procedures up to the point of making an exposure. After making an exposure, processing is different (see page 10).

REFLEX ATTACHMENT *42-14-29-30*

The 42-14-29-30 Reflex Attachment shown in Figure 2 fits the Bausch & Lomb type H and J Photomicrographic Cameras. (H-R-J and JM Photomicrographic equipments and MILS Metallograph.)

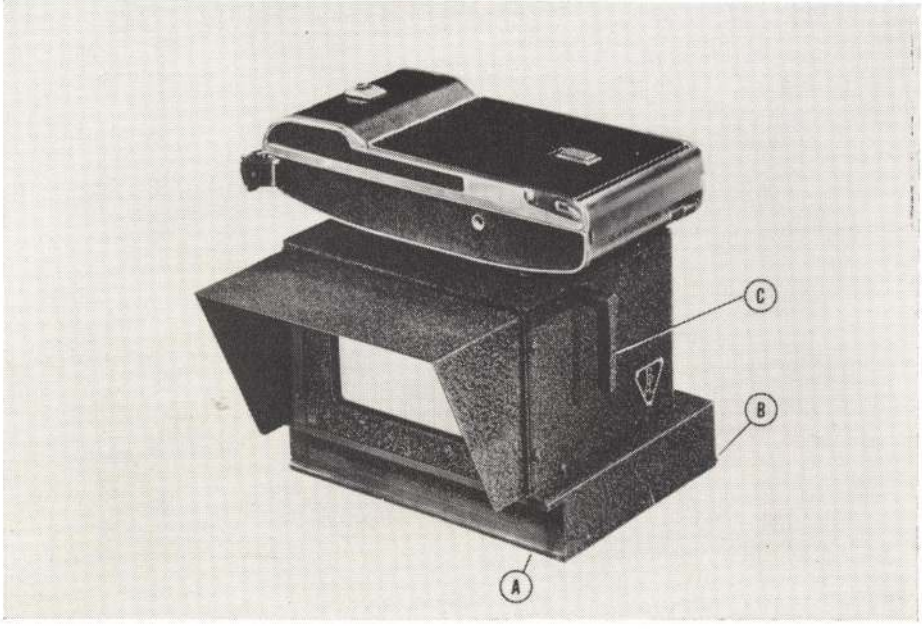
To mount the reflex attachment on the camera, open the hinged back of the photomicrographic camera and withdraw the ground glass focusing screen. Now insert the base of the reflex attachment from the open end of the rear frame of the camera, engaging the ribs A and B, Figure 2, in the slots which normally accept the frame of the ground glass screen. Slide the base of the reflex attachment all the way into the frame of the camera. The attachment should fit into the frame snugly so that there is no tendency for the unit to slide out in operation.

In the case of the MILS Metallograph camera, the reflex attachment can only be inserted in one position, that is, with its focusing screen uppermost.

For explanation of the function of the handle C, Figure 2, refer to paragraph 1—*The Reflex Mirror*—page 3.

The 42-14-29-30 Reflex Attachment introduces a bellows extension of 7¼ inches (184mm) in addition to the distance measured from the plane of the original camera ground glass to the microscope eyepiece.

Figure 2—42-14-29-30 Reflex Attachment



REFLEX ATTACHMENT *42-14-29-31*

The 42-14-29-31 Reflex Attachment, shown in Figure 3, fits the Bausch & Lomb 8x10 inch photomicrographic cameras. (GBP, GBVP, photomicrographic equipments, and, GBILS and Research, Metallographic outfits.)

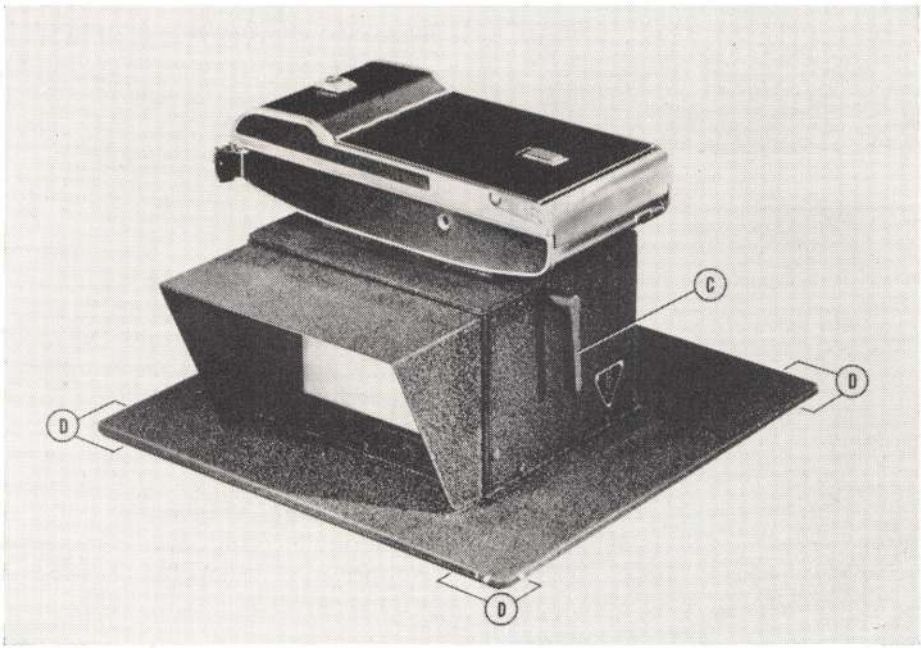
The reflex unit attaches to the rear frame of the 8x10 camera in the same manner as the reversible back which accepts the focusing screen or plate holder.

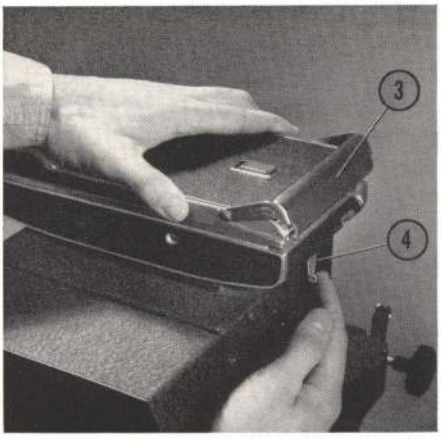
To mount the reflex attachment to the GB camera, first remove the reversible back. Press outward on the springs at the top of the rear camera frame to disengage the holding pins and lift the reversible back away. Holding the reflex attachment with the reflex focusing screen in the desired direction first engage the appropriate holding pins in the lower edge of the base plate D, Figure 3, in the metal strips at the lower corners of the rear camera frame. Now tilt the reflex unit forward against the camera frame and see that the holding pins at the upper corners of the base plate engage the springs at the top corners of the frame. Make certain the pins at the four corners of the base plate are securely held by the metal strips on the rear camera frame before releasing your hold on the reflex attachment.

For explanation of the function of the handle C, Figure 3, refer to paragraph 1, *The Reflex Mirror*, page 3.

The 42-14-29-31 Reflex Attachment introduces a bellows extension of 5⅜ inches (136.5mm) in addition to the distance measured from the plane of the original camera ground glass to the microscope eyepiece.

Figure 3—42-14-29-31 Reflex Attachment





Operation of the Land Camera Back

Loading

Figure 4. Lift cutter 3, swing latch lever 4 downward and open camera back as indicated.

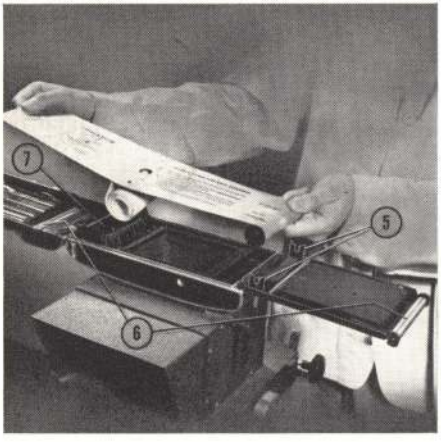


Figure 5. Open hinged inside cover section of back as shown. Check both steel roller (6) and other surfaces to make sure they are clean. Unwrap film and holding it similar to the manner shown, clip negative spool (BOTH SIDES) into the clips 5, then drop the picture roll (white paper roll) into the recess 7.

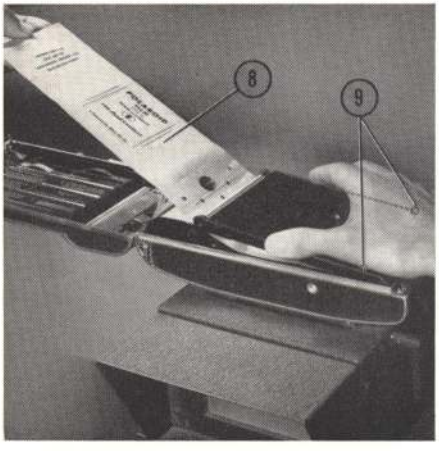


Figure 6. Holding the film wrapper away as shown, swing the inside cover back into position, closing it down over the paper from the negative spool as indicated. See that the wrapper is centered with the steel rollers. Draw the wrapper out until the two stars appear as can be seen in the figure. Now fold the wrapper back over the roller and lay it down against the back of the inside cover. Make certain the wrapper lays flat between the two red painted guides 9.

Figure 7. Close the camera back and squeeze it down tightly, making sure that the film wrapper 8 remains flat between the previously mentioned guides. Now lock the back in place by moving the latch lever 4 forward until it is felt to lift the back slightly, then catch. Now push the lever back with the thumb, as shown in the figure, to the limit of its motion. Note that the end of the wrapper 8 extends beyond the slot under the cutter 3.

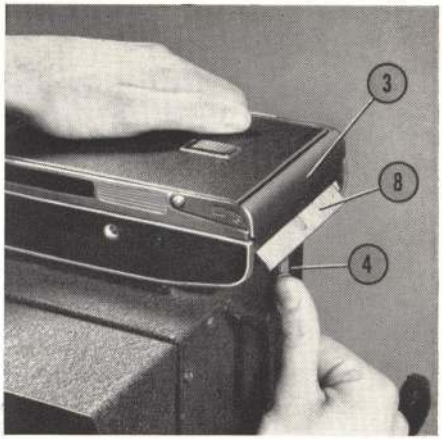


Figure 8. Set the reflex mirror handle (2, Figure 1), to the 45°, or *focus*, position. (Indicated by the dotted outline of Figure 1). Lift the cutter 3. Grasp the end of the wrapper 8 and pull it all the way out until it stops automatically and the words STOP, and No. 1, READY TO TAKE, are seen at the slot below the cutter.

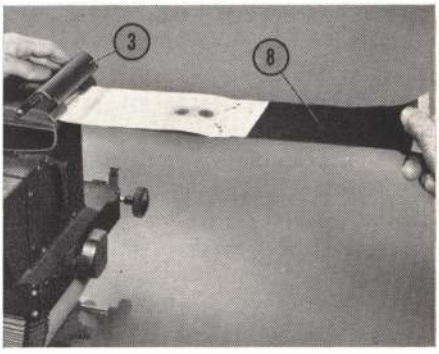


Figure 9. Tear off excess paper against the cutter edge as shown. Always have the cutter bar down and hold it down securely while tearing the paper off. Tear the paper by pulling the edge upward against the cutter.

Having torn off the excess paper, you are now ready to expose the first picture.

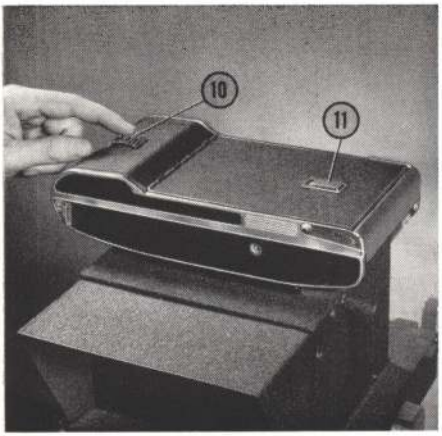


Figure 10

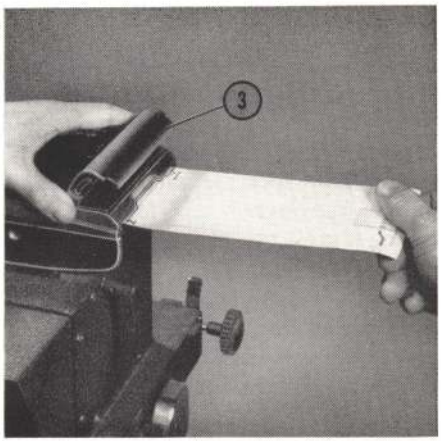


Figure 11

Making the Exposure

With the required optics set up on the microscope and the desired adjustments of illumination and camera extension made, focus the image sharply on the ground glass focusing screen. Now close the camera shutter and swing the reflex mirror handle back to the photograph position. Set the shutter to the time desired and make the exposure. (See section on film characteristics, page 9).

Processing

Figure 10. After making the exposure, to process the exposed film first press the film release button 10, and release it immediately. DO NOT HOLD IT DOWN.

Figure 11. Lift the cutter bar 3. Grasp the end of the paper extending from the slot and pull outward with a single, smooth, quick motion. Do not hesitate or jerk the paper. Pull the paper out until it stops automatically. Pull the paper straight out from the end of the camera as indicated in the illustration. (When the paper has been drawn out as far as it will go, the words, No. 2, READY TO TAKE, and a red line, will appear along the slot).

The picture starts printing as soon as the paper is pulled out. Press the cutter down and tear off the excess paper as previously described (See under Figure 9).

After pulling the paper out, wait about one minute for the picture to develop, then open the picture door in the camera back by sliding the door latch 11, Figure 10.

Figure 12. Open the picture door as shown and with the tip of the finger lift the tab of the print at the starting perforation 12. Carefully free the tab and lift the print out in the manner indicated, tearing along the perforations.

Figure 13. After exposing picture No. 2, and subsequent pictures up to No. 8, the paper tab pulled out each time carries with it the used negative from the preceding picture. This is torn off and discarded in the manner previously described.

Figure 12

Figure 13

A Few Reminders

DON'T hold down the film-release button while you are pulling a picture. (The stop won't hold the film and you will pull too far). DON'T forget to hold the cutter down when you tear off excess paper. If you forget to use the cutter bar, you will lose the tab for the next picture. If this happens, unlatch the camera back and inch the paper forward.

DON'T expose the tab slot to direct sun or strong room light. Keep it shielded from direct light while pulling a picture.

DON'T jerk or hesitate when pulling a picture. Pull the tab out with a single fairly rapid motion until it stops automatically.

GENERAL INFORMATION RELATIVE TO THE LAND PHOTOGRAPHIC PROCESS*

Film Characteristics

The Polaroid film Type 41 now available produces black and white pictures. It is orthochromatic in sensitivity, not red-sensitive, and the filters used with ordinary black and white orthochromatic type films may be used for contrast effects. Type 41 film has an ASA speed rating of 100 for daylight and 64 for tungsten illumination. The latter number is most generally applicable to photomicrographic equipments. The sheet included with each roll of film gives specific data for the particular film roll.

Exposure Determination

Exposures may be determined for the film by any of the methods regularly employed with ordinary black and white negative materials. Bear in mind that the Land camera delivers a positive picture. This means that in the event a finished picture is too DARK, it has been UNDEREX-

**Named for its inventor, Edwin H. Land, President and Director of Research of Polaroid Corporation.*

POSED. If the picture is too LIGHT, it is OVEREXPOSED. This is just reversed from the case of the finished negative in the ordinary negative-positive process.

TEMPERATURE affects the time required to process the picture, as it does most all chemical reactions. At normal temperatures allow about a minute (45 to 90 seconds), after pulling the tab to start processing, before taking out the picture. At lower temperatures allow a longer time. Approximately 2 minutes near 45°F, to 5 minutes near 15°F.

DURING OPERATION of the camera *always grasp the paper tab in the center* and pull out as straight as possible. If you pull the paper from one corner or at an angle, it will be hard to pull and the paper may become misaligned. Under certain conditions the negative may stick to the inside of the picture door, making it difficult to pull the tab. Simply open the door slightly and the paper will be released, then close and latch the door. If the paper is torn along the edge when it is pulled out, the tab was not pulled straight, and/or the paper is not running between the guides in the camera.

PICTURE STICKS TO NEGATIVE: if the picture doesn't separate easily from the negative, you have waited too long before stripping. If you should forget to remove the picture within the recommended time, do not attempt to take it out through the picture door. Instead, take another picture (so as not to waste one) and draw the forgotten picture, negative and all, out of the camera as you pull the new picture. Let the picture dry completely and it will separate easily from the negative.

THESE DIRECTIONS or instructions do not presume to cover all details, variations, or changes in this equipment nor to provide for all possible contingencies to be met in connection with installation or use. The Bausch & Lomb Optical Co. is desirous of hearing of any particular problems that arise that are not covered to the Purchaser's satisfaction.

RESPONSIBILITY FOR DELIVERY. Every shipment of Bausch & Lomb products is in good condition when it leaves the factory. The transportation company, when it accepts the shipment, becomes the consignee's agent and is responsible for safe delivery.

If shipment shows evidence of rough handling, have the agent note on the receipt "Received in bad order"; or if "concealed damage" is revealed after unpacking, call the representative of the transportation company within 48 hours and have him make out a "Bad order" report. Unless this procedure is followed, you lose all right to recovery from the carrier. *—Bausch & Lomb Optical Co.*

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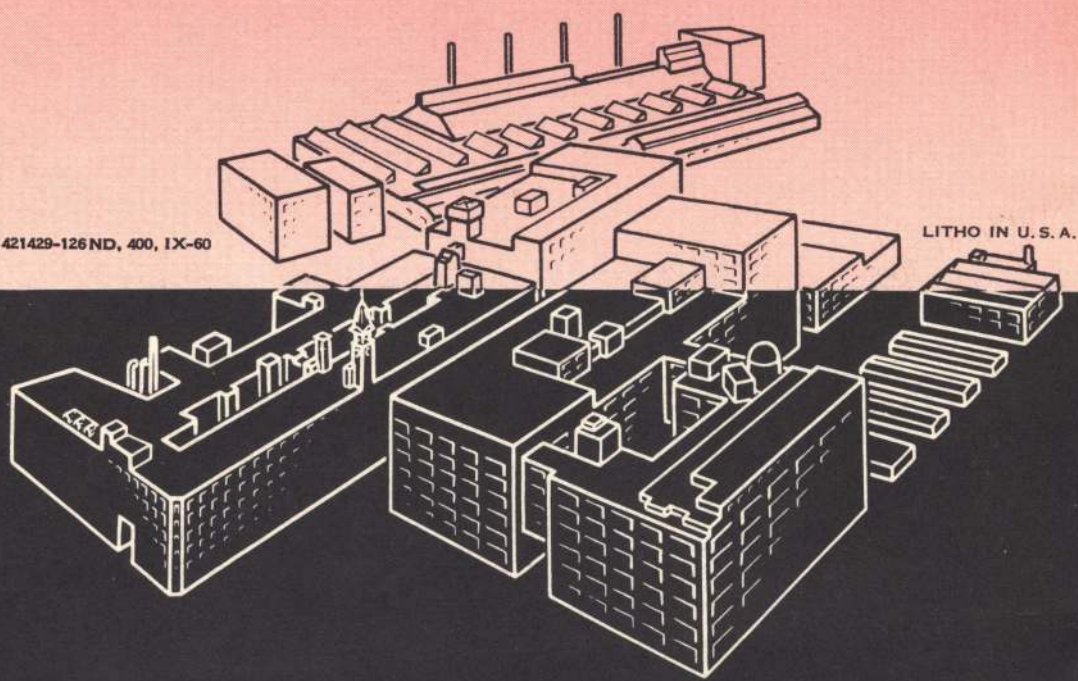
Sketched below are the main offices and works of the Bausch & Lomb Optical Co., at Rochester, New York. There are other Bausch & Lomb plants in Rochester, N. Y.; Midland, Ontario, Canada; and Rio de Janeiro, Brazil.
Sales offices are in many of the larger cities.



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