ancestor of the Union, and its members both individually and collectively gave a most cordial reception to the visiting organization. Each day of the session the Club entertained the Union at luncheon at the rooms of the Colonial Club, and on the evening of the 20th the members of both societies met by invitation at the residence of Mr. C. F. Batchelder and celebrated in an informal and thoroughly enjoyable way the twentieth birthday of the parent society.

RECENT LITERATURE.

Newton's 'Dictionary of Birds,' Part II.[1]—The general character of Professor Newton's 'Dictionary of Birds' has already been indicated (Auk, X, pp. 357–360). Part II (Ga-Moa, pp. 305–576) contains, besides the definitions naturally to be expected, a number of especially noteworthy articles, as *Gare-Fowl* (pp. 303–308, concluded from Part I), *Geographical Distribution* (pp. 311–363), *Migration* (pp. 547–572), and *Mimicry* (pp. 572–575), some of which call for somewhat detailed notice. Among the other longer articles, which are noteworthy for their scope and varied information, are *Grouse* (6 pp.), *Guachero* (*Steatornis*), *Heron* (5 pp.), *Hoactzin* (*Opisthocomus*), *Hornbill* (5 pp.), *Hummingbird* (10 pp.), *Kiwi* (6 pp.), *Lark* (6 pp.), *Lyre-bird* (5 pp.), *Megapode* (4 pp.), etc.

In the twenty-five pages devoted to Migration, the general facts of the subject are set forth, and then an attempt is made to "account for the cause or causes of migration." "Want of food" is deemed to be "the most obvious cause," "far more so than variation of the temperature, though in popular belief that probably holds the first place." "As food grows scarce toward the end of summer in the most northern limits of the range of a species, the individuals affected thereby seek it elsewhere; in this way they press upon the haunt of other individuals," and so on. This, says Prof. Newton, "seems satisfactorily to explain the southward movement of many migrating birds in the northern hemisphere; but when we consider the return movement which takes place some six months later, doubt may be entertained whether scarcity of food can be assigned as its sole or suffi-

[1] A Dictionary of Birds. By Alfred Newton. Assisted by Hans Gadow. With Contributions from Richard Lydekker, B. A., F. G. S., Charles S. Roy, M. A., F. R. S., and Robert W. Shufeldt, M. D. (late United States Army). Part II (Ga-Moa). London: Adam and Charles Black, 1893.—8vo., pp. 305–576.

cient cause, and perhaps it would be safest not to come to any decision on this point." It is suggested that the more equatorial regions may be "deficient in certain necessaries for the nursery," and also that these same regions "would not supply sufficient food for both parents and offspring, the latter being, at the lowest computation, twice as numerous as the former, unless the numbers of both were diminished by the casualities of travel." On the other hand, in view of "the pertinacity with which birds return to their accustomed breeding-places," "the force of this passionate fondness for the old home" must be taken into account, "even if we do not allow that in it lies the whole stimulus to undertake the perilous voyage." Beyond these few suggestions, it is rather surprising to find little discussion of the 'causes' of migration.[1]

The manner of migration is considered at some length, illustrated by the citation of a number of specific examples, and includes the discussion of routes of migration, the literature of the subject being liberally cited, either in the text or the accompanying foot-notes. The question—"How do the birds find their way so unerringly from such immense distances?" is considered to be "the most marvellous thing of all" and "by far the most inexplicable part of the matter." "Sight alone," our author thinks, "can hardly be regarded as affording much aid to birds — and there is reason to think that there are several such — which at one stretch transport themselves across the breadth of Europe, or even traverse more than a thousand miles of open ocean, to say nothing of those — and of them there are certainly many — which perform their migrations mainly by night." The fact is apparently lost sight of that even at night — at least in clear weather when birds mostly migrate — at the altitude at which birds ordinarily perform their journeys, the main features of the landscape are distinctly visible for long distances to the migrating birds, and that in reality "sight, and sight only, is the sense which directs these birds," as truly as in the case of 'homing' Pigeons, where it is admitted by "all the best authorities on that subject." In the case of birds traversing wide expanses of open sea, sight is perhaps aided by other factors, as notably the direction and temperature of the wind, combined with the fact that even when such flights are quite extended they are of comparatively short duration, being performed by birds that for the most part are exceptionally strong fliers, as many of the Grallæ, etc. Prof. Newton's idea that birds which perform their journeys by night cannot possibly be aided by sight is almost demonstrably erroneous, as any one who has spent a night on the summit of a high mountain and noted the distinctness with which the landscape is spread out below him, will readily believe.

In regard to the subject of Mimicry, we must confess surprise at finding so conservative and sensible a writer as Prof. Newton giving such unreserved support to this theory as his article on the subject shows.

[1] On this subject *cf.* Allen, Auk, X, pp. 102–104, and Chapman, antea, pp. 12–17.

He says: "Mimicry, with the prefix *unconscious*, which in every department of Zoology should be always expressed or understood, signifies the more or less complete likeness, in colouring or form or both, which one creature bears to another, so that in some cases one may easily be mistaken for the other, though the affinity between them may be very remote . . . . The explanation is simply that the weaker animal, or that which exists under less favorable conditions, 'mimics' the stronger, or that which is most flourishing, the mimicry being presumably effected by means of Natural Selection; but the difficulties which attend the investigation of the way in which this result is brought about, so as to render the explanation in all cases acceptable, are often extremely great, and one ought not to be surprised that some zoologists are unable to accept the explanation at all." As one of the conditions for an acceptable case of mimicry, as laid down by Wallace, is that the mimicker and the form mimicked must both share the same habitat, Prof. Newton finds it convenient to cite only about three or four good examples among the class of birds,—that of "a Cuckow to a Hawk," that of *Mimeta* (a genus of Orioles) to *Philemon* (a genus of Friar-birds), that of *Harpagus diodon* to *Accipiter pileatus* (a very weak case), and that of the genus *Tylas* to *Xenopirostris*. None of them very fully meets the conditions of a good case of mimicry, since the advantages secured by the supposed mimicry are by no means very obvious. The most that can be said is that the two forms which present a somewhat striking superficial resemblance to each other happen in each case to occupy a common habitat. A large number of other cases might be cited were it not for their dissimilarity in distribution, and a number of such are mentioned *passim* in the 'Dictionary,' as *Agapornis* and *Psittacula*, *Alæmon* and *Upupa*, *Sturnella* and *Macronyx*, *Serilophus* and *Ampelis*, *Colaptes* and *Geocolaptes*, etc., while the list could easily be greatly extended. Hence our author feels called upon to caution his readers to bear in mind "that all cases of close similarity of plumage are not necessarily Mimicry." There is not space here to discuss the subject at length (as we hope to do later in some other connection), but it may be well to suggest that there is another side to the question, and that there are other explanations of these resemblances that seem more reasonable. In fact in most instances, and at least so far as birds are concerned, it seems by no means rash to consider them as purely accidental, or cases of coincidence.[1]

The article on 'Geographical Distribution' is an admirable presentation of the subject, although on minor points we should find it somewhat difficult to subscribe to all of our author's conclusions. We notice, with some surprise, the absence of any discussion of the causes, past or present, of the distribution of avine life, except incidentally in one or two cases. It may be noted that a number of important departures are made from the

[1] See further the discussion of 'Mimicry' in Beddard's 'Animal Coloration,' and the evidence and authorities, pro and con, there cited.

Sclaterian system, of which formerly Prof. Newton was a loyal adherent Thus the Palæarctic and Nearctic Regions of Sclater are combined to form a single circumpolar area, under the name 'Holarctic Region,' while New Zealand, in accordance with Prof. Huxley's scheme, is separated from Sclater's Australian Region to form a 'New Zealand Region.' Prof. Newton's "six primary regions" are: (1) the *New Zealand Region*, (2) the *Australian Region*, (3) the *Neotropical Region*, (4) the *Holarctic Region*, (5) the *Ethiopian Region*, (6) the *Indian Region*. Each of these, except the first, is divided into a number of 'subregions,' and some of these into 'provinces,' of which lack of space here forbids a detailed notice. A map of the world accompanies the article, showing approximately these six zoögeographical Regions.

Respecting the Holarctic Region, however, we may quote as follows: "As has been stated in the introductory portion of this article, the combination intimated by this phrase [the Holarctic Region], though sanctioned in spirit by Prof. Huxley, wholly contravenes the opinion expressed by two of the leading authorities on the subject — Messrs. Sclater and Wallace. The arguments of the former being based on positive facts, or at least on what seemed at the time to be such, must be met by corresponding facts. Those of the latter having a more hypothetical foundation — the notion that each of the primary divisions of the earth's surface should comprehend about the same extent — require less consideration. The natural philosopher regards quality rather than quantity, and things must be weighed as well as measured, analyzed as well as surveyed. . . . But not to wander from our present business, no one who will investigate the Avifauna of that part of North America lying outside the boundary (if it can ever be traced) of the Neotropical Region, will find in the Nearctic area more than a single family of Birds [Chamæidæ] that is peculiar to it, and that is a family of position so doubtful that some of those who have most closely studied it refer it to one or another of well-known families — *Paridæ* or *Troglodytidæ* — both of which are widely dispersed and admittedly contain genera that differ considerably. . . . Every other Nearctic family is common to the Neotropical Region or to the Palæarctic area, or to both. Thus regarded from every ornithological aspect, what has been called the Nearctic 'Region' has no right to be so accounted, since its peculiarity is numerically of less importance than some of the Subregions of the Neotropical Region. . . ."

In discussing these several regions Prof. Newton brings into strong relief their chief characteristics, and especially the prevalence of weak, isolated and ancient ornithic types in New Zealand, and to a less degree in Australia, and their greater prevalence in South America than in any other part of the world except in Australia and New Zealand. On the other hand, the "Holarctic Region seems to have the most highly developed Fauna, in that it is one from which the weakest types have generally been eliminated, though that result is chiefly seen in its Palæarctic area, and perhaps especially in the western part of this. . . ."

Part II is worthy of the high praise we have already bestowed upon Part I, and assures us that the 'Dictionary' will prove to be one of the most useful hand-books of general ornithology ever published. It would be easy to pick flaws here and there, but its general excellence would render this an ungracious task. We may, however, call attention to one singular oversight in respect to the genus *Otocoris* (or *Otocorys*, as our author prefers to write it), where in a foot-note to page 511 it is stated, "By American writers it is usually called *Eremophila*, but that name is preoccupied in natural history." While this was formerly the case, the name *Otocoris* for the Horned Larks has been in almost universal use among American writers for a full decade, the change having been made as early as 1882, and became generally adopted as early as 1884. Such occasional slips are doubtless due to the fact that portions of the work have been bodily transferred from the 'Encyclopædia Britannica' without subjection to quite the rigid scrutiny the lapse of time has rendered necessary.

While it is not customary to look for an *index* to a *dictionary*, in the present case an index would prove an indispensable adjunct, since very few of the almost numberless technical names of genera and species, and even of the higher groups, appear as titles of articles, but must be sought in the body of the text. It is hence not to be supposed that such an important matter will be overlooked by either the author or the publishers. —J. A. A.

Salvadori's Catalogue of the Pigeons.—The introduction to the 'Catalogue of the Columbæ'[1] gives a useful though brief sketch of the literature of the subject, from which it appears that the number of species enumerated by G. R. Gray in 1871 was 378, while Schlegel in 1873 recognized only 249. The number recognized in the present 'Catalogue' is 458, while notice is taken of 27 others regarded by the author as of a more doubtful character. The British Museum Collection, we are informed, contains, after the elimination of duplicates, 7359 specimens, belonging to 415 species. Of these species "112 are represented by typical specimens, besides 47 which are types of species that have been identified with others previously described." Only "42 species are still desiderata in the Collection"! Eleven are here described for the first time. In the acknowledgments of assistance it is stated that "the whole of the American species" were worked out with the help of Mr. Salvin.

The order Columbæ is divided into two suborders, 1, Columbæ, 2, Didi; the latter consisting of the two extinct genera *Pezophaps* and *Didus*, known thus far only from the islands of Mauritius, Réunion, and Rod-

[1] Catalogue | of the | Columbæ, or Pigeons, | in the | Collection | of the | British Museum. | By | T. Salvadori. | London: | Printed by order of the Trustees. | Sold by | Longmans & Co., 39 Paternoster Row | . . . . [=4 lines, names of booksellers] | 1893.—8vo, pp. i–xvii, 1–676, pll. i–xv. = Catalogue of the Birds in the British Museum, Vol. XXI.