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With the Cuckoo
and it's Ectoparasites.*

Richard.S. Bagnall.D.Sc.

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SOME PROBLEMS CONNECTED WITH THE
CUCKOO AND ITS ECTOPARASITES.

By RICHARD S. BAGNALL, D.Sc., F.R.S.E.

It has already been shown elsewhere that the distribution of the ectoparasites of mammals and birds is genetic rather than geographical, and that a study of them is important in that they indicate something of the ancestry of their hosts. As the subject may be carried to greater lengths, not only to demonstrate the common ancestry of birds that are well known to-day with others of a paradoxical nature (and otherwise regarded by ornithologists), but also to confirm or modify our conceptions of the relative antiquity of animal orders or families, a simple example may be taken to illustrate the general principle. This principle is based upon the handing down of an ectoparasite from a common ancestor to its widely divergent though more or less obviously related descendant genera and species of to-day, so that identical ectoparasite species may be found, for instance, on the Ostrich of South Africa, the Rheas of South America, or the Cassowaries of Australia; or an ectoparasite of the Camel may again be found upon the Llama and its kind of South America. Again, one may find strongly characterised associated lice-genera or groups of genera containing several species confined to obviously related genera of birds, such as the Pheasants and their kind, or the Rails, so that the presence of a member of such a genus on an anomalous and puzzling bird would suggest at once that the bird had, at least, the same common ancestor as the Pheasants or Rails, whichever the case may be.

Let us consider our Cuckoo; for is it not a bird we all know, and one that possesses a wider interest to many of us than other birds? And apart from this lesson in its ancestry it will be seen that the ectoparasites of the Cuckoo present to us yet another problem.

When Henry Denny published his *Monographia Anoplurorum Britanniae* in 1842 (with 26 coloured plates) he



described *Docophorus latifrons*, Nitzsch (p. 97, pl. i., fig. 4), and *Nirmus cuculi*, Denny (p. 120, pl. x., fig. 11), as lice of the "Cuckow," the latter of which is synonymous with *N. fenestratus*, Nitzsch.

Now, recognising that the Cuckoo has bird-lice peculiar to itself and is devoid of those peculiar to its various foster-parents, and remembering that the old birds leave our country before the young are ready to fly, we can only presume that the ectoparasites are transferred to the younger generation after they have made their first migratory flight to southern climes. Here, then, lie two problems; firstly, how do the young know in what direction to fly to join their kind, and secondly, do they carry the lice of their foster-parents up to establishing contact with their elders?

Of course there are other ectoparasites of the Cuckoo—for instance, a minute mite, a Sarcoptid, *Pterolichus cuculi*; but I will only deal with the two bird-lice already mentioned and this Sarcoptid in demonstrating yet another instance of how a parasite has been handed down practically unchanged from the common ancestors of the specifically and even generically different birds of to-day.

Our Cuckoo (*Cuculus canorus*) belongs to the genus *Cuculus* which is confined to the Old World and is remarkable for its parasitic habits. The family, taken as a whole, is "essentially a tropical group of weak insectivorous birds abounding in varied forms in all the warmer parts of the globe, but very scarce or only appearing as migrants in the temperate and colder zones" (see A. R. Wallace, *Geographical Distribution of Animals*, 1876, vol. ii., p. 308; and Bartholomew, Eagle Clarke, and Grimshaw, *Atlas of Zoogeography* plate 13, map 3). The true *Cuculi* are richest in the Oriental and Australian regions, wherein 100 species belonging to 24 peculiar genera abound. Of the genus *Cuculus* there are eleven species, of which our Cuckoo belongs to Europe and Northern Asia, extending to Africa, the Indian peninsula, and the Malayan sub-region, to Australia in our winter.

Now, of the genera of Cuckoos that are essentially American in their distribution we are, for the purpose of this illustration, concerned with *Coccyzus* and *Piaya*. The

former genus consists of over a dozen neotropical species, of which *C. americanus* is found in temperate North America and the Antilles, extending through South America to the Argentine in the winter; whilst *C. erythrophthalmus* extends in North America to 49° N. lat. and south through Central America to Colombia, Peru, and Trinidad, and Cuba in the winter. *Piaya* is a small genus of neotropical Cuckoos.

Here we have two groups of Cuckoos that do not overlap in their distribution: the one an old-world genus containing our own Cuckoo that does not touch the American, and the other containing two other genera of Cuckoos that are purely American.

But the links that have come down to us through the ages are three ectoparasites each of which is common to these two groups of birds and each of which has demonstrated to us as clearly as any study of the bird's morphology could have done the common origin of those birds that to-day are so divergent in form and distribution.

The ectoparasites and their hosts are:—

ACARI.—SARCOPTIDÆ.

Pterolichus cuculi, found on *Cuculus canorus*, *Coccyzus americanus*, and *Piaya cayana* (see Berlese's *Acari, Myriapoda et Pseudoscorpiones hucusque in Italia reperta*, xi., 1892-97).

HEXAPODA.—MALLOPHAGA.

Docophorus latifrons N. (Kellogg, "Mallophaga" in Wytsman's *Genera Insectorum*, 1908, p. 16); found on *Cuculus canorus*, and the var. *occidentalis* of Kellogg on *Coccyzus americanus occidentalis* (Baja, California).

Nirmus fenestratus (Kellogg, *l.c.*, p. 24); found on *Cuculus canorus* and in the U.S.A. on *Coccyzus erythrophthalmus*.

White Stork in Aberdeenshire.—I learn from Mr Mutch, taxidermist, Aberdeen, that an adult male White Stork (*Ciconia ciconia*) was shot at Mintlaw, Aberdeenshire, on 2nd June 1924.—
JAMES RITCHIE.