spikelets at a node of the rachis produce one fertile flower each. In the 2-rowed group the lateral spikelets are sterile and only a single seed is produced at each node. Crosses are easily made between the two groups, and there is no evidence of sterility nor of incompatibility in their appearance. Our recent results indicate that the ease of hybridization and the complete fertility in such crosses may not tell the whole story. The 2-rowed × 6-rowed crosses are inferior in yield to either 6-rowed × 6-rowed or 2-rowed × 2-rowed. This was definitely shown in an elaborate experiment in which essentially all the 378 combinations were made between 28 parents. There were included in the test 149 crosses of 6-rowed on 2-rowed and 209 crosses of 6-rowed on 6-rowed. In 1935, 2,921 selections were made from the 378 crosses. In the years before selections were made the yields of the 6-rowed × 2-rowed crosses were decidedly lower. In 1936 the average yield of the selections from 6-rowed × 2-rowed was only 89 per cent. of that of the 6-rowed × 6-rowed crosses. This percentage would not be so striking were it not for the large numbers involved. There were 1,789 selections of 6-rowed × 6-rowed and 961 of 6-rowed × 2-rowed. Out of the 1,789, 757, or 42.3 per cent., were worthy of further trial, while only 167, or 17.5 per cent., were continued from the 961 selections from 6-rowed × 2-rowed crosses. Even this reduced number was not so promising as were those saved from the 6-rowed × 6-rowed crosses, and contained few outstanding types.

HARRY V. HARLAN
MARY L. MARTINI
HARLAND STEVENS

BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE

THE RECRUDESCENCE OF A CONFUSING TERMINOLOGY

UNTIL the beginning of the present century all popular works on botany, and many of the text-books, failed to distinguish clearly between the sexual and non-sexual phases of plants. Indeed, there appeared from time to time discussions in which either the "homologous" or the "antithetic" nature of the alternation of generations was upheld or disapproved. Yet as early as 1851 Hofmeister had made clear that throughout all the higher groups of the plant kingdom there is a definite alternation of gametophyte and sporophyte—sexual and non-sexual generations. But people continued to speak and write of the pistil as the "female generative organ," and they spoke of the stamens as "male" organs and of "male" cottonwood trees and of "female" pine cones.

Largely through the influence of the text-book by Sydney H. Vines in England and through the teaching of Charles E. Bessey and John M. Coulter in America these ancient inaccuracies of expression disappeared wholly or at least in large degree, so that the former confusion of gametophyte with sporophyte seemed a thing of the past. Practically all writings and text-books distinguished clearly the n- and 2n-generations. This happy state of affairs continued for thirty years, although it must be confessed that our horticultural and agricultural friends remained for most of the time somewhat outside the pale of morphological respectability.

But now, when the former confusion had presumably disappeared from serious botanical literature, up bobs the same old trouble in an otherwise most scholarly and excellent text-book (Wilson and Haber: Introduction to Plant Life, published by Henry Holt and Company, 1937). Students have difficulty enough in distinguishing the sexual from the non-sexual; when the subject is confused in their text-book an impossible situation results. It is much to be hoped that in a second edition the authors of this valuable introduction to botany will adopt a terminology in accord with present cytological knowledge and general conceptions of plant morphology.

FRANCIS RAMALEY

UNIVERSITY OF COLORADO

HUMAN ARTIFACTS IN ASSOCIATION WITH HORSE AND SLOTH BONES IN SOUTHERN SOUTH AMERICA

WHILE investigating the archeology of the territory along the Straits of Magellan for the American Museum of Natural History, positive evidence of the association of man with extinct horses and sloth was found in two caves. One of these caves is located in the Rio Chico Valley on estancia North Arm, just south of the Argentine-Chilean boundary; the other is about twenty miles east in Dicky Section of estancia Delgado.

In each cave the oldest cultural débris was mixed with fragments of horse and sloth bones identified by Dr. G. Simpson as *Parahipparion saldiasi* and *Mylodon listai*. Many of the bones have been burned and the long bones of the horse broken for the extraction of marrow. In one cave this oldest material had been isolated by slabs of rock and débris fallen from the cave roof. Among the artifacts associated with these bones the most noteworthy, because of subsequent changes, are the stone lance points with long flaring stems and without barbs. However, these points disappear slightly prior to the extinction of the horse and sloth and are followed by a simple bone point.

At the bottom of the layer containing the bone points are the last of the large extinct animals, after which, for a time, the people subsisted largely on birds and foxes. Among the fox bones are some identified as *Pseudalopex avus*, believed to be extinct at the present time.

In the successive layers, the following culture changes occur: above the bone points are artifacts of