pair of ribs was not infrequently present on the second 'sacral' vertebra. At some future day I hope to ascertain in what percentage of Great Auks this condition prevailed, but the most interesting fact is that when the additional pair of ribs is present there is usually at the same time a small parapophysis developed on the first true sacral vertebra, as if the rib-creating force had been felt still further down the line of vertebræ.

These abnormalities have been mentioned, as they seem to have a bearing on the reduction in the number of vertebræ which Baur, Balfour and Parker have shown has taken place among birds, and they may probably be regarded as the reappearances of ribs once normally present in the ancestral types of existing birds.—FREDERIC A. LUCAS, *Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Sternum in the Solitary Sandpiper, and other Notes.

TO THE EDITORS OF THE AUK:—

Dear Sirs: Some little time ago, while looking over several skeletons of the Solitary Sandpiper (*Totanus solitarius* of the A. O. U check list), which I have in my private collection, I noticed that the sternum of this bird has but a single large notch on either side. Now the only two other allied species in our avifauna, so far as is known to me at present, thus constituted, are the Woodcock and Wilson's Snipe (*Gallinago delicata*), and I am uncertain about the genus *Macrorhamphus*, as I have not, as yet, looked up the point in the species therein contained. Possibly, too, *Totanus ochropus* may possess a sternum with but a pair of notches in it, and if that be the case, I am of the opinion that the character is very likely to be associated with other distinguishing points in the economy of these two birds, of ample importance, I think, to guarantee us in restoring for their reception, the genus *Rhyacophilus*, which change I propose in the present connection. Such forms as *Totanus flavipes* and *T. melanoleucus* have the usual *four-notched* sternum, as is the general rule among Limicoline birds.

To furnish certain comparative notes on this point, we find that Sir Richard Owen, in speaking of the sternum as it is found in certain birds of this order, says, in the second volume of his 'Comparative Anatomy and Physiology of Vertebrates,' on page 26, that "the woodcock (*Scolopax*) has a pair of notches, with the outer boundary slender, and shorter than the broad intermediate tract, the gambets (*Totanus*), avocets,

sandpipers (*Tringa*), curlews (*Numenius*), pratincoles (*Glareola*), have the four-notched sternum. In the godwits (*Limosa*, *Helias*) the medial notches are almost obsolete, and the lateral ones wide. The 'thick-knees' (*Œdicnemus*) and bustards (*Otis*) have the four-notched sternum, the notches being small."

A number of years ago I published in the 'Journal of Anatomy' in London, with plates, a memoir having much to do with the osteology of our American Limicolæ, wherein I was enabled to confirm Professor Owen's observations, and extend them by noting the 'four-notched sternum' in our own species of *Limosa*, in two species of Oyster-catcher, in *Totanus flavipes*, in several species of true Sandpipers, and in the genus *Bartramia*, where I found "a small pair of inner notches in the sternum, with very deep outer ones." I further went on to remark, as I have already stated above, that I had only found the 'two-notched' sternum in the Snipe (*Gallinago delicata*) of the American Limicolæ that I examined on that occasion. Since then, as I say, I have found a similar form of the bone in our own Woodcock (*Philohela minor*). Among taxonomists, the notching of the sternum has always carried with it more or less weight in deciding avian affinities, and I was promptly held up for my sins, for having published somewhere about a year ago, that I did not attach much weight to this character, as applied to the sterna of certain Auks, where the bone in the *same species* could be found to have a pair of notches, or a notch only on one side, or an absolutely notchless sternum. As we come among the higher groups of birds, however, this character becomes, as it were, more fixed, and the bone for any number of individuals of the same species, very much alike, and certainly the "notching" the same. So constant is the character that, for instance, I doubt very much that any one yet has discovered a sternum from a specimen of *G. delicata* with more than a pair of notches in it, while on the other hand no one can with certainty predict what the pattern of the xiphoidal margin of the sternum will be in a specimen of *Uria lomvia* before cutting down upon it for examination. Professor Owen figured the sternum of the now-supposed extinct Great Auk (*P. impennis*) with the posterior border *entire* to the bone in question. Whereas in specimens recently obtained by Mr. F. A. Lucas, the sterna show a pair of notches in many instances.

Osteologically, the gap between such genera as *Gallinago* and *Philohela*, and the genus *Tringa*, for instance, is a wide one, for not only is the sternum "two-notched" in the first mentioned genera, and "four-notched" in *Tringa*, but the remaining bones of the skeletons of the compared forms are also totally different, and thus bear out the dissimilarity of structure suggested by the sterna. Presumably, too, were the 'soft parts' also carefully compared, they likewise would support these differences. Having arrived, however, at the genus *Tringa*, and passing up through the order Limicolæ, as we group our birds in the A. O. U. Check List, we find the "four-notched" sternum a very constant character through it, and through the succeeding genera of *Ereunetes*, *Calidris*, *Limosa*, and, as I say, in such forms of *Totanus* as *T. melanoleucus* and

flavipes, until we come to the really notable departure in this particular as found in the sternum of the Sandpiper which is the subject of this letter.*

If you will kindly grant me a few more lines of your valuable space, I would like to add here a few supplemental notes in reference to the pterylography of the genus *Sphyrapicus*. It will be remembered that in the April (1888) issue of 'The Auk,' I figured this character for a Woodpecker of that genus, and showed how the 'saddle-tract' resembled that pteryla in most Passeres. This was perfectly true for all the examples then at my command, but since then considerable more material has come under my observation, and in some individuals of *Sphyrapicus v. nuchalis*, I find the pattern of the dorsal tracts in their pterylography, quite Picine in character, while several individuals prettily show intermediate steps approaching the pattern of the specimen I figured in my former letter on this point, alluded to above. In a letter of mine published in 'The Auk' in July, 1887, I showed how widely different in form the skulls of two birds of the same species might be, and I am now inclined to think that similar departures may occasionally be met with, where the pterylography may vary within certain limits for the same species. This would appear to be the case anyway in the Woodpecker about which I have been speaking.

Very respectfully yours,

R. W. SHUFELDT.

Fort Wingate, New Mexico,
March 27, 1888.

NOTES AND NEWS.

HENRY JAMES STOVIN PRYER, a corresponding member of the American Ornithologists' Union, died in Yokohama, Japan, where he has resided for many years, on February 17, 1888, from bronchial pneumonia. He was born in London, near Finsbury Square, June 10, 1850, the youngest son of Thomas Pryer, a London solicitor. He went to China in 1871, but shortly after he settled in Japan, where he engaged in mercantile business, devoting all his spare time to collecting natural history objects and to studying the butterflies and birds of that country.

* Since writing the above, I have received a valued communication from Mr. J. A. Allen, who has kindly looked into this matter for me, and reports that he finds the "two-notched" sternum in *Totanus ochropus*. I further learn that the sternum of this species is figured in Mr. Seebohm's recent work on the 'Charadriidæ,' but note with surprise that he makes so light of such an admirable generic character. This convinces me more than ever, that the genus *Rhyacophilus* should be restored.—R. W. S.