J. E. Ward, an Australian naturalist. Together they will proceed northward 1,500 miles to Port Moresby, Papua, where the field expedition of carriers, interpreters and collectors will be organized.

FIFTEEN trained field workers from the department of geography at the University of Chicago, headed by Professor Robert S. Platt, left on July 26 for six weeks of field work in the heart of agricultural Mexico, to gather material for a book on "Occupancy Patterns of Population in Relation to the Natural Environment of the Valley of Mexico." The University of Chicago workers will analyze typical communities in the valley, particularly in the Teotihuecan district, and make a broad survey of the highland agricultural territory.

THE acceptance of a deed to 12.6 acres of land for addition to the Aztec Ruin National Monument, northwestern New Mexico, and the issuance of a proclamation by President Coolidge adding this land to the monument and changing its name to Aztec Ruins National Monument were announced July 21 by the Department of the Interior. This additional land was donated to the government by the American Museum of Natural History to supplement a previous gift of the 4.6 acres of land constituting the original Aztec Ruin National Monument, which was reserved by presidential proclamation in 1923. The monument as originally established contained a single ruin which, because of its size and remarkable state of preservation, was an outstanding feature of the area. It is, however, an integral part of the cluster of ruins adjoining it on the land recently deeded to the government.

UNIVERSITY AND EDUCATIONAL NOTES

DR. CHARLES L. BEACH, president of Connecticut Agricultural College since 1908, was named president emeritus at a meeting of the board of trustees on July 18. Dr. Charles B. Gentry, dean of the division of teacher training and head of the department of education, was named acting president.

DR. C. T. DOWELL, who for the past eleven years has been on the faculty of Oklahoma A. and M. College at Stillwater, has been appointed dean of the school of agriculture and director of the experiment station at the Louisiana State University.

DR. ARTHUR L. TATUM, associate professor of pharmacology at the University of Chicago, has been appointed professor of pharmacology at the University of Wisconsin.

DR. J. P. GUILFORD, of the University of Kansas, has been appointed associate professor of psychology and director of the psychological laboratory of the University of Nebraska.

DR. CHARLES WEISS, assistant professor of bacteriology at the school of tropical medicine of Columbia University and the University of Porto Rico, has been appointed associate professor of experimental bacteriology in the department of ophthalmology at Washington University, St. Louis. In collaboration with Dr. Harvey J. Howard, professor of ophthalmology in the university, he will be engaged in investigations on infectious diseases of the eye.

HERBERT C. TIDWELL, of Mexia, Texas, has been appointed assistant professor of chemical engineering at the Carnegie Institute of Technology for the year 1928–29. He will succeed Walter H. Taylor, who has been at the institute while on a year's leave of absence from the University of Shanghai.

DR. C. H. RICHARDSON, entomologist in the U. S. Bureau of Entomology, has been appointed associate professor of entomology at Iowa State College and assistant chief of the entomology section of the Agricultural Experiment Station.

DR. CHARLES F. ROOS has been appointed assistant professor of mathematics at Cornell University.

DR. BORIS BABKIN has resigned from the chair of physiology at Dalhousie University, Halifax.

DR. A. E. CAMERON, professor of zoology in the University of Saskatchewan, has been appointed to succeed Dr. D. S. Patton in the lectureship in medical entomology, University of Edinburgh, Scotland.

PROFESSOR JOHN MCGIBBON, professor of obstetrics in the University of the Witwatersrand, Johannesburg, has been appointed professor of midwifery and gynecology at the University of St. Andrews, in succession to Professor Kynoch, who recently resigned the chair.

DR. EDWARD A. MILNE, Beyer professor of applied mathematics at the University of Manchester, England, has been elected the first Rouse Ball professor of mathematics at the University of Oxford.

DISCUSSION AND CORRESPONDENCE

A PUZZLING BUTTERFLY MIGRATION

THE fall migration of the Monarch butterfly, in great clouds, down the length of the Mississippi valley to the gulf is a well-established phenomenon. Records are accumulating that show a definite fall migration of the long-beaked butterfly from the plains of Texas south or southeast towards the gulf. A spring migration of the Painted Lady butterfly from Mexico northward into California in immense swarms has been recorded several times and seems to be established as a regular movement. These migrations are all of the same general character as the fall and

spring migrations of the birds and may well represent the same type of response.

The annual migrations of the Southern Cabbage butterfly (*Pieris monuste*) are, on the other hand, apparently just the reverse of this, as the immense swarms of this species travel southward down the east coast of Florida at the same time that the bobolink is leaving for the north.

The migration of the present season has been exceptionally heavy and has attracted a great deal of attention. Every automobile passing up or down the coast has emerged from the swarms with its radiator plastered with the butterflies, often to such an extent that heated engines were common and even bearings burned out. Stirling, in the *Florida Entomologist,* records a similarly heavy flight in 1923 and stated that it was an annual occurrence. Other observers have encountered these swarms every year since that time.

The present swarm was reported as between Jacksonville and St. Augustine on May 10. By May 20 it had moved more than one hundred miles south and at that time extended from New Smyrna to Ft. Pierce, a distance of one hundred and twenty-five miles. At present (June 20) the swarm is reported along the coast south of Miami, a movement of about two hundred miles in the month. On May 20 the writers drove through the swarm for eighty-five miles along the coast and then turned westward at right angles and drove thirty miles to Sanford. On the westward trip butterflies were counted crossing the road at the rate of six per mile or two hundred per hour. They were flying almost due south against a light breeze. In the first few miles from the coast the numbers were greater and they were flying southeast, swinging more to the east as they approached the coast. Along the shores of the Indian River they swung southward again, concentrating into a definite swarm only a few hundred yards in width and in passing obstructions narrowing to fifty yards or less. They were flying low, two to six or rarely eight feet in height and at the rate of six or eight miles per hour *against* a light wind. At Fort Pierce two hundred per minute were leaving a field one hundred yards wide. They flew about eight hours that day, which would give a total of one hundred thousand per day passing over an area that wide.

The writers observed that, although the swarm as a whole was moving down the shore, a constant procession of butterflies were striking out across the water to the southeast. Stirling records that from June 9 to 11, 1923, passengers on vessels plying between Nassau and the mainland observed millions of butterflies winging their way southward over the gulf stream. From these observations it would seem that the swarms noted along the coast are not continuously moving bodies but only a temporary piling up of individuals that are later to strike out over the water.

Where these butterflies come from and where they go are still mysteries but a still greater mystery is the force or impulse back of the movement that sends them in a reverse direction from ordinary migratory activity. Before we can hope to interpret this latter force we must have much more information as to the scope of the movement itself, and the present note is submitted in the hope that those who have further information will record it as soon as possible.

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OBSERVATIONS ON PARTURITION IN THE OPOSSUM DIDELPHYS VIRGINIANA

IT was my good fortune, recently, to observe an opossum embryo during its migration from the vulva to the marsupium. Since, to date, there have been published only three accounts of the manner of birth of a marsupial it seems worth while to record these observations. The female opossum observed in this instance was of medium size and of a type popularly known to hunters as the "black-legged" opossum. She was captured near Charlottesville, Va., February 24, 1928, in a trap set beside the decaying carcass of a cat.

When I first saw her—at a distance of about fifty feet—she was sitting quietly by the trap watching me approach and made no move to escape or to "play 'possum," as these animals frequently do. On picking up the animal by the tail and releasing it from the trap, I noticed a greenish mucous discharge around the vulva. Further investigation revealed an embryo clinging to the mother's fur, having traversed about two thirds of the distance from the vulva to the opening of the pouch. I showed the animal to my wife, who also saw the wriggling bit of life making its way over a very difficult and treacherous trail. A few minutes later Mr. Paul R. Burch observed the foetus just entering the pouch. The entire interval from my first observation of the embryo until Mr. Burch and I watched it squirming its way into the pouch could not have exceeded twenty minutes. I feel sure that ten minutes is a more nearly accurate estimate. During all this time the mother was carried suspended by the tail and made no effort to aid the little one on its journey. Although I examined carefully the ground around the trap, I found no evidence that a foetus had failed to reach the pouch.