ogy and mining, Stanford University has just added to its collections the working library and material of the late Professor Henry Hemphill, of Los Angeles. The collection contains between 8,000 and 9,000 specimens of shells and 150 volumes. The material is of very great importance in the study of the Tertiary geology of the Pacific coast, and especially of the geology of the petroleum deposits of California.

THE trustees of the Presbyterian Hospital, New York City, have taken an option to purchase the former American League baseball grounds, bounded by Broadway, Fort Washington avenue, 165th and 168th Streets. This site is owned by the New York Institute for the Education of the Blind, which has been holding it in the market at $2,000,000. Purchase of the site is made possible by the bequests of the late John S. Kennedy, by whose will the hospital receives about $2,500,000. It is understood that the College of Physicians and Surgeons, the medical school of Columbia University would be removed to the new site. Mr. Edward S. Harkness gave, in 1910, $1,500,000 toward an alliance between the hospital and the university.

UNIVERSITY AND EDUCATIONAL NEWS

BY the will of General Brayton Ives, of New York City, the largest part of his estate is bequeathed to Yale University for its general purposes. The daily papers estimate the value of the bequest at from $750,000 to $1,500,000.

MR. W. E. ALLEN, of Sheffield, has bequeathed about $750,000 to public purposes, including $25,000 and part of the residuary estate to the University of Sheffield for work in applied science.

ACCORDING to private information received from Mexico, the Carranza government has closed all educational and scientific institutions in Mexico, including not only the University, the Geological Institute, the Medical Institute and the National Museum, but also all normal schools, high schools and elementary schools under its control.

THE department of chemistry at Iowa State College, Ames, Iowa, is now installed in the new chemistry building which replaces the one destroyed by fire in March, 1913. The building is constructed entirely of brick, stone and concrete and is as near fireproof as possible. The initial cost was $200,000, and the building is 244 feet by 162 feet; three stories high, with a usable basement.

THREE Whiting fellowships in physics, each with an income of $600, for the college year 1915–16, have been filled at the University of California. Fellowships on this endowment fund are conferred for the purpose of furthering advanced study, either abroad or at an American university.

STUDENTS in the newly established forestry school at the University of California are to receive instruction in game conservation. They will be taught to recognize at sight the different species of game fish and animals and will be informed as to the economic value of each and the means by which they can be conserved. Dr. H. C. Bryant, in charge of the bureau of education, publicity and research recently established by the California Fish and Game Commission, will give the introductory lectures. He will be followed by N. B. Scofield, in charge of the department of commercial fisheries, and Dr. W. P. Taylor, curator of mammals in the University of California Museum of Vertebrate Zoology.

DR. ANDREW HUNTER, of the Cornell Medical School, has been appointed professor of pathological chemistry in the University of Toronto.

DR. R. TRAVERS SMITH has been appointed to the chair of materia medica, therapeutics and pharmacology in the school of surgery of the Royal College of Surgeons in Ireland.

DISCUSSION AND CORRESPONDENCE

EVIDENCE BEARING ON THE ORIGIN OF HUMAN TWINS FROM A SINGLE OVUM

ON the supposition that twins originate always from two ova, and that the chances are even as to whether an individual of a pair of twins is to be male or female, the ratio of like pairs to those whose members are of different sex may be worked out according to the laws of chance. The Mendelian ratio

under corresponding circumstances is 1:2:1; that is, there should be one pair of boys, to two mixed pairs, to one pair of girls. In other words, if the members of a pair of twins always developed from separate ova, we should expect to find twice as many pairs whose members differ in sex, as there are pairs of girls, or pairs of boys. I have been able to think of no factor which may reasonably be supposed to be acting in a constant direction to alter this ratio.

I have undertaken to compare with this hypothetical ratio the ratio found among births of twins in this country. My data number 3,334 twin births which occurred in the states of Connecticut, Maine and Vermont during the years 1899 to 1912. Of this number 1,118 are pairs of boys, 1,193 are boy and girl, and 1,023 are pairs of girls. This is almost a 1:1:1 ratio, showing the effect, however, of the predominance of male births. There is obviously a large excess of pairs similar in sex over what is to be expected on the supposition that twins originate in all cases from separate ova, an excess of more than 500 pairs of boys, and almost 500 pairs of girls.

This seems to point towards the conclusion that twins may originate from a single fertilized ovum. In the light of present knowledge this certainly is a possible explanation of the statistics. If the figures given will bear this interpretation, we may say that less than half (44.3 per cent.) of the twin births of similar sex, or less than one third (28.4 per cent.) of all twins, originate from one ovum, while slightly more than half (55.7 per cent.) of those of similar sex have developed simultaneously from two separate ova.

Margaret V. Cobb

Falls Church, Va.

Naturalist's Directory

To the Editor of Science: As you have given liberal space to criticize the book, you will doubtless be willing to give space in which I can explain the matter.

In the first place this book has not been issued for some eight years, and in getting out the new edition I decided that not a single name would be included unless I had a request that the name should be included from each party. If you find that there are a good many naturalists omitted from the directory, it was because they were too busy, or more likely too careless of such matters to take time to return the blanks which I sent them. Every naturalist of any consequence, and a great many collectors, received three notices each and none of the names were included in the book unless they replied.

Since getting out the work some of these noted scientists have taken time to write three or four criticisms of the book, while they would not take time before publication to even sign their names to the blanks I sent them. There are a few typographical errors in the book as there are bound to be in any work of this kind, and the transposition of two or three entries, to which you have taken great pains to call attention, was caused by the misplacement of one or two linotype slugs.

It is my intention to get out another edition of the Naturalist's Directory in a year from now, and I hope naturalists, generally, will be as free with their assistance in bringing the new edition up to date, as they have been in criticizing the edition just published.

S. E. Cassino

Salem, Mass.

Scientific Books

Die Variolation im achtzehnten Jahrhundert. Ein historischer Beitrag zur Immunitätsforschung. By Arnold C. Klebs. Giessen, A. Töpelmann. 1914. 8vo. Pp. 78.

Few physicians know that throughout the entire eighteenth century, and before Jenner's time, there was a vast wave of experimental research in the problem of preventive inoculation against disease, now almost forgotten. Starting in 1713, it passed into a period of twenty years' stagnation about 1727, with a revival in 1746 and a truly scientific phase during 1764–98. When a bibliography of some 600 titles, by the author of the above monograph, was shown to a highly educated physi-