moulting, and amongst these about 20% had buff-brownish fringed new median coverts. Preliminary examination of primary moult data indicates that second-year Dunlins started to moult their primaries earlier than older birds, possibly because most second-year birds do not breed (Soikkeli 1970). Adults with some or a buff-brownish coverts likewise started primary moult earlier than adults with all new median fringed whitish. Perhaps these adults with buff-brownish fringed median coverts had not bred that year.

We were prompted to write this note after receiving reports of two Dunlins that we had ringed at Vistula mouth in autumn 1983 and adults with some buff-brownish covert fringes and which were recaptured late in the same non-breeding season. One was caught in GDR in September, three days after ringing at Vistula mouth. The other was caught in the Netherlands at the end of November, three months after ringing. Both were aged as juveniles were recaptured. This means that these birds, for the people who recaptured them, must have looked similar to juveniles, at least according to the colour of the medians. When ringed, the bird recaptured in the GDR had been moulting its primaries, and still had remnants of the black belly patch and of summer breeding plumage on the mantle, so its subsequent identification as a juvenile may have been a recording error. But how did the Dutch recaptured bird look three months after ringing? The Dutch ringers, Lida Goede and Piet Zegers, who recaptured this bird, explained as follows:

". . . we were puzzled by this bird . . . On its registration card we noted: looks like an adult, but its wing coverts have traces on light brownish fringes. At this time of year (November–December) we recognise adults by their grey wing coverts and new primaries and juveniles by their brown fringed coverts and slightly worn primaries . . . We had a similar case . . . a bird collected 22 October 1982 had new primaries and secondaries . . . had still about three-quarters of its breeding plumage and showed large black belly patch: clearly an adult. However, the same faint brownish fringes were noted on new wing coverts."

There are two main questions which arise from these observations:

1. Is the brownish colour in the median coverts of adults connected with age, or is it another kind of variability?
2. How can these adults be distinguished from juveniles when both age groups are in complete winter plumage?

As described above, mistakes in assigning age-classes may occur, but how widespread is this problem? Any such errors will usually result in adults being identified wrongly as juveniles. We think that it is essential in late autumn to look very carefully as the amount of wear on the primaries: juveniles should have primaries a little more worn than adults.

We have found no answers in European publications to these questions. However, Holmes (1966) indicated that the confusion of juvenile with adult Dunlins in western North America is possible "because some new coverts . . . of adults may have the same buffy coloration as the corresponding juvenile feathers".

Do other ringers have examples in their files of moulting adults that were subsequently recorded as juveniles? We would be most pleased if anyone who has similar observations, or can suggest solutions to the problem, would contact us.

We are most grateful to Nigel Clark, Nick Davidson, Peter Ferns and Tony Prater for commenting on an earlier draft outlining the problem.

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Ageing criteria for Dunlins

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Gromadzka & Przystupa's (1984) note poses several questions about aging criteria for Dunlins *Calidris alpina*, which the following information may help to answer.

I have one skin of a Dunlin obtained in August in Schleswig-Holstein (F.R. Germany) which was aged Euring code 5 (i.e. hatched definitely during the last calendar year). It has buff tips to the inner, unmoulted median coverts. This bird has buff fringes (as described by Gromadzka & Przystupa) on all the greater coverts and a few of the median coverts to the greater coverts. These new feathers are distinctly different from juvenile coverts, as their buff fringe grades into the grey central portion of the feather whereas juvenile coverts have a distinct buff terminal band. This fits with Gromadzka & Przystupa's suggestion that birds with

such buff coverts are in the their second winter.

Out of 5,000 adult Dunlins examined on the Severn Estuary, England in winter I found only four birds with "adult buff" coverts. Unfortunately none of these birds were retrapped in subsequent winters. Most second winter birds on the Severn do not have "adult buff" coverts: all juveniles that were retrapped in their second winter had "normal" grey coverts. Furthermore, over 1,000 adults retrapped in subsequent winters were aged again on recapture as adults, suggesting that Dunlins were not moulting into "adult buff" coverts in subsequent years. Further large samples or Dunlins from the Firth of Forth, the Wash and Anglesey (North Wales) have not provided any more examples of "adult buff" coverts. It is still possible, however, that birds with buff covers are wintering elsewhere in Britain (in areas where there has been little ringing activity), as Dunlin populations only a few miles apart may have different origins and migration routes (Clark 1983). I agree with Gromadzka & Przystupa that a careful check should be made of all Dunlins caught, so that the proportion of birds with "adult buff" coverts, compared to those with "normal" grey coverts, can be found as many sites as possible. This information may then lead to a better understanding of the identity of such birds as well as perhaps the migration routes and wintering areas of different populations.

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Further observations on the wing plumage of Dunlins

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This note is a further contribution to the discussion about Dunlins *Calidris a. alpina* with "adult buff" coverts (Clark 1984, Gromadzka & Przystupa 1984) and about the value of brownish-buff fringed feathers (the remains of juvenile plumage) in the inner median coverts as the feature differentiating 2nd-year from older Dunlins (Prater *et al.* 1977).

As was shown earlier (Gromadzka & Prztstupa 1984), adult Dunlins with new "adult buff" median coverts have been appearing at Gdansk Bay (Poland). It was noticed that these birds, as with 2nd-year birds, moult their primaries earlier than individuals older than their second year (Gromadzka 1986). Clark (1984), who proposed the term "adult buff" coverts, suggested that these may be 2nd-year birds.

Observations on wing moult and the appearance of the median coverts before and after moult were made in 1984 during Dunlin ringing operations in two places at Gdansk Bay: Vistula mouth and Reda mouth (*c.*45 km NW of Vistula mouth). 1,209 adult Dunlin, trapped in August and September, were examined for the moult-plumage analysis; all were aged as either 2nd-year or after 2nd-year, according to Prater *et al.* (1977) (i.e. 2nd-year: birds with brownish-buff fringed feathers in the inner medians; after 2nd-year: without brownish-buff feathers in the inner medians).

Amongst those birds analysed, 17% were individuals with new "adult buff" coverts; most of these were in the group of 2nd-year Dunlins, but 8% of the birds with "adult buff" medians did not have any brownish-buff colour in the inner medians (Table 1). 15% of the Dunlins examined had new inner medians with brownish-buff fringes, implying that these birds, if caught next spring or early summer, would be aged as 2nd-year, although their real age would be 3rd-year, at least. Distinguishing old and new feathers in the inner medians may seem to be difficult for inexperienced persons, but after handling many birds it is easy to see the difference in colour intensity (old feathers are more pale). Thus, a proportion of birds which are aged as 2nd-year are, *de facto*, older. The same discovery was earlier made by J. Vuorinen (Vuorinen *et al.* 1979, in litt.) amongst Dunlins ringed at Ottenby (Sweden, August 1977) where 13% had new inner medians with brownish-buff fringes. He found that a shape difference exists between 2nd-year (i.e. juvenile) inner medians and those of older birds. This feature needs checking on a larger sample.

There are also recaptures of ringed Dunlins indicating that the colour of the medians is not necessarily connected with their age. For example, a Dunlin ringed as a juvenile during the autumn in Germany (Schleswig-Holstein) was controlled after two years as a 2nd-year bird at the Vistula mouth. Another Dunlin ringed as a juvenile in Great Britain was controlled at the Vistula mouth after eight years and had new "adult buff" coverts. Two Dunlins ringed as 2nd-year birds at the Reda mouth in 1983 were controlled there next year, again as 2nd-year birds. Another Dunlin ringed at the Vistula mouth in 1983 with "adult buff" coverts again had new "adult buff" converts when controlled at the same place in the following year.

The brownish-buff colour in the new medians of Dunlins has appeared in birds with much advanced moult, i.e. in those individuals which had started the moult early (Gromadzka 1986). Several categories of Dunlins may start the moult early: