

INSTRUMENT COMPANY SPECIALIZES IN DELICATE OPERATIONS

Local Craftsmen Turn Out Precise Lenses For Numerous Jobs

By SAM W. AYERS

Since Benjamin Franklin, traditionally, put together America's first pair of bifocals, eyeglass making has been an important industry in this country.

The Martin Instrument Co., a locally owned firm, is one of several optical firms here which help to keep South Carolina among the best-bespangled states in the nation.

Wearers of glasses, though they do not ponder the matter very deeply, still have reason to be grateful for the skill evinced by the Martin Co.'s craftsmen, who work in modest quarters at 19 E. North St.

Grinding of lenses properly to prescription requires a competence that only can be gained through several years of apprenticeship. Opticians must have four years of apprenticeship before they can take the state board examination for a license, and South Carolina requires that every optical wholesale firm have an optician's license, as well as requiring that retailers of optical products be licensed.

South Carolina is the only state which has such inclusive requirements, according to Robert H. Martin, owner and founder of the Martin firm.

This state's close supervision is reflected in the fact that South Carolina is one of the "cleanest" areas "in the world, optically speaking," Mr. Martin observed. His statement simply means that South Carolinians, including Greenvillians, need have no qualms about the quality or accuracy of their eyeglasses.

The grinding of lenses is a complicated process that requires profound patience, as well as skill, on the part of the craftsmen. In this modern age, machinery has taken over much of the work that formerly was done laboriously by hand. Yet it still takes two to three days to duplicate Franklin's feat of making a pair of bifocals.

FILLING PRESCRIPTIONS for the half dozen or so basic eye troubles requires different techniques. But the fundamental task is to generate into a previously unshaped or roughly shaped glass

disk the ellipses or properties which will accurately correct the local difficulty.

The desired properties as stipulated in the eye doctor's prescription must first be marked off on the disk by the optician. In former days, a "protractor" was employed in marking the angles, but a machine lately has taken over even that Euclidian function.

The machines in the optician's trade have more limitations than their human operators, however, and some orders necessitate recourse to the hand method in marking and other phases of the lens grinding process. In short, the hand method "never has been improved on," in Mr. Martin's estimation.

The basis curvature of the lens surface is rendered by a "diamond curve generator," which employs a diamond dust coated grinding wheel. This wheel, spinning at 7,800 revolutions per minute, must be han-

dled carefully, as it can generate enough friction heat to start a blaze.

MORE PRECISE GRINDING shapes the lens further, and at the same time removes blemishes such as pits, scratches, etc. Fine emery "flour" is used in the precision grinding operations. Its final polish is given to the lens by "whetting" it over a cast iron "lap," which is covered with wool fabric or a special plastic material. Cerium oxide is used as a polishing agent in this process.

These metal laps, used for both grinding and polishing, are vital to the process of lens grinding and are traded about among the opticians here whenever one of an unusual shape is required. The Martin company has equipment for "re-tuning" its own laps, which become worn eventually.

To facilitate handling during the various processes, lenses are

cemented with hot pitch to a steel base. The finished lens is placed in a refrigerator, the pitch contracts and separates from the lens.

Lenses—those used in special instruments—are used to test lenses at the Martin company, to ensure that the finished product conforms perfectly with the requirements of the prescription.

AFTER ITS PERIMETER is edged and beveled on very fine corundum wheels, the lens only awaits insertion in the eyeglass frame. Plastic frames are made malleable for insertion of the lens by being heated in a bed of hot salt.

A final inspection for strain, which could be caused by a too-tight grip of the frames, is given and the glasses are ready for delivery to the eye doctor, who will fit them on the patient.

A revolutionary advance in

eyeglass making was pioneered here by the Martin company.

This involves heat treatment of lenses, which makes them practically break-proof—ideal for industrial goggles and for the dress glasses of children and amateur craftsmen.

THE LENSES ARE SUBJECT-ED to more than 1,000 degrees of heat and then cooled by a jet of dry air. This tempers them, much as steel is tempered. The hardened lenses are tested by having heavy steel balls dropped upon them. They will survive many repetitions of being dropped upon a cement floor, and if they do break, tend not to shatter as ordinary lenses do.

The glass used for lens making is of the very highest quality. Craftsmen describe this "optical crown" glass as "the cream of the crop."

The Martin Instrument Co. reflects a continuing interest in the optical products craft on the

part of the founder. The Easley native, who still resides in that nearby city, got his early training with the nationally known Bausch and Lomb Optical Co., for which he worked before and during the early years of World War II.

Later in the war, he was with the U. S. Army Ordnance Corps as optical officer for the Middle East and Persian Gulf theaters. During this period, "everything from eye glasses to range finders" came under his jurisdiction.

THE 1937 GRADUATE of Clemson College decided to go into business for himself following the war. For the first few years, he made sales and repairs and then "worked into the wholesale angle." He operated a shop at Easley from 1947 until February of 1951, when he moved his operations to Greenville.

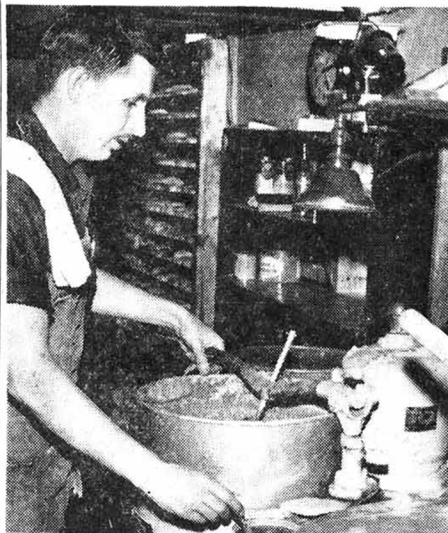
Mr. Martin thinks that Greenville and South Carolina constitute a ripe field for makers of the equipment used by opticians.

The only endeavor for this kind which has been made in this state was on the part of a small eyeglass frame manufacturing plant which located in Charleston, he observed.

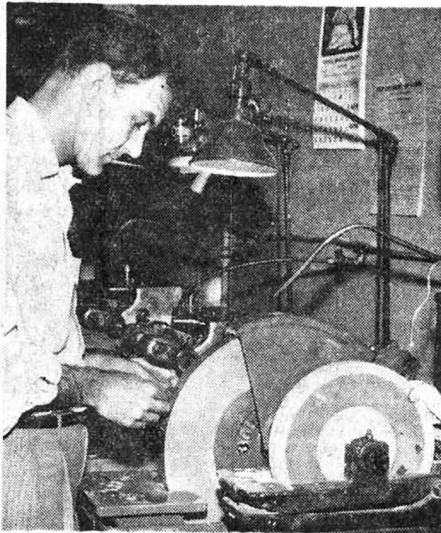
A "very important" sideline of the Martin firm is the sale of microscopes made by other firms. The local firm supplied the microscopic equipment for the biology school for the new University of South Carolina Extension College at Florence.

The Martin company is a strictly wholesale business, selling its eyeglasses only to eye doctors and to the retail optician. Its regular sales territory covers a 100-mile radius of Greenville. Its microscope sales extend into North Carolina, part of Tennessee and part of Georgia.

Robert E. Burgess, field salesman, and Miss Betty Harbuck, who handles the office work, are among the six employees of the firm.



Hemispherical grinding of a lens is mostly a hand operation, as Bill Kiser demonstrates.



George F. Von Edwins, one of the most experienced craftsmen at the Martin Instrument Co. here, shapes the edges of a lens on a hand edging machine.



Its final polish is given to a lens in an operation similar to the whetting of a knife blade. The cylinder polishing machine is operated by Donald K. Flanagan. (Piedmont photos)