

could be observed flying here and there with slow, wide wing beats, uttering a rapid "*kuk, kuk, kuk, kuk,*" It would shortly alight and wind it up with a long-drawn, weird "whooaah, whooaah" that seemed to come from no where in particular. The distress cries while one was near the nest were confined chiefly to a sharp "kee-ah, kee-ah." The reason for their name of "piping" became very apparent at such times.

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LEONARD BALDNER, SEVENTEENTH CENTURY
SPORTSMAN AND NATURALIST.

AN UNRECORDED COPY OF HIS BOOK, CONTAINING HIS PORTRAIT.

BY JOHN C. PHILLIPS.

Plate XVII.

I CANNOT do better than begin with a passage from the last part of Baldner's quaint introduction, for it shows the real spirit of the man better than any modern effort. Let this fine old naturalist, who deserves the name of the Gilbert White of Rhineland, speak for himself.

"To the end that God Almighty be praised and acknowledged by us, we must not forget the benefits of the three Rivers which we, God be blessed, do here at Strassburg enjoy, viz., the Rhine, the Ill and the Breusch; in which there is no want of Fishes, Crab-fishes and Fowls and all other things that live in the water, either in summer or in winter, which we are abundantly blessed with. In consideration of this and the delight I took therein, I was led to procure among these wonderful works themselves all fishes, crab-fishes, water-fowls, four-footed water beasts, insects, worms, and chafers and all living creatures that move in the water, as many as I could get which are found about Strassburg in fresh waters, and all of which I had in my own hands. I caused them to be painted in lively colors and every one called by its name; and as much as I could learn by diligent examination I described briefly every one according to my own experience.



"First of all we meet in our own country with forty sorts of Fishes, all of which may easily be distinguished, one from another, with two score and sixteen sorts of water-fowls, and two score and twelve sorts of four-footed beasts, worms, insects and chafers.

"And if there be any that is fitter than I for the undertaking of this my poor and mean endeavors, I intreat him to take it in good part, what my defects have failed me in, for it comes but from a poor Fisher and Hunter, whose learning does not rise higher than that of Peter the Apostle, who was at work fishing all the night but caught nothing. In the beginning it was not at all my intention to make a book of Fishes or Fowls, much less of Insects, but because in the year 1646 I shot some strange water-fowls and caused them to be painted from life, as soon as I had done the same the delight and meditations which they inspired prevailed upon me to continue.

"Thus for the past thirty years I have cast my net and fisher's yarn in the name of the Lord and what I learned thereby I have delivered a little in writing. Done in the year 1653 on the 31st of December."

I have extracted the following information from Lauterborn's book (see below).

"Leonard Baldner was born in 1612 at Strassburg, of a family in which the fisherman's trade had been hereditary for generations. He too became a fisherman. It is interesting in this connection that as late as 1902 there were fishermen of the name of Baldner living in Strassburg. The subject of this sketch passed all of his life in Strassburg. He was thrice married and had four children by each union. He died in 1694 and was buried in the churchyard of St. Urban's."

Though Baldner was not a learned man, his occupation and his inherent love of wild life combined to make him a remarkably keen observer of the animal kingdom, which was a closed book to the scholars of his time. Lauterborn calls him "the father of the zoology of the Rhineland." Most of his days, from his youth up, were spent in hunting and fishing. He was devoted to these pursuits, and in time rose to the position of warden of fisheries and forests in his own district. In addition, he was intensely curious to know the ways of the wild life with which he was so

much in contact. "No trouble, no exertion was too great for him, day or night, if it would serve to put into his possession some rare animal specimen."

One day, as we saw above, Baldner, while hunting, brought down what he subsequently described as "a beautiful waterfowl, of a species unknown" to him. So pleased was he with this "find" that he caused the bird to be painted by a Strassburg artist. This was in 1646. Pictures of others of his captures soon followed, and the collection gradually grew. Finally it occurred to him to investigate thoroughly "the nature, kinds, and attributes" of all the animals that he could find, and to compile the results. He went about his self-imposed task with characteristic carefulness and energy. But it was not until 1666, twenty years after he had begun it, that the "Bird- Fish- and Animal-Book" was completed. With two exceptions all the manuscripts which have come down to us are dated in that year. After the completion of the book, Baldner continued his investigations until 1687, when advancing age compelled him to lay them aside.

One of the interesting things in connection with Baldner was that his work attracted little attention among professional zoologists of the time, although he made many original observations. It was not published (and then the text only) until 1901, when a German professor in the University of Heidelberg, Robert Lauterborn, did full justice to this remarkable man. But various zoologists have made use of Baldner's manuscript, notably Francis Willughby, who purchased a copy when with John Ray and Philip Skippon he passed through Strassburg in 1663. (This is the one now in the British Museum.) Valenciennes, in his and Cuvier's 'Histoire Naturelle des Poissons', and von Siebold, in the 'Fresh-water Fishes of Middle Europe' also made use of Baldner's observations.

The copy of Baldner which came into my hands a couple years ago through an English dealer was not known to Lauterborn (1903), Hans Gadow (1907), or to J. H. Gurney (1921). Unfortunately I have not been able to trace it to its source, but in 1748 it was in the hands of one Philip Henry Tollman. At least he was the man who had the old German script carefully translated at that time, for his name appears twice in my copy in that connec-

tion. Since then (or for at least 150 years) it is *said* to have been in the possession of an English peer whose name I have not been able to learn through the dealer who sold the book to me. I shall therefore refer to it as the Tollman copy. The most interesting fact about this undescribed copy is the early date, 1653, the same as the Willughby and Ray copy in the British Museum. Through the kindness of Mr. J. H. Gurney of Norwich, England, I have carefully compared the translated text of the London copy (as regards the birds only) with my Tollman Ms., and as far as I can see they are nearly identical. The Tollman copy contains, moreover, a very elaborate title page (like the one in the edition de luxe of the Cassel library copy?) followed by what seems to be the only known portrait of Baldner himself. At least no mention is made of such a portrait by other biographers, and the London copy has none. This I have had reproduced to accompany the present sketch. The plates in my (Tollman) Ms. are beautifully fresh in coloring and measure about 12 by $7\frac{3}{4}$ inches, mounted on pages 20 by $13\frac{1}{2}$ inches. There are 57 bird plates representing 55 species with legends in elaborate German script, all of which can be attributed certainly to Baldner, followed by a large collection of inferior pictures with French and German legends, the origin of which is obscure. This manuscript has plates showing almost the same list of birds as the London copy, but it lacks the Mute Swan, Red-breasted Merganser, Great White Egret, Black-headed Gull, Spotted Crake, Eider Duck and Curlew. The following birds, Common Stork, immature Great Crested Grebe, Stone Curlew, Kittiwake, female Smew and an extra plate of the Golden-eye, which do not appear in the British copy, are figured in this one.

The fish are even more beautifully executed than the birds and 43 species are represented on 40 plates. Of mammals there are only 3 plates (4 species) and of reptiles, amphibia, shell-fish and insects 7 plates. Some of the smaller species of insects and their larvae are so delicately drawn and colored that one looks at them with astonishment and admiration; they are so much better than average pictures of that period.

The Baldner plates of each group of the animal Kingdom are bound in with a great many other plates of marine animals and

insects, usually without legends. The fourth and last volume is a complete translation of the whole Baldner text by Philip Tollman.

It would not be fair to Baldner to leave this subject without some reference to his contributions to natural history, and I now quote a sample of one of the quaint descriptions which are written upon all the plates.

“The kingfisher is the handsomest among all the water-fowls and lives only upon fishes. They sit constantly by the water upon a brier or thorn, or when there is none they flutter over the water as steadfastly as if they were tied, and seeing a little fish, they fly downward into the water and catch it with the bill. But when the little fish is too big for them, they sit upon a brier or hedge and holding it fast with their bill thump it on both sides till it is dead; then he devours it. When all the waters are frozen over they get them to the spring water which does not freeze in winter and when, being hungry, they are stirred up they cry, *gibt nichts, gibt nichts* (it gives nothing). As for meat they are not commended for being good, for they smell very rankly. They make their nest by the water-side thus: they make a deep hole in the ditch bank, exactly as straight as a carpenter square, but the deeper the higher it is, and they lay their eggs in the hindermost part in a little hole upon the ground; and the hole is almost two ells long. They bring forth five or six young ones in the month of August and when one findeth a nest and doubteth whether or no there be young ones therein let him but observe in the morning and he shall hear the young ones crying, or when their dung runneth out of the hole, then be sure there are young ones therein.”

Of course he was not by any means perfect in his knowledge, and we find several cases where the text applies to a different species than the one represented in the plate (see for instance the plate of the young Purple Heron which is confused with the Bittern).

Baldner was not content with mere description, for there are many notes on anatomy, particularly on the length of the intestines and the size and contents of the stomach. Of the Bittern he notes that they are not very “dainty eating,” although they are allowed according to the law of the New Testament. The “claws, especially the hindermost, are good for tooth pickers.” He found a mole and a perch in their stomachs besides frogs. “One may hear them cry

half a mile off [two English miles] which is produced through their long nostrils while the beak is kept closed and lifted high up." In this observation, as in other ways, he showed that he was well ahead of his time. It was his opinion that the female did most of the booming, but this is refuted by present authorities. With the Golden-eye Duck he notes that they have a "great throat" [meaning the bulbous expansion of the trachea?] and that nothing is found in their stomachs but sand! In spite of this, he says, they grow fat and he explains their toughness in an ingenious way. "There are not so many as ducks [mallards] caught [on account, I suppose, of their inherent shyness.] Therefore they wax older and their meat is tough."

With the Mallard he gave directions for telling the old from the young birds by the appearance of their feet, and he adds, "they have a very quick scent, in so much that they smell out a man, though they do not see him if only they have but the wind of him." This controversy as to the sense of smell in the Anatidae is still lively. Baldner makes a good many remarks about the value of a bird for table use and of the Smew he says in a waggish moment, "Many do not so highly commend them for meat as they do the other ducks, and yet for all that there is none left in the dish when they are roasted." His remarks about the Brant Goose (*Schotische Baumgans*) are interesting, for after referring to Gesner's theory that they are hatched from the fruit of certain trees he goes on to say that he kept several himself but never found that they paired or laid eggs. Then he adds, "on the 23d of Feb. 1680, I again got a Barnacle and drew out its guts and it was a male with small testes."

But more than this he was an amateur aviculturist, a pastime which, I presume, was rare in those days. He kept a number of different birds at one time or another, and in the year 1648 he says in his account of a Gull (species?) that "he brought one up alive in a stove." [greenhouse?] He kept and tamed otters too, and made experiments with salamanders and fish.

In the Stone Curlew he noted the absence of the hind toe and other peculiarities and although the specimen which he had drawn was the only one he ever saw he realized at once that it belonged to a distinct group and made a very careful description of it.

Fish were apparently his favorite group and he made many painstaking observations upon their habits, migrations, rate of growth and the number of eggs in the ovaries. He tells of a wels (*Silurus glanis*) which was kept and brought up in a fish pond for fifty-one years until it had grown to a length of five feet. As Gadow pointed out in his paper in the *London Field* (1907, p. 765), there is very little about the life history of the salmon which Baldner did not know and it took about two hundred years to re-discover what he had made perfectly plain. Cuvier, Valenciennes, and many others after them ignored the truths which in simple and homely language we find written in Baldner's 'Bird-Fish- and Animal-Book.' He even took the trouble to count 148,800 eggs in the body cavity of one pike. He made a remark about trout which some of our systematists can well afford to ponder on for he noticed that they changed color according to their surroundings, "if put alive in a new tub they grow quite white and in a black one they turn dark, taking thus the color of whatever place they are in."

My references to Baldner as a student of nature have of necessity been all too brief. It remains to list the other known copies of his work and again to call attention to the fact that none of it was set up in type until 1901-1903 and that the plates were never reproduced. The following information is from Lauterborn's book.

1. *The London Manuscript, now in the British Museum.*

This manuscript contains 159 pages bound in a quarto only 12 inches by 8 inches, and illustrated. It contains descriptions of 40 fishes, 56 birds, and 52 other inhabitants of the water, such as mammals, amphibians, insects, worms, etc. The birds are in general arranged two to one page (unlike the Tollman copy). The preface bears the date 1653. The book was brought to England by John Ray and Francis Willughby, who bought it in Strassburg in 1663 from Baldner himself. An English translation of the text was made for Willughby and Ray by F. Slare and this also is in the British Museum, in MS.

2. *The Cassel Manuscript, now in the Public Library at Cassel.*

Dated 1666. It was made for the Elector Karl at Heidelberg. It is said to be the best and most beautiful of all and contains a title page.

3. *The Manuscript in Baldner's own Hand.*

The original of this manuscript was consumed in 1870 by a fire which destroyed the library in Strassburg, during the bombardment of the city . . . The lost manuscript contained descriptions and pictures of 72 birds, 45 fishes and crayfishes, and 52 other water-animals. Like the rest of the manuscripts (with the exception of the London copy), it bore the date 1666 as the year of completion. The foregoing characteristics may be presumed from the existing copies of the text, of which we have two:

a. The Hermann text copy, now in the University- and Public-Library, Strassburg; without plates.

b. Text copy in folio, now in the University- and Public-Library, Strassburg; without plates. This copy was made from the original manuscript towards the end of the 18th century by the son of Hermann who intended to edit and print Baldner's work.

4. *The Strassburg Manuscript with Pictures, now in the City Library, Strassburg.*

A folio of 114 pages, measuring 30 cms. long and 20 cms. broad, dated 1666, with additions up to 1680, but without the insects and worms. This copy is crudely executed and has called forth a lengthy discussion in which Lauterborn takes issue with one F. Reiber as to its origin. It may possibly be one that was copied from the original by Baldner's son Andreas.

5. *The Strassburg Manuscript in Broad-folio (from Hermann's Library).*

This manuscript, which is illustrated, has been missing since 1870, and all attempts to locate it have so far been without result. It belonged once to Reinhold Spielmann, Professor of Chemistry and Botany at the University of Strassburg, who lived between 1722 and 1783. He obtained it from the descendants of Baldner.

After his death, it came into the possession of J. Hermann (the same Hermann mentioned above) and later passed, along with Hermann's library, to the Museum of Natural History. It was examined here in 1860 by C. Th. von Siebold, who, in the introduction to his book 'Fresh-water Fishes of Middle Europe' (1863), pp. 33-34, remarks that this manuscript of Baldner is far less accurate and tidily gotten up than the Cassel manuscript, to which he likewise had access.

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A FEW REMARKS ABOUT CYCLARHIS GUJANENSIS CEARENSIS.

BY ELSIE M. B. NAUMBURG.

THE American Greenlets, Vireonidae, in spite of their olive color and small size, are apparently nearly allied to the Shrikes. They are especially interesting from a taxonomic point of view for of two species of Greenlets closely allied generically, we have one with a distinct spurious primary, while it has become quite invisible in the other. In *Lanivireo* and *Vireosylva* the 10th primary is always small and frequently missing. The Greenlets reach their highest development in the genus *Cyclarhis* embracing at least a dozen species and subspecies from Central to South America, remarkable for their stout build and large bill.

The bill is shorter than the head; stout, compressed, distinctly