of these tubers showed the necrosis to be the characteristic phloem-necrosis which is being investigated. The tubers from the two check cages where the vines had been kept free from aphids and from all other insects showed no necrosis.

This is the first instance, so far as the writer is aware, of the production of net-necrosis under control conditions, and the first proof of what has been heretofore a hypothesis, though supported by considerable evidence, namely, a causal relationship between leafroll and net-necrosis.

The suggestion as to the above relationship is not new. Schultz and Folsom in Maine, showed in 1921 that net-necrosis occurred in varying percentages in hills adjacent to and in the near vicinity of leafroll plants. They further characterized the necrosis as a phloem necrosis rather than a necrosis of the xylem of the vascular tissues and suggested that it might be due to the same virus as that causing leafroll. The experiment here reported furnishes strong evidence that the above suggested explanation is a correct one.

The complete data connected with this investigation will be published in a forthcoming paper.

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"GENERAL ZOOLOGY"

I FEEL that I can not let Mr. H. L. Clark's review of my text-book of general zoology (SCIENCE, VOL. 67, No. 1726) pass without comment. Mr. Clark appears to have two main grievances which (with apologies) he airs at some length. They are (1) the choice of title and (2) the fact that I have omitted all mention of the Echinodermata! I omitted mention of many other groups of the animal kingdom, but I can quite understand that these omissions are nothing like so criminal to him. Mr. Clark is known to us as a very capable investigator of the Echinodermata. I am not sure what experience he has had of teaching work in the universities or higher schools of to-day. He starts off, however, by classifying teachers of zoology into three groups: (1) those stressing structure, (2) those emphasizing function and (3) those magnifying habits and life histories.

I venture to say that this classification is not only incomplete but unjust. There are many teachers of zoology to-day who realize the importance of a broad study of their subject and who endeavor to combine the studies of structure, function, life history and habits.

Now in England in the past it has been customary (and I think the arrangement may not have been different in the United States) to introduce the subject of zoology by a detailed course on the structure of a limited number of well-known types—amoeba, hydra, crayfish, dogfish, pigeon and rabbit. Many students who took this course never heard anything about the way the structures functioned, and it was very difficult for them to find anything in the literature about the physiology of these common types. This very one-sided study of zoology is now realized to be out of date. There is no need for me to discuss that here; it is universally recognized by the best teachers to-day.

Well, I was asked to write a text-book which would introduce the usual types, so that their structure could be studied in detail in the practical classes *together with a study of function.* The book was not to exceed five hundred pages—quite large enough for the purse of most first-year students in this country. If I had described the morphology of the types at length, I should have simply duplicated much that is found in many excellent text-books already in existence. I, therefore, expanded the functional side and introduced a very considerable amount of information not found in any elementary text-book of zoology or physiology with which I am acquainted. Structure was not neglected, but illustrations were used to save description and to aid the students in their dissections.

I do not apologize for the plan of the book. It is novel and that at least is something these days. To Mr. Clark's rebuke that I have omitted all mention of turtles, echinoderms and the songs of birds I retort that they do not come into our introductory text-books in this country. I still wonder whether he was serious when he wrote about the songs of birds.

My reply to his last sentence is that a student familiar with the contents of my book and with the laboratory training which accompanies it, will have a far better knowledge of animal life than one who has only studied the structure of representatives of a large number of animal groups and a far better training than one who has swallowed a superficial account of chatty nature study.

As to my choice of title "The Elements of General Zoology." Zoology to me is the study of animal life, and physiology is as important a part of it as morphology or taxonomy. I do not belittle either of the latter. The necessity of morphological work is clearly indicated.

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THE PRONUNCIATION OF RESEARCH

IN the issue of March 23, Nicholas Kopeloff expresses the opinion that "overwhelming usage seems to

place the accent on the first syllable" of research. From such "datta" or "dayta" as I have collected on this question I am disposed to think that it is a drawn game at present. Last year, while I was sitting in at a conference of investigators from all parts of the United States held in the National Research Council, I kept tally of the rival pronunciations. Unfortunately I have mislaid my notes or laid them away carefully—which amounts to the same thing in my filing system—so I can not give the figures, but I remember positively that at the end of the afternoon the score stood exactly equal. In two cases I had to record a one half vote in each column because one man alternated in pronunciation and one woman always adopted the form used by the preceding speaker.

In case of transplantation to an exotic habitat about nine months is required for complete acclimatization to the alien accent. One June when a western professor came into my office to say good-bye at the expiration of his year on the National Research Council I expressed my regret that I had not seen as much of him as I had hoped to when he came in the fall but that the time of his stay seemed so short. "Yes," he responded, "The term of service on the Council is too short. No sooner does a man learn to say research' instead of re'-search than he has to leave and another man takes his place to start at the same point."

Why not settle the question by dropping the first syllable? Does "research" have any advantages over "search," except in being longer and harder to pronounce?

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SCIENCE SERVICE,
WASHINGTON, D. C.

IN the issue of SCIENCE for March 23, 1928 (p. 319), Dr. Nicholas Kopeloff points out how annoying is the mispronunciation of the word, "research"; the common garden variety of usage places the accent on the first syllable, while the proper form is with the accent on the last syllable. Is this not as it should be? Are not about 90 per cent. of so-called original investigations "re'-search," whereas 10 per cent. may properly be dignified as "re-search'"?

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REPLYING to the article by Dr. E. C. L. Miller on page 319 of SCIENCE for March 23, I would say that he has confounded the transitive verb "to believe" with the intransitive verb. The former is defined in the Century Dictionary as "to credit upon the ground of authority, testimony, argument or any other ground than complete demonstration." There is no reason why users of the English language should confine themselves to only one meaning or only one use of a given word, but as this troubles him, I would suggest that for believe, he should substitute "think," or "I am of the opinion," or "accept as true," or "to credibly state."

Answering Dr. Nicholas Kopeloff's article on "The Pronunciation of Research," I would say that even if the majority of people put the accent on the first syllable rather than on the second syllable of "research," it does not make it right, and that educated men, and especially scientists, should strive to overcome the mistakes and "foibles" of other people. The argument for re'-search is that the search is *again* made! There is some excuse for this pronunciation when this meaning is intended.

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QUOTATIONS

POPULAR SCIENCE

THE translation of scientific news—nowadays so enormous in its bulk—into suitable language, and its condensation to comparatively minute dimensions, are undertaken in a systematic manner in the United States of America by an organization known as Science Service, Inc., directed by Dr. E. E. Slosson, and functioning under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science. This organization publishes daily science news bulletins, and a weekly summary of current science entitled the *Science News-Letter*, in which current events, scientific discoveries, and résumés of progress, together with broadly-drawn reports of the proceedings of scientific conventions, are recorded in simple terms. In addition, there is compiled a weekly digest, intended to present the cream of the week's scientific news, which is regularly used by more than twenty broadcasting stations in the United States.

Fortunately, in Great Britain there is little fear that discoveries might be announced to the listening public in a manner savoring of sensationalism, or that accounts of scientific affairs might be so rendered as to appear ludicrous to the initiated, for the policy in this respect of the British Broadcasting Corporation and of its predecessor company has been exemplary. We are, however, familiar with the result of excursions by otherwise competent journalists into spheres with which they are not familiar; indeed, the distaste for publicity which is usually ascribed to undue modesty might, if the truth were known, quite possibly often be traced simply to a fear of misrepresentation. The American press is now able, however,