

to increase the payload of airplanes whether in passengers, freight, or bombs.

### Chemical Removes Fluorine

Traces of fluorine compounds, found in drinking water in the Midwest and responsible for the mottled coloring of children's teeth, can be removed by use of a chemical, tri-calcium phosphate, Dr. Howard Adler and George Klein of the Victor Chemical Works revealed. Tri-calcium phosphate, dried to a powder from a watery gelatin, absorbs fluorine compounds readily, Dr. Adler explained. Ten pounds of the substance will remove sufficient fluorine from 560 gallons of water to render the small impurity harmless.

### Chemical Halts Rose Pest

Red spider, a pest to the rose fancier and a menace to the professional flower grower, can be controlled effectively by a new derivative of the chemical cyclohexylamine, T. S. Carswell and H. L. Morrill of the Monsanto Chemical Company told the Society.

Cyclohexylamine, which has been known in the laboratory since 1893, is now being produced commercially in the United States, they reported in a survey of the uses of the substance.

Destructive influence of the pest, which attacks a wide variety of hothouse plants as well as roses, is particularly felt in the greenhouse, where a single bench of roses frequently represents an investment of \$20,000.

*Science News Letter, September 18, 1937*

Great Salt Lake in Utah is nine and a half feet lower in elevation now than it was in 1924.

## BULBS

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### Names From the Armory

**O**DD, how many names for use in their peaceful trade botanists have drawn from warlike armories!

Leaves especially seem to have struck the military streak in the scientific imagination. There are hastate leaves, from the Latin hasta, a spear; lanceolate leaves, obviously from the word lance; sagittate leaves, from sagitta, an arrow; gladiate leaves, from the word for a sword; peltate, from the name for a shield; umbonate, from the umbo or boss in the middle of a shield.

Other shapes in botany, applied more often perhaps to shapes of flowers and fruits, are pileate, from pilum, a javelin; galeate, meaning helmet-shaped; clavate, from the term for a club; arcuate, meaning bow-shaped or bow-like.

Naval terms have been drafted into botanical service, too: the parts of an orthodox flower of the pea or bean family are known as banner, wings, and keel. And naviculate, shaped like a little boat, is applied to a certain type of seed-pod.

Some of the commonest terms of plant anatomy are military borrowings. We speak of leaves as arranged in ranks on branches; certain small outgrowths that protect other plant organs are called scutella, or little shields. Many flowers have spurs, and irises at least carry standards. There are guard-cells on the surfaces of leaves, palisade cells beneath.

Common and Latin names alike give Army names to whole plants: gladiolus means a little sword, there is a mushroom known as clavaria or club-fungus, science and common speech agree on the arrowiness of sagittaria or arrow-leaf. And there are spearmint, arrow-root, devil's club, knife-bean, shield-fern, club-moss, and blades of grass.

It is interesting to note, however, that almost all of these terms date from ancient times, before the invention of fire-arms. Only a few plants, and those from lands unknown in classic days, bear such names as cannonball tree and Spanish bayonets. Curious, too, that the military names used are all of hand weapons; catapult and ballista and batteringram seem to have been forgotten.

One wonders what might have come to pass if there had been any women botanists in the old days when names were becoming established. Would we have had fewer names from the armory and more from the household, like fusiform or spindle-shaped, plumose or feathery?

*Science News Letter, September 18, 1937*

### ENGINEERING

## Engineers Invent New Word; A "Vodas" Distorts Voice

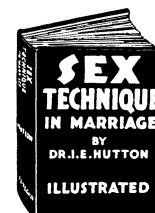
**I**F ANY READERS are now going through the process of learning one new word a day to increase their vocabulary, the word "vodas" is recommended. It won't be found in any dictionary now in existence and is as new as today's newspaper.

To save playing the old game of asking "animal, vegetable or mineral?" one should hasten to add that vodas is an instrument through which the electrical impulses of your voice must pass when, and if, you next talk by trans-Atlantic radio telephone.

The vodas does many things to your voice, including the creation of an artificial stammer. And it can turn your normal voice volume into a roar.

Vodas is a newly coined word composed of the first letter of each word in the following phrase: "voice-operated device anti-singing." A vodas, S. B. Wright

## The SEX TECHNIQUE IN MARRIAGE • By I. E. Hutton, M. D.



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of the Bell Telephone Laboratories of New York explains, represents the radio and electrical engineers' answer to the unique and intricate problems which arise at the links between land telephone lines and their wireless trans-oceanic counterparts. Not the least of these problems is the fact that radio noise is much more severe than wired telephone noise. This makes radio transmitter power capacity large and expensive so that it is most economical to control the speech volumes to make them load fully the radio transmitter. When fully loaded a radio transmitter minimizes the effect of noise.

Best results on combined radio and wire telephone circuits could be achieved if first one speaker said all he had to say and then allowed the other to talk. Actually, in ordinary conversation there is a quick interchange of talk which is disastrous for good reception if both speakers want to talk at once. And that is where the "stammer" mechanism of the vodas comes in. It causes an almost imperceptible delay before the circuits will accept the voice of Mr. A, for example, after Mrs. A finishes telling him how little Johnny is. A one-sixth of a second lag is all the electrical vodas needs to handle the conversation in normal fashion.

Modern radio telephony requires a man in a control room to handle the two voices speaking, in a fashion somewhat like the operator in a radio control room in a broadcasting station. The control man's job includes adjusting the receiving relays to the particular amount of noise existing; adjusting the transmitting and speech volumes properly; selecting the proper hangover or delay time for the two voices and perhaps increasing the sensitivity of the transmitting side of the vodas for soft voices.

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## ASTRONOMY

# Sun Gives Less Light Than Supposed, Moon Gives More

## Harvard Astronomers Find That Old Sol Is Weakling But Lunar Size and Reflecting Power Was Understated

**A**RE YOU still nursing a summer sunburn? Console yourself: it might be worse, if our sun were as husky as other stars in the same class. Actually, it's a comparative weakling. It gives off only about seven-tenths of the radiation it should, Harvard College Observatory scientists have just announced.

But on the other hand, if the full moon "does things" to you, science has an explanation for that, too: the moon has been found to be slightly brighter than has heretofore been believed.

Both these facts came out when Dr. William A. Calder at the Harvard College Observatory made pioneer determinations of the brightness of the two bodies with the now-famous electric eye or photocell.

Harvard astronomers said that the research gives the first indications they have had that the sun is below normal. An exact measurement of the sun's brightness is highly important to science because the sun is used as a standard for measuring and describing the energy emission and luminosity of more distant stellar bodies.

The new value obtained for the sun's magnitude by Dr. Calder is minus 26.32, four-tenths of a magnitude dimmer than the value derived by Dr. Henry Norris Russell of Princeton University in 1916 and used by astronomers all over the

world since that time. Astronomically speaking, this is a large correction, indicating that the sun emits thirty per cent. less radiation than is normal for a star of its type. The sun is astronomically classified as a "G zero dwarf" star, signifying one predominantly yellow and of relatively low brilliance.

Dr. Calder urges, however, that his new value "be taken with caution" because of the important implications of his results.

The scientist's new value for the luminosity of the moon is also considered highly significant, and Harvard astronomers said his finding of a greater reflecting power than was suspected "has probably unsnarled one of the minor mysteries of this body."

Previous research had indicated that the moon's surface was made up of a very dark material with low reflecting power, technically known as an albedo of .07. Other investigators have held that the surface was composed of rocks of more normal reflecting power. Dr. Calder's work supports this latter view, giving the surface of the moon an albedo of .12, close to that of ordinary rocks.

For the moon's magnitude, Dr. Calder has determined the figure minus 12.66, slightly higher than the generally accepted value of minus 12.55. He has also found that the sun and moon are of virtually the same color, and that the moon is not more reddish as has been suggested.

The new values were obtained by

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