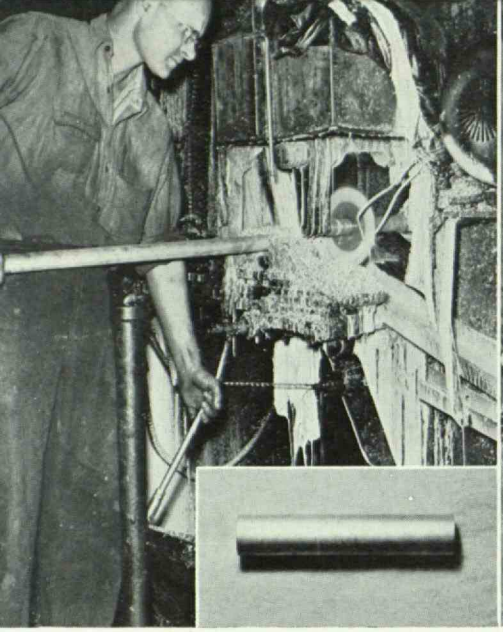
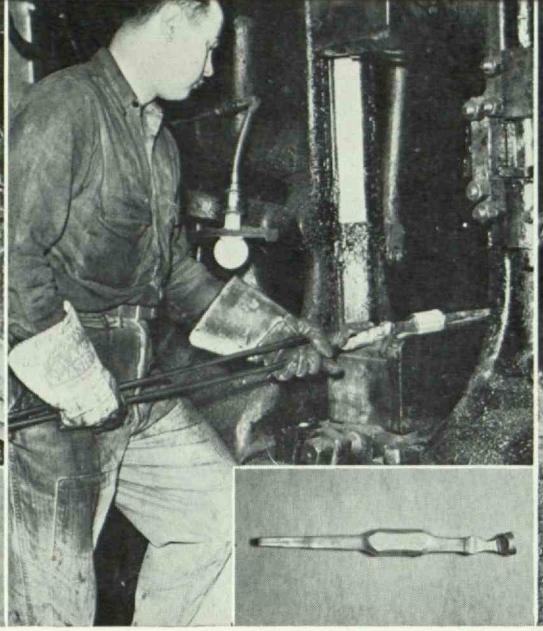
TECHNOLOGY REVIEW

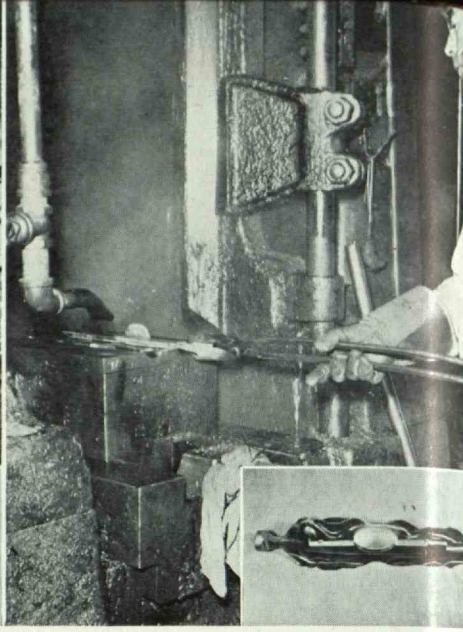
February 1949



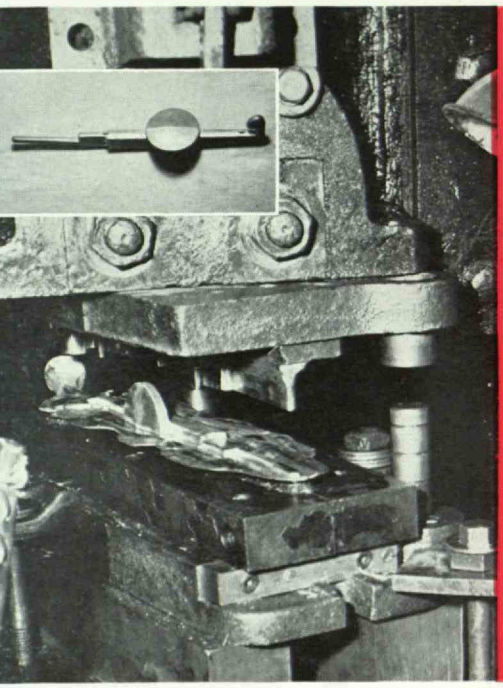
Cutting Bar



Lengthening and Shaping



Shaping to the Die



Trimming the Flash

FORGING ALUMINUM

into

Pressure Cooker Tops

Finishing and Polishing

The Harvey Metal Corporation

HAROLD B. HARVEY '05

Engineers and Manufacturers

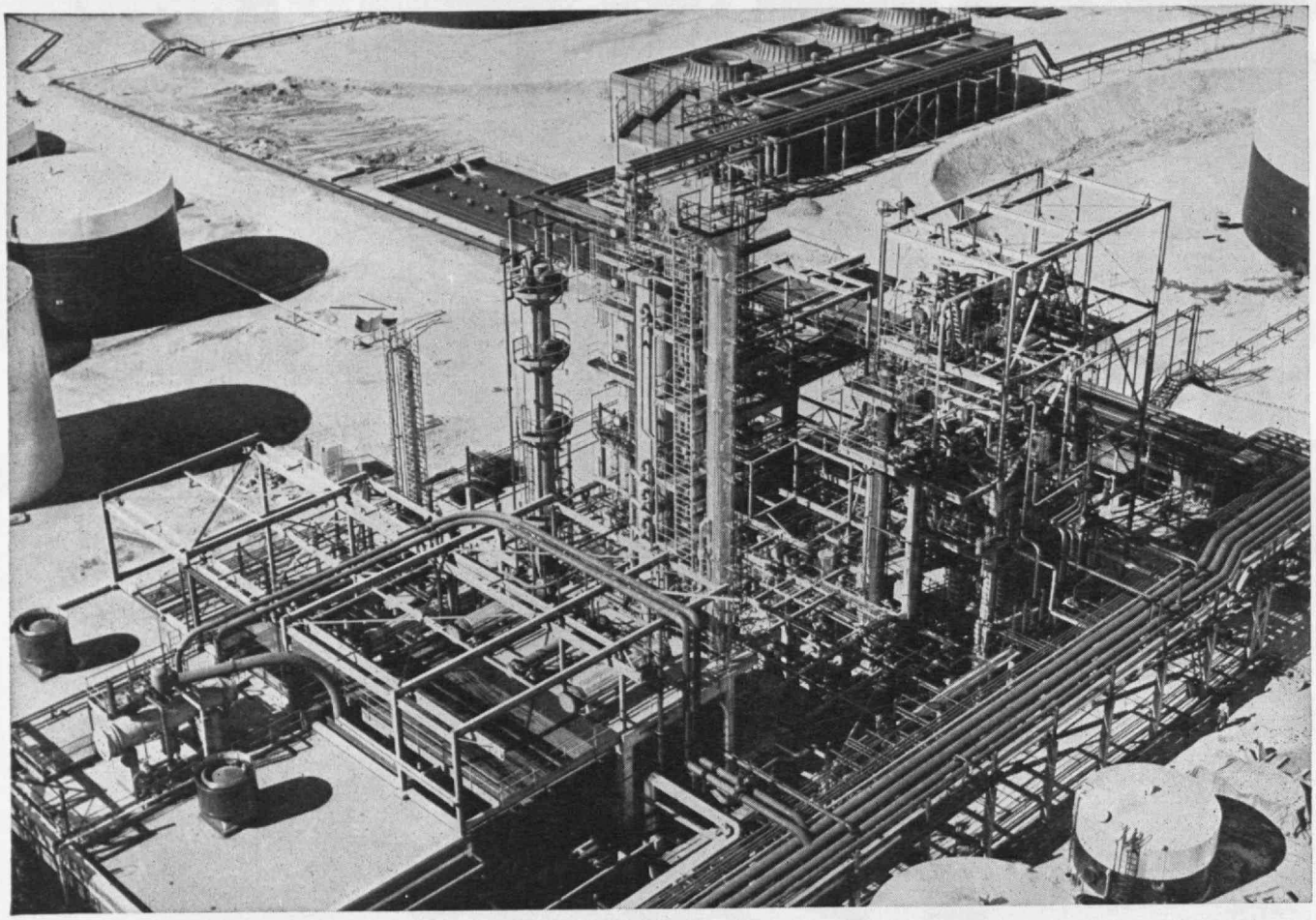
74th Street and Ashland Avenue — Chicago 36, Illinois

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

MACHINING FACILITIES

THE TECHNOLOGY REVIEW, February, 1949. Vol. LI, No. 4. Published monthly from November to July inclusive at 8 Harmony Place, Brattleboro, Vt. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $3.50; Canadian and Foreign subscription $4.00. Entered as second-class matter at the Post Office at Brattleboro, Vt., under the Act of March 3, 1879.

Crude thruput doubled . . . gasoline octane level raised . . .



Denver, Colorado Refinery of Continental Oil Company, with catalytic cracking, gas recovery, catalytic polymerization and L.P.G. Fractionating units designed and built by Lummus.

. . . an interesting example of integrated expansion

The new Lummus-built catalytic cracking unit at Continental's Denver Refinery was recently completed. Despite unfavorable weather conditions it went on stream about the middle of November, and within two days it was operating at design capacity.

The catalytic cracking unit was part of an integrated expansion program that included the design and construction by Lummus of three other new units—gas recovery, catalytic polymerization, liquid propane gas fractionation—and the modernization by Lummus of a thermal cracking unit.

Continental's Denver Program is an interesting example of refinery expansion accomplished by integrating new units with modernized existing facilities. This program practically doubles the crude thruput at Denver and raises the octane level of the finished gasoline.

Lummus engineers are available for a thorough study of individual problems involving the modernization or expansion of existing facilities and the projection of new programs.

THE LUMMUS COMPANY
420 Lexington Avenue, New York 17, N. Y.

LUMMUS

CHICAGO—600 South Michigan Avenue, Chicago 5, Ill.
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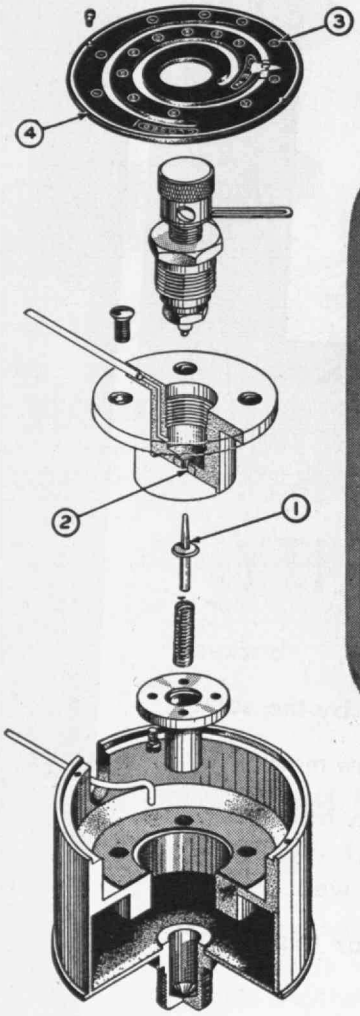
LONDON—525 Oxford Street, London, W.1, England

NATIONAL CONSTRUCTORS ASSOCIATION — OIL STEEL CHEMICAL GAS

MASONEILAN

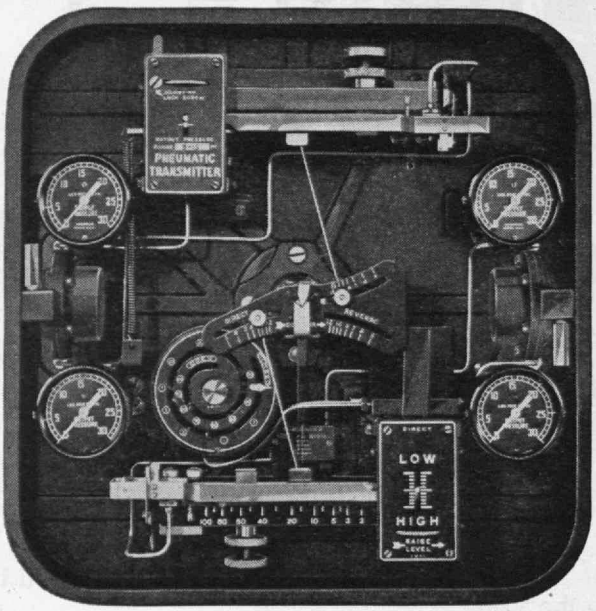
Mason-Neilan Offers INTEGRAL RESET

in the 12,000 Series Level Controllers

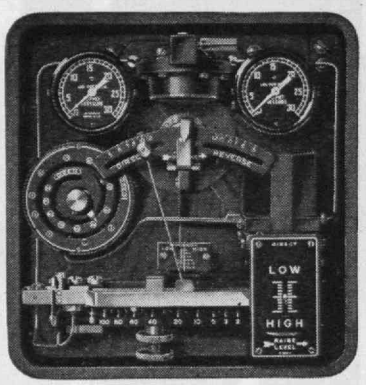


Resistance Unit

1. Precision-machined tapered stainless steel plug
2. Tapered orifice
3. Actual reset rates — graduations divided by 20
4. Spiral scale permits nearly 2 full turns. Readings at smaller reset rates have greater spacings



Model 12610-20 Proportional-Reset Controller and Pneumatic Transmitter



Model 12610 Proportional-Reset Controller

Model 12610 Controller

Masoneilan proportional-reset level controllers have the entire reset mechanism *inside* the instrument case.

Reset is thus accessible, compact and protected.

The 12000 Series controllers with pneumatic reset are *package* units, complete and standard with the reset bellows and resistance unit integral, built-in. Masoneilan duplex level controllers and controller-transmitters also have this reset.

There are no external connections or adjustments to make. There is no external piping. And since the reset is an integral part of the controller and not an external appliance, the reset mechanism is always accurately calibrated, with graduations on a ten-inch scale proportional to actual reset rates.

When to Specify Reset . . .

1. When you want to get maximum vessel surge capacity at all times and in the presence of large and sustained load changes.
2. When smooth, uniform, controlled flows are essential to process operation.
3. When the level controller pneumatically sets the set point of a flow controller, or of several flow controllers in split-stream operation.

MASON-NEILAN REGULATOR COMPANY

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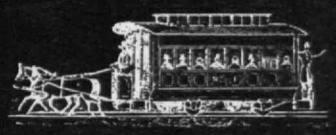
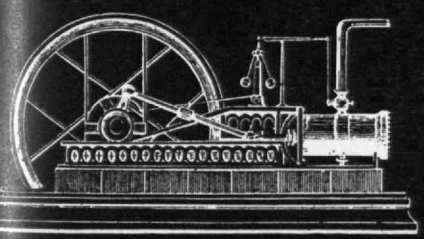
1882



For nearly three-quarters of a century . . .

For nearly three-quarters of a century, Cabot has produced carbon black. More than two billion pounds of Cabot carbon black has found its way into industries ranging from the manufacture of rubber tires, inner tubes, footwear and mechanical rubber goods, to printing ink, paint, varnish, lacquer, plastics, dry cell batteries, fertilizer and paper.



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THE TABULAR VIEW

He flies through the air bent on achieving the most rapid transportation possible, yet the typical air passenger seldom gives thought to safety until tragic crashes come to his attention. The case of safety in the air is ably and authoritatively presented in the personal opinions (page 215) of W. MACK ANGAS, '17, Rear Admiral, director of the Atlantic Division of the Bureau of Yards and Docks, Civil Engineer Corps, United States Navy, and Lieutenant Commander WILLIAM T. HARDAKER, Naval Air Technical Training Command, Memphis. Although not expressing official Navy views, both officers have had extensive experience in flying, and in airport design and construction for the Navy. Admiral Angas is already favorably known to Review readers for his articles on maritime matters. As one of its new authors, The Review welcomes Commander Hardaker who has flown more than 2,700 hours since getting his wings in 1939, mostly in the Central, South, and Southwest Pacific during the first 18 months of World War II.

With the greatest of ease and with good (if misguided) intentions, large numbers of this nation's agriculturalists have contributed to destruction of this country's topsoil. The problem of soil conservation is gradually becoming recognized as a major factor in providing a food supply for the world's steadily growing population. In this issue (page 221) EDWARD H. GRAHAM outlines some of the projects now in progress to conserve soil, and indicates the extent to which engineering is necessary in this program. Dr. Graham is a graduate of the University of Pittsburgh (B.S., 1927; Ph.D., 1932), and for several years was associated with the Carnegie Museum in Pittsburgh as assistant curator of botany. Since 1937 he has been with the United States Department of Agriculture where he is now chief of the Biology Division of the Soil Conservation Service.

The daring young man who, palette in hand, appears to daub undecipherable patches of oil on canvas, may have a message for the conventionalists after all. PAUL MEADOWS turns to their writings for an interpretation (page 220) of the work of the contemporary rebel painters. Dr. Meadows, Associate Professor of Sociology at the University of Nebraska, has been an avid student of social movements and the human aspects of modern industrialism for many years, as his articles in The Review testify.

On the flying trapeze of easy money for mathematical accomplishment, many an abecedarian, and occasionally a scholar, has come to grief. Attracted by prizes which have been offered, many tackle problems beyond their ability for utilitarian reasons, as WILLY LEY points out (page 225). Mr. Ley, an Editorial Associate of The Review, for the past five years, is probably best known for his writings on matters pertaining to rockets. He also delves into other aspects of science writing, including a number of books, of which his latest is *The Lungfish, the Dodo, and the Unicorn.*

MAIL RETURNS

Continental Contributors

FROM LLOYD ESPENSCHIED:

Permit an outsider to express his appreciation of the article on Ampère in the December, 1948, issue of The Review, written by David and Charlotte B. Landau. It's a beautiful picture of the times, the man and his accomplishments; an appropriate recognition of one of the greatest of electrical scientists.

Such an article should be relished the more because we in the United States are none too well informed on the Continental contributors to electricity and magnetism, the result, apparently, of the language barrier, of the fact that the Continental contributors were divided between a number of nationals, and perhaps have been lacking in publicity sponsors, certainly in the English language, compared to the British.

Before me is Ampère's book of 1822, *Recueil d'Observations Electro-Dynamiques*. The contents of it are well summarized in the international language of the 10 plates of figures. Here we see some of the earliest illustrations of the electrical conductor wound up into a coil* to enhance the magnetic effect; long, thin coils, short, fat coils (pancake coils), and single loops mounted delicately on pivots and capable of rotary displacement and thus showing mechanically the inductive action between two circuits carrying current. Here we see some of the carefully constructed apparatus with which Ampère determined some of the primary laws of electromagnetism, measured the interaction as a function of distance and angle between coils, which he then expressed mathematically.

Perhaps our conception of his contribution would be clarified if, instead of using the term "electrodynamics," which has little currency today, we simply said that following Oersted's discovery, it was Ampère who first elucidated electromagnetism and supplied the primary knowledge of electromagnetic-mechanical action. He was the

* The simple but basic contribution of wrapping a wire up into a coil, and thus "multiplying" the effect of a single wire, Ampère shares in the year 1820 with Schweigger of Halle who orginated the galvanometer.

(*Concluded on page 242*)