

compared with three in 1838, about twenty in 1880, about sixty in 1900, and now perhaps two hundred.

The stars the distances of which have been measured have generally been specially selected on account of their brightness or large proper-motion. Each star has been examined individually. Kapteyn has suggested that instead of examining stars singly in this way, photography gives an opportunity of examining all the stars in a small area of the sky simultaneously, and picking out the near ones. The method has been tried by Kapteyn and others—among them Dr. Rambaut. The idea is very attractive, because it examines the average star and not the bright star or star of larger proper-motion. It is liable, however, to some errors of systematic character, especially as regards stars of different magnitudes. Comparison of the results so obtained with those found otherwise will demonstrate whether these errors can be kept sufficiently small by great care in taking the photographs. Until this is done no opinion can be expressed on the success of this experiment, which is worth careful trial.

The question may be asked, How near must a star be to us for its distance to be measurable? I think we may say ten million times the sun's distance. This corresponds to the small angle $0.02''$ for the parallax. If a star's parallax amounts to this, there are, I believe, several observatories where it could be detected with reasonable security, though we shall know more certainly by the comparison of the results of different observations when they accumulate.

You will readily imagine that an accurate knowledge of the distances of many stars will be of great service to astronomy. There are ample data to determine the positions, velocities, luminosities and masses of

many stars if only the distances can be found. Thus we know the distance of Sirius, and we are able to say that it is travelling in a certain direction with a velocity of so many miles per second; that it gives out forty-eight times as much light as the sun, but is only two and a half times as massive. The collection and classification of particulars of this kind is certain to give many interesting and perhaps surprising results. But it is not my purpose to deal with this to-night. The task I set before myself in this lecture was to give an idea of the difficulties which astronomers have gradually surmounted, and the extent to which they have succeeded in measuring the distances of the stars.

F. W. DYSON

SCIENTIFIC NOTES AND NEWS

FIFTY years ago William North Rice was graduated from Wesleyan University, and two years later was elected professor of geology and natural history, a title which was changed to professor of geology in 1884, when the department of biology was established. Professor Rice's services as teacher, administrator and investigator were acknowledged by the conferring on him of the degree of doctor of laws by Wesleyan University at its recent commencement.

DR. VICTOR C. VAUGHAN, professor of hygiene at the University of Michigan and president of the American Medical Association, received the honorary degree of LL.D. at the annual commencement of Jefferson Medical College, Philadelphia, on June 5.

THREE doctorates of science were conferred by the University of Pennsylvania at its commencement exercises on June 16. The recipients and Provost Smith's remarks were as follows: *Robert Andrews Millikan*—Physicist of eminence, editor, whose investigations in electricity, in molecular physics and heat have won for you deserved and well-merited recognition. *Harry Frederick Keller*—Because of your profound knowledge of chemical science,

because of your acknowledged thoroughness in the teaching of the same, because of your happy solution of perplexing and important problems in inorganic and synthetic organic chemistry. *Arthur Newell Talbot*—Master of engineering in its relations to railway, hydraulic and sanitary construction, eminent as a teacher of theoretical and applied mechanics, prolific and respected writer on these subjects.

YALE UNIVERSITY has conferred its doctorate of science on Dr. Ch. Wardell Stiles. In presenting the degree Professor Woolsey said: "Charles Wardell Stiles, zoologist—Five years of foreign study, arduous research and the spur of visible suffering have fitted and impelled Dr. Stiles to attack the obscurities of parasitic disease. Both brutes and men owe him gratitude. He is the discoverer of the American hookworm, that widespread and dreadful scourge of the south. By his investigation and through his propaganda an entire people is being lifted to a higher plane of physical and economic being."

DR. DAVID WHITE, of the U. S. Geological Survey, has been elected a corresponding fellow of the Royal Society of Canada.

THE Osiris prize of \$20,000, which the Institute of France gives every three years for the most remarkable work in science, art, letters or industry, was awarded on June 2 jointly to Professors Vidal and Chantemesse and Dr. Vincent, of the University of Paris, for their work in the development of anti-typhoid vaccination. As this prize can only be given to Frenchmen, the institute has awarded a special prize to Sir Almroth Wright, for his discovery of this means of protection from typhoid.

TEN Philadelphia surgeons and four nurses sailed from New York on the steamship *St. Louis*, on June 12, for the war zone in France. They will have charge of a floor in the American Ambulance Hospital, and will make an exhaustive study of the treatment of wounded soldiers. The Philadelphia doctors, most of whom are making the trip at their own expense, will have charge of about 200 wounded men. Of the general expenses about \$7,000 of the \$10,000 needed has been subscribed. The unit will be abroad three months. Dr. J. Wil-

liam White, emeritus professor of surgery at the University of Pennsylvania, is in charge of the party. Besides Dr. White, the members of the party on the *St. Louis* are Dr. James P. Hutchinson, who will be the managing head of the unit; Dr. Daniel J. McCarthy, neurologist; Dr. Edmund B. Piper; Dr. Walter Estell Lee; Dr. Arthur E. Billings; Dr. Peter M. Keating; Dr. Samuel Goldschmidt, bacteriologist; Dr. Thomas C. Aller and Dr. David M. Davis, of Johns Hopkins University.

DR. CLIFFORD RICHARDSON, of New York, was elected president of the Association of Harvard Chemists at the fourth annual dinner, held recently, at Young's Hotel, Boston. Other officers are: *Vice-presidents*, Professor W. D. Bancroft, of Cornell University, and Dr. F. W. Clark, of Washington; *Secretary and Treasurer*, Professor S. B. Forbes. About thirty-five members were present with these speakers: Professors T. W. Richards and G. P. Baxter, of Harvard University, and George B. Leighton, of Boston.

MR. N. G. NELSON, of the department of anthropology of the American Museum of Natural History, is engaged in excavating the prehistoric and early historic ruined villages in the neighborhood of Santa Fé. Dr. Robert H. Lowie has left for field work among the Kiowa Indians of Oklahoma, the Hopi of Arizona and the Paiute of Nevada.

GEORGE B. ROORBACH, instructor of geography in the Wharton School, University of Pennsylvania, has received an appointment from the Carnegie Endowment for the Advancement of International Peace to carry on investigations this summer in Venezuela on the effect of the war on industrial, commercial and financial conditions in that country. Mr. Roorbach sailed for Venezuela June 16, to be gone during the vacation.

MR. FRANK COLLINS BAKER has resigned his position as acting director and curator of the Chicago Academy of Sciences. Mr. Baker has held the office of curator for twenty-one years, during which time he has built up large study collections, many of which have formed the basis for extensive monographs. The

unique natural history survey of the Chicago area, first organized by Dr. W. K. Higby (now deceased), who for many years was secretary of the academy, was largely carried on by Mr. Baker; the educational installations in the museum of the academy were also prepared under his direction. His address for the summer will be 1555 Highland Avenue, Rochester, N. Y.

THE Croonian lectures before the Royal College of Physicians of London were announced to be delivered on June 17, 22, 24 and 29, by Surgeon General Sir David Bruce, C.B., F.R.S. The subject of the lectures was "Trypanosomes Causing Disease in Man and Domestic Animals in Central Africa."

DR. SHIPLEY, master of Christ's College, Cambridge, gave a lecture for the National Health Society, on flies, lice and minor horrors of war, at the house of the Royal Society of Medicine, on June 16.

UNIVERSITY AND EDUCATIONAL NEWS

MR. BARTON A. HEPBURN, of New York, is to present to Middlebury College a men's dormitory costing nearly \$200,000. Mr. Hepburn received his degree of A.B. at Middlebury. The building, on which work is to be started at once, will be five stories of marble or granite, in keeping with the other college buildings.

THE Massachusetts Agricultural College has recently received \$4,000 by the will of Major Henry E. Alvord, formerly chief of the dairy division of the Department of Agriculture.

THE late Dr. W. Aldis Wright, vice-master of Trinity College, has bequeathed the sum of £5,000 for the use of the library of the University of Cambridge.

DR. RUBY CUNNINGHAM has been appointed instructor in hygiene and an infirmary physician in the infirmary of the University of California.

RAYMOND B. ROBBINS, Ph.D., has been appointed instructor in mathematics in the Sheffield Scientific School, Yale University.

AT Western Reserve University new appointments have been made as follows: Arthur Dunn Pitcher, Ph.D., professor of mathematics; Jesse E. Hyde, A.M., associate professor of geology; John M. Stetson, Ph.D., instructor in mathematics; William Henry Weston, Jr., A.M., instructor in biology.

DISCUSSION AND CORRESPONDENCE

EDITORIAL SUPERVISION FOR EXPERIMENT STATION PUBLICATIONS

THE *Experiment Station Record* for April, 1914, contains a pertinent plea for the need of judicious criticism of agricultural experimentation. The following is written in order to direct special attention to this need in experiment-station publications. It is furthermore desired to suggest that the general adoption of certain policies now employed in many of the experiment stations would eliminate from publications such glaring features as poor English and poor literary style, loose and inexact statements, improper use of technical terms, failure to recognize the existence of published works of a similar nature or the bearing of the results secured upon related fields of science, drawing conclusions not warranted by the data in hand, and the publication of superficial or inconclusive work. One needs only to consult the recent publications in order to convince himself that all of these offences have been committed and it is logical to suppose that they will continue to be committed unless measures for their prevention are put into operation.

The following quotations, taken at random from scores of their kind, will suffice to illustrate the need of criticism. "The fungus was run on artificial media," "The appressoria were round, black bodies, from an eighth to a quarter inch in diameter," "Infection experiments were tried with cultures in the open and in the greenhouse," "Infected plants can be distinguished by a thin growth," "They (pycnidia) are hollow within," "No peas have been reported to be attacked by the eel worm out of doors." These statements have been chosen only because of my better famil-