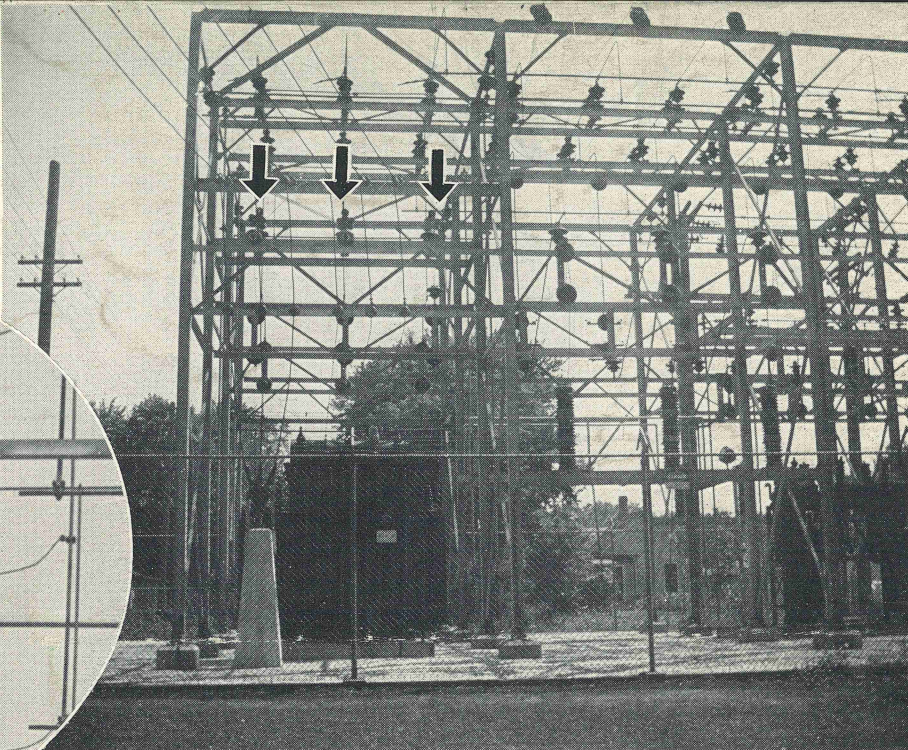
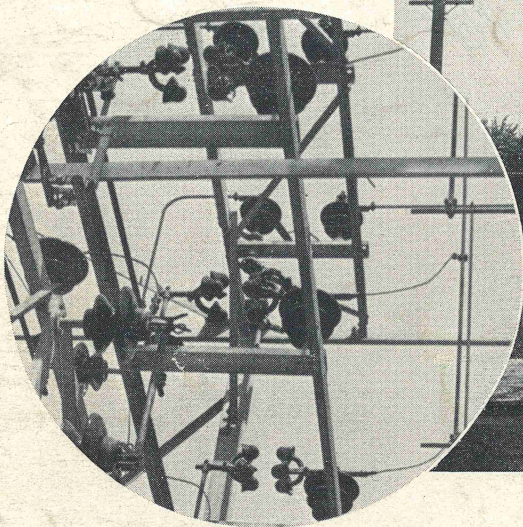




Control Gaps Guard Vulnerable Equipment in Iowa Station from Lightning

INSTALLED in every part of the world, O-B control gaps are performing a notable service in guarding expensive station equipment from direct lightning strokes. Every one of the many gaps in use has functioned satisfactorily, some through as many as ten lightning seasons.

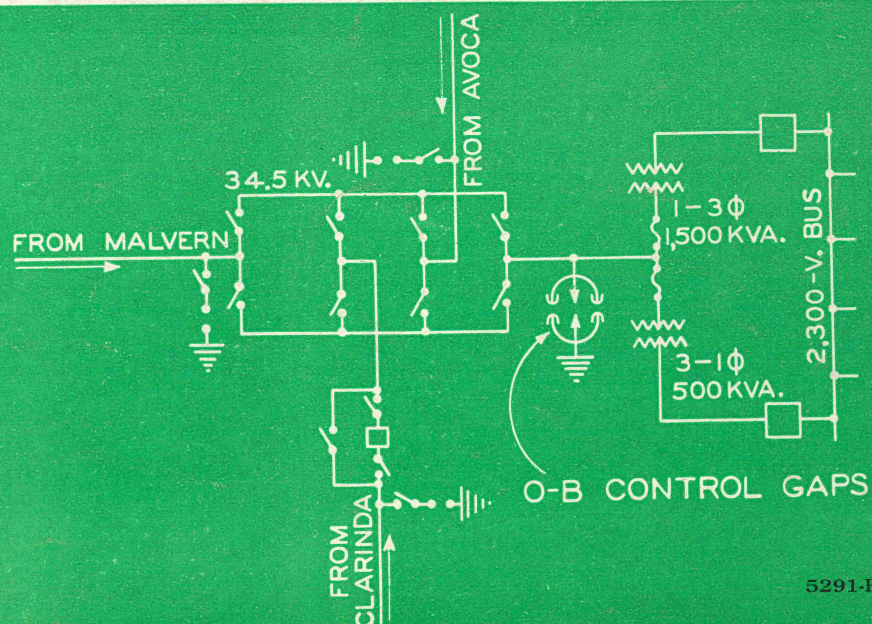
Typical of the numerous installations is the one pictured on this page, made at the Red Oak substation of the Iowa-Nebraska Light & Power Company in 1937. As shown in the

circuit diagram, the three incoming lines are equipped with arresters and the control gaps provide back-up protection for the two 1,500-kva. transformer banks.

O-B control gaps eliminate dangerous over-voltages almost instantaneously. The reason for this fast action is that the circuit contains virtually no impedance and therefore *both current and voltage* are diverted at lightning speed. Reducing the voltage to a safe level in a shorter

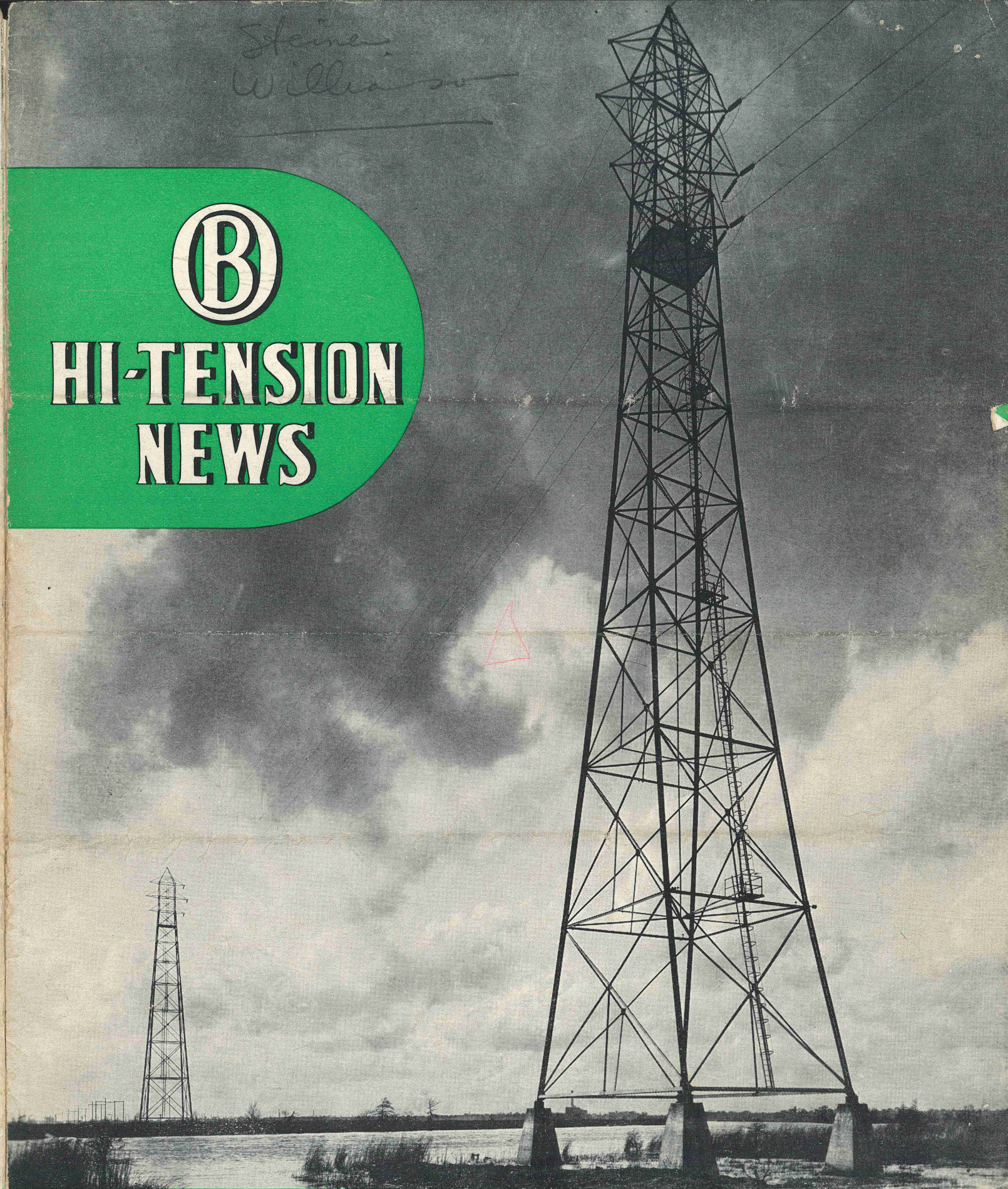
over-all time than any other practical gaps, being adjustable as to voltage, time and polarity to the characteristics of the insulation they are to guard, and operating in any weather, control gaps provide the positive protection you need against direct lightning strokes.

Equip the vulnerable spots of your stations with O-B control gaps now and you'll probably save many times your investment during the coming lightning season.



5291-H

B HI-TENSION NEWS



OHIO BRASS
COMPANY
Mansfield, Ohio

MARCH 4, 1941

VOLUME X . . . NUMBER 2

Above: Long Spans Require
Extra Strong Suspension
Insulators.—See Page 2.



Suspension Strength Pictured on Cover

Showing O-B suspension insulators installed by the Gulf States Utilities Company, Beaumont, Tex., on a crossing over the Neches River, the cover picture dramatically portrays the extra strength demanded of suspension units. (Photo by Business Men's Studio)

An Insulator String Is No Stronger than its Weakest Unit With O-B Suspensions You Are Assured of Safe String Values Because Their M & E Ratings Are Their MINIMUM STRENGTHS

LIKE THE proverbial chain, the strength of the weakest unit determines the actual strength of a string of suspension insulators. That's why minimum values are being given more consideration every year by transmission line designers in the selection of insulators. And that's why this fact is so important to all insulator buyers—that the published M & E strength ratings represent the minimum mechanical strengths of all O-B suspensions. Stating it another way, every O-B suspension insulator

you now buy has a mechanical strength equal to or in excess of its regular cataloged M & E rating.

To suspension users this means that far greater loads can be entrusted to insulators of a certain rating while retaining the same factor of safety. Actually, O-B is now in a position to recommend 50 per cent of the M & E rating, instead of the former 40 per cent, as the safe working load. And here's the most significant point. For many lines the increased strength will permit the use of insulators of lower

Below—Since catalog M & E values are now the minimum strengths of O-B suspensions, greater loads can be entrusted to O-B insulators while holding the same factor of safety.

rating, costing less money, thus effecting a substantial saving.

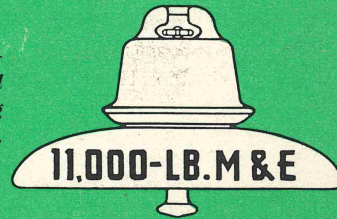
As an example, take a line equipped with No. 32440's, having an M & E rating of 15,000 lbs. Under the old system the recommended safe working load would be 40 per cent of the M & E rating, or 6,000 lbs. If you were to substitute O-B's present No. 25620's or 29210's, having an M & E rating of 11,000 lbs., the safe working load as figured by the new recommendations would be 50 per cent of the M & E rating, or 5,500 lbs.

Thus, it will be seen, the safe working load for a present O-B 11,000-lb. insulator is practically the same as for an old 15,000-lb. suspension.

With minimum M & E strength values from 8,000 to 36,000 lbs., O-B suspensions can meet any of your transmission line requirements. And because all of the life-prolonging features for which they are noted have been retained, you are assured of many added years of service—plus the far greater strength—when you specify suspensions by O-B!

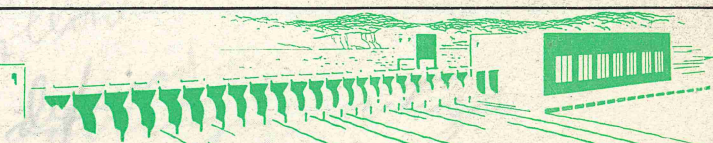
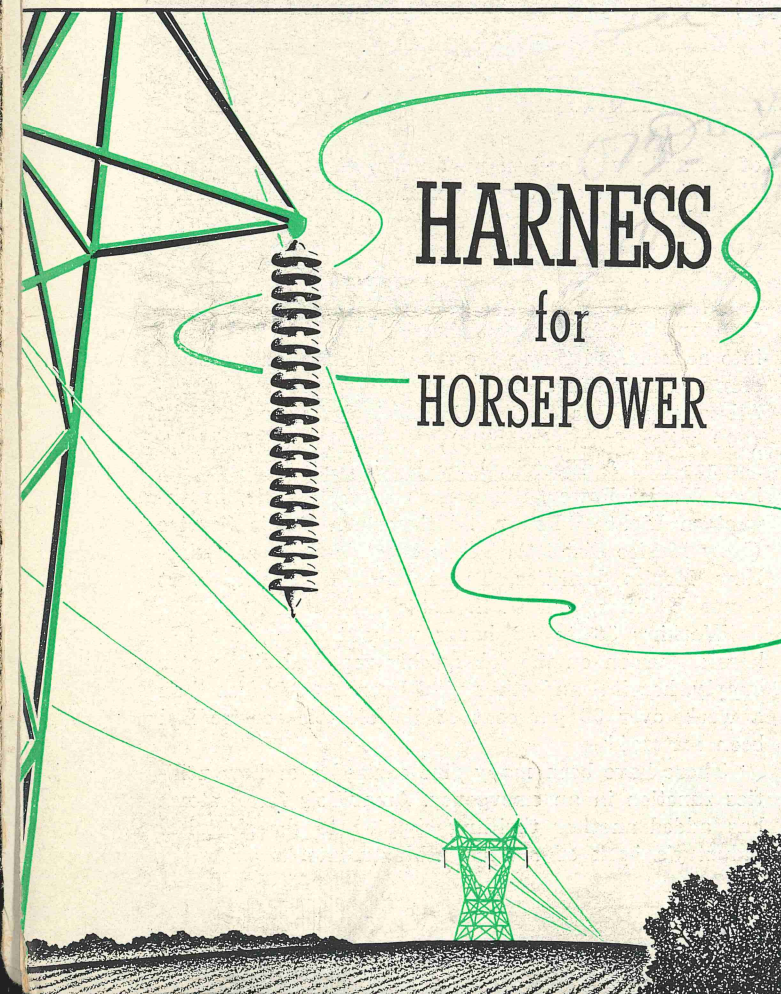


Older Design—
Recommended
Safe Working
Load: 6,000 lbs.



A "Bit for the Bridle of a River"

Real tribute to the strength and durability of porcelain insulators is paid in the pages shown below, reproduced from a folder prepared by the Hollingsworth & Whitney Company, business paper manufacturers, and distributed by the Whitaker Paper Company.



Out of the majestic sweep of a river, electricity is born—a giant whose might is measured in millions of horsepower. But, a cloak of invisibility masks the movement of this giant, trying constantly to escape back to Mother Earth.

To control this great power—to make it go places and do things—insulation is necessary as a "harness for horsepower." Literally, the porcelain insulator used for this purpose is a "bit for the bridle of a river."

Porcelain, with the resistance of steel and the strength to sustain the weight of an army tank, was a product unimagined by the old craftsmen who explored the mysteries of plastic clay and the glazing kiln.

The graceful pendant that carries a high tension conductor represents a fragile substance raised to a pinnacle of durability. Its surface glaze is no thicker than a 20-lb. sheet of paper, but it is hard enough to repel many missiles. It is made to withstand the burning sun of summer and winter's sub-zero temperatures. Under rain, hail, or the twenty-ton drag of a sleet-swollen line, insulators hold intact that electricity may be unfailing for a nation's homes and factories.

Akin to the delicate Sevres vase that your art museum treasures, the porcelain insulators that curb and safeguard your power supply give eloquent evidence of the amazing qualities that human ingenuity can incorporate in the most unlikely material.

Silentypes Show No Change in Radio or Physical Properties After 125 Hours in Hot Acid Fumes

PERMANENCY is a *must* requirement for radio-proof insulators since they are effective as noise eliminators only as long as the radio treatment remains unimpaired. Insulators are subject to destructive corrosive attacks from chemicals, leakage currents, heating and other influences which could nullify a radio treatment not adequately protected.

In O-B Conduction-Glazed Silentypes there is no possibility of damage from these influences because the conducting glaze is completely protected. To prove the adequacy of O-B's protection method, a Silentype was inverted over hot concentrated sulphuric acid and exposed to the powerful digestive fumes for 125 hours. Upon removal, tests showed it was still as good as new, both

physically and in radio characteristics.

Other punishing tests have been given Silentypes to prove their permanency—long time exposure tests under high voltage, thermal shock tests, and accelerated life tests with heavy leakage currents—and after each ordeal the insulators had their original high noise-influence levels.

In addition to this essential feature, Silentypes offer long life, assured because they conform to time-proved basic designs, and uniformity of radio characteristics, made possible by O-B's improved underglaze which forms an evenly distributed conducting layer near the outer surface.

To eliminate insulator-caused radio interference—effectively and *permanently*—specify O-B Conduction-Glazed Silentypes!



Crack Linemen Rescue Sleet-Stricken Amarillo in Record Time

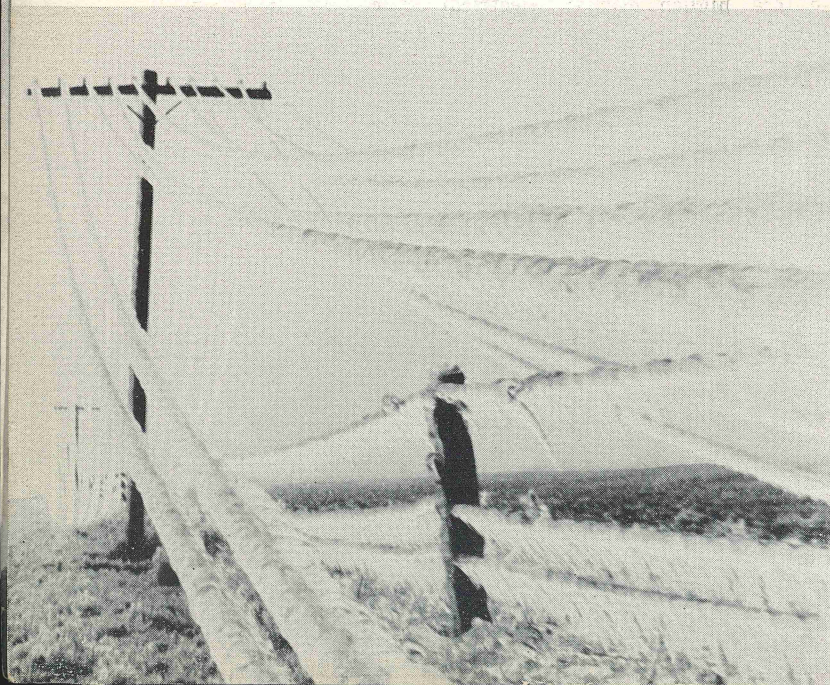
NEWSPAPER headlines on Nov. 23 told the alarming story of Amarillo and its neighboring towns in the Texas Panhandle being completely isolated by a devastating sleet storm. Intense rainfall and freezing temperatures had coated communication and power lines with a heavy armor

of ice and many had snapped under the terrific strain. The rainfall in one town over the week end measured 21 inches, and ice coatings 5 inches in diameter and weighing as much as 7½ lbs. per foot were reported clinging to wires.

Line crews of the Southwestern Public Service Company in the Amarillo district immediately sprang into action. And they were soon being helped by crack crews of fourteen other companies from four states—Albuquerque Gas & Electric, Central Power & Light (700 miles from Amarillo), Dallas Power & Light, Kansas Gas & Electric, New Mexico Electric Service, New Mexico Power, Oklahoma Gas & Electric, Southwestern Light & Power, Southwestern Public Service (New Mexico district), Texas Electric Service, Texas-New Mexico Utilities, Texas Power & Light, West Texas Utilities, and U. S. Potash.

Working 36 to 48 hours without sleep, the 275 heroic linemen on the job quickly repaired city water supply, hospital and other vital lines. And in less than a week, over 90 per cent of the electric service had been restored!

There have been many fine examples of how utilities function in an emergency. Amarillo's freak storm has added another thrilling chapter to the electrical industry's book of notable achievements.



All O-B Bushings Are Completely Sealed

*Redesigned Oil Expansion Chamber Prevents Breathing and Loss of Oil—
Other New Features Include Magnetic Oil Gauge, More Internal Porcelain and Interchangeable Terminals*

INTERNAL porcelain barriers! Full compression assembly! These two exclusive features and several other refinements have established O-B bushings as the best ones you can place on your apparatus. And now they have been made even better by four distinct and outstanding improvements—complete sealing, a magnetic oil level indicator, greater use of internal porcelain, and an interchangeable terminal system for transformer units.

Complete sealing, offered on *every* Class L and Class G bushing, was accomplished by redesigning the oil expansion chamber, making it absolutely air and oil-tight and allowing adequate expansion space to keep the internal pressure within safe limits. All units are filled with the proper amount and grade of insulating oil at the factory before sealing.

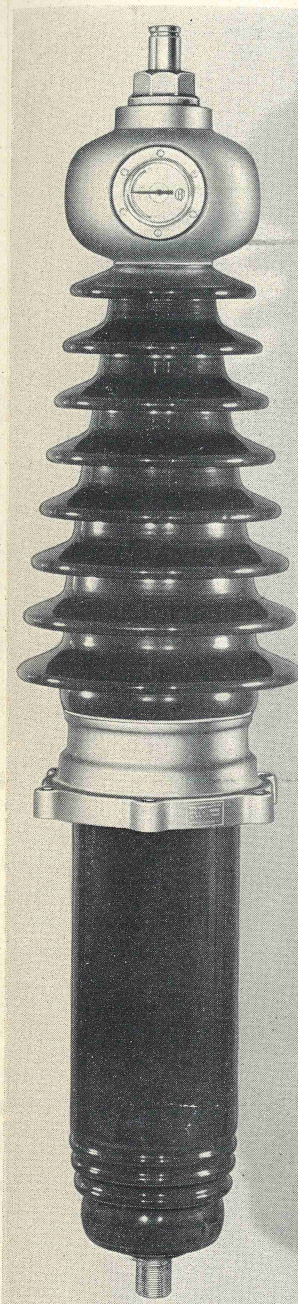
Several important advantages are obtained by this new design. Since the sealing is permanent and prevents breathing of moisture-laden air which might reduce the insulating value of the oil, it maintains the electrical stability of the bushings. There is no need for adding oil upon delivery or at any future time. Sampling of oil is no longer necessary. And the bushings may be stored or handled in any position at any time without loss of oil.

The magnetic oil level indicator provides a gauge for Class G bushings which can be read easily from a considerable distance. Its readability is maintained because oil cannot reach and discolor the dial, and it prevents gauge glass oil leaks.

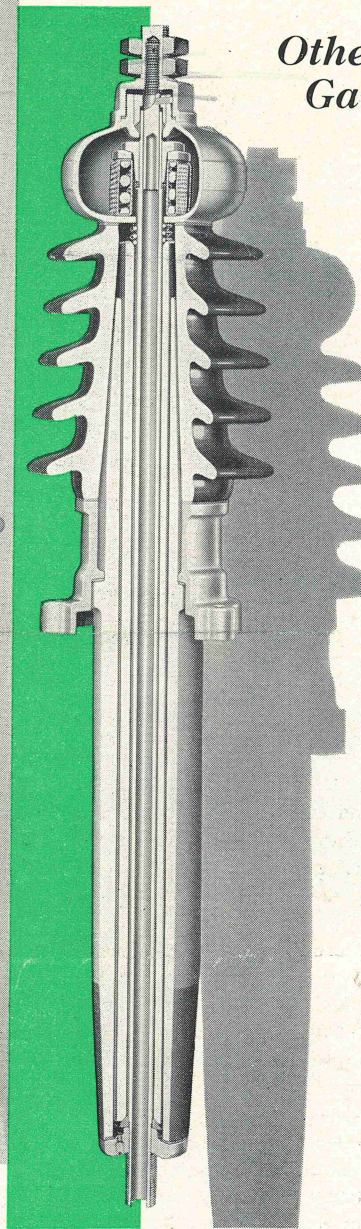
Principal advantages of the more extensive use of internal porcelain are higher over-all electrical efficiency, increased safety factor against internal over-surface stress and puncture, better electrical grading which insures absence of radio-disturbing corona, and greater dielectric stability, resulting from the fact that porcelain is unaffected by temperature, oil condition, electrical stress or time.

With the interchangeable terminal system each transformer bushing is suitable for many terminal combinations, reducing the number of bushings to be kept in stock and allowing connections to be made or rearranged any time without touching the oil seal.

To obtain the advantages of these four new features and the older design principles responsible for the unmatched performance and life records of O-B units, be sure when you order apparatus to specify "Bushings by O-B!"



Class G bushings are completely sealed to prevent breathing and oil loss, have a magnetic oil level indicator, use more internal porcelain, and have an interchangeable terminal system.



This view of a Class L bushing with a quarter section removed shows the new type of oil expansion chamber which effects a complete sealing, one type of draw lead terminal, and the great amount of internal porcelain.

Buy the Best ... Buy O-B

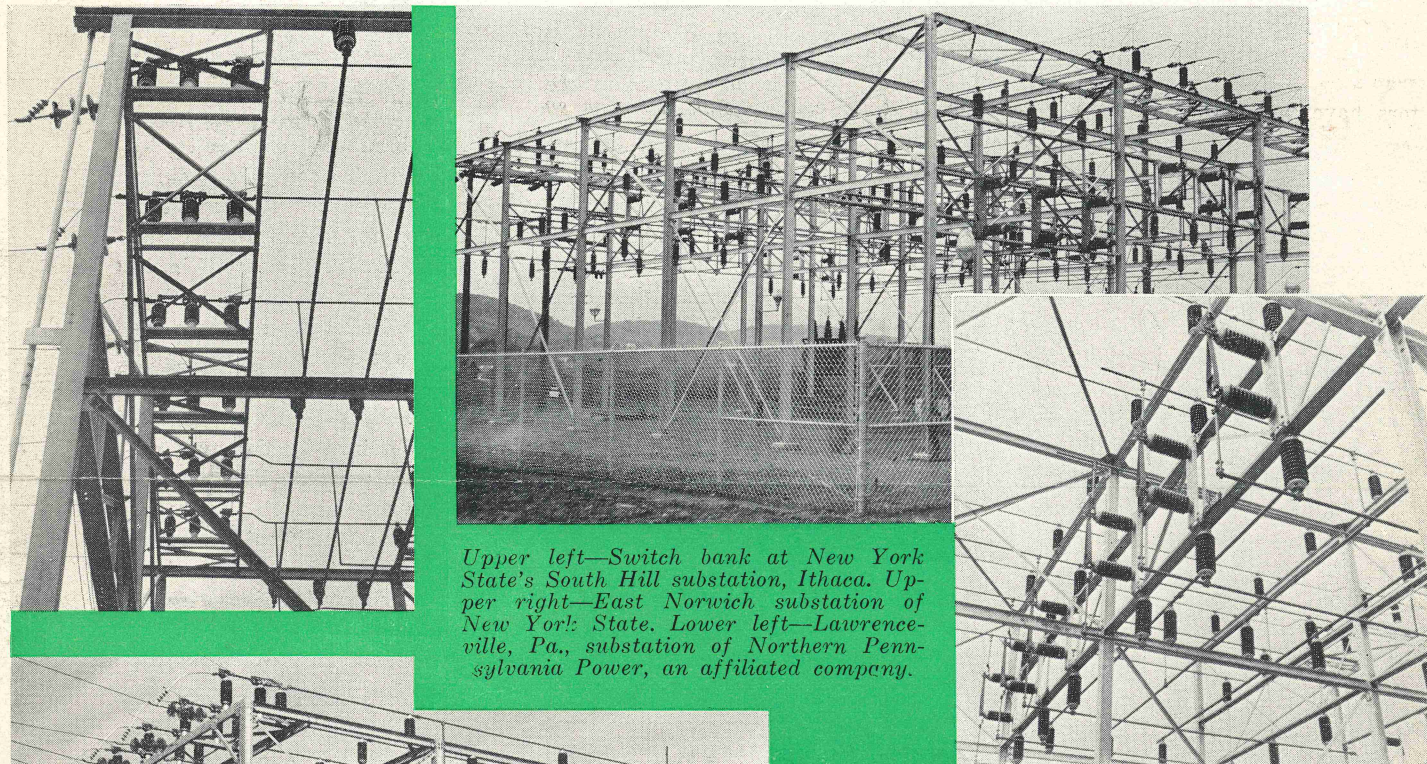
All Station Posts - - - and All O-B

SHOWN BELOW are three of the several substations designed recently by the New York State Electric & Gas Corporation which are completely insulated with O-B station posts. Included in the posts for the

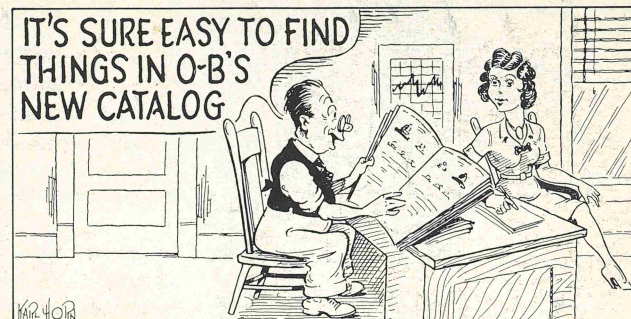
switches and busses at these stations are 7.5-kv., 7½-inch No. 36307's, 23-kv., 12-inch No. 36312's, 34.5-kv., 18-inch No. 36318's and 46-kv., 20-inch No. 36320's.

Requirements vary widely for sta-

tions but no matter what your specifications call for, O-B can furnish the unit of your choice. And whether you secure station pincaps or posts you are certain of getting a *quality* insulator—when you specify O-B.



Upper left—Switch bank at New York State's South Hill substation, Ithaca. Upper right—East Norwich substation of New York State. Lower left—Lawrenceville, Pa., substation of Northern Pennsylvania Power, an affiliated company.



Elmer's dead right! There's no trick at all in finding what you want in O-B's new Insulator Catalog No. 24—and in a jiffy. All pintypes, pins, strain insulators and fittings, and insulated clevises are grouped in the first section. Suspension insulators and hardware are shown in the second section, switch and bus insulators follow in the third, bushings and tubes appear in the fourth, and condensers and control gaps conclude the listing. And, of course, there are product name, catalog number and code word indexes in the back for spotting individual items quickly. If you don't have this easy-to-use catalog and need the ordering information it contains, send for a copy now!

*Buy the Best
...Buy O-B*

"Hot Spot" Elimination in Galvanizing Provides Thicker, More Uniform Coating on O-B Hardware

ALL OF O-B's many hardware items for transmission and distribution lines, as well as the metal parts for insulators, are hot-dip galvanized to prevent corrosion. In this process, molten zinc is applied to the base metal to form a closely adherent, continuous and uniform coat.

Like most processes, the quality of the finished work depends upon the control of the variable factors. The thickness, ductility and purity of the zinc coating can be regulated to produce superior protection, and these factors have been brought under closer control than ever before by improvements in O-B's galvanizing departments.

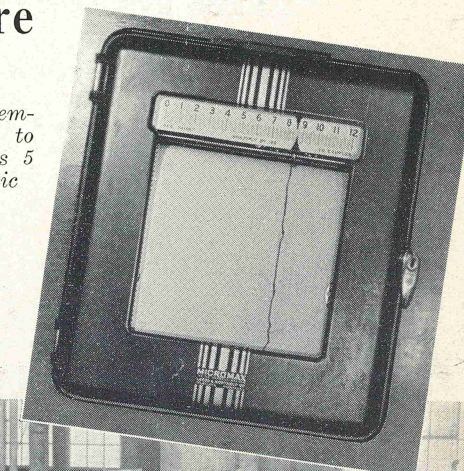
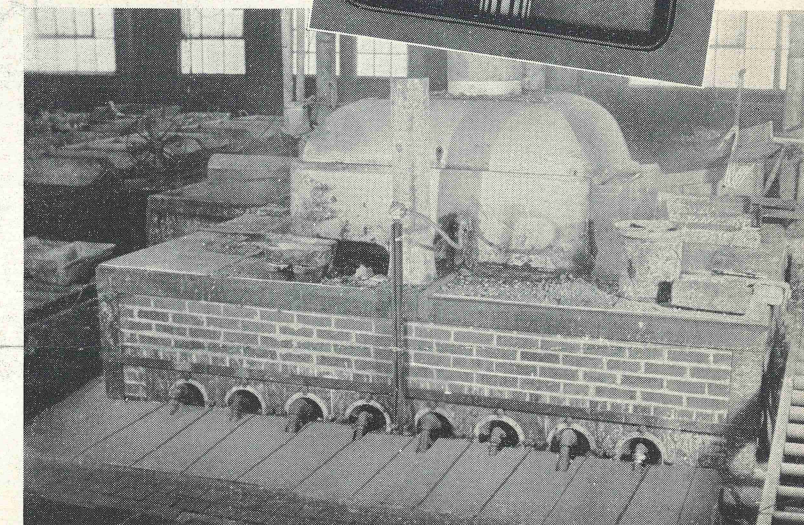
Formerly, the heating was done by two burners, resulting in local "hot spots" and an increase in the dissolved iron. Each furnace is now heated with sixteen burners with sufficient capacity to increase the bath temperature for any production requirement. The additional burners heat the galvanizing kettles more uniformly and produce a minimum of bath contamination with iron.

The temperature of the zinc bath in the old furnaces was controlled manually, but now it is controlled automatically by instruments which maintain the desired temperature to within plus or minus 5 deg. F. By galvanizing at constant low temperatures, O-B is able to increase the thickness, purity and ductility of the zinc coat.

These improvements in galvanizing equipment and methods provide greater protection against corrosion—and another reason for standardizing on O-B hardware.

Desired zinc bath temperatures are held to within plus or minus 5 deg. F. by automatic controls.

Below — O-B's new galvanizing furnaces have sixteen burners, eight on each side.

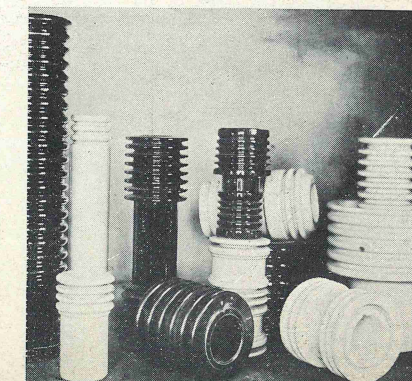
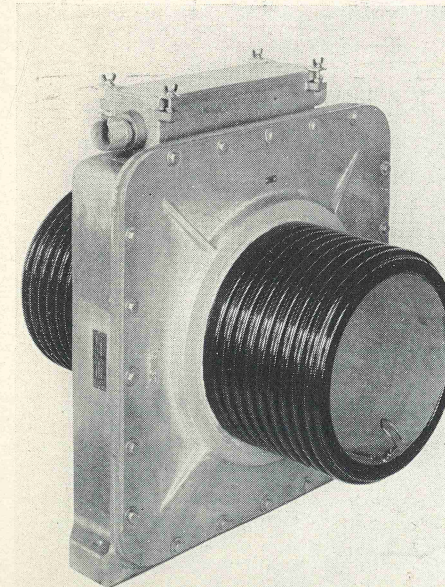


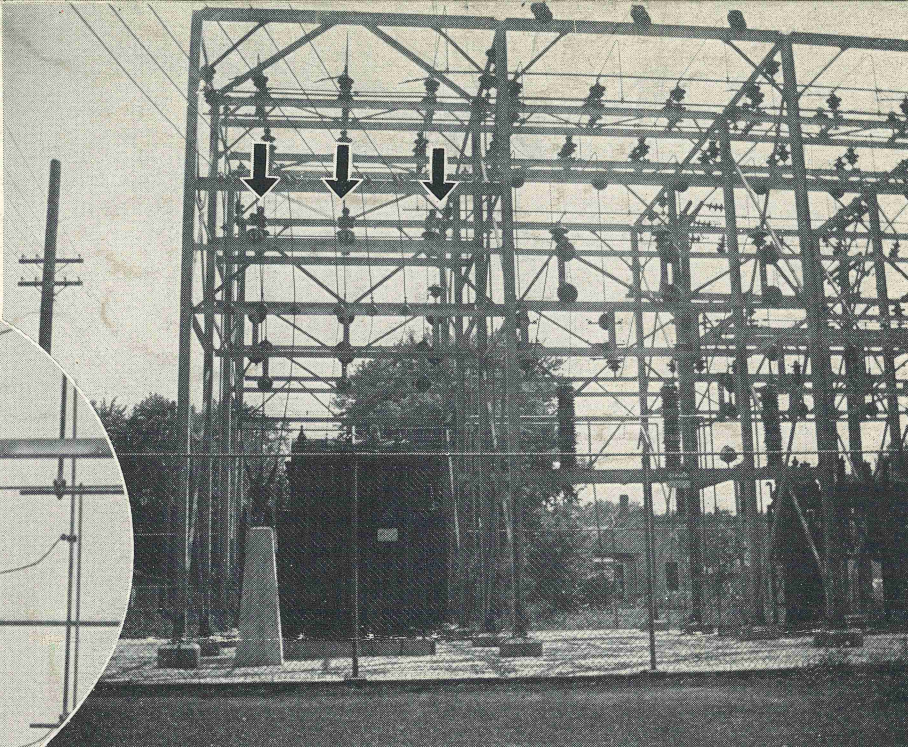
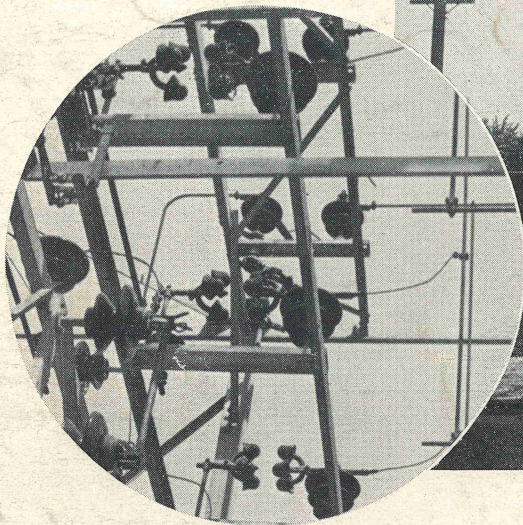
O-B Has Porcelain Bushings and Tubes for Every Need

SUPPLEMENTING its higher-voltage bushings for apparatus, O-B has an extensive line of porcelain entrance bushings and tubes for carrying leads through a wall, roof, floor or barrier, for primary meter house outlets and for other comparable uses. Several standard styles are available but cylindrical tubes and bushings of practically any desired size or shape will be manufactured on order.

The illustration at the left shows an Allis-Chalmers dry-type, 25 to 60-cycle, 15 kv., 1,500/3,000-5-amp. current transformer, using a special O-B bushing which has been metalized to prevent radio interference. The illustration at the right shows other spe-

cial and standard pieces made by O-B. When you need porcelain tubes or bushings for the uses mentioned, refer to O-B's new Insulator Catalog No. 24. You'll find a listing of standard styles and instructions for ordering special sizes on Pages 126-131.





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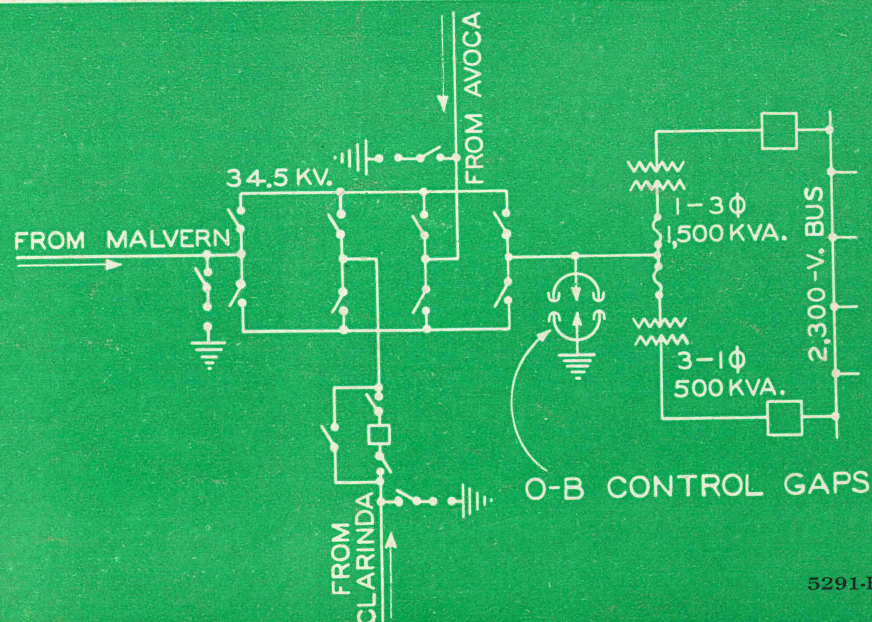
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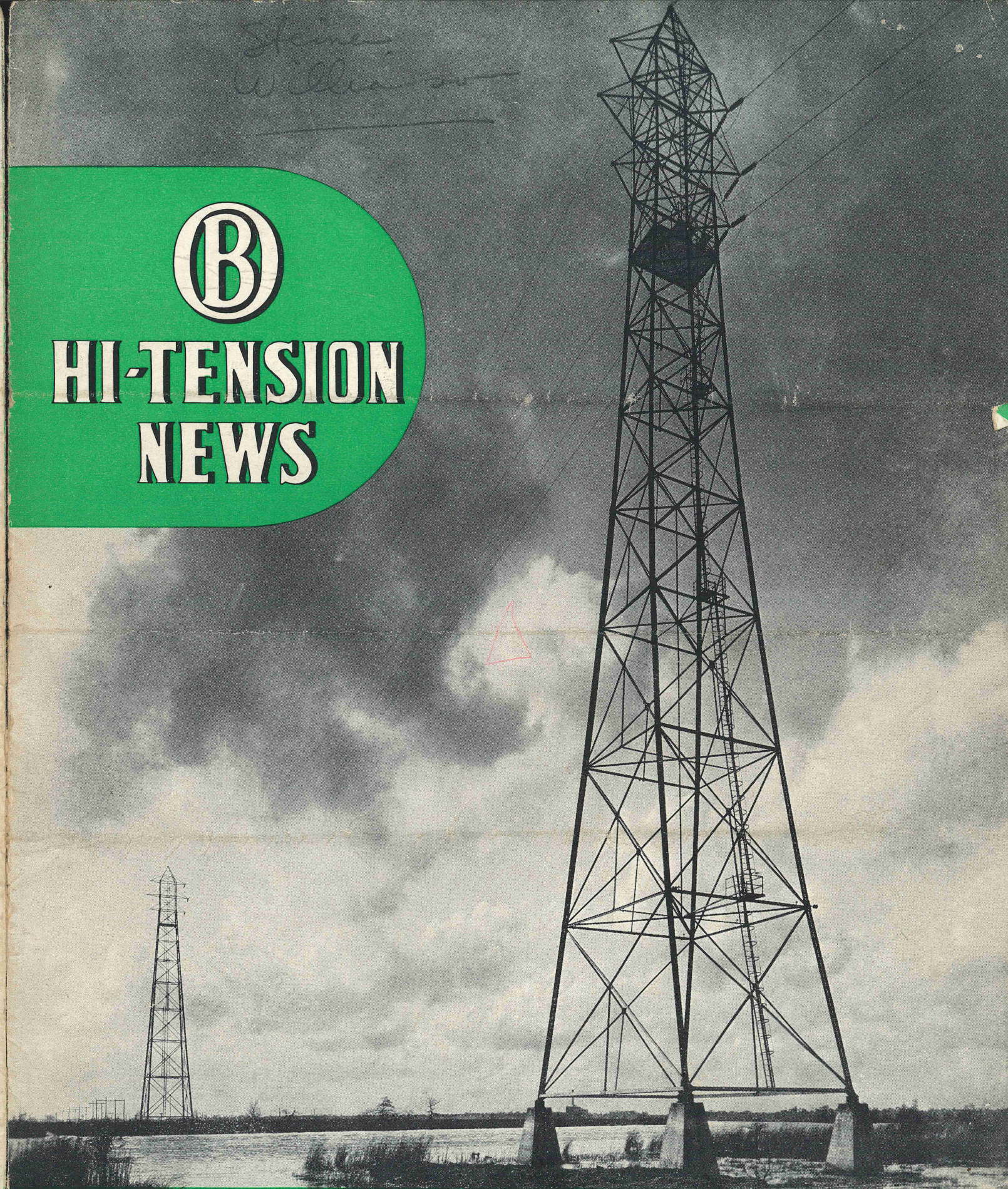
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