Uncompleted moult in Sterna terns and the problem of identification

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Plate 23a

INTRODUCTION

From 23rd June to 18th July 1966 we and others regularly watched a *Sterna* tern in an unfamiliar plumage among the gulls and terns feeding at the offshore outflow from the power station at Dungeness, Kent. From 16th May to 8th July 1967 there were two similar terns at the same place. Their presence for such long periods enabled us to take detailed field notes, sometimes at very close range, both in flight and on the ground. Exhibiting such characters as white forehead and collar, a marked carpal bar, and dark legs and bill, they were readily distinguishable from the other terns in normal summer dress. They bore a superficial resemblance to juvenile Common Terns *S. hirundo* and were eventually identified as this species in a plumage equivalent to that of the so-called '*portlandica*' phase of the Arctic Tern *S. paradisaea*, in which some winter features are retained into the summer.

Such a plumage of the Common Tern appears to have received little attention in the literature and we can find no previous detailed field descriptions of this phase of either Arctic or Common Terns. The purpose of this paper is therefore to draw attention to this plumage of the Common Tern and give descriptions and drawings in the hope that these will be of assistance to other observers faced with a similar identification problem. The causes of the '*portlandica*' phase and the differences between Arctic and Common Terns in this plumage are also discussed.

DESCRIPTIONS

The two terns in 1967 differed in several ways from the original one in 1966, as described below, but features common to all three in the field, even at long range, were the completely pure white under-parts, the white forehead and the striking upper-wing pattern formed by the combination of a dark carpal bar and a varying number of blackish primaries and secondaries. Compared with adult Common Terns in normal plumage, the tail appeared shorter and less forked without streamers, the wings shorter and more rounded, and the wing beats perceptibly quicker. At first, these latter features confusingly suggested structural differences from *Sterna*, the birds appearing closer to the marsh terns *Chlidonias spp.* in their method of flight.

The head pattern was similar to that of a juvenile *Sterna*, with a white

forehead and a sooty, not glossy, cap which was rounded at the nape and extended over the ear-coverts in a lobe behind the eye. A fairly broad white collar separated the cap from the mantle. In good light the rump was obviously pale grey, darker in the centre. The tail was pale grey, the outer three or four feathers edged blackish. The bill in all three was black, the same size and shape as that of a normal Common Tern. The legs of the one in 1966 were black, but those of both birds in 1967 showed a dull red at close range.

The 1966 tern had all the primaries and secondaries blackish, whereas only the outer three or four primaries and inner secondaries were dark in the 1967 ones. This resulted in the former's having more contrast on the upper wing, the pale median coverts making an oblong whitish area between the dark carpal bar and the flight feathers. This pale area was very noticeable in the field and even showed through the wing when viewed from below. The differences can be seen in the sketches on plate 23a.

PROBLEM OF IDENTIFICATION

As already stated, these birds presented us with quite an identification problem, and at first we considered the possibility that they might belong to a species other than *Sterna*. Reference to Williamson (1960) suggested that they might be Whiskered Terns *Chlidonias hybrida* in an immature or winter plumage, but that species attains breeding dress in its first summer. Williamson also mentioned the '*portlandica*' phase of the Arctic Tern, but his brief description did not entirely fit our birds. Further investigation was hampered by the lack of previous descriptive material, although Cullen (1957) described many plumage variants in a breeding colony of Arctic Terns.

Although a plumage phase of the '*portlandica*' type had not apparently been described previously for the Common Tern, except by Palmer (1941) who also referred to its occurrence in the Roseate Tern *S. dougallii*, it was considered that the Dungeness birds were Common Terns on the lack of translucent primaries and secondaries, the greyish (not pure white) rump, and the fact that the bill was the same size as those of the other Common Terns present (Richardson 1953, Witherby *et al.* 1938-41). In 1967 this identification was reinforced by the observation of display activity with locally breeding Common Terns in normal plumage.

Subsequently we examined skins at the British Museum (Natural History) and were able to confirm the identification. One specimen in particular, a female Common Tern from Sierra Leone dated 5th June 1920, was almost identical to our two in 1967.

CAUSE OF 'PORTLANDICA' PLUMAGE

As this paper is intended primarily as an aid to field observers faced

with terns in similar plumage, it seems sufficient merely to outline the cause of this aberration as judged from the detailed observation of these Common Terns at Dungeness and the subsequent examination of museum skins. Snow (1967) has also summarised the rather complicated moults of the genus *Sterna*.

The autumn moult of the Common Tern is started on the breeding grounds, then halted and completed on reaching the winter quarters. It appears that some individuals do not finish the spring moult on the wintering grounds, but retain features of adult winter or first winter plumage, such as the juvenile head pattern, the dark carpal bars and the dark bill and legs, right through the spring and summer, presumably until the next autumn's moult. The unmoulted primaries and secondaries are also retained for a second season, thus receiving an excessive amount of wear in which their pale grey 'bloom' is steadily lost until they appear blackish by the time the terns reach Britain in the spring. At the same time, the tail feathers in particular, but also the primaries, become extremely abraded through age and this explains why all three birds at Dungeness appeared to have shorter wings and tail than the other Common Terns present.

Although this is considered the cause of the abnormal plumage, we could find nothing conclusive in previous literature to show why the moult should not be started again after the spring migration northward. Palmer (1941) found that individuals in winter dress on the breeding grounds had small and undeveloped gonads; he suggested that these might be first- or possibly second-year birds that normally stayed in the winter quarters. Ringing recoveries (Spencer 1959 *et seq.*) also indicate that some first-year Arctic Terns remain on the wintering grounds in their first full summer. Hollom (1962) likewise thought that '*portlandica*' Arctic Terns were probably non-breeding immatures. Cullen (1957) discussed this question in relation to age and found white foreheads among known two-year-olds, also noting that they sometimes occurred at greater ages up to six and even twelve years.

The point at which the moult is halted appears to be variable. The two birds at Dungeness in 1967 had renewed some of the inner primaries and outer secondaries, whereas all the flight feathers of the one in 1966 were old. Critical examination of other Common Terns at Dungeness and of museum specimens also showed that a few old (blackish) primaries or traces of the carpal bar were not infrequently retained by individuals in otherwise full summer dress. Thus it appears likely that all stages between normal summer dress and the plumage of the virtually unmoulted bird of 1966 could occur, but only in extreme cases do they look so strikingly different in the field. Certainly such extreme examples seem to be rather rare in Britain, for many thousands of other *Sterna* terns in more or less normal plumages were observed at Dungeness in 1966 and 1967.

SPECIFIC IDENTIFICATION OF 'PORTLANDICA'

The term '*portlandica*' has previously been applied specifically to the Arctic Tern, but observations at Dungeness have shown that a similar retarded plumage occurs in the Common Tern. We have also examined a small number of museum specimens of Roseate Terns which had retained old primaries, and the reference by Palmer (1941) to a '*portlandica*'-like plumage in this species suggests that it as well as Common and Arctic Terns can have a retarded phase. We suggest that the term '*portlandica*' should in future be used for this type of plumage in any *Sterna* tern.

Specific identification of Common and Arctic Terns in this plumage is possible on rump colour (pale grey in Common and white in all plumages of Arctic) and on the translucency of the wing of the Arctic. The flight feathers and carpal bar of a '*portlandica*' Arctic Tern seen at Dungeness on 2nd July 1967 were also paler, providing less contrast with the rest of the upper wing. The smaller bill of the Arctic is of use only when direct comparison with Common is possible. Separation is certainly no easy matter, the colour of the rump and the degree of wing translucency being obvious only in favourable light conditions or at close ranges.

Discussing the identification of the Whiskered Tern, Hollom (1962) stated that this species 'has also to be separated from the "*portlandica*" phase of the Arctic Tern, which latter is however distinguished by having a complete white collar and white rump'. We now know that the Common Tern has a '*portlandica*' plumage too and that it bears an even closer resemblance to the Whiskered Tern as both have grey rumps. This gives the impression that the only safe difference is the colour of the nape (greyish in Whiskered, white in '*portlandica*' birds), but we feel that this exaggerates the problem. In spring and summer Whiskered Terns (even in their first year) have acquired normal breeding plumage, and are thus quite different from any '*portlandica*' at that time of the year. In autumn the upper-wing pattern of '*portlandica*' bears a resemblance to that of the juvenile Whiskered Tern, but the latter also has dark markings on the mantle (the mantle of the '*portlandica*' may appear patchy worn grey, but will never show dark brown or black markings); the juvenile Whiskered will also be in fresh plumage, not showing the excessive wear on the primaries and tail of the retarded '*portlandica*'. Misidentification of Whiskered Terns should not be a problem if observers are aware of the occurrence and appearance of these plumages in *Sterna* terns.

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SUMMARY

Three unusual terns seen over periods of several weeks in the summers of 1966 and 1967 at Dungeness, Kent, were identified as Common Terns *Sterna hirundo* in plumages equivalent to the '*portlandica*' phase of the Arctic Tern *S. paradisaea*. Such plumages are considered to be due to an uncompleted moult resulting in a contrast of old and new feathers; there is also considerable individual variation through the moult progressing to different extents before becoming arrested. Field characters are given for distinguishing Common and Arctic Terns in these plumages, together with criteria for separating both from the somewhat similar plumages of immature Whiskered Terns *Chlidonias hybrida*.

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