sity, has been selected by the trustees' committee on general administration to be acting president of the university until a permanent successor to Dr. Schurman is appointed.

THE professorship of electrical engineering at Lafayette College, made vacant by the resignation of Professor Rood, who left Lafayette to go to the University of Illinois, has been filled by the appointment of Professor Morland King, of Union College, as associate professor of electrical engineering.

DR. WALTER K. FISHER, of the department of zoology at Stanford University, has been promoted to an associate professorship.

DR. MAX MAILHOUSE has resigned as clinical professor of neurology in the Yale School of Medicine, his resignation to take effect at the close of the present college year.

DISCUSSION AND CORRESPONDENCE

A SUGGESTION AS TO THE FLAGELLATION OF THE ORGANISMS CAUSING LEGUME NODULES

A VERY interesting note by Hansen on the flagellation of the legume nodule organisms (Rhizobium) appeared recently in this journal.[1] There has been a dispute for some time as to whether these bacteria have one or several flagella. Burrill and Hansen not long ago[2] claimed that they are monotrichic organisms, whereas various other investigators, including the present writers,[3] have observed peritrichic flagella. Hansen now says that he, too, has found peritrichic flagella on cultures obtained from clover, vetch and alfalfa, and calls attention to the fact that his earlier studies had been on organisms from cowpea and soy bean. Hence he suggests that there may be two different groups, one peritrichic and the other monotrichic. It is, indeed, generally recognized that the organisms of cowpea and soy bean differ from the other varieties of *Rhizobium* in certain cultural features, primarily in respect to vigor of growth.

Hansen's suggestion is very interesting, but does not explain all the facts that have been observed. Wilson[4] has found peritrichic flagella on cultures of the soy bean organism. To be sure, as insisted by Hansen, Wilson has not published any photomicrographs; but the statement he makes is definite and no one need question it. We have seen one of Wilson's microscopic preparations (soy bean organism) and also one of Hansen's (cowpea organism); and find four or five flagella on some of the bacteria in Wilson's preparations, but only one each on those in Hansen's.

Upon enquiry we find that Wilson's cultures were sometimes as old as 28 days at the time of staining; while it appears from Burrill and Hansen's paper that their preparations were only a few days old. In this connection it is an interesting fact that a certain organism (belonging to a different group) studied in this laboratory was found to have a single polar flagellum when a few hours old, but two or three polar flagella when a day or more old. This naturally raises the question whether the cowpea and soy bean organisms may not be monotrichic in young cultures and peritrichic when they are older. This suggestion is further borne out by the fact that Hansen found (as shown by statements in his text and by his photomicrographs) the single flagellum to be attached at the corner or even at the side more often than exactly at the pole. This is just what would be expected if it were a matter of chance which one of the peritrichic flagella developed first in a young culture.

Ever since the appearance of Burrill and Hansen's paper we have wanted to investigate the truth of the matter. As we have not had the chance to do so, we take this occasion to put the idea in print that any one else inter-

[1] Hansen, Roy, "Note on the flagellation of the nodule organisms of the Leguminosæ," SCI., N. S., 50: 568–569, 1919.

[2] Burrill, T. J., and Hansen, R., "Is symbiosis possible between legume bacteria and non-legume plants?" Ill. Agr. Exp. Sta., Bul. 202, 1917.

[3] Breed, R. S., Conn, H. J., and Baker, J. C., "Comments on the evolution and classification of bacteria," *Jour. Bact.*, 3, 445–459, 1918.

[4] Wilson, J. K., "Physiological studies of *Bacillus radicicola* of soybean (*Soja* Max., Piper) and of factors influencing nodule production," Cornell Agr. Exp. Sta., Bul. 386, 1917.

ested in this rather puzzling question may study it to see whether there is anything in the theory suggested here.

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PENSIONS FOR GOVERNMENT EMPLOYEES

The American Association for Labor Legislation calls attention to the very serious evils arising from the lack of a pension system in the government bureaus at Washington. They say: "It is now reported that of a total of 878 employees in one federal bureau in Washington, 303 are over 65 years old, 104 over 75, and 29 over 80. The Treasury Department alone has 1,000 aged who average only 25 per cent. efficiency—1,000 drawing full pay for work that could be done by 250."

This is a matter which concerns scientific men. I remember several years ago calling on one of the most eminent zoologists in the National Museum. I found that he was writing all his letters by hand, because the stenographer assigned to him was too old to do the work. He explained that of course he could not, or would not dismiss her; but as a result he was left without the assistance he should have had. I recall a scientific assistant, retained by a bureau long after he had ceased to be able to do anything of value, but required to spend his days at his desk. No one would have thought of turning him away unless he could be adequately provided for. The effect of these conditions on the progress of science is obvious and lamentable.

It appears that there is now a bill before Congress, providing for retirement on part pay at 65, the employee contributing 2½ per cent. of wages, the government the rest. It should certainly be supported.

T. D. A. Cockerell

University of Colorado,
March 1, 1920

THE RECENT AURORAS

The Weather Bureau is compiling observations of the auroras of March 22–23, 23–24, and 24–25, 1920, as seen in the United States, or elsewhere, with a view to publishing a detailed account of this remarkable display in the March, 1920, issue of the *Monthly Weather Review*. It is hoped that those who observed an aurora on any of the dates mentioned will notify the bureau, and if details were noted will send copies of their notes. Information about any display which may be seen on April 18, 27 days after the brilliant night in March, or auroras observed on other dates in 1919 or 1920 will also be appreciated. Communications should be addressed to "Editor, Weather Bureau, Washington, D. C.," and should reach Washington by the end of April.

Charles F. Brooks,
Meteorologist-Editor

QUOTATIONS

CIVIL SERVICE PENSIONS

After years of half-hearted consideration Congress seems about to pass a bill for the retirement and pensioning of employees in the federal service. It will be applicable only to those in the classified service, about 300,000 in all. It is a measure of justice and at the same time a measure of economy, for the government hasn't been heartless enough to turn the superannuated loose. Thousands of them retain their places, but do little or no work.

The government retires employees in the military and kindred services. It ought to set a similar standard for faithful civil employment. The retirement age in the army is sixty-four, and in the navy sixty-two. Taking into consideration the easier conditions of civil employment, the bill which has just passed the Senate fixes seventy as the civil retirement limit. The allowances will vary according to length of service, from thirty years down to eighteen years. Persons disabled through disease or injury in the line of duty may be retired before reaching seventy.

Another distinction is to be made between civil and military beneficiaries. An annuity assessment of 2½ per cent. will be levied annually on the salaries of civil employees until a retirement fund is accumulated. This assess-