the Catholic University, died on July 8, at the age of seventy-nine years. Dr. Searle graduated from Harvard College in 1857 and held positions in the Dudley, Naval and Harvard observatories.

PROFESSOR STEPHEN FARNHAM PECKHAM, known for his work on the chemistry of bitumens, died on July 11, in his eightieth year. Professor Peckham was a graduate of Brown University in the class of 1861, and was professor of chemistry in the University of Minnesota from 1873 to 1880. Subsequently, he was engaged in the work of the U. S. Census, and was in the department of finance of New York City until his retirement in 1911.

LIEUTENANT VERNON KING, formerly scientific assistant in cereal and forage-crop insect investigations, Bureau of Entomology, United States Department of Agriculture, has died from wounds received when the British airplane in which he was serving as a flying observer was shot down. Lieutenant King was attached to the staff of the Wellington, Kans., field laboratory and was in charge of the Charleston, Mo., station prior to November 5, 1914, when he resigned to enter the British army.

EDUCATIONAL NOTES AND NEWS

MOUNT UNION COLLEGE, Alliance, Ohio, has received $512,000 for endowment and equipment to increase its educational work. Successful completion of this fund was made possible by the gift of $50,000 by the friends of the late Captain Milton J. Lichty, M.D., of Cleveland. The professorship of biology will be named in his memory.

THE *Journal* of the American Medical Association states that the national government has modified the statutes of the University of Cordoba in accord with the general demand on the part of professors, students and graduates, giving them a more democratic control. The Academia will retain only its scientific functions, while the direction of the different departments of the university will be in the hands of a managing board for each. The members of these *consejos* are to be elected for a term of three years at a general assembly of all the professors.

BECAUSE of almost continuous absence of Dr. Richard P. Strong since the outbreak of the war, the department of tropical medicine of the Harvard Medical School, has been placed in charge of Dr. Andrew W. Sellards, whose title as associate is now made that of assistant professor.

PROFESSOR C. A. SISAM, of the University of Illinois, has accepted the headship of the department of mathematics in Colorado College. He has been connected with the University of Illinois since 1906.

DR. GEORGE R. BANCROFT has resigned the professorship of chemistry and physics in Transylvania College, Lexington, Ky., to accept a position at the University of Kentucky as assistant professor of organic and physical chemistry.

DR. CHARLES T. BRUES has been promoted to be assistant professor of economic entomology in Harvard University.

DISCUSSION AND CORRESPONDENCE

A MUSICAL, CRICKET-LIKE CHIRPING OF A GRASSHOPPER

IN August, 1917, I made frequent trips to a certain swamp near Spring Hill, Vinson Station, Va., to study the stridulating habits of a colony of locusts, *Neoconocephalus Exiliscanorus* (Davis), which have been located here for several years. The usual notes of the cone-headed grasshoppers (*Neoconocephalus*) are quite devoid of any musical tone such as is characteristic of the chirpings and trillings of the crickets. In truth, the sounds produced by these insects are usually harsh, lisping or rasping noises which may be intermittent or prolonged, depending upon the species. The stridulations of the cone-headed grasshopper (*N. Exiliscanorus*) are of the intermittent type, and are brief, insistent phrases—zeet—zeet—zeet—zeet—zeet, delivered very regularly

for a certain period, followed by a brief pause before the performance is repeated. The notes of the members of the particular colony located near Spring Hill appeared to be rather louder than the notes of some individuals of this species which I have heard elsewhere.

On the evening of August 21, I again visited this colony, the individuals of which were just beginning their usual nocturnal stridulations. While listening to their rather harsh, unmusical phrases, a loud, musical chirping started up, low down in the herbage and underbrush nearby. It was similar to the chirping notes of a cricket, and possessed the true tonal quality characteristic of the notes of such crickets as are found in the genera, *Gryllus, Œcanthus,* or *Orocharis*. I was actually somewhat startled by the loud, unfamiliar chirping, for I could not think of any species of cricket in this locality which I had not determined. After a careful search with a pocket flashlight, I located the musician, which, much to my surprise, proved to be the cone-headed grasshopper (*N. Exiliscanorus*). With the exception of the acquired cricket-like, musical pitch or tonal quality, the notes were delivered in a manner typically characteristic of this cone-headed grasshopper. I captured the insect and compared its tegmina with the tegmina of individuals stridulating in the normal manner, but could determine no particular differences in the stridulating field or the stridulating veins. A microscopic examination of the character of the teeth of the stridulating vein revealed nothing which could be considered responsible for the unusual character of stridulation.

It has always been a mystery to me why the crickets as a class produce stridulations characterized by the musical qualities of pitch and timbre, while the majority of the musical Orthoptera produced only lisping or harsh, strident, unmusical sounds such as are characteristic of the species of *Conocephalus, Orchelimum, Neoconocephalus, Atlanticus, Amblycorypha, Pterophylla,* etc. The question of the origin and evolution of the musical impulse as a dominant feature in the development of the Orthoptera must ever excite the mind to wonder. In this class of insects, sound has become an almost constant and irrepressible feature of their lives. How did the tonal quality become acquired and why is it so constantly associated with the crickets? It is evident that this more musical quality may arise suddenly in the individuals of a species which normally produce only "noise," so to speak, as in the case of the cone-headed grasshopper mentioned. If such a change were associated with the germinal constitution so that it became a transmissible feature and not a merely accidental or temporary individual feature, it would suggest how a musical, cricket-like chirp could arise from a mere rasping note or "noise," and persist as a racial feature. If this were true, the sudden acquirement of the character would be in the nature of a mutation or discontinuous variation, and it is possible that evolutionary steps of this sort have actually occurred in the specialized development of stridulatory powers among the Orthoptera.

H. A. ALLARD

WASHINGTON, D. C.

SCIENTIFIC BOOKS

Field Book of Insects. With Special Reference to those of Northeastern United States. Aiming to Answer Common Questions. By FRANK E. LUTZ, PhD. G. P. Putnam's Sons. ix + 509 pp. 101 plates.

The text-books dealing with American insects are all excellent but are comprehensive and prepared for the use of students and advanced workers. None of them, however, cover just the field of the present volume. In European countries, where there are many more persons interested in the collection and study of insects than in America, a large number of small well-illustrated volumes are available, where the collector can identify his specimens as well as obtain information regarding their habits. These volumes are of such size that they can be slipped in the pocket and taken into the field for ready reference. There are "Field Books" dealing with American plants and birds, but this is the first one dealing with insects.