

Table of Measurements.

Current number of specimen	22,325.	
Locality	Pensacola, Fla.	
	Millime- tres.	100ths of length.
Length to end of middle caudal rays	568	
Body:		
Greatest height		24.8
Greatest width		14
Greatest circumference		64
Height at ventrals		22
Least height of tail		4
Length of caudal peduncle		7
Head:		
Greatest length		28
Greatest width		14
Width of interorbital area		9.5
Length of snout		10
Length of operculum		7
Length of upper jaw		13
Length of mandible		15
Height of head through eye		14.5
Diameter of eye		4.5
Dorsal (spinous):		
Distance from snout		35
Length of base		8
Length of first spine		2.7
Length of second spine		3.9
Length of third spine		4.3
Length of fourth spine		3.2
Length of fifth spine		2.0
Dorsal (soft):		
Length of base		42
Length of first ray		4
Length of longest ray		10
Length of last ray		6
Anal:		
Distance from snout		63
Length of base		20
Length of longest ray		9
Length of last ray		6.3
Caudal:		
Length from notch on peduncle to end of middle rays		11
Length of external rays		21
Pectoral:		
Distance from snout		38.3
Length		13
Ventral:		
Distance from snout		29.5
Length		13
Branchiostegals		VII
Dorsal	VII, 1, 36	
Anal	II, 1, 19	
Pectoral	19	
Ventral	8	

WASHINGTON, April 1, 1879.

ON THE BIRDS OF HELIGOLAND.

By H. GÄTKE.

HELIGOLAND, March 8, 1879.

Professor S. F. BAIRD,

Secretary Smithsonian Institution:

DEAR SIR: I have delayed answering your very kind communication till I might be able to inform you of the receipt of the box despatched

for me. It arrived two days ago, and many, many thanks for the contents thereof, which to me are very valuable indeed.

By this mail I shall send off a small box with skins, all I had, and, as I fear, of very little value to you. Perhaps the suite of *Sylvia succica*, Linn., may interest you, as the females and male in winter dress are perfectly reliable. The other form, *S. leucocyanea*, Brehm, comes very rarely so far north as Heligoland, and the few instances it has turned up from four to six weeks earlier than the *succica* in spring. I have sent for your examination a skin of *Lanius major*, Pall., with the alar white mark extending over the bases of primaries only, and which I suppose, from what I see in Richardson and Swainson's "Faun. Bor. Amer.," is coincident with their *Lan. borealis*.* Perhaps we have here to deal with a case similar to that of *Alauda alpestris*, viz, a gradual extension westward from an originally American home. Up to October, 1847, *A. alpestris* was here an excessively rare appearance, known only to a very few sportsmen; but at the fall of that year there was a very great influx of birds from the east (*Xema sabinii* may be counted among the rest), and with these *A. alpestris* appeared in such numbers that one young man succeeded in shooting above a score during one afternoon. Ever since, this species has been a numerous and regular bird of passage during October and November of each successive year. I have packed for you a male and female, which, as coming from the westernmost point almost of their now regular line of migration, may be of some interest for the sake of comparing with the original stock.† I saw once a skin from America, an old male bird, which was of a rather intense brick-red color round the shoulders and wing-coverts, whereas these parts with our birds are always of a pinkish, vinaceous tinge. If the above coloration with your birds be the prevalent one I should like much the possession of such an old male specimen.‡ Amongst the Pipit suite there is one *Anthus richardi*, a regular autumnal visitant here, from the far east of Asia (Daouria),§ and if of interest to you I will next fall try to procure some more skins for you.

I am greatly gratified at finding that many points of your observations|| form already a part of my manuscript. Your remark that "if

* This specimen is not *L. borealis*, but seems referable to the *L. excubitor* of Europe.—R. RIDGWAY.

† The examples sent by Mr. Gätke resemble very closely in their robust build and dark colors the specimens usually obtained in eastern North America in winter, but have the yellow of the head more extended, this color in fact invading even the whole pileum. They can easily be matched, however, even in this respect from a large series.—R. RIDGWAY.

‡ The specimen here alluded to was very likely the var. *chrysolama* of California and Mexico, which has, at all seasons, the vinaceous tints of the northern forms replaced by a rusty cinnamon color. (*Conf. Hist. N. Am. B.*, II, pp. 1411-44.)—R. RIDGWAY.

§ Do not these east Asiatic species cross over the Pacific from Kamtchatka via the Aleutian Islands?

|| *Conf. "The Distribution and Migrations of North American Birds." Am. Jour. Science & Arts*, XLI, 1866, 78-90, 184-192, 337-347.

a region be deprived of its spring birds" proves very strikingly the fact that over a wide range of latitude each individual resorts for propagation to the latitude where it was hatched; that birds quit their winter-quarters in succession as their individually more northerly home becomes habitable,—naturally the most northerly latest; and that, consequently, Middendorf's calculation of the rate of migration-flight must be fallacious, because the individuals he observed earlier in spring at a lower latitude were not the same he saw later not thirty degrees higher north, but were such as passed *over* the former, whilst they perhaps were beginning to construct their nests; therefore, the period that lay between observing the two could not be made use of as a measure whereby to determine their pace of flight or advance during a day.

That the direction of the course of wandering birds should be influenced by river courses or mountain chains, is a point which I do not agree to, at least so far as Europe comes under contemplation. Here during the fall, the route of miscellaneous species is so varied that the two principal hosts cross each other at right angles; one great mass progressing due west from the farthest east of Asia (e. g., *Anthus richardi*, *Sylvia superciliosa*), and continue their course to Heligoland, England, France, and Spain. Besides these, all the rare autumnal visitors come here from the far east of Asia, which proves that there must be with birds of these regions a strong inherent tendency to a western migration, even in species whose real winter-quarters are in the south of India down to the Sunda Isles, as, for instance, the two named above. This line of flight diverges abruptly to the north when approaching the Atlantic in England, Western France, and Spain; *vide* the immense numbers crossing the Straits of Gibraltar.

This westerly current is cut at right angles by another host coming simultaneously down from the extreme north of Europe and Asia, and steering due south for their winter-quarters, viz: The Willow Warblers, *Phylloscopus trochilus* and *rufus*, which go from the North Cape of Scandinavia to the Cape of Good Hope; *P. tristis* and *borealis*, from Northern European and Asiatic Russia down to the south of India and China. The latter, together with *Falco rufipes*, *Motacilla citreola*, *Anthus cervinus*, *Emberiza aureola*, and *Limosa cinerea*, all plentifully breeding so close to Heligoland as the Onega Dvina, Megin, and Petchora districts, but still never, or very rarely, turning up here during their autumnal flights, proves in itself their southern course—without the least western inclination—even if they were not observed down the Ural, the Black Sea, Turkestan, &c. The most striking instance of such a move is seen in *Sylvia philomela*, which breeds in the south of Sweden, and, nevertheless, has been observed here but once during the last forty years!

A few can be pointed out as going from northeast to southwest, namely, *Sylvia succica* and the *Alda alpestris*. These, and all the others enumerated, joined by hosts of the more common "million" which are spread far and wide over the entire northern Palearctic Region.

What, under such circumstances, becomes of the routes of birds by river courses or mountains? How many great rivers has *Anthus richardi* to cross, almost all at right angles, during his autumnal flight from Daouria to France and Spain?

I maintain that the migratorial movement, particularly the vernal one, when in normal progress, is performed by the great majority of birds far beyond the perception of man, and that what we see of the same are but the irregularities and interruptions thereof—brought about by atmospheric agencies.

Your opinion that the spring line of flight is widely different from that of the fall, I most completely participate in. All the different routes enumerated in the foregoing are dropped, and a more or less direct course toward the polar regions adopted. The wide front of the winter-quarters, extending from the west of Africa to the east of China, the Philippines, Borneo, &c., concentrating during this northerly passage to less than half its original stretch.

A proof of this latter assertion is rendered by the fact that of all the eastern birds which visit Heligoland during their autumnal migration, none appear during their return journey, the track to the south which terminated their western flight having brought them to far lower latitudes; while in spring, as they pursue a direct course to their northern breeding-grounds, they leave all these western countries to their left.

While the "rare birds" here during autumn are, without exception, eastern species, those of the spring are as uniformly from the southeast—Greece, Asia Minor, Turkestan, &c. Singular it is, that almost no exceptional bird has come here from the south or west, *i. e.*, so far as the Old World is concerned. In what eminent manner the "far west" is represented, I have told you at an earlier period.

And this leads me to the route which American birds follow to Europe. I do not much lean to the supposition that storms have in any considerable degree to do with such extra tours, and why Newton and others advance so strongly the Greenland, Iceland, &c., route, I cannot comprehend. I fancy they never contemplated the possibility of a bird coming in a direct line from Newfoundland to Ireland; in other words, that a bird might be able to sustain an uninterrupted flight sufficient to carry it across the Atlantic. My researches have led me to the belief that such is not alone far from being impossible, but that the probability of such a fact, wonderful as it may appear, is borne out by good evidence.

For instance, these old spring birds of these *Sylvia succica* which I send you, have wintered in the middle or north of Africa. During their vernal migration, the first point north thereof where they are regularly found in considerable numbers is Heligoland, whilst during this time they are of the utmost rarity in all countries intervening between the

Mediterranean and the North Sea, upper Germany not excepted. This fact incontestably proves that these birds cross this distance in one uninterrupted flight, and during one short spring night, viz, in 9 to 10 hours, which gives a rate of locomotion of 40 geographical miles per hour. Wonderful, incomprehensible, I admit, but still remaining a fact. The slow clumsy Royston Crow (*Corvus cornix*) crosses from here due west* over to England, at a rate of 27 geographical miles an hour, and results of 25 miles have been furnished by the semi-domesticated Carrier-pigeon. The distance from the north of Africa to Heligoland is equivalent to that from Newfoundland to Iceland, and therefore no objection whatever can be raised against your birds crossing over to us direct.

All this with plenty of evidence, and a great many points besides, is ready in manuscript sufficient to cover from fifty to sixty pages octavo print, and by the end of May I shall be ready for the press altogether.

I greatly count on your lenience, my dear sir, whilst allowing my pen to run on at such an unpardonable length, but perceiving from your contribution that you, like myself, have studied the grand theme of the migration in nature, which is quite a different matter from all learned treatises thereon worked out by the lamp of the studio, my hobby felt so comfortable in your genial company that it bolted off with this unresisting tide.

Begging once more to pardon my having ventured on your time and patience at such unpardonable length, in more or less objectionable English thereto,

I remain, dear sir, yours, very truly,

H. GÄTKE.

DESCRIPTION OF ALEPOCEPHALUS BAIRDII, A NEW SPECIES OF FISH FROM THE DEEP-SEA FAUNA OF THE WESTERN ATLANTIC.

By G. BROWN GOODE and TARLETON H. BEAN.

The National Museum has recently received from Mr. Christian Johnson, of the schooner William Thompson of Gloucester, a single specimen of an undescribed species of *Alepocephalus* taken on the Grand Banks, at a depth of 200 fathoms. The only other known representative of this genus is the *Alepocephalus rostratus* Risso, a member of the

* During the fall this line of migration, so far as it comes under observation here, day or night, is from due east to west, sometimes perhaps with the declination of a point to the south.