lophaga and by the absence, also as primary infestants, of Anoplura.

8. The absence of Anoplura as primary infestants of South American land mammals seems to show that the sucking lice, as a group, originated at the earliest during the very late Mesozoic, if not at the beginning of the Tertiary. The reasons for this inference are:

a) If sucking lice existed before the Pliocene in South America, they must have suffered complete extinction. This is hard to believe, especially because autochton rodents have proved very suitable hosts for cricetine-born Anoplura. As a matter of fact, the exchange of parasites has been much more intense in the cricetine-hystricomorph direction than otherwise.

b) If sucking lice existed in North America during the Paleocene, it is hard to believe they did not follow the heavy wave of immigration which entered South America at the time.

c) Absence of sucking lice in North America at the Mesozoic-Tertiary boundary could only be explained by either non-existence of the group or a very restricted distribution. This because the early Tertiary was a time of intensive faunal movements in Holarctica.

d) If the Anoplura at that time had a restricted distribution, this should be due to very young age of the group, as they have proved very aggressive and succesful in colonizing empty ecological niches.

9. The possibility of detecting secondary infestations implies the possibility of evaluating evolutionary rates, as we are in a position to assign maximum lengths to the processes of divergence. Further knowledge of faunal movements inside South America will enhance the precision of such estimates.

10. We believe it would be rewarding to apply the methods outlined above to the fauna of other areas, especially the Oriental region and Africa. Otherwise, similar methods might be used for other couples of host-parasite groups, provided adequate taxonomic knowledge is available.

Acknowledgments. The authors are indebted to a great many friends for help in preparing the paper of which this is an extract; these friends are listed in the article in Revista Brasileira de Entomologia. At the present time the authors wish to state their gratitude to the Editor of EVOLUTION for this opportunity of presenting their data to a much wider public than it would be possible otherwise.

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SELF-COMPATIBILITY AND ESTABLISHMENT AFTER "LONG-DISTANCE" DISPERSAL

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It is not often that research on an evolutionary topic carried out independently by botanists and zoologists produces conclusions which are virtually identical. When this does happen one cannot restrain a feeling that a principle of more than superficial importance has been uncovered. It is one of the functions of this journal and of the Society which publishes it to make it possible for workers in separate fields to see the common significance of their results and, for one botanist at least, this object has been achieved with the publication of a recent paper by zoologist A. R. Longhurst (1955).

Because immobility and hermaphroditism pre-

vail in the Plant Kingdom, comparative considerations of the reproductive biology of plants and animals are most appropriately made when the zoological representatives are more or less sedentary invertebrates, particularly those in which sexual dimorphism is not firmly fixed. It is for this reason that Dr. Longhurst's examination of the Notostraca has a particular importance for botanists. His studies have led him to some conclusions which are in the closest accord with those which I first published seven years ago (Baker, 1948) after examining members of the angiosperm family Plumbaginaceae. These latter conclusions, based exclusively on flowering-plant material, have subsequently been illustrated and used as a basis for argument in a number of papers (particularly Baker, 1953*a*, 1953*b*).

The Notostraca are themselves confined to temporary pools of water but their eggs may be passively distributed over large distances by wind or attached to higher animals. This is quite comparable with the dispersal of higher plants by the distribution of their seeds. Therefore it is of the greatest interest that, whereas in flowering plants it has been possible to demonstrate some correlation between occurrence in localities most likely to have been reached by more or less "long-distance" dispersal and the development of self-compatibility (even in groups where self-incompatibility prevails), in the normally dioecious Notostraca there is a comparable correlation with derived hermaphroditism.

We have both put forward the same explanation of the correlation. With self-compatible individuals a single propagule is sufficient to start a sexually-reproducing colony, making its establishment much more likely than if the chance growth of two self-incompatible yet cross-compatible individuals sufficiently close together spatially and temporally is required. In addition, self-compatible flowering plants are usually able to form some seed in the absence of visits from specialized pollinating insects, which may be absent from the new situation. For animals autogamous hemaphroditism provides the mechanism for ready establishment; with plants apomixis and purely vegetative reproduction are also available to replace self-incompatible hermaphroditism (and monoecism) or dioecism.

A comprehensive review of this subject as it concerns plants is in preparation (although at a slower rate than could be desired by reason of my present location away from major libraries). In the meanwhile, however, it may be appropriate to remark that although there are many exceptions (for one thing not all disjunct distributions are the result of long-distance dispersal), supporting evidence for the thesis outlined above may be found in at least a score of families of flowering plants. Taylor (1954) has recently described a clear case in *Coprosma* (Rubiaceae) where, on Macquarie Island, in the Antarctic Ocean, *C. pumila* Hook. it exists in a monoecious form contrasting with its characteristic dioecious condition in New Zealand.

Some of the best evidence comes from a study of the reproductive biology of weeds (which are pre-eminently plants that are able to effect opportunist range-expansions of a discontinuous nature). They are also able to survive periodic decimations of their populations (which demands the ability to regenerate a population from very few survivors or even from a single individual). It is probably not a coincidence that the vast majority of weeds are self-compatible or possess strong powers of vegetative reproduction.

In the Pteridophyta, it seems likely that Raunkiaer's (1920) observation that the floras of oceanic islands contain remarkably high proportions of Pteridophyta may be explicable not only in terms of favourable climatic conditions or the possession by these plants of light wind-dispersed spores, as he suggests, but also of the hermaphrodite nature of the fern gametophyte. Only one case of possible self-incompatibility in ferns is known (Wilkie, in Bateman, 1952), and it is the usual experience of those who have to hybridize these plants that self-fertilization is very difficult to avoid. In the Brophyta there is a similar suggestion of contrast between the world-distribution patterns of dioecious and other taxa, but there are many complicating factors.

The cooperation of botanists in suggesting groups of taxa which might be investigated from this point of view is invited. Similarly, it is suggested, in all humility, that other zoologists might follow the example of Dr. Longhurst and examine the distribution-patterns of selected invertebrate groups in relation to their sexuality.

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TENTH ANNUAL MEETING: SOCIETY FOR THE STUDY OF EVOLUTION

UNIVERSITY OF TEXAS, AUSTIN, TEXAS

April 8–11, 1955

The success of the Tenth Annual Meeting will be attested by all who were fortunate enough to attend. The program was full but not crowded and ample time was available for discussion. Total attendance was about 125 (101 registered: 62 from Texas; 39 from other states). The all day field excursion on Saturday to the Gulf Coastal Plain and the Edwards Plateau was a successful occasion, despite a lack of full cooperation from the weather, for it not only illustrated the wealth of ecological diversity in the environs of Austin, but also provided a stimulating setting for innumerable informal discussions. The dinner and barbeque supper were both gastronomic successes. The Local Committee, under the chairmanship of W. Frank Blair, is certainly to be congratulated on arranging such an outstanding meeting.

BUSINESS MEETING, APRIL 10

The meeting was called to order by President Sewall Wright.

The Secretary reported on the action taken by the Council at their earlier meeting including the decision to hold the Twelfth Annual Meeting of the Society at Stanford University, September, 1957, in conjunction with the A.I.B.S. (The Eleventh Annual Meeting is to be held in New York, December, 1956, with the A.A. A.S.). The Council also accepted the invitation of the Genetics Society of America to cosponsor the Tenth International Congress of Genetics, to be held at McGill University, Montreal, Canada, August 20–27, 1958.

The Treasurer reported on the healthy financial condition of the Society. Subsequently a motion was passed to the effect that the Council be urged to increase the budget of EVOLUTION by the amount received as interest on investments.

The Editor of EVOLUTION presented an informal report on the status of the journal. The number of acceptable papers has been increasing, with a consequent increase in the length of time between receipt of manuscripts and publication. Of particular interest is the increase in papers originating outside of the United States from 16 to 40 per cent in recent years (based upon senior author). A discussion was initiated concerning the desirability of accepting papers in languages other than English. No action was taken, although the Editor indicated that he would solicit an opinion on this matter from the Associate Editors and report to the Society at a later date.

J. T. Patterson was elected to fill the vacancy on the Council created by the death of E. B. Babcock.

PAPERS, LECTURES, AND DEMONSTRATIONS PRESENTED AT THE AUSTIN MEETING

Alexander, Mary L., University of Texas. Radiation effects in immature germ cells.

Bennett, Jack, University of Oklahoma. A wing venation variant in wild *Drosophila tripunctata* Loew.

Bradshaw, Newman, University of Texas. Species discrimination in the *Peromyscus leucopus* group of mice.

Bruneau, L. Herbert, University of Texas. Population cage analyses.

Buri, Peter, University of Chicago. Effective population size in small populations of mutant *Drosophila*.

Christensen, Eleanor, R. D. Owen, and J. B. Loefer, California Institute of Technology. Some aspects of the serology of *Tetrahymena*.

Crow, James F., University of Wisconsin. Analysis of a DDT-resistant strain of *Drosophila*.

DeBusk, A. Gib, University of Texas. Mutations and *Neurospora* populations.

Dowling, Herndon G., University of Arkansas. Evolution in serpents.

Epling, Carl, University of California, Los Angeles. A critique of adaptive polymorphism, balanced euheterosis, and coadaptation.

Grant, Verne, Rancho Santa Ana Botanic Garden. The genetic basis of racial and specific differentiation in *Gilia* (Polemoniaceae).

Haller, John R., University of California, Los Angeles. The relationship of *Pinus ponderosa* and *Pinus jeffreyi*.

Heed, William B., University of Texas. Dis-