through a doubling or trebling of the normal number of segments or joints. As a result, some have antennæ twice as long as the body. Each segment is a unit and though the comparison may not be a strictly accurate one, we are inclined to regard the antennal segments as linked in multiple units.

It is well known that the antennæ of many insects have very efficient olfactory and auditory structures. The latter may be simple hairs springing from sensory pits, whorls of hairs or even more complex structures.

The radio enthusiast would certainly be interested in an aerial or antenna of the multiple inverted umbrella type, the arms of the umbrellas being loops and in some forms greatly extended on one side, presumably for directive receiving; the umbrellas arranged in double or triple series in multiple units mounted with flexible connections and an articulate base permitting limited rotation. Such structures are found in gall midges.

We would call attention to the peculiar circumfila or encircling threads supported by numerous short stems entering sensory pits or detectors, the latter within the antennal segments. The simplest type of circumfilum is a low thread or circle, not a coil, near the base of the segment and frequently connected by a filament on one face with a similar circle near the opposite extremity. These threads may be modified and follow a sinuous or wavy course instead of a straight one; they may be greatly increased in number to form an enclosing net work, suggestive of the bed spring aerial; the portions between the supporting stems may be greatly stretched or drawn out as it were to form relatively enormous loops and in some we have the loops on one side of the antennæ very greatly produced. We may even find in some antennæ a combination of the low and simple type together with highly developed loops. There is one group where these structures are modified in such a curious way as to resemble miniature horse shoes upon opposite sides of each segment; the supporting stems suggesting the nails used for the attachment of horse shoes.

There are over a thousand variations in gall midge antennæ, presumably for cause. Solomon advised some of his fellow mortals to consider the ant. May we suggest to radio enthusiasts a similar attitude toward gall midges—master builders of antennæ which are both the admiration and despair of man.

Concluding, may we register faith in radio and radio antennæ, anticipating through them closer and more helpful relations with fellow men.

E. P. FELT

STATE ENTOMOLOGIST
OF NEW YORK

JOHN CASPER BRANNER

THE following resolution was passed at a meeting of the Academic Council of Stanford University held April 7, 1922:

As witness of our affection for Dr. Branner and respect for his memory, we desire to make our own and incorporate (in part) in the minutes of the Academic Council the appreciation prepared for the *Illustrated Review* by his friend and colleague, Professor Stillman:

"In the death on March first of President Emeritus John Casper Branner, Stanford University loses one of its most distinguished scholars, one of its greatest teachers and most respected and beloved personalities.

"Dr. Branner was born in New Market, Tennesee, on July 4, 1850. He attended school at Maury Academy in Dandridge, Tennessee, and later enrolled at Maryville College. At the age of eighteen he entered Cornell University, where he received his bachelor's degree.

"While still an undergraduate he was selected (1875) by Professor Charles F. Hartt to assist him in a geological survey of Brazil, which occasioned several years of work in Brazilian geology. In 1882 he was again commissioned, by the United States Government, to go to South America to investigate insects injurious to cotton and sugar-cane industries. From 1883 to 1885 he was engaged by the Pennsylvania Geological Survey to make a topographic map of the Lackawanna Valley.

"When David Starr Jordan became president of the University of Indiana in 1885, he appointed his Cornell college and fraternity mate to the professorship of geology at that institution, a position he held until again called by Dr. Jordan to the similar chair in Stanford University. In the meantime he acted (1887-1892) as state geologist of Arkansas, while retaining his chair at Indiana.

"From 1891 until his retirement from the uni-

versity in 1915, Dr. Branner occupied the headship of the department of geology and mining, holding also the office of vice-president of the university from 1898 to 1913. Upon the creation of the title of chancellor for Dr. Jordan, in 1913, Professor Branner was elected president, a position which he held until January, 1916, when he also retired under the age limit established by the university, and became president emeritus. During his years of service at Stanford, Dr. Branner found occasion to direct or participate in professional missions, such as his expedition to Brazil under the patronage of Alexander Agassiz in 1899, and again in 1907-1908. He was also one of the special government commissioners on the Panama Canal, and on the California earthquake of 1906.

"The scientific service of Professor Branner has been widely recognized. He was a member of the National Academy of Sciences, the American Philosophical Society, was president (1904) of the American Geological Society, vice-president (1890) of the American Association for the Advancement of Science, held membership in the Geological Societies of London, Edinburgh, France, was president (1911) of the American Seismological Society, and was a member of geologic and geographic societies of several Brazilian states and of other countries. He has received the degrees of Ph.D. from Indiana University in 1885, of LL.D. from the University of Arkansas in 1897, from Maryville College in 1909, and from the University of California in 1915, and the degree of Sc.D. from the University of Chicago in 1916.

"His publications are numerous and, while the great majority are on geology, many evidence the breadth of his active interests in botany, entomology and other lines of natural sciences. His grammar of the Portuguese language (now in its fourth edition) grew out of his Brazilian experience. His bibliography of Clays and Ceramics, an important compilation; the "How and Why Stories," a charming collection of southern negro dialect myths (1921); his genealogy of "Casper Branner of Virginia and His Descendants"; and his recently completely but as yet unpublished translation from the Portuguese of Alexandre Herculano's *Establishment of the Inquisition in Portugal*, all evidence his breadth of interests and his tireless energy.

"As a teacher Professor Branner exerted upon his students an influence which inspired them to their best efforts. His broad experience, his own sytematic and untiring research, his realization of the supreme importance of practical experience as the final test of all theories, were well calculated to stimulate the ability and energy of his students, while his simple, sincere, and sympathetic personality attached them to him with a rare devotion."

Dr. Branner's attitude toward the office of president was characteristically expressed in his inaugural address:

"I am here to serve you in every way in my power and in everything that pertains to your work as instructors in the university and as scholars interested in your own special lines of work. I expect and I intend to be the servant of every member of this faculty except myself. I consider the support I can give you my most important duty, and it will be my greatest pleasure."

In becoming president of the university, Dr. Branner did not cease to be teacher and colleague. He made the problems of all the departments his own. In his relations with students and faculty the informality of attitude and high courtesy were unchanged. He maintained the same dignified simplicity he had exhibited as executive head of his department.

Dr. Branner's life is a great heritage for Stanford University, for California, and for the nation.

RAY LYMAN WILBUR,
President

SCIENTIFIC EVENTS

A COUNT OF BIRDS

RENEWED interest in the bird population of the United States has led to a revival of the efforts, begun in 1914, by the Biological Survey of the United States Department of Agriculture, to collect information on the number and distribution of the birds breeding in this country. Counts have been made each succeeding year, and interested persons who are thoroughly familiar with the breeding birds of their respective vicinities are asked to aid in the work. By continuing these counts over a period of years and counting the same areas each year, knowledge can be gained not only of our total bird population but also of its fluctuations from year to year. The counts, moreover, will greatly help in determining what effect the present state and federal laws have on the increase of game and insectivorous