tutions would probably be classified as students in liberal arts with their major subjects in political science or architecture. On the other hand, Stanford, which was given fourth place in the number of academic students, makes no distinction in its returns between academic students and students in applied science. The men in the undergraduate schools of this institution are very largely registered for major work in the departments of applied science, just as they are at the University of California and at other western institutions.

In the case of Indiana University, the figures for 1902–03 as reported by the registrar's office include all students enrolled in the university from November to November, thus including in each case two freshmen classes. For the years following 1903 the figures include the enrollment from the beginning of the summer term in June to November of the same year, and do not include the new enrollment between November and the following June. Accordingly, the totals for 1902–03 are much too large and the totals for the following years are too small. The actual total enrollments for the university are as follows:

1901–1902	1,285
1902–1903	1,469
1903–1904	1,418
1904–1905	1,538
1905–1906	1,684
1906–1907	1,821

RUDOLF TOMBO, JR.,
Registrar

COLUMBIA UNIVERSITY

ANOTHER FLEA REMEDY

TO THE EDITOR OF SCIENCE: Anent the communication from Dr. L. O. Howard in your issue of November 29, the following preventive, which insures a comfortable night's rest in spite of the proximity of fleas, may be of interest. In sleeping in farmhouses and country hotels in western Oregon, where there was not only a reason to suspect the presence of fleas, but where their presence had been demonstrated beyond question, I secured immunity by pouring a little camphor in solution in the palm of my hand, and rubbing limbs and body with the same. This method is, I believe, in quite general use in infested regions by travelers who have not reached the climax of indifference enjoyed by the natives.

F. L. WASHBURN

MINNESOTA EXPERIMENT STATION,
December 5, 1907

SPECIAL ARTICLES

THE FOSSIL SAWFLY PERGA COLORADENSIS

IN SCIENCE of October 4, p. 446, I recorded a large fossil sawfly from Florissant, apparently referable to the Australian genus *Perga*. In the course of unpacking the Florissant materials, the reverse impression, which I had not seen before, has come to light. It shows certain parts of the wing not clearly visible in the original, and enables me to see that there is a lanceolate cell, traversed by a cross-nervure, after the manner of *Cimbex*. As the marginal cell has no trace of a cross-nervure, wherein it agrees with *Perga* and not with *Cimbex*, the insect finds no place among modern sawfly genera, and may be placed in a new genus *Phenacoperga*.

Phenacoperga coloradensis differs from *Cimbex* not only in the character just mentioned, but in the position of the cross-nervure of the lanceolate cell, which has retreated far toward the base of the wing, so that it is more than twice as distant from the apex of the lanceolate cell as from the base of the wing. This may probably be regarded as a step toward the condition in *Perga*, where the cross-nervure may be considered to have retreated to the very base, and the lower side of the cell then to have failed.

The new genus appears to confirm Konow's classification, wherein *Cimbex* and *Perga* are associated in the same subfamily. According to his system, it would form a new tribe between the Syzygoniides and Cimbicides.

I will take this occasion to refer to *Atocus defessus* Scudder, another extinct genus of sawflies from Florissant. According to Scudder's figure, the insect appears to be anomalous from the total absence of any subcostal nervure. I recently examined the type at Cambridge, and can affirm that the subcostal is

present, although its points of attachment are not clear.

T. D. A. Cockerell
University of Colorado

THE SORGHUM MIDGE

For many years growers of sorghum in our southern states have noted a common failure to produce a full crop of seed. This trouble is generally known as "blast." Many scattered references to this condition may be found in agricultural literature and in correspondence. Different theories as to the cause of this observed sterility have been advanced from time to time. Chief among the agencies which have been regarded as possible causes are fungi, insects and various meteorological conditions, such as excessive precipitation, high humidity, severe drouth and hot winds. Among the growers themselves, it is quite generally held that this sterility results from the washing away of the pollen by heavy rains during the blooming period.

In the spring of 1907, experiments were planned to determine the cause of sterility. The work was largely done at Baton Rouge, La., and San Antonio, Texas. In Louisiana, the writer was assisted by Professor H. R. Fulton, pathologist of the Agricultural Experiment Station, and in Texas by Mr. F. B. Headley, superintendent of the U. S. Experimental Farm at that place. Many of the data on the life history are due to the studies of Professor Fulton.

The first examination of the plants at Baton Rouge, made by the writer late in July, disclosed the presence of large numbers of a small fly on and around the heads. These insects proved to be females actively engaged in depositing eggs within the fertile spikelets. A search of the literature available in the library of the Louisiana Crop Pest Commission brought to light the publication by Coquillet[1] of a new species of Cecidomyiid, *Diplosis sorghicola,* received in sorghum heads in 1895 and again in 1898. A comparison of the insects in hand with this description proved them identical with Coquillet's species. This identity was subsequently confirmed by Professor F. M. Webster.

Observation showed that egg-laying began as soon as the tips of the heads emerged from the boot or upper leaf sheath, and continued until the flowering period was wholly past. Heads in every stage of development, from the beginning of emergence to the close of anthesis, were protected from the midges by means of paper bags. The results of all bagging experiments were in substantial accord. Heads protected from the midge were uniformly fertile, where normal growth continued. Heads exposed during the first half of anthesis and then protected were sterile in the upper portion and well seeded below. Heads exposed until flowering was wholly completed were uniformly sterile when midges were abundant during anthesis, and partly fertile when midges were scarce. From 500 to 1,160 midges were hatched from each of several infested heads. Exposed heads examined a few days after anthesis showed living larvæ lying in close contact with the shrunken and undeveloped ovaries. The injury is due to the absorption of the juices from the young and tender ovary, thus causing development to cease. This absorption is through the body walls of the larva, the ovary being not eaten or otherwise injured though oftentimes discolored. This method of obtaining nourishment is shared also by the larvæ of the closely related wheat midge, *Diplosis tritici,* and by those of the well known Hessian fly. Numerous additional facts concerning the habits and life history of the midge will be presented in a more appropriate place.

Sterility or failure to produce seed in various sorghums is thus shown to be due to the attacks of the Cecidomyiid midge, *Diplosis sorghicola* Coquillet, for which the name, sorghum midge, is here proposed. At Baton Rouge the midge was accompanied by a Chalcid parasite, a species of *Aprostocetus.* According to Professor Webster, this parasite

[1] Coquillet, D. W., "A Cecidomyiid Injurious to the Seeds of Sorghum," U. S. Dept. Agr., Div. of Entomology, Bulletin (New Series), 18: 81–82, 1898.