

## REVIEWS

EDITED BY KENNETH C. PARKES

**Evolution of some arctic gulls (*Larus*): an experimental study of isolating mechanisms.**—Neal Griffith Smith. 1966. *Ornithological Monographs*, No. 4, American Ornithologists' Union. Pp. 1–99, 62 text figs. and colored frontispiece. \$2.50 (\$2.00 to A.O.U. members).

Intrigued by the statement of Finn Salomonsen that "differences in the colours of the soft parts are no doubt important as species recognition and discrimination marks" in two gulls (Glaucous and Iceland) that resemble each other closely and breed sympatrically in parts of Greenland (see Salomonsen, 1951, "The birds of Greenland," Part 2, p. 310), and by the statement of A. H. Macpherson that in arctic gull species without "distinct sexual differences" the role of eyelid color "must be to ensure species recognition" (Macpherson, 1961, "Observations on Canadian arctic *Larus* gulls, and on the taxonomy of *L. thayeri* Brooks," Arctic Inst. N. Amer., Tech. Pap. No. 7, p. 28), the author of this thought-provoking paper visited three new world arctic areas in which Glaucous, Herring, Thayer's, and Kumlien's gulls were known to breed. Going north early enough to witness arrival, he proceeded to change the color of eyelids, wingtips, head plumage, and mantles of birds captured when pairs were forming or shortly thereafter, and observed results. His findings, which do not in my opinion make proper allowance for the traumatic effect (on colonies as well as individuals) of being caught, manhandled, and closely watched, are intensely interesting to speculate upon whether they be considered conclusive or not.

Smith's field work began in 1959 when, from late April to early September, he studied Glaucous, Herring, and Kumlien's gulls along the coast of southwestern Baffin Island. Figure 7 shows the position of 30 of the 37 colonies visited, and triangular spots indicate that in four of these (three according to the text, p. 27) all three species were breeding. The colonies composed of three species were all "on rocky islands which were remarkably similar in physiography, offering in a small area the general nest-site preferences of all three species" (p. 27). In the summer of 1960 he visited the east coast of White Island and of northern Southampton Island, the west coast of Vansittart Island, the south coast of Melville Peninsula, the low-lying, comparatively flat western part of Southampton Island, and Coats Island. Most of the coastal (= cliff) colonies he visited in this rather diverse area, which he designates as "Frozen Strait," were composed of Glaucous and Thayer's gulls, but Glaucous, Thayer's, and Herring gulls nested together "in four colonies located on low-lying rocky islands in the northern portion of the region" (p. 29), and most of the Herring Gull colonies were in the cliffless interior of Southampton Island. The summer of 1961 he went to eastern Baffin Island, where he found the Glaucous Gull nesting along the entire coastal stretch he visited, Thayer's also in the northern part of the stretch, Kumlien's also in the southern part, and the Herring Gull "in small numbers on deltas at the heads of the fiords in the Home Bay region, some within a mile of cliff colonies [of the other species]" (p. 29). Home Bay, the site of his base camp that summer, was approximately in the middle of the Kumlien's-Thayer's overlap zone. In this 40-mile zone were nine cliff colonies, in three of which both Kumlien's and Thayer's gulls nested (p. 29).

Observing as he did that cliff colonies were usually composed of Glaucous and Thayer's gulls, or of Glaucous and Kumlien's gulls, but only exceptionally of all three species, Smith came to consider Thayer's and Kumlien's as "essentially allopatric" (p. 94). Among the 4,457 pairs of gulls observed during the course of the three seasons

of work (numbers of pairs in some colonies estimated, see pp. 17-20), Smith recognized only one pair as mixed. This pair, a male Thayer's and a female Herring, each "typical" of its species "in every respect," he collected from a colony of 127 pairs of Thayer's Gulls and 57 pairs of Herring Gulls at the north end of White Island (p. 18 and fig. 25).

Nest-site preference must, Smith decided, be an isolating mechanism of importance. If, on their return to the breeding ground, Herring Gulls tended to foregather about lakes in low-lying areas (i.e. in the interior), whereas the morphologically similar Thayer's Gulls tended to foregather at cliffs (i.e. along the coast), the chances of mixed pair formation would be cut down considerably—provided, of course, that pairing had not already taken place before return to the breeding ground. "Data presented in this paper . . . strongly suggest that *effective pair formation*, i.e., sealing the 'bond' leading to copulation, occurred in the arctic, on or adjacent to the colony site," rather than on the wintering ground or during migration. Glaucous Gulls formed pairs "mainly on the territories," Kumlien's and Thayer's gulls "on the ice near the colony site," Herring Gulls "both on and near the incipient territories" (p. 31). Niko Tinbergen, who studied the Herring Gull exhaustively, came to believe that "Herring Gulls, as a rule, pair for life" (Tinbergen, 1953, "The Herring Gull's world" (p. 97). Most of the Herring Gulls that I observed at their inland nesting places on Southampton Island in the spring of 1930 were paired on arrival (Sutton, "The birds of Southampton Island," *Mem. Carnegie Mus.*, 12, Part 2, Sect. 2, p. 179). If I read Smith correctly, he did not observe any twosomes of Herring Gulls that impressed him from the start as being paired. Surely he was not dealing with whole populations of Herring Gulls that were breeding (and therefore pairing) for the first time in their lives! Or is there such a state of confusion at colonies early in the season that the paired birds cannot be recognized as such?

Temporal differences in the peaks of sexual activity also restricted random mating, hence were considered by Smith to be an isolating mechanism. In all three study areas the Glaucous Gull was the first to arrive at the colony sites. Next to arrive in south-western Baffin Island was Kumlien's, in eastern Baffin Island both Kumlien's and Thayer's. Last in all three areas was the Herring Gull (p. 35). In all four species pairing proceeded through selection by *the female* of a mate. Although the wingtip pattern of an unmated male acted as a species discrimination factor between Thayer's and Glaucous gulls, and probably also between Glaucous and Herring gulls, it was "only supplemental to and not independent of the eye-head contrast pattern" (p. 95). The female's selection, in other words, appeared to depend primarily upon the mate's having an eye-head contrast pattern like her own.

On the basis of this eye-head contrast pattern, the four species fell into two groups, those with light eyelids and light irides as in the Glaucous Gull (yellow eyelids, yellow irides) and Herring Gull (orange eyelids, yellow irides), and those with dark eyelids as in Thayer's Gull (reddish purple eyelids, dark irides) and Kumlien's Gull (reddish purple eyelids, irides varying from completely dark to completely light) (p. 95).

Smith's experiments involved (1) changing eyelid color through applying oil paint; (2) painting dark "super-eye-rings" on Thayer's Gulls in such a way as to make a "pupil" of the entire eye, an "iris" of the white plumage between the eye and the painted ring, and "eyelids" of the painted ring itself; (3) changing wingtip color through wiping the feather with alcohol, then applying white or black ink; and (4) changing mantle color through spraying with black, gray, or white. Each bird was color-banded to make individual recognition possible, and its sex determined through measurement of the bill, feet, and wings, males being considered by Smith consistently

larger than females, species for species (despite evidence of overlap in Tables 4 and 5).

At first (in 1959) Smith caught his gulls with nets, but this proved to be so "tedious and inefficient" (p. 41) that he turned to immobilizing them with a drug—Avertin (Tribromoethanol in Amylene Hydrate). This he put into bait below the colonies. Permitting the gulls to eat the meat quietly was important; had the birds been disturbed while feeding, or immediately thereafter, they might have flown up to the nesting ledges, collapsed, and fallen to the rocks below, killing or badly injuring themselves.

Experiments in 1959 dealt largely with changing the eyelid color of mated birds. Alteration of 33 females (17 Kumlien's, 8 Glaucous, 8 Herring) caused each of the 33 pairs to break up, whereas alteration of the males of 30 other pairs (20 Kumlien's, 4 Glaucous, 6 Herring) resulted in no change of behavior and no breaking up of pairs (p. 38). (Query: Might males be less affected by traumatic experience than females?). Five males who forsook altered females mated with available females from adjacent territories, copulation ensued, and two weeks later all these "new pairs had complete clutches;" data obtained suggested that eyelid color of females "might function as a stimulus for mounting by the male;" when the eyelid color of the female of one species was substituted for that of another, males no longer copulated, although they had previously been observed to do so (p. 47).

Eyelid color alteration experiments in 1960 and 1961 dealt with both mated and unmated birds. Smith observed that unaltered males early in the season often mounted unaltered females, but that they did not attempt actual coition unless prodded in the chest or rubbed in the cloacal region by the mate. After alteration experiments started, however, males mounted altered mates but did not attempt coition "despite tactile stimulation by the females;" this led Smith to conclude that successful copulation involved "both visual and tactile stimuli" (p. 52). Results of experiments with changing mantle coloration were "inconclusive" (p. 59).

So very sensitive did the gulls appear to be to alteration of eyelid color that when the eyelids of 17 mated female Glaucous Gulls were changed from yellow to orange, 4 of the 17 pairs broke up (p. 54 and fig. 27). Findings of this sort are unconvincing. Had Smith caught and painted the eyelids of, say, 20 mated females, changing the color from yellow to orange in 10 of them but putting *yellow*, not orange, paint on the other 10; and had several males whose females returned with altered eyelid color left them while the males whose females returned with painted *but unaltered* eyelids remained with them, he might have convinced me. As matters stand, I feel that the experiment should be repeated following the procedure just suggested.

Experiments with changing eyelid color and thus bringing about "induced hybridization" reached an almost incredible peak of success when, on 29 June 1960 on White Island, the pair bond had become firmly established in 55 Glaucous  $\times$  Thayer's pairs, only one of which broke up (p. 63). Among these artificially mixed pairs the pair bond appeared to continue until eggs had been laid and incubation started, but pack ice forced Smith to abandon the colonies on 10 July so he obtained no information as to hatching success or as to characters of the hybrid young.

Smith's findings concerning "super-eye-ringed" Thayer's Gulls perplex and discomfit me. In one breath he asks us to believe that the success of a gull's whole reproductive cycle depends on eyesight keen enough to keep it from wasting effort on a gull of opposite sex which does not have precisely the same eyelid color as its own, and that this same gull will be fooled into considering a big black circle as an "eyelid," an eye as a "pupil," etc. Even after considerable thought on this, I find it hard to take. Yet I am obliged to admit that Tinbergen (*op. cit.*, pp. 144-59) found that a Herring

Gull's eyesight, unaided by tactile stimuli, could lead the poor bird into wild mistakes in egg recognition. Perhaps a gull's eyesight, however keen, is ruled by instinct far more powerful than itself.

There is, it seems to me, one major misconception in Smith's paper. This has to do with the "white-winged," clear-eyed "Kumlien's Gull" of Home Bay and Broughton Island. If this bird is "morphologically identical to" the white-winged Iceland Gull of Greenland (see p. 67), I see no justification for calling it *kumlieni* simply because it is breeding on the west side of Davis Strait rather than on the east side. In the light of what we now *know*, we have no right to assume that a white-wingtip to gray-wingtip cline is in operation along the eastern and southern coasts of Baffin Island. Smith's discovery that "*kumlieni*" with the darkest irides have also the darkest wing tips does not help. Finn Salomonsen informs me (personal letter of 30 May 1967) that the Iceland Gulls of Greenland "invariably have pure white wing tips;" in other words, that no cline comparable to the sort just mentioned is operating there. The American Museum of Natural History has been good enough to send me three of Smith's Broughton Island "white-winged" birds, the lightest of which (AMNH 787353) "matches very closely," in the opinion of Wesley E. Lanyon of the Museum's staff, "some" Iceland Gull specimens from Greenland (personal letter of 23 June 1967). The primary wing feathers of all the Broughton Island specimens are truly white only at and near the tips. Our real problem, I believe, is finding the area in southeastern Baffin Island where this "white-winged" bird either intergrades with the bird having gray wingtips (true *kumlieni*) or breeds sympatrically with it.

A word concerning nest-site preference is in order here. Salomonsen (*op. cit.*, pp. 313-14) informs us that in Greenland the Iceland Gull breeds as a rule "on steep cliffs facing fjords and sounds," but occasionally on "low isolated skerries off the coast." Macpherson (*op. cit.*, p. 15), knowing from personal observation how true *kumlieni* breeds in southwestern Baffin Island, considers it possible that the Iceland Gull of Greenland is "more specialized in nesting habitat" than Kumlien's Gull—a point supporting the concept of Kumlien's as a separate species. Precisely how does the nest-site preference of the white-winged "Kumlien's" Gull of Home Bay and Broughton Island differ from that of the gray-wingtipped, *true* Kumlien's Gull of southwestern Baffin Island? This matter Smith does not discuss. In my opinion Kumlien's Gull is a full species; it should be treated as such until we have information on the coastal gull colonies of the whole of southern Baffin Island.

Smith's studies have led him to believe that the Glaucous Gull is less closely related to the Herring Gull than are the Thayer's Gull and Kumlien's Gull (including the white-winged form, and therefore the whole of the Greenland population), that the Glaucous Gull probably attained its present distribution well before the Herring Gull entered the American arctic, that Thayer's Gull and Kumlien's Gull (including the white-winged form) were derived from the Herring Gull, and that these two forms "probably attained full species status at the same time" (p. 97).

I quite agree that the Glaucous Gull and Iceland Gull (of eastern Baffin Island and of Greenland) are not very closely related, though they resemble each other closely; and that differences in size, eyelid color, nest-site preference, and peak of sexual activity greatly reduce opportunities for miscegenation; but the overall abundance and widespread distribution of the Herring Gull today lead me to believe that that species might well have entered the American arctic as early as the Glaucous Gull did, whether both the white-winged and gray-wingtipped forms "lumped" as Kumlien's Gull by Smith (and many others) were derived from it or not.—GEORGE MIKSCII SUTTON.

**A field guide to the birds of Britain and Europe.**—Roger T. Peterson, Guy Mountfort, P. A. D. Hollom. 1966. London, Wm. Collins and Sons. Pp. xxv + 344, 66 col. pls., numerous line drawings and maps,  $4\frac{3}{4} \times 7\frac{1}{2}$  inches, 30 shillings. (An American edition was simultaneously published by Houghton Mifflin, Boston, at \$6.00.)—In 1954 a pocket-sized, illustrated *Field guide to the birds of Britain and Europe* appeared for the first time. The enthusiastic reception of the first English edition by British and European bird watchers and ornithologists led to its being translated into 10 languages and being slightly revised during nine subsequent British printings totalling 178,000 copies. Four additional “bindings” were sent to the United States for an American edition. Roger Peterson, Guy Mountfort, and P. A. D. Hollom have now enlisted the assistance of James Ferguson-Lees and D. I. M. Wallace in producing an enlarged, major revision. In this revision, 21 new species have been added, the identification text has been critically reexamined and revised in the light of new information, five of the old plates have been redone or revised, two new plates have been added, and the sequence of passerine species has been drastically changed.

Inasmuch as no review of the first edition ever appeared in the *Auk*, I will discuss the contents and features of the book as a whole as well as comment on the revision.

American readers are already familiar with the illustrated field guide technique employed by Roger Peterson. He is responsible for the color plates and accompanying captions in the European book. The identification text is the work of Guy Mountfort and the maps and distribution comments are by Hollom.

The book begins with an eight-page illustrated section on how to identify a bird, including a topographic drawing. There follows a discussion of subspecies (trinomials are regarded as “superfluous and altogether undesirable” in connection with field identification except for a few races that are recognizable in the field), an area checklist, and a one-page discussion of British ornithological societies. The main body of the text consists of identification information on the 469 species that may be expected to occur with some regularity in Europe. The first edition had only 452 “basic” species. The previously “accidental” White-rumped Swift, *Apus affinis*, must now be added to the guide because of 1966 breeding records in Spain. The short descriptions of the 114 accidentals (100 in the first edition) that have occurred fewer than 20 times in Britain and Europe are relegated to an appendix. The book ends with a 46-title bibliography by country and a 14-page index to text and illustrations by scientific and common names.

The main part of the guide, the species identification information, is arranged systematically with a short paragraph introducing each family. It is useful for a bird-watcher to know what family a bird belongs to if he wants to find a species account without consulting the index. English, North American (where they differ), Dutch, German, French, Swedish, and scientific names are given and page reference is made to the plates. Foreign names are not indexed. The “Identification” paragraph averages about eight lines per species and has been “ruthlessly expunged” of nonspecific descriptive detail. It indicates length in inches, describes characters, emphasizing the diagnostic “field marks” in italics, and gives methods for separating from similar species. Adult, seasonal, and juvenal plumages are all mentioned, and those that are inseparable from similar species are so indicated. Characters of shape, pattern, color, behavior, and ecology are included. “Voice” is given a separate entry and is both described and rendered phonetically. “Habitat” is outlined in 2–4 lines including that during winter, summer, and migration, if they differ, and any latitudinal differences. Breeding site is mentioned but there is no description of nest, eggs, or young. Distribution for most species is given on a  $1\frac{1}{4} \times 1\frac{1}{2}$  inch map of Europe, usually on the

same page and always labeled as to species. Accompanying notes give status (resident, summer visitor, or partial migrant) and suggest vagrant or irregular records. No indication of extent of range outside Europe is given, nor of wintering grounds in Africa or Asia, nor usually of route of migration nor dates of passage, although users are invited to pencil in the latter in their own copies.

The area covered by the guide and shown on the maps includes Iceland, the British Islands, and continental Europe to 30° east. Thus it encompasses all east European countries including western Russia and Thracian Turkey but not Asia Minor. The islands in the Western Mediterranean basin are included and critically outlined on the maps but not Crete, Cyprus, nor any of North Africa.

The guide is still very useful in Asia Minor, the Near and Middle East, and North Africa and, with a little bit of bibliographic digging and careful annotation, a wide-ranging bird watcher may ferret out the appropriate species to make his guide comprehensive for these areas too. Only for North Africa does there presently exist an illustrated guide (Etchécopar and Hué, 1964, *Les Oiseaux du Nord de L'Afrique*, now available in English translation at about \$25!).

The range maps are excellent and up to date. In fact, after Stresemann's 1955 review of the German edition in which he commented on the maps, I found that the revised southeast European ranges for the 1958 edition entirely agreed with the latest information I was able to gather on my area of speciality. The authors invite comments on the maps and emphasize that ranges are not static but are continually changing as in the case of the Collared Turtle Dove. I have two minor comments on range discrepancies in the book. First that for the Long-billed Dowitcher is inadvertently missing. Second the Cinereous Bunting is said to breed up to the tree limit in Greece. The species does breed in Greece, but probably only on the Asia Minor islands where I have found it thus far only on Mytilene. These islands are not included in the *Field guide*, nor do any mountains on them approach the tree limit which is about 6,500 feet in this area. If the breeding birds on Mytilene were to be included in the guide, then Krüper's Nuthatch, *Sitta krueperi*, and the Asia Minor races of the Jay, *Garrulus glandarius krynicki* (black crown and white cheeks) and Long-tailed Tit, *Aegithalos caudatus tephronotus* (streaked gray back and black chin) should have been included.

Roger Peterson's 66 plates (42 in full color) are generally excellent and are scattered through the book near the appropriate text in most cases. Leafing through them will give an American bird watcher a capsule view of European birdlife, and incidentally, as they are generally arranged systematically, acquaint him with the family allocations of species, a problem for beginners who will use this book. Common English names are used on the plates and in the accompanying line or two of caption that points out the important field marks (indicated by short lines on the plates) and gives page reference to the descriptive text. The plates are in the usual Peterson illustrative style with 10 to 20 birds per plate, some, for instance the small waders, in very small scale. Fine detail such as vermiculation on ducks and individual secondary feathers on gulls has been successfully deemphasized in favor of general appearance. The birds appear relaxed and in typical natural poses. All similar species on a page are in the same pose to emphasize comparative characters.

Five plates have been redone or revised: Cattle Egret and Squacco Heron (4), eagles and Osprey (21), immature gulls (38), marsh terns (40), and *Hippolais* and Garden warblers (57). All of these are a distinct improvement on the original edition, but color and register in my copy on plate 57 are so poor that they detract from the usefulness of the whole plate which includes the confounding *Phylloscopus* warblers!

Two new plates illustrate 21 additional species in color and appear brighter and fresher than all the rest. Line drawings are included in the text to point out wing formulae, structural characters, and pattern differences not portrayed on the plates. Many of them have been redone or added in the revision.

The German edition (1965, *Die Vögel Europas*, Paul Pasey, Hamburg and Berlin) incorporates some worthwhile illustration features. All the plates are grouped together at the end of the book where they serve almost as an illustrated key as the reader thumbs through them. This eliminates the guesswork involved in trying to turn to the correct plate in the English edition where no species account in either edition is ever on the page facing its plate (which is always a caption page). In fact, I find it annoying in the field to have to leaf past a plate and two caption pages (both numbered) in order to continue reading a run-over species account. The scientific name is also on the facing caption page in the German edition as well as in the species identification text. This makes it easier for those of us for whom scientific names are convenient, especially if we are using the book with a non-English colleague. Eight colored plates of passerine eggs are included in the German edition. Their omission from the English edition parallels the current lack of interest in oological collections in the United States and their suppression in Britain. I think egg plates are a desirable feature for an ornithologist interested in breeding biology and good ones are difficult to come by today.

The sequence of nonpasserine families is in the Wetmore order. The passerines, however, follow the "Basel" sequence which ends with the starlings, orioles, and crows and which has been adopted for the last seven volumes of Peters' *Checklist* and the *New dictionary of birds*. This is a departure from the earlier editions, which used the Wetmore sequence throughout, and for which the plates were originally planned. This has resulted in the starlings, orioles, and some corvids being on a plate up to 110 pages removed from the text and other passerine plates being removed from the text more than in the original edition. The sequence of species and the scientific nomenclature "largely" follow that in Vaurie's *The birds of the palearctic fauna* which is based on a third familial sequence similar to Wetmore's. Thus there are three different current sequences in use in the major works dealing with palearctic birds! I agree and sympathize with nonsystematic ornithologists and bird watchers that this situation, as well as the apparent mutability of phylogeny, is deplorable. But I cannot commend those responsible for having adopting the hybrid sequence in this popular work, because of its awkward results for the user.

Production of the book is relatively good for what must have been a huge run. Typographical errors are very few. Ten of the color plates in my copy are out of register or printed light enough to fuzz or muddy up the birds. Incidentally, in the three copies I have, 1954, 1958, and 1966 editions, different plates are defective. Text printing is clear but text figures portraying dark species (e.g. cormorants, vultures, eagles, and crows) and some other line drawings have not printed clearly, so that detail is lost. The binding is relatively sturdy, apparently the same as in previous English editions. The covers and binding of my 1954 copy wore out entirely after an abusive 12 months of constant field use. I hope others don't use their copies quite as intensively.

In spite of the very few minor shortcomings in this volume, I can whole-heartedly recommend it to English-speaking birdwatchers and professional ornithologists. It is the best illustrated, most comprehensive, authoritative, and easy to use European bird guide in English. Its low price makes it a real bargain for its color plates alone.—

GEORGE E. WATSON.

**Wir bestimmen die Vögel Europas.**—Wolfgang Makatsch. 1966. Leipzig, Neuman Verlag. Pp. 508, 89 color and 23 black and white plates, line drawings, maps, no price stated.—Peterson's Field Guide Series is not readily available in eastern Europe, and the large body of birdwatchers and ornithologists there needs an authoritative identification manual. To meet this demand Dr. Wolfgang Makatsch, a well traveled German ornithologist, has produced an illustrated pocket-sized field guide that covers about the same ground geographically, textually, and pictorially as the "western" book. The "eastern" field guide also shares part of the same title as Niethammer's German edition of the European "Peterson," *Die Vögel Europas*. Some features in the eastern book are improvements on the western guide while others, notably the plates, suffer by comparison.

The introductory material covers much the same ground as in all field guides: what to find in the book and how to use it. Symbols and abbreviations are defined. Line drawings show bird topography and how measurements are to be taken. The latter are similar to those used in U. S. and British handbooks of 50 years ago when a bird in the hand was verification for field identification. A list of orders and families (in Wetmore sequence) is followed by a list of all European species, without a check-inviting blank. A bibliography is arranged by country but western field guides are not included. Six pages of small black and white line drawings suggest methods of identifying birds and closely parallel Peterson's section on the same subject.

The 112 plates, 89 in color, by the late Kurt Schulze are all grouped together immediately after the introduction. Similar species appear in parallel poses to allow comparison. Most of the birds are in much larger scale than in Peterson's plates and details such as individual wing quills and patterned back feathers are emphasized. The poses are not so natural as in Peterson's plates, and Schulze seems to have particular trouble in attaching legs and feet and making birds look relaxed. All however are still very useful for identification although the colors are generally a little too rich. Schulze is at his best with diurnal birds of prey. The plates are labeled in German and a species number helps one find the text account in the next section. As the plate order is not the same as that of the text and no plate number is given in the text, one cannot go directly from text to plate, but must use the index.

Finally on page 146 begins the main body of the book, accounts of the 582 species included in the volume. Each European family has an introduction of variable length from three lines to several paragraphs, giving salient characters. There are field character keys to the genera and within each genus to species if more than one occurs in Europe. Each species account consists of a number of paragraphs under the headings "characters," "voice," "biotope," "distribution," "migration," "nest and eggs," and "subspecies." The amount of information varies, and passage migrants, irregular visitors, and vagrants are included as part of the regular text although their coverage is less complete than for regular European species. German, Latin, English, Russian, Czech, Finnish, Polish, and Hungarian names are given for each species, suggesting the area of expected sales and use. Identification characters include length in centimeters and a short description emphasizing comparative key field characters. Voice is described and given phonetically. Preferred habitat is presented in a 3- to 4-line biotope paragraph. Brief distribution comments are supplemented for most species by a map. The breeding range is shown in grey stipple or, for species breeding on the coasts, the narrow fringe is outlined in black. The maps include Greenland, Iceland, Spitzbergen and Novaya Zemlya, south to western North Africa, Turkey, Cyprus, northern Iran, and the east coast of the Caspian Sea. Only those species are included that have occurred in Europe; North Africa, Turkey, and the Middle East are therefore not fully

covered. Migration routes, winter quarters, and dates of passage in Europe are covered in a separate paragraph. Nest site and structure, clutch size, egg color, average size in millimeters, and dates are briefly documented. Unless monotypic, subspecies names and ranges are given but without characters. All this information is given in terse telegraphic style that makes the very compact text much more comprehensive than that of the western guide. Indices to German and scientific names giving both plate and text pages occupy the last 15 pages.

The features in the book that especially appeal to me are the plates all grouped together, the very clear distribution maps, and the information on migration and reproduction. The inclusion of subspecies names and ranges in a field guide is superfluous, especially when no characters are given.

The book is attractively and well produced, although the author tells me that reproduction of the color plates does not do justice to the original paintings. The text is printed in two columns on a page, but each family and genus is covered in a double-column paragraph, which is sometimes a little confusing especially if a distribution map occupies the same page.

I recommend very highly this fine field companion as an authoritative European field guide for anyone who reads German.—GEORGE E. WATSON.

**The birds of the Republic of Panama.** Part 1.—Tinamidae (Tinamous) to Rynchopidae (Skimmers)—Alexander Wetmore. 1965. Washington, D. C., Smithsonian Miscellaneous Collections, Vol. 150. Pp. iv + 483, 1 col. pl., numerous line drawings. \$6.00.—This is the first volume of a projected comprehensive work on the birds of Panamá, a region in which the author began field studies in 1944. It is astonishing to realize that this ambitious undertaking (including continued field collecting) is being carried on by the same Alexander Wetmore who served as President of the A.O.U. back in 1926 and whose scientific and popular publications have stimulated the interest of several generations of ornithologists. Recently I was selecting specimens of the Orchard Oriole to demonstrate molt sequences to my ornithology class, and picked out a fine skin of an adult male; it was one Wetmore collected in Kansas 62 years ago. Actually, for anyone acquainted with Alex Wetmore, the surprising fact is not that he continues his work with undiminished enthusiasm but that it began such a long time ago.

The brief (four and one-half pages) introductory section of the present volume sets forth the plan of organization and purposes of the book. With classical simplicity the author points out that "completion of the report has required more time than originally contemplated. As there is increasing demand for information . . . especially from those engaged in investigation of diseases where species of birds may be suspected as carriers, it has become desirable to present the summary accounts family by family as they are completed. . . . A general account of personal field work, with a review of the studies of other ornithologists [and a complete bibliography and gazetteer of localities], and general discussions of the avifauna will be left for the end." Part 1, and presumably the subsequent volumes, should be considered in the light of these intentions.

The Introduction mentions the zoogeographic importance of Panamá as a link between North and South America and provides a very short summary of the climate and habitats within the Republic. The form of the accounts is explained, there are two paragraphs of acknowledgments, and the accounts begin on the middle of page 5. "Each family is introduced by a brief general statement on the group as a whole

throughout its entire range. This is followed, where necessary, by a key to the species that have been recorded in Panamá . . . intended primarily for identification of specimens in the hand. . . . References to literature, given in parentheses, are sufficiently complete to allow their consultation if desired. . . . The account of each bird begins with the scientific name, followed by vernacular names in English and Spanish [for species only]. Where the species is divided into geographic races, if two or more of these are found in Panamá, general information that applies to all is given under a species heading. This includes brief phrases on characters that may help in identification, and a description. The subspecies follow, each with its scientific name and reference, details of color, size, or form on which the race has been recognized, measurements, range in the Republic, and other pertinent information." For many species there are excellent black and white illustrations by W. A. Weber; sometimes details of the head, foot, or wing are given. Measurements are sometimes quoted but are most often those of the author. Each account includes the status of the taxon in Panamá (resident, migrant, rare, fairly common, etc.), information on time of breeding, descriptions of the nests, eggs (including measurements), nestlings, food habits, and color notes on unfeathered parts of live or freshly taken specimens. The balance of the accounts have the familiar style and content of Wetmore's faunal reports. There are data (date, locality, and collector) for all Panamanian specimens, personal observations on many aspects of bird behavior, including anecdotes of field experiences, and taxonomic discussions, the latter sometimes constituting a revision of the species. The last account covers *Rynchops nigra*, followed by an index of scientific and vernacular names.

Anyone interested in the biology of any of the species included should not fail to consult this volume, for he is almost certain to find at least some pertinent and interesting new information. This may be a pleasant evocation of the author's impressions of a rare or unusual species, or a detailed account of feeding or nesting behavior, or a review of intraspecific variation or perhaps generic characters, or a technical point of nomenclature—even a recipe dating from 1681 for potted gull (p. 445), although the author does not admit to testing it. The relaxed narrative style used throughout the accounts does, however, increase the length of the book somewhat unnecessarily. The specimen records could all be put in the same condensed form that is used for some species rather than giving the information in several sentences with the full name of the collector or observer. A short form for such names would be economical; for example, the same person is listed in numerous species accounts as "Hasso von Wedel," or "von Wedel," or just "Wedel." Some judicious pruning of the narrative (on p. 457 for example) would also save space.

One might also criticize the inclusion of the description of the appearance of each species, the keys, subspecific characters, and the lists of measurements on grounds that this repeats information already available in the literature. To do so would miss the point that this volume is intended to be self-sufficient, enabling a health scientist, for example, to identify birds in the hand and hopefully in the field also. Furthermore, *The birds of North and Middle America* (U. S. Natl. Mus. Bull. 50) does not yet cover many of the species included in this volume, and the descriptive portions of the present work therefore fill a current need in systematic ornithology. I have noticed only one *lapsus*; on p. 366, the feet of *Heliornis* are described as "webbed" rather than lobed.

It would have been extremely helpful if a map and gazetteer of localities could have been included in this volume instead of in the last one, as projected. Many of the localities mentioned will be found only on large scale maps of Panamá, and the intended self-sufficiency of the book is impaired by the absence of even a simple outline

map showing the provinces, the major topographic features, and the location of the frequently-mentioned islands. More than the inclusion of such utilitarian features, though, I look forward to the promised "general discussions of the avifauna" that have been "left for the end." Dr. Wetmore's years of experience in the field, his historical perspective, and his encyclopedic knowledge of collections of neotropical birds provide him with unexcelled qualifications for a synthesis of the now voluminous data on the distribution (historical and ecological) of the birds of this zoogeographically critical area. For the present, this first volume offers a valuable addition to the taxonomic-distributional literature of New World tropical birds. That is a rather dry sounding evaluation, but actually I am reminded of Mengel's (*Auk*, 83: 488-489, 1966) comment that J. Fisher and R. T. Peterson, by the enthusiasm of their recent book, proved their total addiction to birds with the happy abandon of a pair of drunken sailors on shore leave. Anyone reading *The birds of the Republic of Panamá* is bound to realize that Alex Wetmore is totally and happily addicted to birds, too—in his own fashion, to be sure, but certainly none the less.—THOMAS R. HOWELL.

**Birds of the northern forest.**—J. F. Lansdowne with John A. Livingston. 1966. Boston, Houghton Mifflin Co., Cambridge, The Riverside Press, and Toronto, McClelland and Stewart, Ltd. Pp. 1-248; 56 col. pls., 56 line drawings. 10 × 13¼ in. \$20.00.—Amid the deluge of specialized books and papers on every imaginable aspect of avian biology, it is refreshing to find one that is frankly a picture book. *Birds of the northern forest* is one of these; I shall evaluate it on that basis.

During the past decade, lovers of "bird art" have watched with interest the career of J. Fenwick Lansdowne, a young painter of great talent and promise. His carefully posed birds, subtle backgrounds, and studied compositions have few equals. Among the well-known moderns in bird painting, probably only Amuchastegui excels him in draftsmanship. Draftsmanship, however, is a two-edged blade. It can be a valued tool in the hands of a master, or it can rule the one who would control it, as it is has apparently ruled Mr. Lansdowne in painting the plates for this book. His preoccupation with the details of draftsmanship, particularly its lineal aspects, has in my opinion produced serious faults of emphasis, form, and feather quality.

Faults of emphasis are present in at least forty places throughout the book. A particularly glaring example is found in plate 4, the Lesser Scaup. Here, Mr. Lansdowne shows the vermiculated back pattern of the adult male as becoming lighter in color posteriorly on the bird. In examining 15 well-preserved museum specimens of adult male Lesser Scaup, I found not one example of the posterior lightening of color the plate shows. In fact, the opposite is true—the vermiculations of the back pattern closest to the tail take on a "white on black" appearance. Both merganser plates display a lack of contrast in pattern, particularly in the vermiculations of the flank feathers, which are more prominent in both species than Mr. Lansdowne has painted them. In another example none of the 33 Common Snipe specimens that I examined had a breast so markedly striped as that of the snipe in plate 14. A similar fault of overemphasis occurs in the pattern of the sandpipers' breast feathers in plates 15 and 16. Other plates that show faulty emphasis are those of the Hawk-Owl, the Olive-sided Flycatcher, the Winter Wren, the Solitary Vireo, and the Rusty Blackbird, to name the more obvious examples.

In observing the faults of form and contour that I found in many of the plates in this book, I had the feeling that the artist may have seen but few of these species alive. This could explain the crook-necked Canada Goose, the peculiarly curved wing

of the Boreal Owl, the oddly jutting contours of the Hawk-Owl's wing, and the doubly convex ventral surface of the Spruce Grouse's rectrices.

The feathers of birds have at least one quality that Mr. Lansdowne, with a few notable exceptions (such as plates 22 and 42), has ignored. This quality is translucence. It is particularly evident where the feathers are thin, patterned and many layered, for the pattern of the feathers lying beneath shows through the layers above them, giving great depth to their appearance. The plates of the Lesser Yellow-legs, Hawk-Owl, Great Gray Owl, Long-eared Owl, Northern Three-toed Woodpecker, Hermit Thrush, Gray-cheeked Thrush, Northern Shrike, Black-throated Blue Warbler, and Fox Sparrow show imperfect handling of feather translucence by the artist.

Color faults are the most numerous of any in the book. These could have been caused by several things—unfaithful color reproduction, carelessness of the artist, and/or the use of foxed or faded museum specimens as color guides. Whatever the cause, at least eight plates suffer badly from overall rustiness. The plates of the Hooded and Red-breasted mergansers are probably the worst examples; 35 other plates have color faults of various sorts and degrees: the Red-breasted Nuthatch is too green, the Purple Finch too red, the Hermit Thrush too brown, the male Pine Grosbeak too pale, and the Fox Sparrow too pale and washed out, to name a few examples. In at least four plates—those of the Black-backed Three-toed Woodpecker, the Magnolia Warbler, the Blackburnian Warbler, and the Evening Grosbeak—the yellow is simply not bright enough.

Errors of measurement and proportion are scattered throughout the book. The Lesser Scaup plate shows the male with head and bill vastly out of proportion to the swim-length of the bird. The bills of the mergansers are too long and the eyes set too far back and too high on the head, with the result that the whole "fierce" appearance of the birds is lost. The toes on the Peregrine seem far too attenuated. In the Black-backed Three-toed Woodpecker plate, both birds have heads and bills too long in proportion to body length. The tarsi of the thrushes are much too thin, the feet of the Raven and of the Evening Grosbeaks are too small, and the heads of the flycatchers, the Winter Wren, the Evening Grosbeak, and the female Purple Finch are noticeably too large. It seems to me that if one is to belong by choice to the feather-for-feather accuracy school, a centimeter rule and a pair of calipers might be handy things to have about.

Certain other flaws mar the picture-book quality of *Birds of the northern forest*. The tarsometatarsi of ducks are laterally compressed and are smooth and glossy on live birds. Without exception, the tarsi and toes on Mr. Lansdowne's ducks are thick, rough, and dull. The eyes of some of the birds are also disturbing: those of the Common Loon, the Red-breasted Merganser, the Hawk-Owl, and the Great Gray Owl seem about to pop out of their sockets.

Regarding the less definable objectives of "bird art," I believe that Mr. Lansdowne's consistently linear treatment of his subject sometimes causes him to lose the "feel" of a species. The plate of the Great Gray Owl is a case in point. This huge, mothlike creature with its almost incredibly soft and fluffy plumage has been reduced to a cut-paper copy of itself. Its back feathering, whether from artistic intent or poor color masking, has all the softness of a turtle's carapace.

That Mr. Lansdowne *can* often capture the abstract quality of a species is amply demonstrated in several of the preliminary sketches preceding the finished plates. Whether or not these are "field sketches" in the literal sense of the word, I do not know, but with few exceptions they have more spontaneity, vigor, and life than the

finished plates. The Lincoln's Sparrow sketch for plate 56 is an especially fine example of the regression from vivacity to embalment.

On the good side Mr. Lansdowne's sense of composition is always sure and competent, sometimes bold and striking as in the Hawk-Owl plate, and sometimes exquisite as in the Tennessee Warbler plate. His draftsmanship, the pitfalls of which I have taken such pains to point out, is nonetheless excellent. Some particularly shining examples are the siskin in the Northern Shrike plate, the whole of the Philadelphia Vireo plate, the flowers in the Peregrine plate, the satiny sheen of the Horned Grebe's plumage in plate 2, most of the Tennessee Warbler plate, and the female Myrtle Warbler in plate 42.

Mr. John Livingston's text, which accompanies each plate, is reasonably informative to the beginning birder. Sometimes, as in the account of the Merlin, the writing is simple, straightforward, and pleasurable to read. More often, it is flawed by redundancies, anthropomorphism, and diatribe. I find in the account of the Solitary Sandpiper two especially graphic examples of anthropomorphism: "it has defied convention by nesting in trees," and "they merely fall as gracefully as possible." Others: in the account of the Great Gray Owl facing plate 19 we are told that "an archaism" can "happily" disappear; regarding the mating behavior of the Winter Wren in the account facing plate 30, "he will cheerfully turn polygamist;" and concerning the plumage of the Bay-breasted Warbler facing plate 45, we learn that the male has "impeccable good taste. It even wears a pale stiff collar around its neck." Other remarks of similar ilk are scattered generously throughout the text. I will list no more of them, except for this last unclassifiable gem on the food habits of the Northern Waterthrush, facing plate 48, "In the heavy underbrush, it maintains a constant search for small aquatic animals." Mr. Livingston's literary style, I fear, is not my cup of tea.

The technical aspects of the book—color plates, printing, layout, etc.—seem to be competently done. Twenty-three of the plates in my copy have the green run in the color process a fraction of a millimeter off-register, but this slight imperfection is noticeable only if one is looking for it and does not greatly spoil the overall fidelity of the printing. Errors of typography, grammar, and usage are relatively few. Format and typeset are generally attractive and the author-artist team and their printers and publishers are to be congratulated for having produced a quality publication at a comparatively moderate price.

In conclusion, for the amateur birder, for the uncritical admirer of "bird art," and for the cocktail table, the Lansdowne-Livingston volume is a felicitous addition to the personal library. Those who want to see the "spirit" of the bird beneath the feathers must await Mr. Lansdowne's further development as an artist.—COLLEEN H. NELSON.