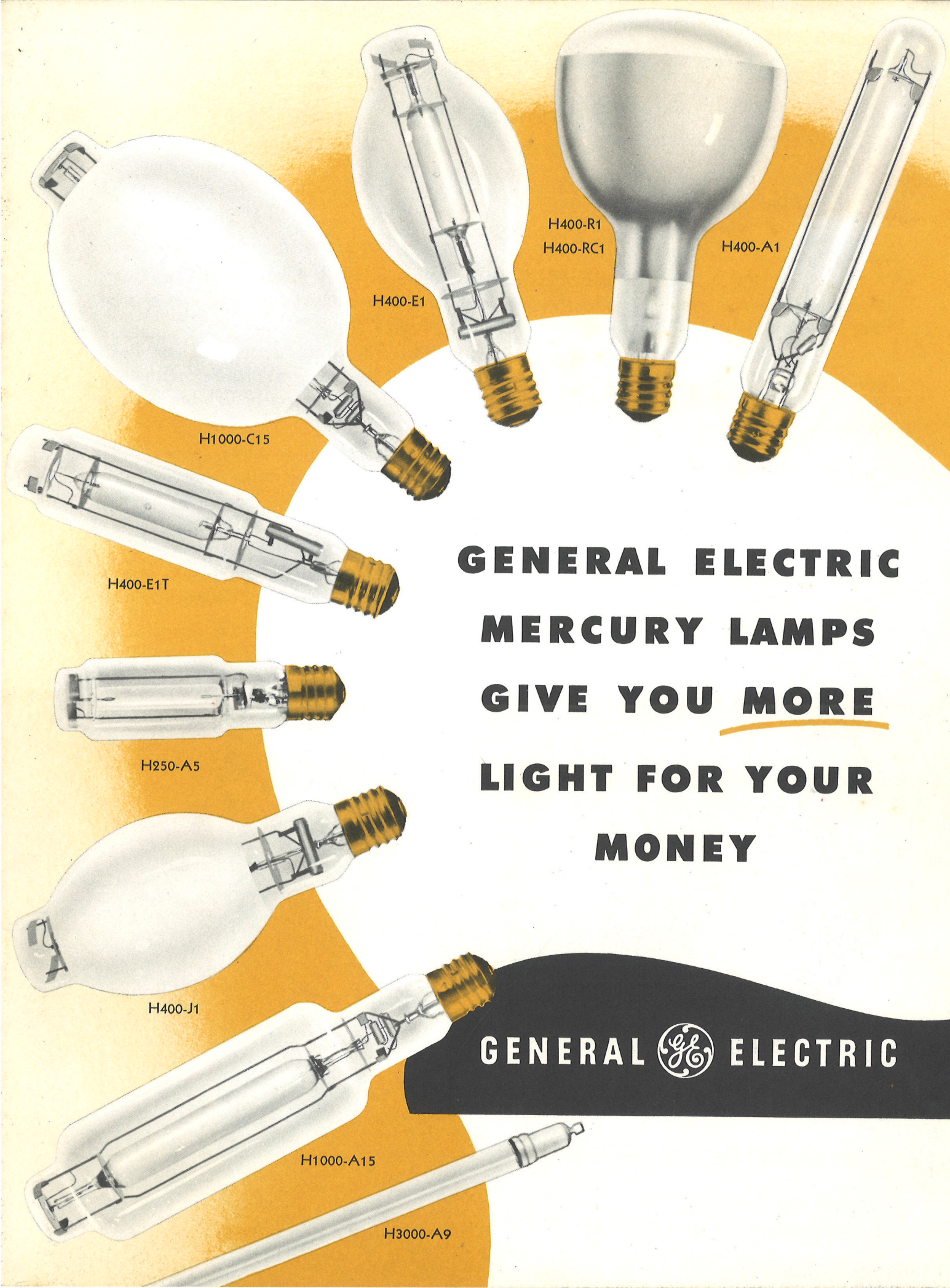


GENERAL ELECTRIC MERCURY LAMPS GIVE YOU MORE LIGHT FOR YOUR MONEY

GENERAL ELECTRIC

GENERAL ELECTRIC MERCURY LAMPS MAKE MANY INDUSTRIAL JOBS

In 1934 General Electric introduced the 400-watt "high pressure" mercury lamp. Mercury lamps have continued to be accepted as an important industrial lighting tool because they are 2 to 3 times as efficient in producing light as filament lamps.

Other General Electric Mercury Lamps have been developed since, until now G-E's industrial line ranges from 250 to 3000-watts. Each year the use of mercury lamps continues to increase . . . today we find them efficiently and economically taking care of lighting tasks in many places such as:

1. foundries
2. forge shops
3. paper mills
4. glass factories
5. railroad yards
6. tool and machine shops
7. steel and rolling mills
8. airplane factories
9. assembly lines
10. parking areas

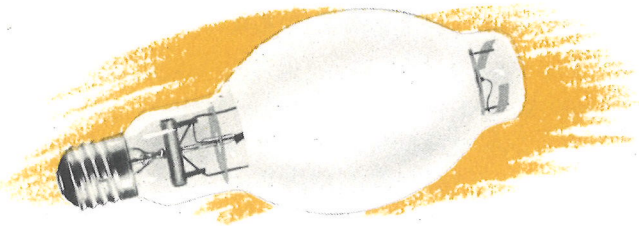
Tubular, bulged-tubular, and reflector-shape bulbs have been developed. Color-improved mercury lamps are also included in the line. Each type has been designed to meet a variety of lighting requirements.

In the final inspection area of the White Motor Co., Cleveland, Ohio, 40 foot-candles of light are provided by 24 H400-RC1 lamps. Many of the trucks are painted red. The Color-improved mercury lamps make color inspection easier.

safer, swifter, surer, smoother

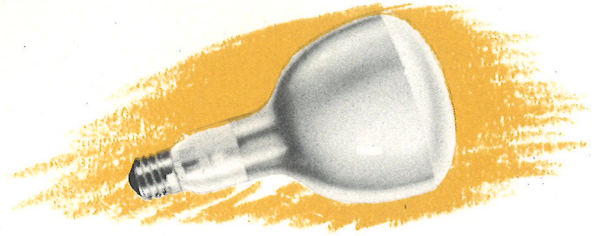
THE TWO IMPORTANT NEW BULB SHAPES

The Bulged-Tubular shape permits a more uniform distribution of heat than the previous tubular shaped lamp. This allows a cooler operation of the bulb, its base, and internal parts. The H400-E1, H400-J1 and H1000-C15 are BT shaped mercury lamps.



The BT shape is replacing the tubular shape as standard design. It can be easily substituted in most equipment. However, the tubular design will continue to be made available in order to meet specific requirements.

The H400-R1 and the color-improved H400-RC1 have R-52 reflector bulbs. Since the reflecting surface is sealed inside the bulb, it cannot tarnish or gather dust—thus the lamps maintain high light output throughout their long life. The initial light output of the H400-R1 is about the same as the H-400E1 mercury lamp in a clean, well-constructed, external reflecting unit.



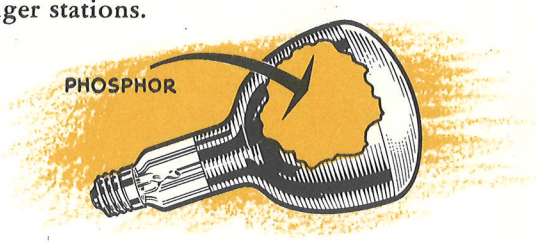
The reflector types have a wide light distribution. They operate on standard 400-watt ballasts. They can be directly substituted for other 400-watt mercury lamps.

Reflector type mercury lamps are recommended where present reflecting equipment is deteriorated, where dust and dirt accumulate rapidly, and where hard-to-reach locations make good maintenance difficult.

COLOR IMPROVEMENT

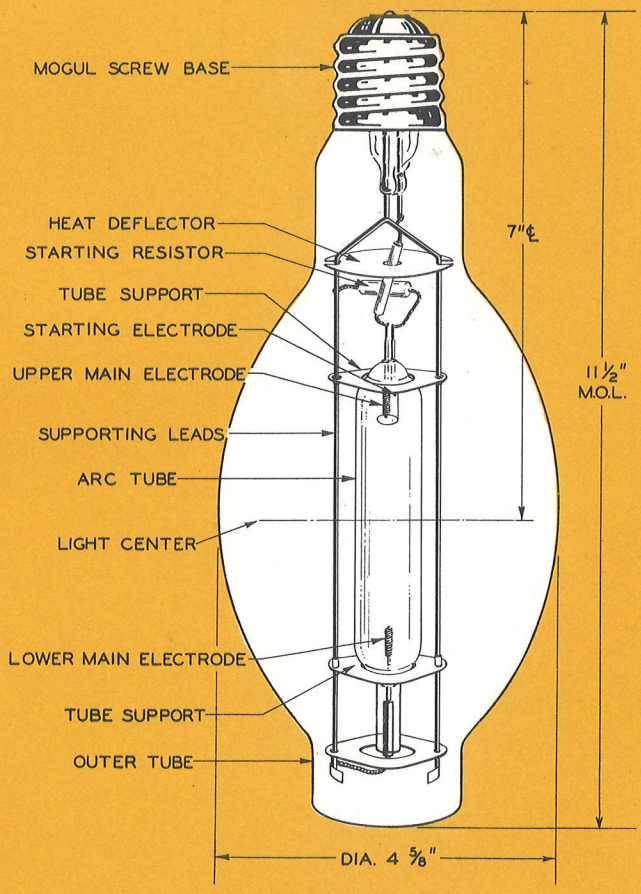
In color-improved mercury lamps a fluorescent phosphor is placed on the inside of the outer bulb. This phosphor adds red light which is missing in regular mercury lamps. The resulting color is about equal to that obtained by using filament and mercury lamps in equal-wattage combination systems.

Color-improved mercury lamps are recommended in places where regular mercury lamps are used, but where color improvement in workers' complexions and surroundings is desired. They are used in foundries, press rooms, machine shops, assembly shops, generator stations, parking lots, and railroad passenger stations.



These lamps are available from G. E. in the 400-watt and 1000-watt BT bulb, and in the R-52 bulb.

These are the physical features of the H400-E1 mercury lamp. The same arc tube is used in the H400-R1 and H400-RC1.



GENERAL ELECTRIC MERCURY LAMPS *provide...*

HIGH EFFICIENCY

HIGH LIGHT OUTPUT

LONG LIFE

LIGHT MAINTENANCE IS EXCELLENT

FEWER LAMPS ARE NEEDED

The H400-E1 mercury lamp gives almost as much light as a 1000-watt filament lamp or eight 40-watt fluorescent lamps. The 1000-watt mercury lamp provides as much light as two and one-half 1000-watt filament lamps or twenty-two 40-watt fluorescent lamps. The 3000-watt lamp provides the light of six 1000-watt filament lamps; of fifty-six 40-watt fluorescent lamps.

LOW COST OF INSTALLATION AND MAINTENANCE

The high light output of each mercury lamp means there are relatively fewer outlets to wire, fewer fixtures to buy, clean, and maintain. Because of their long life, their high efficiency, and their excellent maintenance of light, they usually provide light at lowest cost.

The seeing task is easy with light provided by H1000-A15 mercury lamps in the Jackson Church Machine Shop of Saginaw, Michigan.

IMPORTANT FACTS ABOUT USING MERCURY LAMPS

COLOR OF MERCURY LIGHT

Because there is so little red in the spectrum of the regular mercury lamp, the light is greenish-blue As a result, blue, yellow and green colors are emphasized by mercury lamps, while red and orange appear black or brown.

The phosphor used in color-improved mercury lamps adds some of the red missing in the spectrum of the regular mercury lamps, so these lamps make colors look more natural.

OPERATION

Mercury lamps glow when first turned on. From then on their light output continues to increase until it reaches full brilliance in about seven minutes.

When the lamps are in operation and go out because of a power interruption or a severe fluctuation in voltage, they must cool off before they will restart. It takes them from four to eight minutes to cool off.

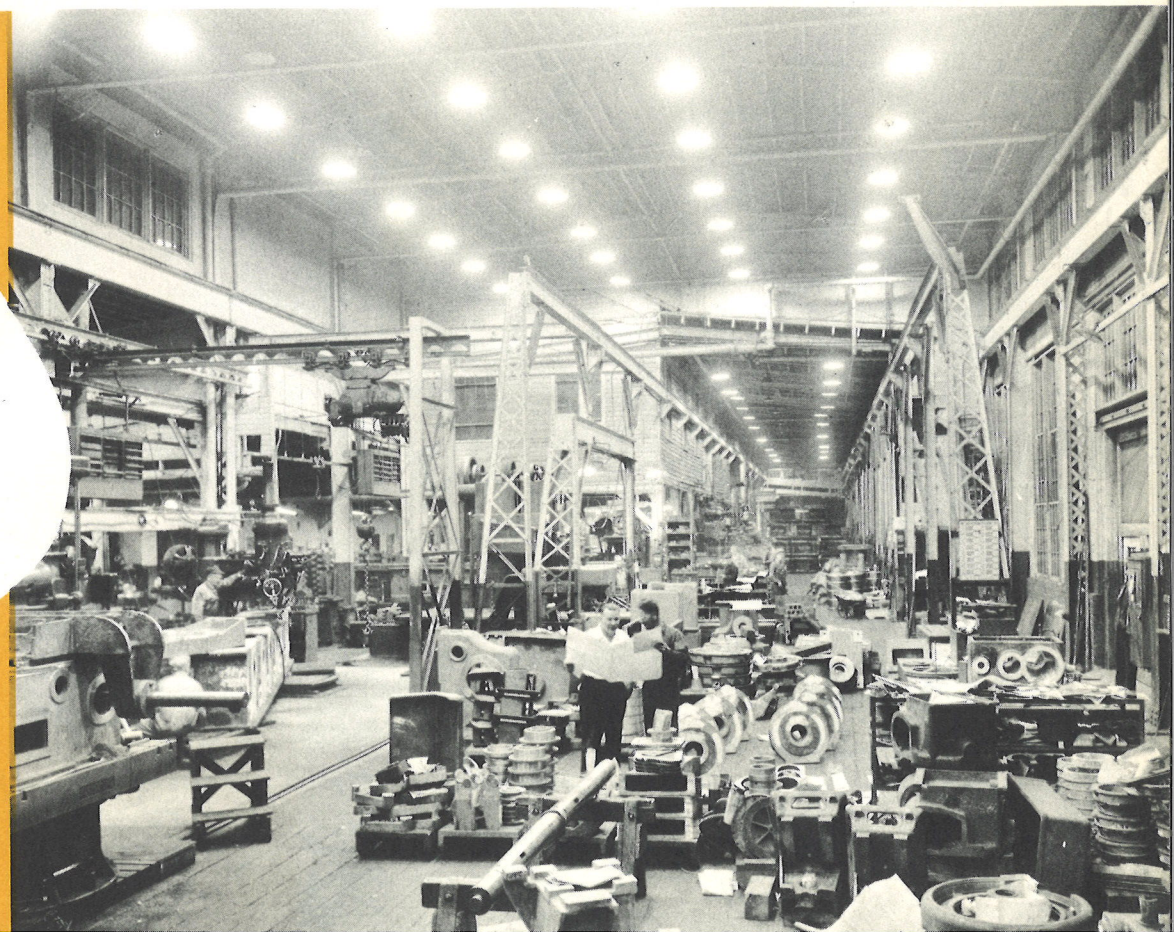
COMBINATION INSTALLATIONS

Mercury lamps are often combined with filament systems. There are two good reasons. 1. Filament lamps, unlike mercury lamps, reach full brilliance immediately — start instantly — so they provide light for safety as soon as power is restored.

2. Because filament lamps deliver a lot of red light, filament and mercury systems give a light somewhat like daylight when combined in installations of equal light output.

AUXILIARY EQUIPMENT

Each mercury lamp requires the right size and type ballast to provide the proper electrical characteristics for starting and operating. Ballasts are of different designs, depending upon the use for which they are intended. They are usually used on 115 or 230 volt 60 cycle alternating current circuits.



This well-lighted machine shop uses H400-A1 lamps . . . The Vaughn Machine Co., Cuyahoga Falls, Ohio.

IMPORTANT FACTS ABOUT MERCURY FIXTURES

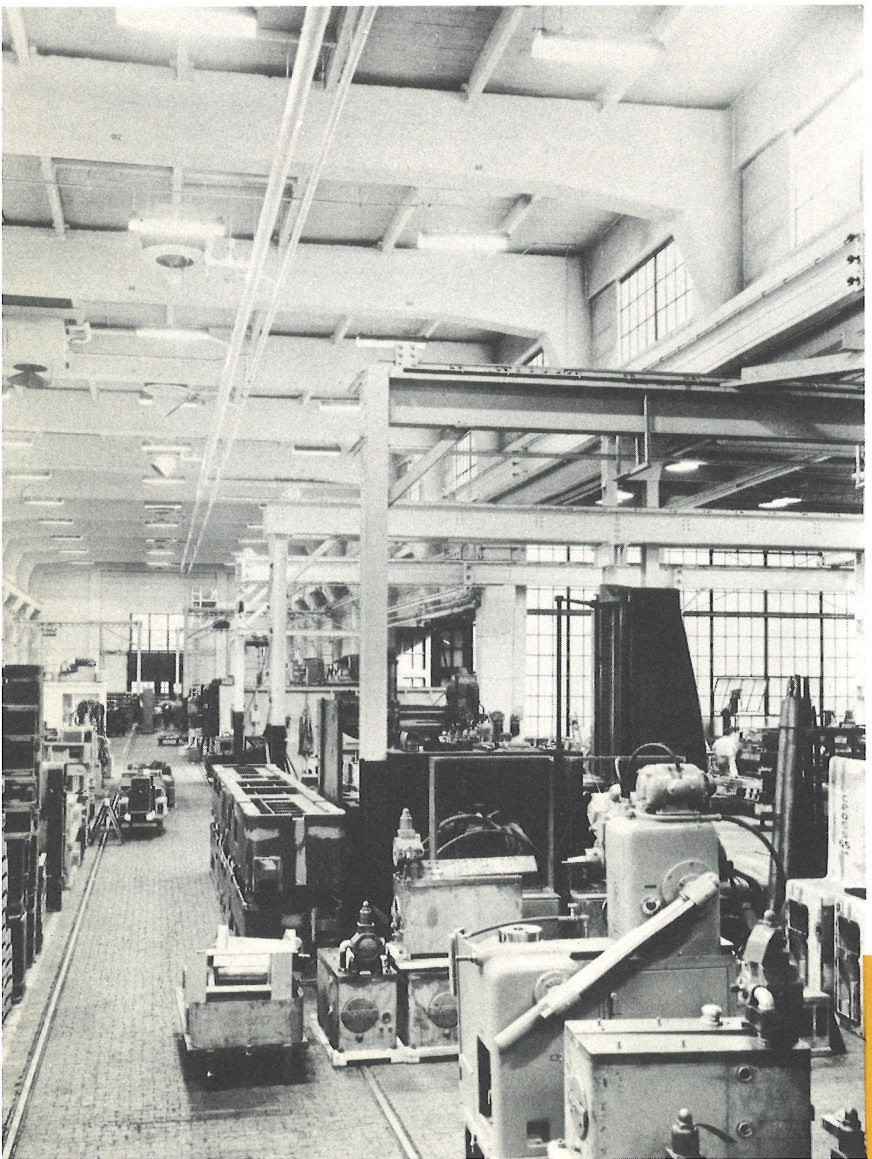
Many makes of reflecting units are readily available. These units are of two general types — Distributing and Concentrating.

Distributing-type luminaires: This type is generally used where the width of the area to be lighted is at least four times the mounting height of the fixtures. They are usually spaced so that the distance between them is no greater than the mounting height of the lamps from the floor. Because of their wider light distribution, they throw needed light on vertical surfaces.

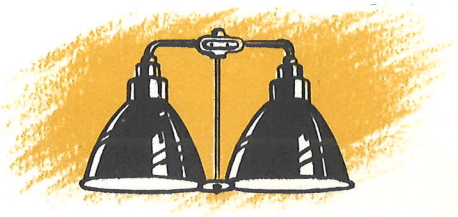
Concentrating-type luminaires: This type is used principally where the width of the area is equal to or less than the mounting height of the lamps. These fixtures are designed to direct as much light as possible downward. They are mounted high (40 feet or more) where their narrow distribution concentrates light on the working task.

Mercury lamp reflectors are made of a variety of materials: porcelain enamel, specular aluminum mirrored glass, prismatic glass, etc. The kind to use depends upon the type of work being done, and on many other factors. Your G-E Lamp Specialist will be glad to help select the proper type of fixture for your needs.

Protective shields are available for the reflector type lamps. These units protect the lamps against water and provide better shielding.



HERE ARE TYPICAL REFLECTING UNITS



High mounting — concentrating type — for combination mercury and filament installations.

Wide distribution type —shape similar to those used for both 400 and 1000-watt lamps.

High mounting — trough type — used for H3000-A9 mercury lamps.

Approximately 110 footcandles of light makes the seeing task easier in this installation of H3000-A9 mercury lamps in this section of The Cross Co., Detroit, Michigan.

TYPICAL QUESTIONS ON MERCURY LIGHTING

Question:
Why should I use mercury lighting in my shop?

Answer:
There are three main reasons:

1. The lamps are highly efficient.

2. Maintenance of the lighting system with these lamps is relatively easy because of their long life, and because there is a lot of light per lamp — which means fewer lamps to use. The maintenance of light throughout the life of the lamps is also good. For example, at 70 per cent of life, the lamps provide 88 per cent of their initial light.

3. Users testify that mercury lighting is a practical way of solving lighting problems, with the fewest number of fixtures, especially in high mounting areas.

Question:
Is the color of light from mercury lamps objectionable?

Answer:
If there is a need for better color, it can be simply obtained — either by adding filament lighting, or by using color-improved mercury lamps, when a straight mercury installation is desired. In many installations employees become quickly "accustomed" to the color and are better satisfied because of the increased amount of light on their work.

Question:
What happens when there is an interruption of power?

Answer:
There are two problems to be considered. First, where there is merely a drop in voltage, and second, where there is a complete interruption of service. To answer the first: A single lamp on a regular single lamp ballast can stand about a 10% drop in voltage without going out. Where two lamps are used on a Tulamp ballast, the lag lamp may go out if there is a voltage drop of 10% or more. However, the lead lamp will not go out until the voltage drop is in the order of 40%. To answer the second: when there is an actual interruption of service, naturally both lamps will go out. Even if power is immediately restored, it will require a cooling off period of four to eight minutes before the lamps will re-start.

Question:
What about the stroboscopic effect . . . Is it going to be noticeable in my machine shop on the moving parts?

Answer:
Strobe is reduced by the use of Tulamp ballasts or by adding filament lighting. The stroboscopic effect is not usually objectionable even with regular mercury lamps operated on single lamp ballasts and on only one phase.

Question:
Mercury lamps are higher in price. How do I justify any investment in a mercury lighting system?

Answer:
Actually many mercury systems are lower in *first* cost than filament or fluorescent systems. Also, the high efficiency and long life usually make mercury lighting the lowest in over-all cost.

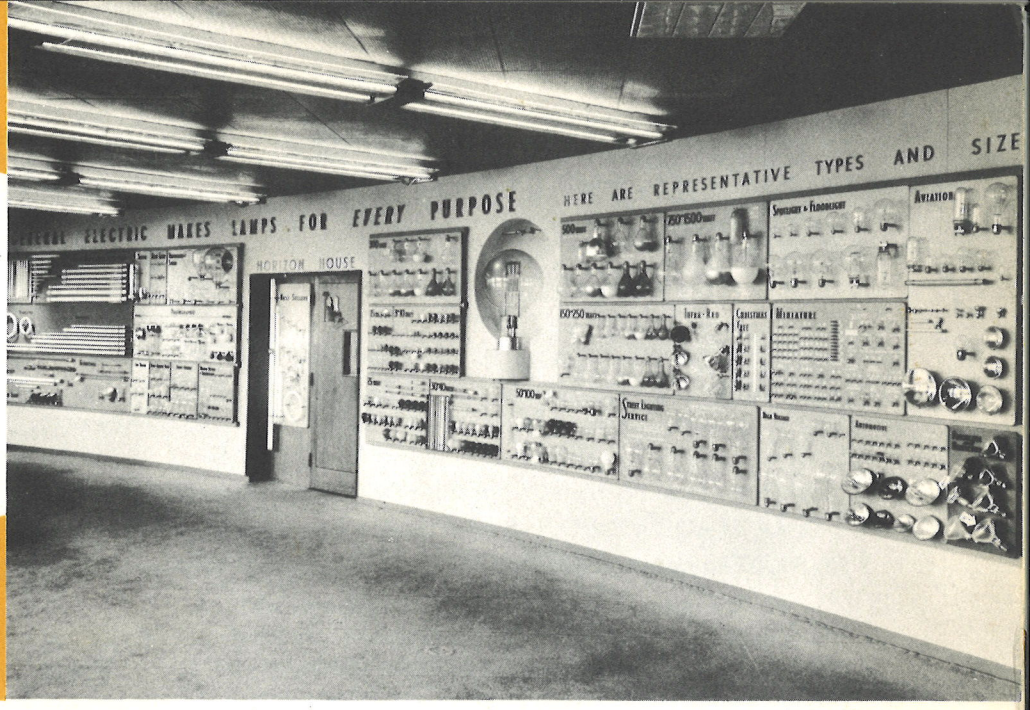
General Electric makes a complete line of lamps . . . including fluorescent, mercury, and filament . . . for industrial lighting. Your G-E representative is in a position to make an impartial recommendation, depending on your needs and your operating costs for labor, electricity and lamps.

Question:
It has been recommended that I install 3,000-watt H-9 lamps in the high section of my factory. Is this lamp going to be glaring?

Answer:
If properly designed reflectors are correctly installed, these high output lamps can be used to advantage. They are bright light sources. One tube, about 4½ feet long and 1¼ inches in diameter, gives the same amount of light as fifty-six, 40-watt fluorescent lamps, or thirteen, 500-watt filament lamps, or eight, 400-watt A-1 mercury lamps. The light from each lamp should be distributed over a large area to obtain uniform lighting and relative freedom from shadows. This generally means mounting heights of 40 feet or more. High mounting heights help cut glare. The reflector should be fairly deep (30 degrees shielding) to minimize the brightness of the lamp in the normal line of vision.

In one cost analysis — four systems (fluorescent, mercury, combination mercury and filament, and straight filament) — the initial cost of the 3000-watt mercury lamp system was about 2/3 the cost of a 1000-watt filament installation. It was the least expensive of all, based on total annual cost.

WHATEVER LAMP YOU NEED . . . GENERAL ELECTRIC MAKES IT



Good lighting is an excellent production tool. It makes the seeing task easier, allowing workers to do a better job. It brightens working areas, helps give a more comfortable environment and reduces the loss of time due to accidents.

But there just isn't any single solution to every lighting task. The type of installation, or the level of illumination to use, depends upon the type of work to be done. In some cases, mercury or combination mercury-filament installations are needed; in others, fluorescent or filament systems will do a better job.

You can count on your General Electric Lamp Supplier to give you an unbiased recommendation as to the type of lighting system you need. He handles all types of lamps for lighting — incandescent, fluorescent, mercury — plus lamps for a variety of other uses too.

Call upon your G-E Lamp Supplier to help you solve your lighting problems. He is just as close to you as your telephone directory.

ESSENTIAL DATA ON G-E MERCURY LAMPS

ORDERING NUMBER	APPROX. WATTS	BULB	BASE	STD. PKG. QTY.	MAX. OVER-ALL LENGTH	LIST PRICE*	APPROX. LUMENS (100 HOURS)
H250-A5	250	T-18	Mog. (1)	12	8	$16.50 N	11,000
H400-E1T	400	T-20	Mog.	12	11	17.00 T	19,000
H400-E1	400	BT-37	Mog.	6	11½	17.00 T	19,000
H400-J1	400	BT-37	Mog.	6	11½	21.00 T	17,000
H400-A1	400	T-16	Mog.	12	13	10.50 T	15,000
H400-R1	400	R-52	Mog.	6	11¾	24.00 T	16,000
H400-RC1	400	R-52	Mog.	6	11¾	28.00 T	12,300
H1000-A15	1000	T-28	Mog.	6	14¼	50.00 T	52,000
H1000-C15	1000	BT-56	Mog.	6	14¼	NEW LOW PRICE ~~58.00 T~~ 55.00 T	46,000
H3000-A9	3000	T-9½	S. C. Term.	1	55	48.00 T	132,000

(1) This and all other mogul bases on mercury lamps are mechanically attached to prevent loosening.

* On lamps designated with T, the Federal Excise Tax will be billed as a separate item at 10.2% of the list price. On lamps purchased for initial installation at specified net prices, the Federal Excise Tax will be billed at 19.3% of the net billing price. Lamps designated as N are not subject to Federal Excise tax. Prices subject to change without notice.

GENERAL ELECTRIC

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Litho. in U. S. A.