February 1946

TECHNOLOGY REVIEW

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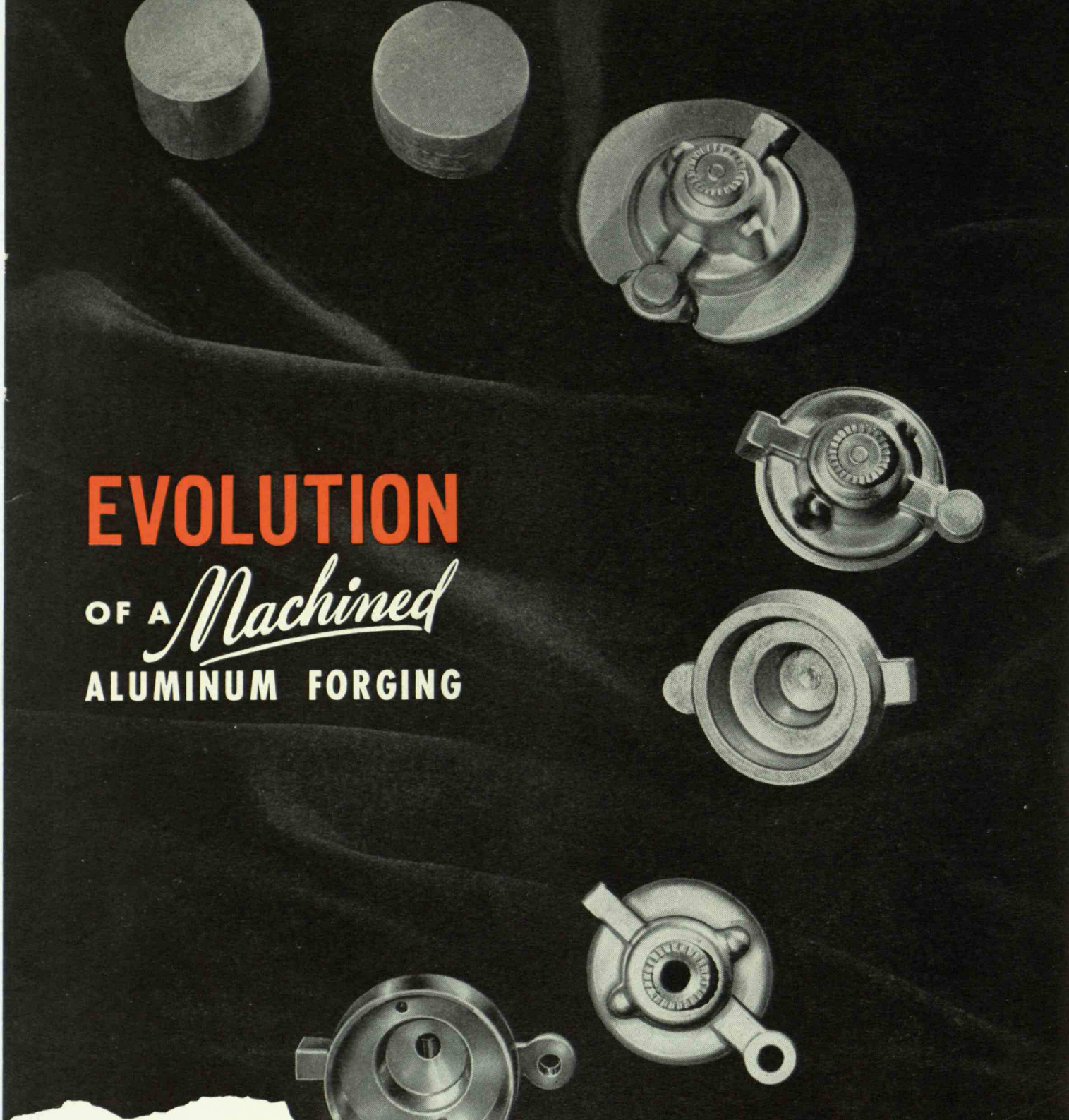


EVOLUTION OF A *Machined* ALUMINUM FORGING

THE

HARVEY

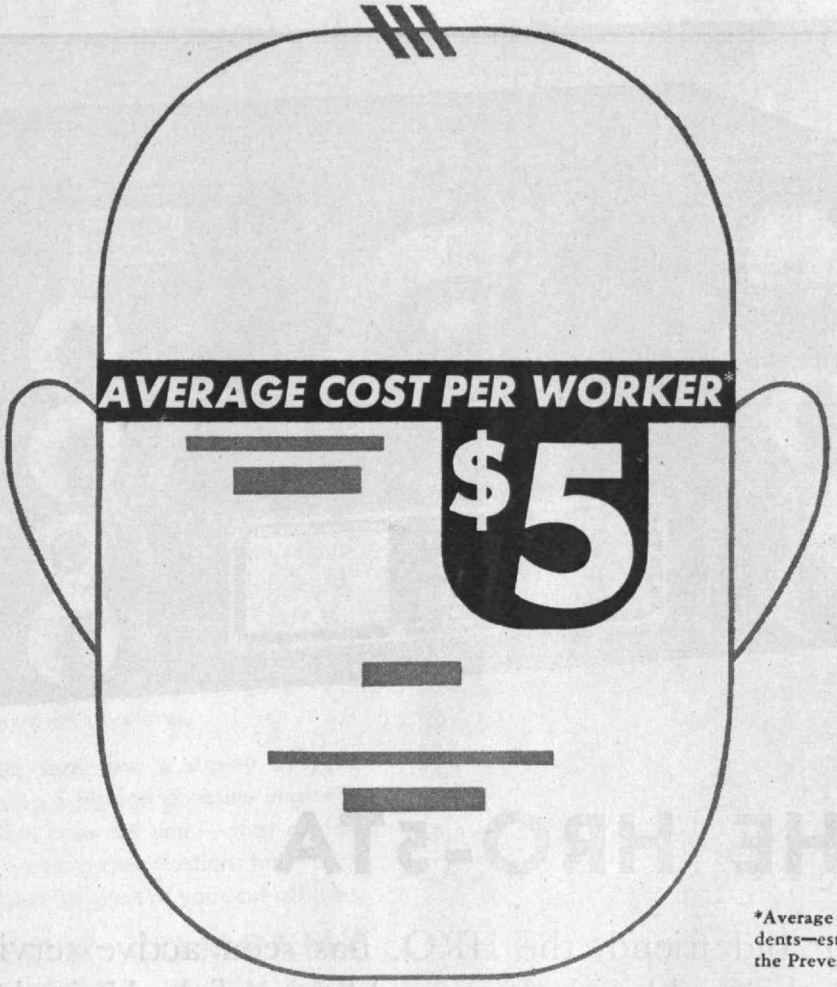
METAL CORPORATION

HAROLD B. HARVEY '05 • *Engineers & Manufacturers* • SHERRY O'BRIEN '17

74th STREET and ASHLAND AVENUE • CHICAGO 36, ILLINOIS

FORGINGS IN ALUMINUM • BRASS • BRONZE • COPPER • MAGNESIUM • MONEL • ALLOYS

MACHINING FACILITIES



*Average annual cost for all eye accidents—estimated by the Society for the Prevention of Blindness.

It's Cheaper Not to Take Chances

AO SAFETY GOGGLES SAFEGUARD THE EYES OF INDUSTRY

Why let this excessive cost continue when you can equip your workers with *positive* protection—AO Safety Goggles—for about $1.50 a pair. Phone or write your nearest AO Branch Office.

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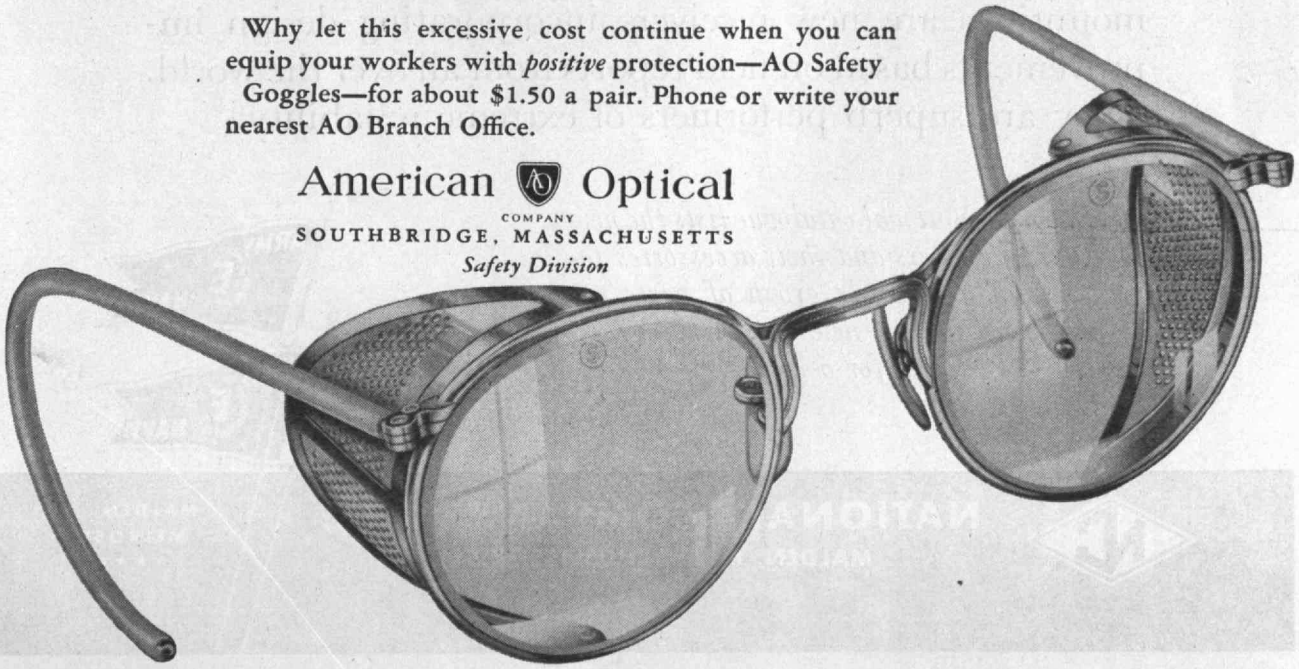

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THE HRO-5TA

Your old friend, the HRO, has seen active service all over the world with the armed forces of the United States and our allies. Much has been learned, and the HRO has emerged from its trial by fire an even better receiver than the superb receiver you knew before the war.

The HRO-5TA (table model) and the HRO-5RA (rack mounting) are new receivers incorporating design improvements based on field reports from all over the world. They are superb performers of extreme reliability.

» *The new National catalogue lists the new HRO-5A receivers and their accessories together with a versatile group of parts you will need in your new rig. Ask your dealer for a copy.*

NATIONAL COMPANY, INC.
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Are You Using Cut-off Wheels *that Really Fit Your Jobs?*

WHEN a Norton abrasive engineer tackles your cut-off jobs he's not limited to one special type of wheel. He has a *complete line* to choose from — over 50,000 possible specifications. For example, he has several varieties of resinoid bond, both natural and synthetic rubber bond, and shellac bond. He has Alundum, 57 Alundum and Crystolon abrasives. And in each abrasive and bond he has a wide range of grit sizes, grades (hardnesses) and structures.

You can be sure that a survey of your cut-off jobs by a Norton abrasive engineer will really cut costs for you — that among his 50,000 possible specifications there's the low cost wheel for each of your cut-off jobs.

NORTON COMPANY
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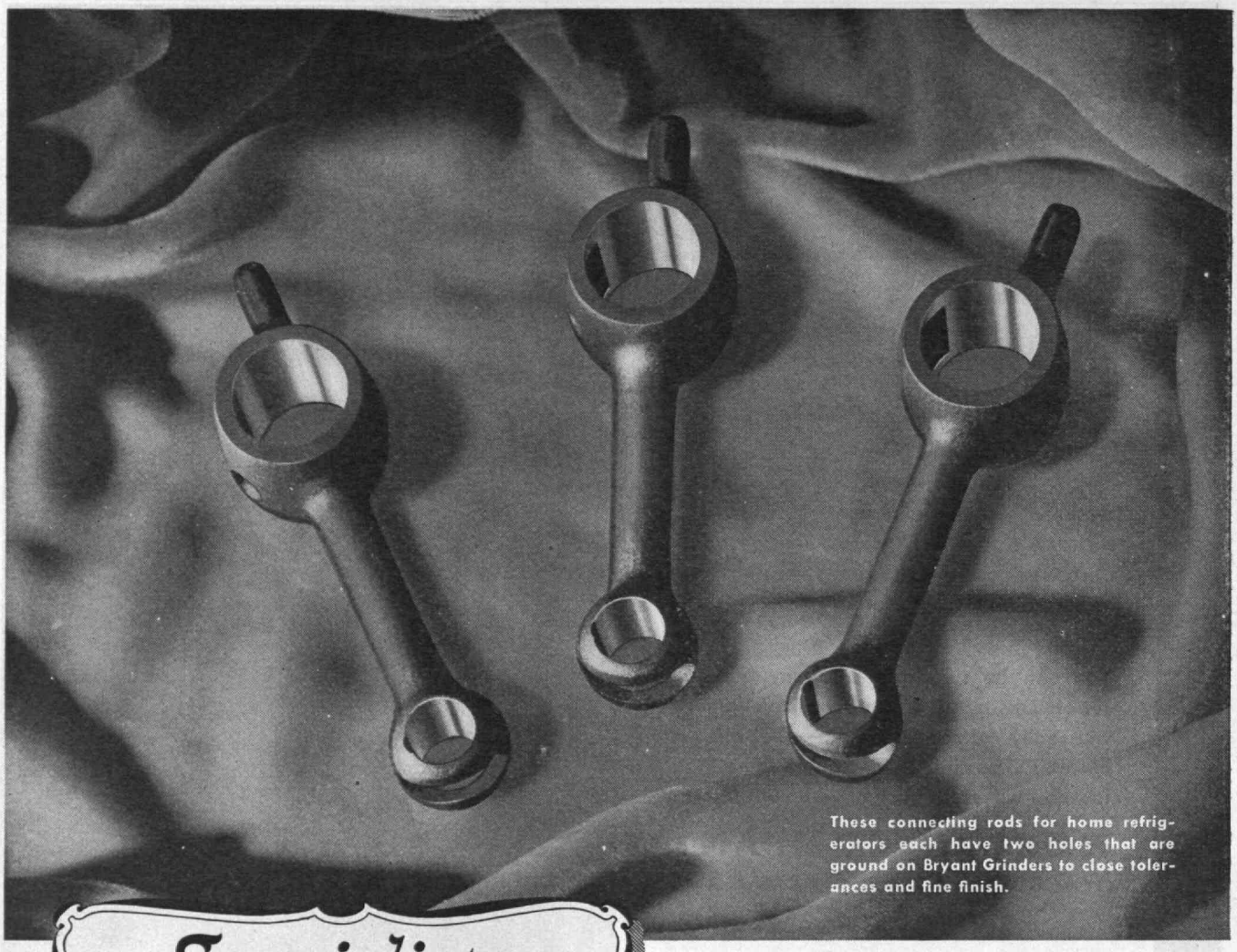
NORTON ABRASIVES



These connecting rods for home refrigerators each have two holes that are ground on Bryant Grinders to close tolerances and fine finish.

Specialists in Forged Steel Jewelry

No, we don't sell it; we don't make it, but we do build internal grinding machines that make it. The three connecting rods for home refrigerators, shown above, are typical examples of the type of work that is ground on Bryant Internal Grinders. They are truly jewel-like in their finish, but that is not enough—to be sure, Bryant Grinders produce metal parts that have surfaces finished correctly to millionths of an inch, when desired, but Bryant machines also produce these same parts with holes that are truly round and straight. These are basic elements that Bryant insists upon to assure Bryant users that their parts and products will last for years without mechanical failure.

WE KNOW YOUR PROBLEM IS DIFFERENT . . .

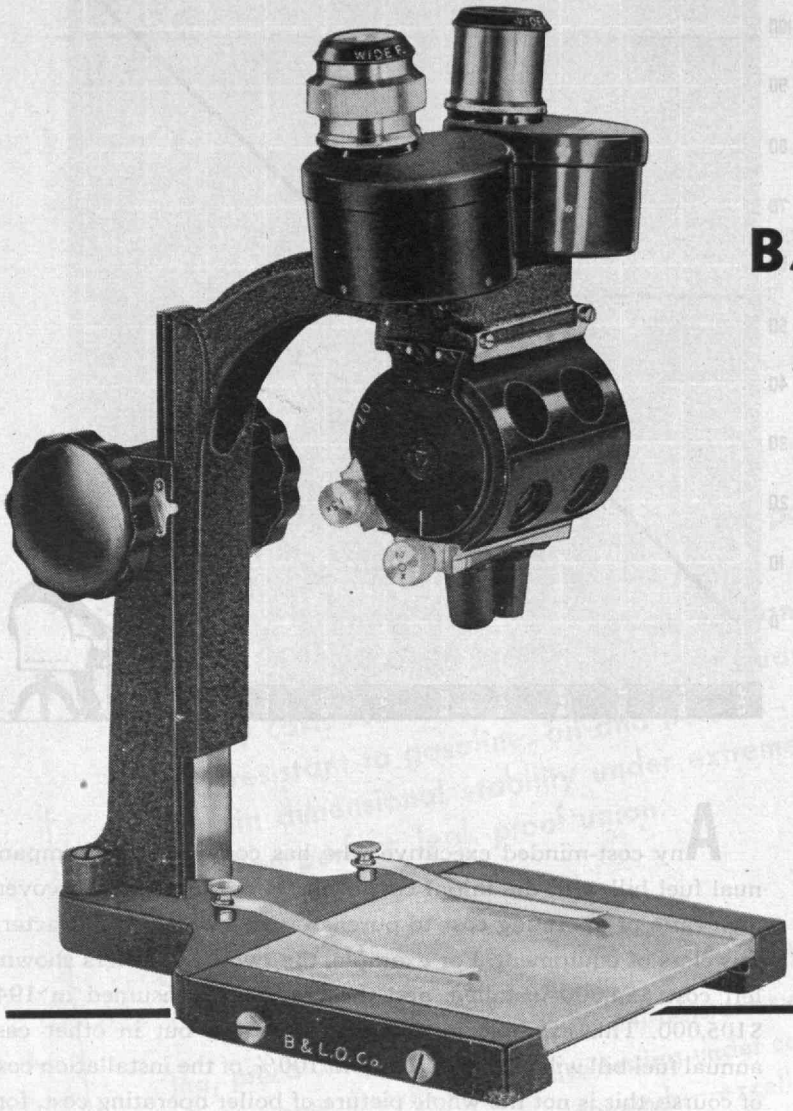
. . . practically every internal grinding problem is different. But when you require extreme accuracy or high production, *or both,* your first step should be to study your problem with a man who makes it his business to solve them. Your first step should be to—

Send for the Man from Bryant!

BRYANT

BRYANT CHUCKING GRINDER CO.

SPRINGFIELD, VERMONT, U. S. A.



BAUSCH & LOMB STEREOSCOPIC WIDE FIELD MICROSCOPE

MODEL AKW

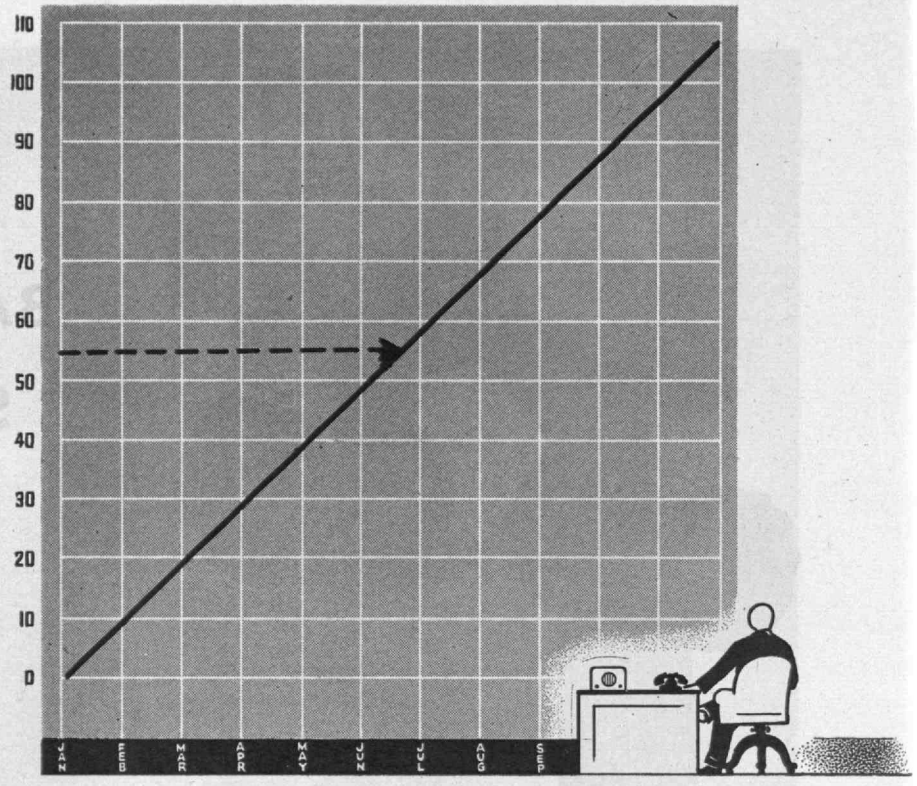
THIS is the ideal instrument for dissection, preliminary study, and for examinations that do not require high magnification. The long working distance, the fact that the object is seen as it really is—not inverted or reversed—and the stereoscopic effect, make this instrument invaluable. It may be placed directly upon a gross specimen when desired. Clear glass stage 100 x 100 mm. supplied. Characteristics of this microscope also include an extremely wide field, high eyepoint, and instantly variable magnification with parfocal objectives. Write for Catalog D-15. Bausch & Lomb Optical Co., Rochester 2, New York.

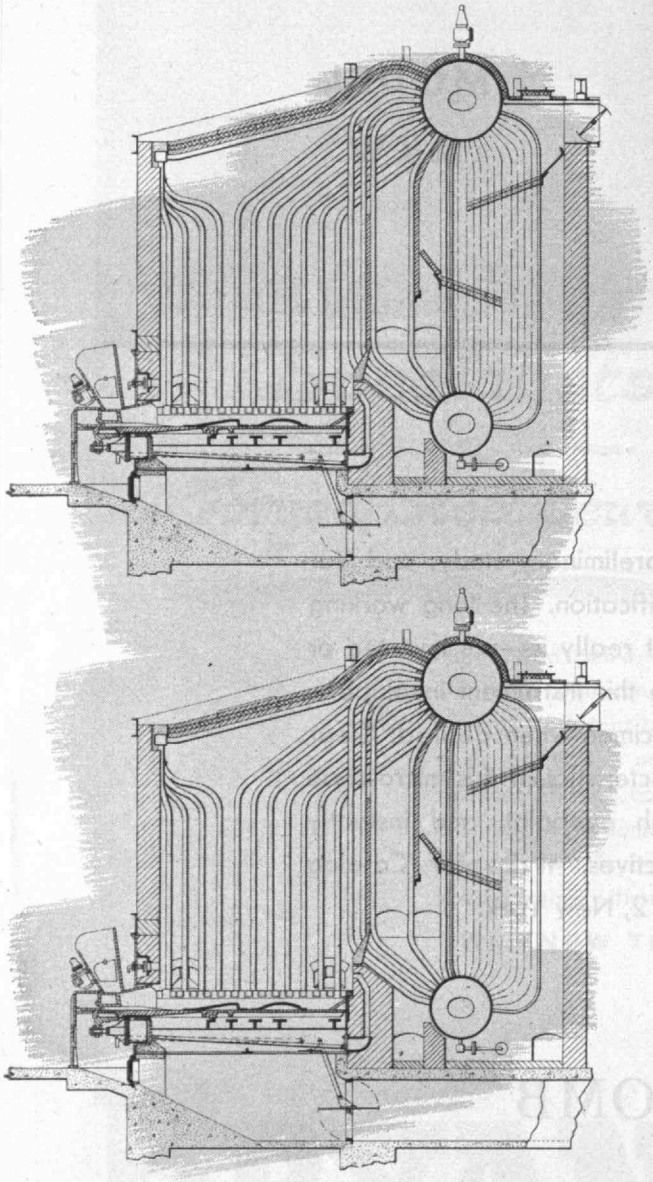
BAUSCH & LOMB

ESTABLISHED 1853

FIRST COST **$54,000**

ANNUAL FUEL BILL **$105,000**





Any cost-minded executive who has compared his company's annual fuel bill with the initial cost of his boiler units has discovered the high ratio of operating cost to purchase price which is characteristic of this class of equipment. For example, the two C-E Boilers shown at the left cost $54,000 installed, and the coal they consumed in 1944 cost $105,000. This example is above the average, but in other cases the annual fuel bill will run upwards from 100% of the installation cost. And, of course, this is not the whole picture of boiler operating cost, for labor, routine maintenance, repairs and outage losses total up to quite a substantial yearly figure.

All of which adds up to one simple fact—when it comes to buying boiler units, first cost is decidedly a secondary consideration. The total of annual operating costs is far more important. For obviously a unit that is engineered and built to provide something extra in efficiency of fuel consumption and serviceability will, within the first year of operation, prove to be a far better investment moneywise than a much cheaper unit providing a lower standard of performance. And when the figures are projected over the many years of the useful lifetime of such equipment, the advantage of buying on performance rather than price becomes a matter of simple logic.

Combustion Engineering boilers, fuel burning and related equipment are engineered and built to provide a high standard of lifetime performance. That they do so is attested to by the fact of their widespread use in the plants of leading industrial and utility companies.

Users of C-E equipment have long since discovered that paying for extra values in engineering and construction pays handsome dividends every year.

A-911

C-E

COMBUSTION ENGINEERING

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You name it we'll mold it in RUBBER!

Acct: PRATT & WHITNEY AIRCRAFT DIVISION

Case History #453

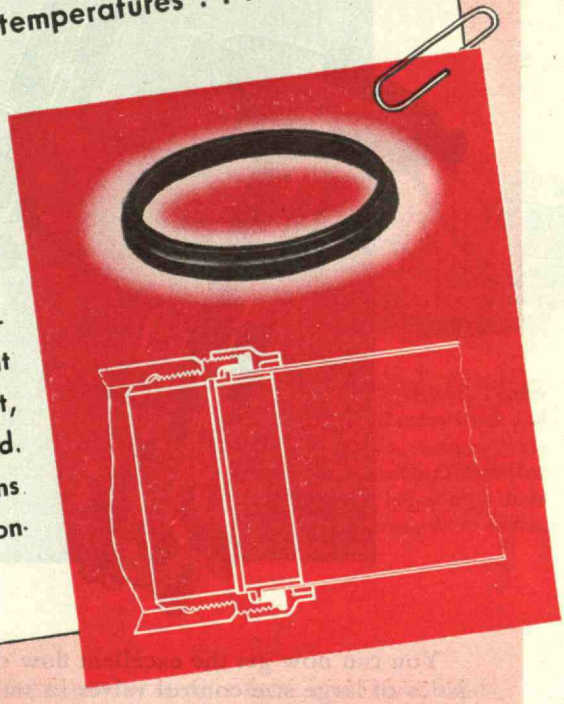
PROBLEM:

To find satisfactory leak-proof packing for ends of Intake Pipe on aircraft engine.

Existing rings permit leakage. Dirty to handle. Skived ends increase assembly cost. Not available in sufficient quantity. Replacement must be highly resistant to gasoline, oil and heat . . . seat to close tolerance . . . maintain dimensional stability under extreme temperatures . . . effect a sustaining perfect, leak-proof union.

SOLUTION:

Developed special design packing, precision-molded from Hycar oil-resistant synthetic rubber. Results of extensive testing under conditions far beyond ordinary demands:—excellent heat resistance, high modulus, good permanent set, perfect performance. Overall assembly cost lowered. Produced in great quantities exact to specifications. All tests proved in actual operation under all conditions. Seal is now a standard part.



The solution to this problem is typical of the hundreds of assembly parts "bugs" we have been privileged to study and overcome for American industry. Perhaps it parallels a problem which confronts you, or suggests a remedy for other product parts difficulties. In either case, Acushnet's accumulated technical experience, engineering skill, unsurpassed laboratory and production facilities (which won five "E" awards during the war) are available for research, recommendations and prompt action. Send complete details of your problem, or requirements for the improvement of your product. We'll gladly make recommendations for the most efficient and economical solution.

Acushnet PROCESS CO.
New Bedford, Mass., U.S.A.
Precision-Molded RUBBER Parts & Products

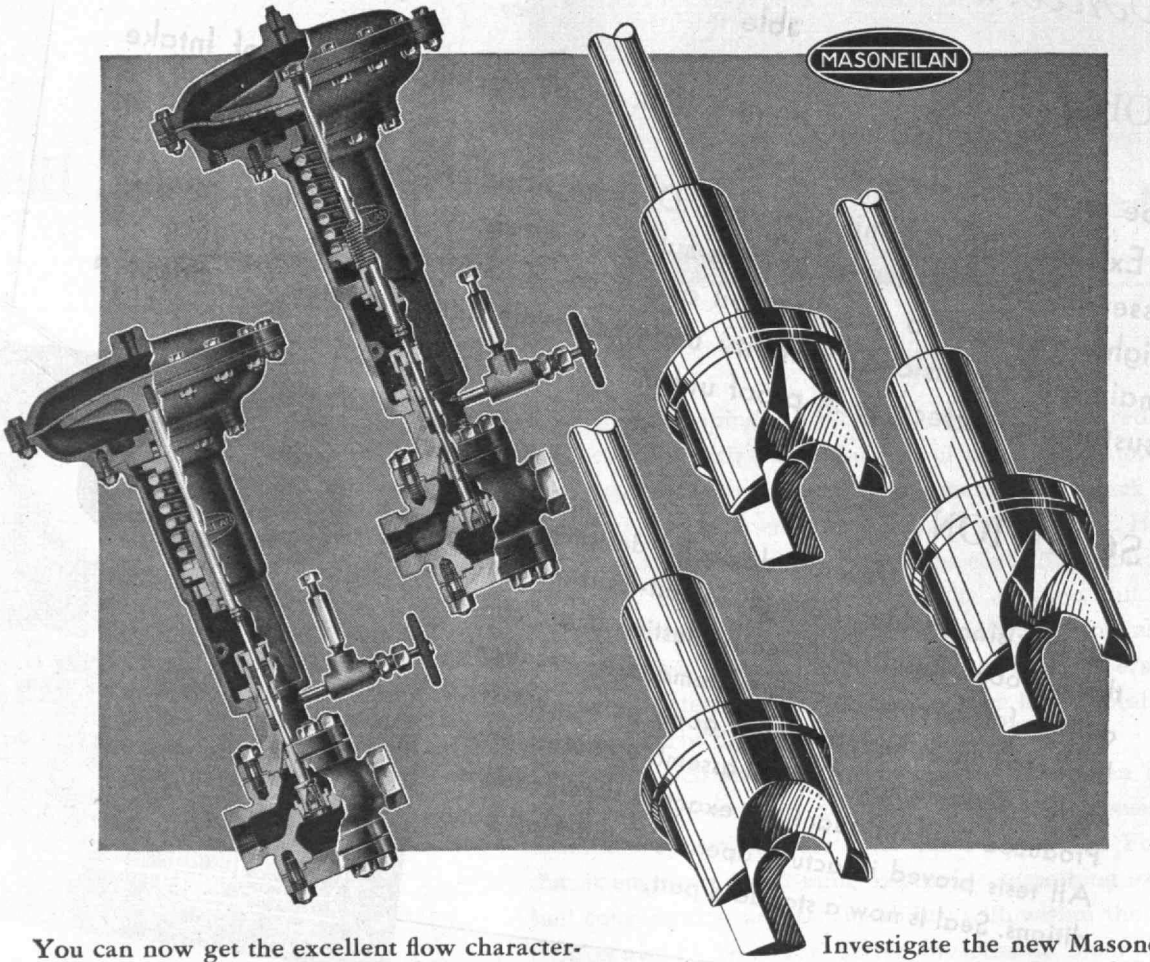
MASONEILAN

Percentage Piston

CONTROL VALVES GIVE YOU FOR THE FIRST TIME

WIDE RANGE PERCENTAGE FLOW CHARACTERISTICS

IN SMALL VALVES



You can now get the excellent flow characteristics of large size control valves in small valves even down to 1/8" by installing the Masoneilan *Percentage Piston* Control Valves. These new Control Valves . . . which are available in five trim sizes 3/4", 1/2", 3/8", 1/4" and 1/8" . . . all provide a wide flow range with desirable reproducible characteristics *never before obtained in small valves.* The Masoneilan *Percentage Piston* Control Valves give you consistent performance under conditions of varying flow and pressure drop. When the flow is small, the change in flow for a unit change in lift is small. When the flow is large, the change in flow is large . . . the change *always* proportional to the quantity flowing.

Investigate the new Masoneilan *Percentage Piston* Control Valves. Bulletin 300 gives the complete story. Write for your copy today.

CHECK THESE FEATURES

- Special design of the plug and the seat ring permits excellent flow characteristics over flow ranges of the same magnitudes obtained in larger valves.
- High Lift — All sizes have a 1/2" lift.
- Trim size is interchangeable and conversion is accomplished by merely replacing the plug and seat ring.
- Body materials — Bronze, cast iron, cast steel, forged steel or alloy steel are standard.
- Body design — Globe or angle type bodies, tapped 1/2", 3/4" or 1" are standard.

MASON-NEILAN REGULATOR COMPANY

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