

## INDUSTRIES IN EAST BERKSHIRE—NO. 4: OPTICAL MEASURING TOOLS LTD.

## Where absolute accuracy is paramount

**T**HE belief that craftsmanship died with the birth of the mass production era is a common over-generalisation. In fact, modern engineering practice, by creating a need for tools and gauges to be absolutely accurate, demanded the design of measuring equipment accurate to one ten-thousandth of an inch!

The answer, as shown by one particularly successful Maidenhead firm, the 250-strong Optical Measuring Tools, Ltd., at Bridge Road, is the use of optics. In this field of high magnifications, special lenses and accurate engraving of glass scales, the craftsman is supreme.

Working with infinite patience, grinding and polishing lenses, some so tiny that they are "cemented" to the ends of long glass fibres and swallowed by hospital patients so that doctors can observe a magnified picture of internal conditions projected on to a screen, these craftsmen are today sending products to every technically-developed country of the world.

O.M.T., Ltd. came to Maidenhead in 1940, taking over a small local optical company of six men. Behind the move was the then Ministry of Supply, for in those days the flow of these vital precision measuring instruments—until then mostly obtained from abroad—had ceased abruptly.

Hundreds were then made at Maidenhead, all to strict specifications laid down by the National Physical Laboratory which has been particularly concerned that such fine precision, both mechanically and optically, should be preserved.

After the war, however, that production alone would not have been sufficient to keep the firm, then of about 100 people, going. So it started to tackle an amazing variety of special jobs, some of mere one-off production, which its special craftsmanship made possible.

One of its first breaks was a commission from the Rank Organisation to make film cameras. O.M.T. proved so successful that it went on to produce 200, costing up to £8,000 apiece, by which time they had satisfied the market, for such cameras never wear out.

Since then, developments in colour films demanded a special seven-faced prism, with the use of which one film could be used instead of the three needed by an earlier system. Not being able to get what they wanted from their own optical industry, U.S. filmmakers came to Maidenhead with

their specifications and O.M.T. successfully met their demands.

Special orders today play a big part alongside normal production of the measuring instruments. Some have a place in America's space-research projects and others form regular deliveries to the Aldermaston atomic research centre.

At the opposite extreme to the tiny medical lens is the huge projector, the size of a small bedroom and weighing over four tons, developed for meticulous inspection of metal components for flaws. Based on a complicated system of lenses for magnification of test specimens up to 100 times, projected on to a 5 ft. x 3½ ft. screen, many of them are in use in aircraft factories. Some have been exported to Russia, and more recently to China.

The 4ft. 6 in. diameter mirrors for them, which are made in the Maidenhead works, are the largest to be successfully produced within their fine precision limits anywhere in the world.

The recent award to the firm of the Queen's Award to Industry was recognition not only of its exporting success, but also of its latest technological break-through.

This is a highly complex development of photographic processes for the production of glass scales to 0.0001 inch accuracy. The more conventional methods—of diamond engraving or photographic etching—either fall short of the accuracy demanded or are too expensive for competitive commercial production.

"Although the process takes considerable time and owes a great deal to the skill and patience of the operators, the effort becomes economically worthwhile since a very low failure rate of scales and gratitudes results," says Dr. C. Butler, the firm's Chief Physicist.

O.M.T. could have produced even more in recent years had more labour been available for the general engineering side of its business. "We run quite a large apprenticeship scheme—35 out of our 250 staff total—but we continue to be handicapped by this lack of sufficient skilled engineering personnel," says Mr. Harold J.

Rowe, joint managing director, who brought the firm to Maidenhead in 1940.

"We need a further 10 per cent. staff, but with Bracknell, Slough and Reading trying to recruit labour from here you have just got to accept the position as it is. It will not be cured by any "magical" measure aimed at re-directing

labour toward priority firms. We try to keep our personnel happy and try to find means of increasing production by improved techniques."

And those craftsmen in the optics department? Of 35 there, the majority entered the firm from school and were trained within the firm itself.

## 'ALL ROUNDER' WILL HEAD FOREST SCHOOL

**I**NTO one of Crowthorne's modern detached houses on Monday moved a man whose arrival is to affect many of the district's rising generation. For, in the September term, Mr. J. F. F. (Jack) Pearcy takes over the headmastership of the Forest School, Winnersh, left vacant since the December retirement of Mr. W G. Jackson.

To his new post the 45-year-old Devonian, who graduated at Exeter University with honours in mathematics, brings experience in widely varied teaching contexts.

After four years in the R.A.F., serving as technical signals and radar officer in North Africa and Italy, the Forest's headmaster-elect returned to his interrupted university career to take an Education Diploma at Exeter.

A spell of teaching at St. Alban's Boys' Grammar School was then followed by a stint at Hatfield Technical College as lecturer in mathematics.

Mr. Pearcy's next step on the educational ladder was to the Borough Beauforts School in Lambeth, where he was head of the mathematics department and in charge of an annexe.

Before becoming, in January 1966, Deputy Head of Holloway Comprehensive School, one of the London grammar schools expanded to a comprehensive, this newcomer to Berkshire's educational scene had also taught for nearly eight years at Wandsworth School, with its 2,000 boys.

As, with his wife Jane, a speech therapist, and their family—18-year-old Judith, lately head girl at Sutton High School and now going up to

Oxford to read physics, and son Mark (13), who is down for Ranelagh next year—Mr. Pearcy settled into his Crowthorne home, he told our reporter "I'm looking forward to coming to Berkshire, and one thing that has impressed me quite a lot is the number of letters of welcome I have had. I thought it was very pleasant, and it has made me feel that this part of Berkshire must be a friendly place."

In their new Headmaster the Forest Boys' Grammar School are to greet a good "all-rounder." For, besides his special subject, on which he has written three books—a series on "Experiments in Mathematics," for use in a mathematical laboratory ("All modern stuff, you see!")—this Fellow of the Institute of Mathematics and its Applications is a keen games man. A footballer who had county honours for Hertfordshire for four years, he also plays hockey and cricket and is hoping to take up golf.

Nor do games and maths exhaust his interests. Drama and music may be expected to claim much of his attention at the Forest School, and he is also a zealous churchman who at Cheam, where he has been living, was a churchwarden, a sidesman, and a member of the Parochial Church Council.