measured with the aid of a projection microscope and a planimeter.

In plants deprived of calcium, the length of stem is less than that of plants grown in the presence of calcium; the lower leaves are chlorotic, and the upper leaves are curled and tough. Plants grown without calcium for five weeks and then with a complete nutrient solution for five subsequent weeks show a rapid recovery and assume a normal appearance, while those plants starved of calcium for this entire period die at the end of nine or ten weeks.

Both the green and dry weight of the plant decrease as the amount of calcium is decreased in the nutrient solution. Chemical analyses of roots and of stems indicate that the calcium stored in the seed is used for early growth, since the amount of calcium oxide, calculated as percentage of green weight, or as percentage of dry weight, is slightly larger in the plant starved of calcium than it is in the plant given the complete nutrient solution. As is to be expected, the total amount of calcium, calculated as calcium oxide, is slightly greater in the plants given the complete nutrient solution than it is in a similar number of plants starved of calcium.

Whether the plants are grown under the usual garden conditions, in a nutrient solution with the full quantity of calcium, or in a solution lacking calcium, the anatomical structure of the stem and of the root remains constant, or the variation is so slight as to be insignificant. The difference is in the amount of elongation rather than in the anatomical structures. Further data and a detailed explanation of these conclusions will appear at a later date.

DOROTHY DAY

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THERMAL CONDUCTIVITY OF GLASSES TRANSMITTING ULTRA-VIOLET LIGHT

INCREASED knowledge of the beneficial therapeutic effects of ultra-violet light upon living organisms has in recent years led to the development of a number of glasses which transmit ultra-violet light more or less completely. It is evident that if any of them are to replace the window-glass now being used they must be very poor conductors of heat, for otherwise man might pay dearly for the benefits secured by the use of these glasses because of the greater amount of heat they would allow to escape from a room by conduction.

The thermal conductivity for a number of these glasses has been determined at the Iowa State College by Christiansen's method. It was found that for every glass tested the thermal conductivity was less than for window-glass. By the use of some of these substitutes man would get ultra-violet radiations into the room and he would also lose less energy by heat conductivity through them.

WILLIAM KUNERTH

WILLIAM E. BERKEY

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CACOEPISTIC SCIENTIFIC TERMS

I HAVE been much interested in the views that have been published lately in SCIENCE regarding the correct pronunciation of the word *research*. The art of uttering *research* with propriety is of concern to us, because the word is so very frequently used in Mellon Institute. We have always given preference to pronouncing it "rē-serch'." I have also noted the correspondence respecting the number of the word *data*. It is regrettable that some scientific writers do not regard it as plural, thereby failing to observe grammatical principles. It should be borne in mind that the singular form *datum* is a useful word that has a fixed place in scientific and technical reporting.

In this communication I wish to point out errors that are commonly made in pronouncing certain widely used chemical and medical terms. The standard of the pronunciation of scientists and professional men is all too frequently the authority of their own specialty teachers and not always the present usage of literary society and lexicography. Professional phonology, in part at least, is thus sometimes the product of fancy rather than of precise scientific practice based upon the principles of grammar. Every profession should have a sound, fully accepted orthoëpy for its specific terms.

Most pharmacists and many pharmaceutical chemists and physicians mispronounce the word *citrate* (sit'rāt) as "sī'trāt," notwithstanding the fact that, in general, they inconsistently but correctly pronounce *citric* as "sit'rik." Likewise they pronounce *salicylate* "sal'is-il-āt," instead of sal'i-sil-āt, the preferred chemical and lexicographic pronunciation. Recently we have heard a number of different chemists mispronounce *chemotherapy* (kem-o-ther'ap-e) as "kē"-mo-ther'ap-e"; this cacoëpy appears to be especially popular among manufacturing pharmacists who are featuring the use of the word in their sales promotion activities.

The following are among the other ordinary chemical terms that are often pronounced incorrectly: *acetate* ("ā-se-tāt" for as'et-āt), *amino* ("a-mi-no" instead of the lexicographically preferred am'in-o), *cyanamid* ("si-a-nam-id" for si-an'am-id), *hemoglobin* ("hē-mo-glo'bin" for hem-o-glo'bin), *methane* ("mē-thān" instead of meth'ān), *piperidin* ("pip-er-i'din" for pi-per'id-in), *ptomain* ("tō'mān" instead of tō'ma-in), *purin* ("pūr-in" for pu'rin), *saligenin*

("sal-i-gen-in" for sal-ij'en-in), *stearic* ("stēr-ik" instead of ste-ar'ik), and *xenon* ("zē'non" for zen'on).

Medical terms, however, seem to be the most frequently mispronounced of all scientific words. Very few physicians, for example, pronounce *gynecology* "jin-e-kol'o-je," but say "guy-ne-kol'o-je." The former is regarded as orthoëpic by Drs. W. A. N. Dorland, E. C. L. Miller and G. M. Gould, the recognized authorities on medical lexicography, as well as by the leading lay phonologists. *Enteroclysis* is another ordinary medical word that is often mispronounced as "en-ter-o-klī'sis," instead of en-ter-ok'lis-is. Another term of entirely different meaning, *enterocleisis,* is pronounced correctly in the former way.

There are in scientific use quite a few homophones, or words having the same sound as others, but differing in meaning and generally in derivation and often in spelling. *Sitology* and *cytology* are illustrations, both being pronounced "sī-tol'o-je." If the former were in wider usage, it would be better to pronounce it "sit-ol'o-je." *Psychosis* and *sycosis* are two other examples of casual homonyms. Then we have *tic* and *tick; cerasin, ceresin* and *sericin; cerin* and *serin; cetaceous* and *setaceous;* and other groups of words agreeing in sound but differing in meaning from one another.

Much more insistence should be accorded in education to standards of diction and composition—an insistence that students of all classes pronounce and use words carefully and properly. In England the manner of a person's speech is largely influential in determining not only his social standing but also his earning capacity—the natural condition in a country where competition is more rigorous than we in America can yet conceive, but to which we shall certainly come.

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"ISORROPIC"

REFERRING to the note by Professor Alfred C. Lane on "Isontic," p. 37 of SCIENCE for July 13, 1928, I would call attention to the word "Isorropic" given in Webster's dictionary, from which it would appear that it is compounded of the Greek works for equal and momentum. As a whole we are told it is intended to mean: "in equipoise; of equal value." An *isorropic line* in a diagram is "the locus of all points for which a specific function has a constant value."

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PRICKLY PEAR CONTROL IN AUSTRALIA

IN speaking of Dr. R. J. Tillyard's paper on the "Biological Control of Noxious Weeds" in the account of the Congress of Entomology in SCIENCE for September 14, the writer attributed the work done in Australia on the control of the prickly pear to Dr. Tillyard. Coming in late to listen to the paper I missed the opening remarks and the explanation by Dr. Tillyard that the work was done by the Prickly Pear Board in Queensland and New South Wales under the direction of Professor Harvey Johnston, Mr. J. C. Hamlin, Mr. W. B. Alexander and, finally, by Mr. Alan P. Dodd, to all of whom Dr. Tillyard gives most glowing tribute for the excellence of their work. The acknowledgments to these men are fully set forth by Dr. Tillyard in his paper which will appear later in the Proceedings of the Congress.

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QUOTATIONS

THE NATIONAL ACADEMY OF SCIENCES AND HARVARD UNIVERSITY

PRESIDENT CAMPBELL, of the University of California, has recently published in SCIENCE a survey of the geographical and institutional distribution of the membership of the National Academy of Sciences. The significance of the survey lies in the recognized standing of the National Academy as indicating the relative eminence of American men of science in the judgment of their colleagues. It is the equivalent in America of the British Royal Society. It was incorporated in 1863, during the presidency of Lincoln, with Agassiz, Joseph Henry and others among its charter members. Its membership includes scholars in mathematics and astronomy, physics and engineering, chemistry, geology and paleontology, biology and anthropology. Originally established as a means of relating scientific research to public needs, it rendered a notable service during the Great War, and was responsible for the organization of the National Research Council, through which this service has been organized and perpetuated.

As regards geographical distribution, President Campbell's survey brings out the fact of sectional segregation. Sixty-six per cent. of the academy's members live in the New England and Middle Atlantic States (including Washington, D. C.), seventeen per cent. in the Middle West and fifteen per cent. in California, leaving the South and West (excepting California) almost unrepresented. Among institutions, Harvard has thirty-five members, and is followed, in turn, by Chicago and Yale with sixteen each,