

ELECTRICITY

Better Light for Less Power From New Illuminating Unit

Tubes Filled With Rare Gases Developed in Claude Laboratories Give Light at Voltages Used in the Home

THE DEVELOPMENT of a new type of electric illuminating unit which, it is said, uses only half the power required by present incandescent filament bulbs and gives a softer and more uniform light has been announced by Claude Neon Lights, Inc., of New York.

The new lighting unit is the result of refinement of the red, tube-like neon electric signs, which have come into wide use during the past few years, and brings to more complete development a previous invention of Georges Claude, famous French engineer and scientist who last year conducted notable experiments in Cuba to get power from temperature differences of sea water.

A very high voltage is needed to operate the red signs, but the new lighting units, radiating either incandescent white light or a light containing approximately the same wavelengths as that from the sun, can be used with ordinary house wiring or either 110 or 220 volts, alternating or direct current, officers of the Claude organization said. It is stated that these new low voltage units are ready for application in the industrial and commercial field and that tubes or lights for general household use will be manufactured soon.

Glass tubes, which can be made in any length from several inches to several feet, containing the rare gases of the atmosphere, helium, neon, argon, krypton and xenon, are the most conspicuous elements of the new unit.

The initial cost of the new lights will probably be higher than that of types now in use, officers of the company stated, but when the saving in power consumption is considered the cost over a considerable period of time is expected to be less than that of present electric illumination.

The new tubes distribute light evenly and have a soft, non-glaring quality, it is stated. It is possible to look directly into the exposed tubes for several minutes and turn immediately to read fine print, without undue eyestrain. They do not require heavy diffusing glass which

would greatly cut down their efficiency, and they give off much less heat than incandescent lamps.

Four years of laboratory research work and tests have yielded four new developments which make the new units possible. First, the correct mixtures of the rare gases of the atmosphere have been found. These gases, glowing under the action of the current passing through them, and not a metal heated to incandescence, produce the light.

A starting apparatus has been developed which will light the tube seven seconds after the switch is turned. This necessitated the perfection of a heating unit that automatically turns off after the tube is lighted. Electrodes for the conduction of low current and a ballast coil, which largely determines the power consumption and illuminating strength of the units, were designed. The starting apparatus and ballast coil are small and inconspicuous.

Science News Letter, February 7, 1931

CHEMISTRY

New Unit of Atom Needed by Scientists

SCIENTISTS are now on the hunt for a new basic unit weight of matter. Chemists have in the past used the atom of oxygen as the unit of atomic weight, calling it 16.

Dr. F. W. Aston of Trinity College, Cambridge, in a communication to scientists printed in *Nature*, has raised the point that since there are now three known varieties of oxygen, known as isotopes 16, 17 and 18, the average atomic weight of the element oxygen is about 1.25 parts in 10,000 greater than the customary 16 assumed in chemical books.

While chemists might get along with the present standard, Dr. Aston intimates, physicists who compare the weights of individual atoms by means of the mass-spectrograph with an accuracy of 1 in 10,000, need a new and more definite unit.

Among the possible units suggested are: The proton or positive nucleus of the hydrogen atom, the neutral hydrogen atom, one-quarter of the neutral helium atom, one-sixteenth of neutral oxygen atom 16. None of these proposed units is entirely free from objection.

Science News Letter, February 7, 1931

Elephants do not shed their tusks.



DAYLIGHT ILLUMINATION FROM A RARE GAS TUBE

An early industrial lighting unit of the new low voltage rare gas tube developed in the Claude Laboratories under the direction of Leo L. Beck.