Drs. Bowden and Snow believe that they have obtained vitamin A by the action of ultraviolet light on carotene, but, according to Prof. Heilbron and Dr. Morton, this could only yield hydrocarbons, that is, substances made up of hydrogen and carbon only. It could not give vitamin A which contains in addition oxygen in the form of an "alcohol group" (OH).

Another test on the power of absorption of light of wavelength 3280 Angstrom units, is not considered conclusive evidence, because iso-carotene, a colored substance readily obtained from carotene, has a sharp absorption band in the neighborhood of 3200 Angstrom units and similar substances other than vitamin A may be responsible for the absorption observed.

*Science News Letter, June 25, 1932*

RADIO

# Voices Beautified For Radio By Ingenious Mechanisms

## Compensators and Filters Make It Possible for Same Voice to Speak in Different Accents at Operator's Will

ACCUSTOMED as the public is to retouched photographs that flatter, lightning hair color changes for lovely ladies, "ghosted" books and magazine articles, there is a sense of shock in the idea that radio voices of political speakers can be beautified.

Granted that they need it, the speculation is what effect this possibility may have on coming political events. A former Federal radio commissioner, now editor of *Electronics,* Orestes H. Caldwell, recently let the public in on secrets of radio's voice beauty parlors.

Plug in the proper combination of electrical gadgets in connection with the microphone, says Mr. Caldwell, and almost any political speaker's voice may be given charm and persuasiveness.

Sounds over the radio can be changed by placing into the broadcasting circuits devices that vary, permanently or at the discretion of the radio control engineer, the frequency and volume. The electrical devices, compensators and filters, have been in common use in connection with commercial radio programs and in the making of talking motion pictures. Whether they have been used as yet to build up the vocal personality of any of our prominent public men is a matter of conjecture. It is certain that the radio, even when not doctored, does change the speaking voice.

Radio and other electrically transmitted sound devices are much kinder to high-voiced individuals than they are to deep-voiced "he-men" speakers. They have placed on pinnacles of momentary fame singers and announcers who must carry with them amplifying devices in order to be heard by audiences of their "personal appearances."

There is even the possibility of appeal to sectional feeling for Mr. Caldwell suggests that appropriate compensators placed in branches of broadcasting networks would make the political candidate speak simultaneously with a shrill Yankee twang in New England, a Southern drawl in Dixie, and a breezy western accent in the West.

*Science News Letter, June 25, 1932*

ENGINEERING

# Artificial Lightning Flashed At Ten Million Volts

**See Front Cover**

THE MOST powerful man-made lightning is flashing across the cover of this week's SCIENCE NEWS LETTER from new equipment in the Pittsfield laboratories of the General Electric Co., which has twice the capacity of any preceding apparatus of its kind.

This is a discharge through a 15-foot space of 50,000 amperes at 10,000,000 volts. The voltage is capable of projecting an arc a distance of 60 feet. F. W. Peek, Jr., was in charge of the development of the new equipment.

Just what can be done with the ten-million-volt discharge nobody knows yet. It is to be used in connection with research on natural lightning, the effects of which it can approximate more closely than has hitherto been possible. Whether or not this high voltage will produce cosmic rays or split the atom, as scientists have predicted, Mr. Peek said that only time will tell.

Yet powerful as the new apparatus is, its discharge represents real lightning in only a fractional way. The voltage of a natural lightning discharge, Mr. Peek stated, is one hundred million, or ten times that of his best artificial "thunderbolt."

*Science News Letter, June 25, 1932*

ENGINEERING-ECONOMICS

# Selling Gas by the Pound Allays Suspicions of Public

DO YOU pay for your domestic gas by the cubic foot, by the pound, or by the "therm"? It depends on the kind of gas you get—old-fashioned or modern.

Recent developments have brought out new styles in city gas. Two new gases, propane and butane, have become cheaply available from gasoline refineries. The new fuels, produced in large quantities, are a god-send to gas companies serving scattered districts. Unfortunately they are a source of worry to the accounting department. The public, accustomed to old-fashioned artificial gas at sixty or eighty cents a thousand feet, doesn't understand that it is fair to pay a much higher price per cubic foot for the new fuel.

Heretofore a gas company has been compelled to build a costly gas manufacturing plant, or a long and expensive pipe line to serve a town far removed from the metropolis. Propane and butane, on the other hand, can be liquefied and shipped economically by rail to a distant small town. One cubic foot of propane will yield as much as three hundred cubic feet of excellent fuel gas upon evaporation. These new gases are extremely rich, running from 2,500 to 3,200 on the heat unit scale in contrast with the 600 units from common city gas. Such fuel is obviously worth two or three dollars per thousand cubic feet.

Unfortunately the gas company, like the plumber and the tax collector, is a conventional object of public distrust.