"as mad bulls in Ye Olde Morphological China Shoppe." In my opinion, the sound of breaking chinaware is loud enough in this stimulating book to irritate many a "classical morphologist"! But perhaps, as the author claims, we need a very different approach to fundamental morphological and taxonomic problems, and this may result in "a satisfactory answer in cases where the Old Morphology has failed."

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The Domestic Pigeon

This remarkable volume, **Encyclopedia of Pigeon Breeds** (T.F.H. Publications, Jersey City, N.J., 1965. 790 pp., $30), presents what is certainly the most complete coverage ever assembled of the breeds of the domestic pigeon; it was written by Wendell M. Levi, an acknowledged expert in the field. Levi describes and illustrates in color (768 color photographs from life of the best typical specimens) all of the breeds and "sub-breeds," or color varieties of breeds, of domestic pigeons. The illustrations maintain a higher level of excellence than one usually finds in reproductions made from color photographs. For each breed the text provides the country of origin and, where known, the genetics of origin as well; the common name in English, German, and French as well as in the language of the region in which the breed originated; a description—"ornaments," which apparently refers to crests, feathers on toes, and the like, and colors or color varieties; and comments on rarity or abundance. In many cases, notes on propagation and commercial value are included.

The bulk of the volume is taken up with this illustrated catalog, but there are also some 16 preliminary, short chapters which treat the needs and care of pigeons and tell how to build their "houses," flypens, and coops; these chapters also consider the ailments to which these birds are subject and provide a general account of pigeon genetics, a classification of hereditary characters, both morphological and behavioral, and even a list of "mysteries," chiefly color patterns still awaiting analysis.

The author sticks strictly to his subject, the breeds of domestic pigeons, and does not even discuss the species of wild pigeons. Within the limits of its subject matter, this volume will certainly be the leading reference work for years to come.

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PHYSICS, MATHEMATICS, AND ENGINEERING

Continental Drift: A Reconsideration

James Gilluly

A Symposium on Continental Drift (Royal Society, London, 1965. 333 pp., $25), a large quarto volume reprinted from the *Philosophical Transactions of the Royal Society*, is the record of a symposium held in London on 19 and 20 March 1964. Approximately 50 geologists and geophysicists contributed to the symposium in person or by correspondence. Many papers are only slightly reworked from previously published versions; others are new and present novel arguments. Despite the repetition of old ideas, the book is useful in that it brings together much widely scattered material. The symposium was organized by P. M. S. Blackett, Sir Edward Bullard, and S. K. Runcorn.

Continental drift has been the subject of lively, often vitriolic, debate for half a century. In this introduction, Blackett traces the idea back to von Humboldt, about 1800, who was much impressed by the complementary patterns of the Atlantic coasts of Africa and South America. The evidence of glacial deposits on the equator and evaporites in the Arctic forces us to choose between tremendous climatic fluctuations (if the continents have remained fixed) and continental drift (if climatic zonation has been stable). Since we know from the great transcurrent faults and the crustal shortening recorded in the folds and thrusts of the great mountain chains that parts, at least, of the continents have moved considerable distances, and from the records of the drastic climatic modifications of the Pleistocene that climatic factors have ranged widely, there can have been no absolute fixity either of continents or of climatic zones. Blackett regards the recent advances in paleomagnetism and oceanography as grounds for a review of the problem.

The symposium embraced four main topics: continental reconstructions, horizontal displacements of the crust, convection currents and the evidence for their existence, and the physics of convection in the earth's mantle.

Continental Reconstructions

S. K. Runcorn, starting from the assumption that the earth's magnetic field, when averaged over a considerable but unspecified time, is that of an axial dipole, traces the pole positions inferred from European and North American rocks back into Precambrian time. Few geologists will feel that the Precambrian correlations are firm enough to base convincing arguments upon. Although the scatter diagrams of pole positions are commonly diffuse, they are nevertheless persuasive of systematic change during the Phanerozoic, with the poles inferred from North American data falling systematically farther west than those inferred from European data, at least from Cambrian through Triassic time. The differences increase with time—a surprising result, for one would expect the difference to have remained constant prior to the start of the drifting, presumably in the Mesozoic.

T. S. Westoll reviews the arguments from approximate potential fit of continental margins around the Atlantic, the rias coasts of Europe, Newfound-

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