"Moreover, the typical business man cannot, in the nature of the case, be successful in such a post. His standards of success are the reverse of educational. Underneath the temporary appearance of external prosperity which such a president might bring, there is almost certain to be the dry rot of educational neglect. The more important the college or university, the more surely it needs expert educational supervision. For this there is no possible substitute. Like a city school system, a college or university needs someone in its administration who knows and understands its educational activity in every part, who can distinguish real teaching from sham teaching, and the force of whose personal inspiration will be felt in every department. Those who remember the administration of President McCosh of Princeton, well understand what this means.

"The four new presidents are men of this type. They are men of strong personality, and each will leave his mark for good upon the institution which has honored him. All four are, in a large sense, men of affairs, and may be expected to relate their institutions more closely than ever to the life and thought of the time. This new impulse is particularly needed at Yale, where what we believe to be an unfortunate and dangerous policy of educational isolation has long been pursued. To overcome that isolation, and to restore Yale to its legitimate place as a progressive educational influence are likely to be two of the most noteworthy achievements of President Hadley's administration."

THE PROTECTION OF BIRDS.

THE Commissioner of Education, of the Public Schools, of the State of Rhode Island, Thos. B. Stockwell, has issued the following circular:

TO THE SCHOOL OFFICERS AND TEACHERS OF THE STATE OF RHODE ISLAND:

I desire to call your attention to the efforts now being made in this State by the Audubon Society for the preservation of our native birds. From reliable statistics it is evident that unless some active measures are speedily taken, their number will be very much reduced and some varieties will become extinct.

The value of the birds, from various points of view, is incalculable. As a protection to the farmer against the ravages of countless forms of insect life, as a source of joy and satisfaction to every lover of nature, they minister both to our material and our æsthetic interest. Indeed, it was not till within a few years that the Department of Agriculture, through a long course of accurate observations, determined beyond a question the economic value of almost every native bird in his relation to the various forms of vegetation; and it is no longer debatable whether the inroads of certain pests destructive to certain forms of vegetation are not due quite largely to the scarcity of the birds.

As any improvement in this matter must be brought by imparting more correct information about the birds, it is evident that the public schools, and especially those of the country sections, afford the most effective means for the dissemination of the facts, and the awakening of a life interest in the protection of bird life. The new movement towards Nature Study, which has recently been manifested and is spreading quite rapidly through the schools, furnishes the natural channel by means of which instruction and information on this subject may be readily brought before the children, and through them to the people generally.

The more our children are brought into the right touch with nature, and especially with such beautiful creatures as the birds, the more certain it is that their minds and hearts will be filled with right sentiments and feelings, and that their characters will be moulded aright.

To that end then I bespeak your cordial interest in this general subject, and your coöperation with the plans of the Audubon Society for the protection of our feathered friends.

THE COMPANIONS OF POLARIS.

PROFESSOR W. W. CAMPBELL, of Lick Observatory has made the following statement in regard to his discovery that Polaris or the North Star is a triple system:

The observations of Polaris were made with the Mill's spectroscope attached to the thirty-six-inch telescope. From the well-known principle of the shifting of the lines in the spectrum of a star, we can determine whether the star is approaching or receding from the observers and how rapidly. For most stars the velocity is constant. For some stars the velocity is variable, due to the attractions of companion stars.

The recent observations of Polaris at Lick Observatory show that its velocity is variable. It is approaching the solar system now with a

velocity of eight kilometers per second. This will increase in two days to fourteen kilometers, and in the next two days will decrease again to eight kilometers. This cycle of change is repeated every four days. The bright Polaris, therefore, revolves about the centre of gravity of itself and its invisible companion once in four days. The orbit is nearly circular and is comparable in size with the moon's orbit around the earth.

This centre of gravity, and therefore the binary system, is approaching the solar system at present with a velocity of eleven and a half kilometers per second. A few measures of the velocity of Polaris made here in 1896 gave its approach at the rate of twenty kilometers per second. Part of this change since 1896 could be due to a change in position of the orbits of the binary system, but most of it must have been produced by the attraction of a third body on the two bodies comprising the four-day system. The period of revolution of the binary system around the centre of gravity of itself and the third body is not known, but is probably many years.

Both companions of Polaris are invisible, but their presence is proved by disturbances which their attractions produce in the motion of the bright Polaris.

SCIENTIFIC NOTES AND NEWS.

The British Association for the Advancement of Science has held a successful meeting at Dover. We publish this week the address of the president, Sir Michael Foster, and hope to be able to publish shortly some account of the meeting and several of the addresses given by the presidents of the sections.

The International Geographical Congress began its meeting at Berlin on September 27th, with about 1200 members in attendance. Baron von Richthofen presided, Prince von Hohenlohe, the imperial Chancellor being the honorary president. The sections were as follows: (1) mathematical geography, geodesy, cartography, geophysics; (2) physical geography (geomorphology, oceanology, climatology); (3) biological geography; (4) industrial and commercial geography; (5) ethnology; (6) topical geography, exploring travels; (7) history of geography and of cartography; (8) methodology' school geography, bibliography, orthography of geographical names. Among the Americans in attendance were General A. W. Greely, of the U. S. Signal Service, Professor W. M. Davis, of Harvard University, and Mr. A. L. Rotch of the Blue Hill Observatory.

It has been decided that the Zoological Park of New York will be opened to the public either on October 18th or October 25th.

The commission from the Johns Hopkins University, under the direction of Dr. Simon Flexner, has returned from Manila where the summer has been spent in the study of tropical diseases.

Mr. Walter Wellman arrived in London on August 28th and gave at the British Association an account of his Polar expedition. He sailed for New York on September 30th.

The freedom of the borough of Carnarvon was conferred upon Sir W. H. Preece, the eminent engineer, on September 21st. He was also presented by the Town Council with a silver casket and entertained at a banquet.

Dr. Anton Fritsch, director of the zoological and paleontological collections of the museum at Prag, has published in a local paper an account of his recent visit to America. He speaks in high praise of the museums, institutions and collections, and recommends younger men of science to follow his example and visit the scientific institutions of the United States.

Dr. George A. Hendricks, professor of anatomy in the College of Medicine and Surgery of the University of Minnesota, died in Minneapolis on September 24th.

Signor Marconi has been able to report successfully by wireless telegraphy the international yacht races. The messages were sent from the steamship *Ponce* to a station at Navesink Highlands.

A telegram has been received at the Harvard College Observatory from Professor Krentz at Kiel Observatory, stating that a comet was discovered by Gacobini at Nice, Sept. 29, 313 Greenwich Mean Time, in R. A. $16^h\ 26^m\ 32^s$ and Dec. $-5°\ 10'$.

Daily motion in R. A. $+2^m\ 0^s$
Daily motion in Dec. $+0°\ 10'$.