

Characteristic types of flight and climbing and variability in coloration of the throat and breast of the Wallcreeper *Tichodroma muraria*

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Zusammenfassung

Dem Beitrag liegen Beobachtungen des Mauerläufers in der Zentralslowakei (Malá und Vel'ká Fatra Gebirge, Chočské-Gebirge) von 1982–2000 zugrunde. Im ersten Teil beschreibt der Autor die charakteristischen Arten des Fluges und des Kletterns. Im selben Gebiet machte er an 95 Vögeln, die er im Freiland in der Hand hatte, Beobachtungen über die Färbung der Kehle und der Brust. Dabei ergaben sich bei beiden Geschlechtern große Variationen. Die Studien wurden finanziell unterstützt durch die „Slowakische Akademie der Wissenschaften“.

Alle Zeichnungen stammen vom Autor.

1. Characteristic types of flight and climbing

1. 1. Introduction

Populations of the wallcreeper *Tichodroma muraria* are sparse and widely scattered, often in remote and inaccessible areas, due to the species special habitat requirements of near-vertical rock faces and gorges at middle and high altitudes (500–2 500 m). This fact also explains insufficient knowledge on the behavioural forms of this spectacular bird species. Literature on the behavioural forms of the wallcreeper is relatively sparse. There are few ethological studies of the wallcreeper from Europe, both in the wild (BEZZEL 1967, 1993; HAURI 1970, 1978),

and in captivity (KOTTEK 1965). The most comprehensive appraisal of the behaviour on the wallcreeper was given by LÖHRL (1967, 1970, 1976), who had studied birds both in the wild and in captivity. There is, however, lack of knowledge on the behavioural patterns in this bird species. Up to date, CRAMP & PERRINS (1993) and GLUTZ VON BLOTZHEIM & BAUER (1993) summarize best the state of knowledge on the wallcreeper behavioural patterns.

This paper reports on the results of the ethological study concerning types of flight and climbing in wallcreeper which was conducted in the population occupying mountains of central Slovakia (Malá and Vel'ká Fatra mountains, Chočské mountains) in 1982–2000.

1. 2. Characteristic types of flight

The wallcreeper shows great agility and manoeuvrability in the air. Large elliptical, butterfly-like wings enable the wallcreeper to make various aerial manoeuvres. The wallcreeper is rather agile in flight around rock faces and pinnacles and usually performs a fluttering, jerky flight.

A male wallcreeper alternates between aggression and apparent courtship with nest-showing. In nest-showing, the male performs „circling-flights“ usually starting and ending at potential nest-crevice. The male flies an erratic course with sharp turns and steep descents and ascents (*figure 1*). Circling-flight

may change into „courtship-flight“ in which flight speed is slowed down, yet wings beaten more rapidly than normally.

„An investigative flight“ of the wallcreeper recalls butterfly and Hoopoe *Upupa epops*, having erratic, flitting, and skipping action, allowing quite rapid ascents and manoeuvres around rock faces (figure 2). Wing-beats appear exaggerated, with alternate splaying and closing of flight-feathers causing dramatic changes in size and bright flashing of wings.

„A calm flight“ of the wallcreeper along the rock face recalls Nutcracker *Nucifraga caryocatactes* (figure 3). The wallcreeper

reenters the depths in „a gliding flight“ (figure 4). The wallcreeper performs characteristic downward „gliding flight“ like „falling leaf“ usually while flying down from heights with prey to nest-crevice (figure 5). A wallcreeper is able to soar in the wind without much expenditure of energy. The bird faces into the wind and is blown upwards without moving its wings during



Figure 1: In nest-showing, the male wallcreeper performs characteristic „circling-flights“ starting and ending at potential nest-crevice.

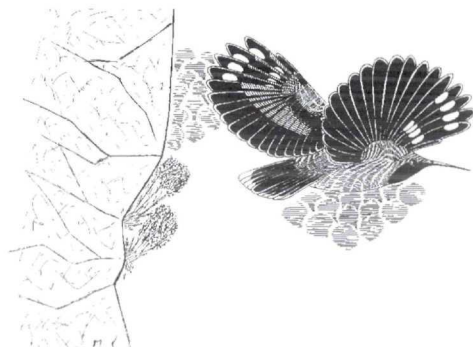


Figure 3: „A calm flight“ of the wallcreeper along the rock face.

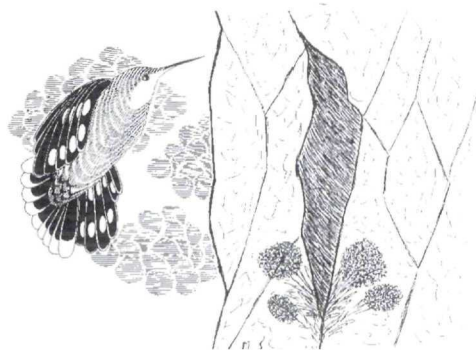


Figure 2: „An investigative flight“ of the wallcreeper.



Figure 4: Characteristic downward „gliding flight“ of the wallcreeper.



Figure 5: Conspicuous „gliding flight“ like „falling leaf“.

this manoeuvre. The bird is carried upwards by the wind with minimal energy consumption, wings outspread and with only insignificant wing beats.

The wallcreeper often shows extraordinary agility and manoeuvrability especially while being attacked by an aerial predator (*Falco peregrinus*, *Falco subbuteo*, *Falco tinnunculus*, *Accipiter nisus*). The bird flutters about wildly in all directions close to rock face, thus evading attack. The disproportionately large elliptical wings enable the wallcreeper the undulating flight and various aerial acrobatics.

The wallcreeper shows extraordinary manoeuvrability especially in aerial tussles of rivals or when a male and a female flutter about each other by chance meeting in the vicinity of the nest.

The wallcreeper is able to pick insects off from rock faces while „hovering“. It breaks „a swooping dive“ with a typical „landing manoeuvre“. Extraordinary large elliptical wings enable the wallcreeper to curb a swift „swooping flight“.

A wallcreeper uses „a swooping dive“, during which the wings are held close to the body, when it is flying from great heights. Adults carrying food to juveniles make either ponderous ascending or descending flight with many stops, fluttering up by moving from side to side or fly directly to nest-crevice in „a diving flight“ with almost folded wings (figure 6).

1. 3. Characteristic types of climbing

Climbing of the wallcreeper is completely different from bird species climbing on trees. Woodpeckers and treecreepers, which hop with the feet situated parallel, support by climbing on the tail. Nuthatch, which does not use its tail for support (similarly as the wallcreeper), climbs usually aslant upward and puts its feet transverse one over the other.

The wallcreeper can climb on the rock face with the feet placed parallel. The bird uses

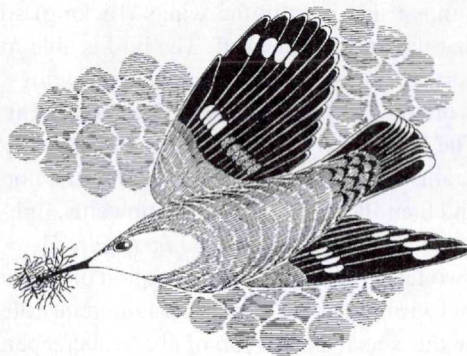


Figure 6: Wallcreeper in „a swooping flight“.

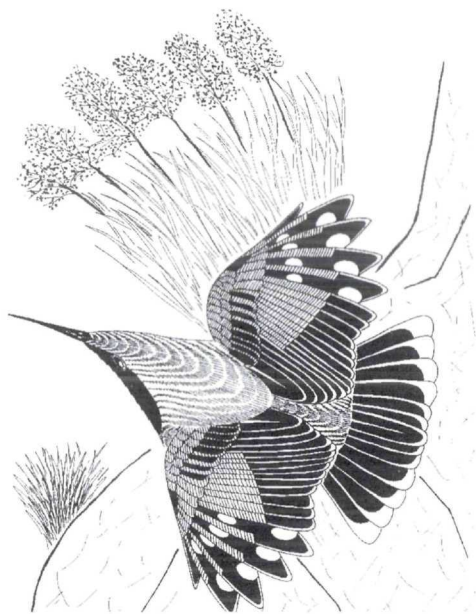


Figure 7: Wallcreeper by traverse climbing with characteristic wing-flicking.

its wings as a support in climbing and makes small hops with the feet alone. The gait is mainly a short, jerky hop varied by sidling, creeping, and walking on both vertical and horizontal surfaces.

The wallcreeper hitches upwards in small jumps using usually the wings (flicking) so that they give a push-off. The bird is able to hop up to 15–20 cm without using the wings. It often helps by climbing with a short flight. The bird rests the centre of gravity directly against the rock wall shortly before the hop and then flicks with the wings upwards, lightens its feet and makes the hop (*figure 7*).

Two facts – conspicuous coloration of wings and visual display – play an important role in the social behaviour of the wallcreeper. They developed as communication means

among individuals of this bird species and also with other bird species sharing the same habitat as compensation instead of acoustic communication.

The red patterns on coverts are not conspicuous on folded wing. The wallcreeper has a habit of continually flicking its wings. Characteristic flicking with disproportionately large elliptical, conspicuously coloured wings makes from the inconspicuous wallcreeper, merging perfectly with blue-grey background, a very conspicuous bird object. Wing-flicking is a slow movement performed constantly not only when climbing, but also when feeding or resting briefly. Juveniles do this as soon as they are fledged. A wallcreeper expresses its excitement or alertness by extent and angle of the wing-flicking. In normal low-intensity wing-flicking, the outer wing moves to the side or even down, revealing white elliptical spots on primaries. The wings are flicked faster and to a greater extent, and also more upward when the bird is excited (*figure 8*). White elliptical spots on 2–5 primaries and

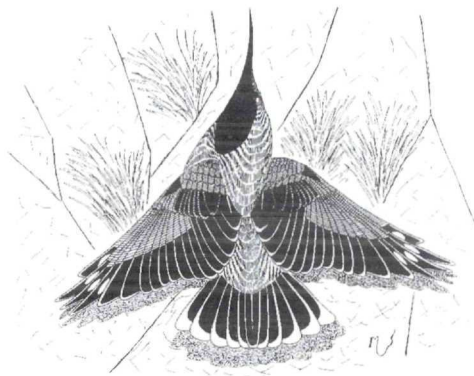


Figure 8: While climbing, wallcreeper expresses its excitement or alertness by extent and angle of the wing-flicking.

deep red pattern on primary coverts, lesser and median upperwing-coverts and remiges then flashing.

While wing-flicking, the wallcreeper simultaneously spreads its tail and the conspicuous black and white hem of the three external patterns, which are concealed in normal position, becomes visible (figures 7, 8).

The wallcreeper suppresses not only climbing but also wing-flicking when a potential aerial predator appears. The bird freezes becomes motionless, with head and bill pointing upwards, in the face of a threat from an aerial predator (figure 9). Sometimes the wallcreeper suspends climbing and wing-flicking to look around.

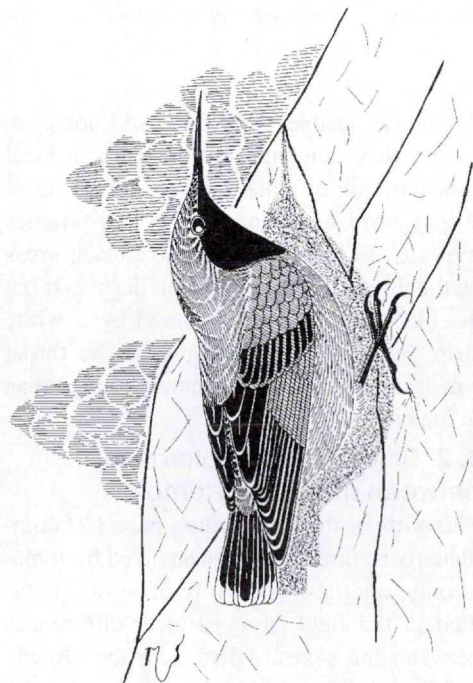


Figure 9: Wallcreeper ceases both climbing and wing-flicking the moment it remarks a potential aerial predator.

2. Variability in coloration of the throat and breast

2. 1. Introduction

As shown in chapter 1 – on the behaviour of the wallcreeper – gathering of basic information on this bird species is very difficult. For example, the plumage patterns and coloration are not well known, judging from the illustrations in handbooks and field guides. These illustrations are mainly based on museum skins but they are not representative of all European populations or not sufficiently accurate to be representative of any European population. Typically, a field guide shows a male in breeding plumage and states that in winter both sexes have a white throat and breast. Up to date, LÖHRL (1974), GLUTZ & BAUER (1993) and CRAMP & PERRINS (1993) summarize best the state of knowledge of wallcreeper plumage patterns and coloration.

2. 2. Material and Methods

In 1980–2000, I have studied wallcreepers in detail in the mountains of central Slovakia (Vel'ká Fatra mts., Malá Fatra mts., Chočské vrchy mts.). During the breeding season, I made field observations of 66 adult birds (34 females and 32 males), and studied 17 adults (8 males, 8 females, one of undetermined sex) and 29 fully-fledged juveniles in the hand. In both sexes, considerable variation was recorded in plumage pattern and coloration, especially on the throat and breast.

3. Results

3. 1. Variability in coloration of the throat and breast

In males, four patterns were distinguished, relating to the extent of the black area on the

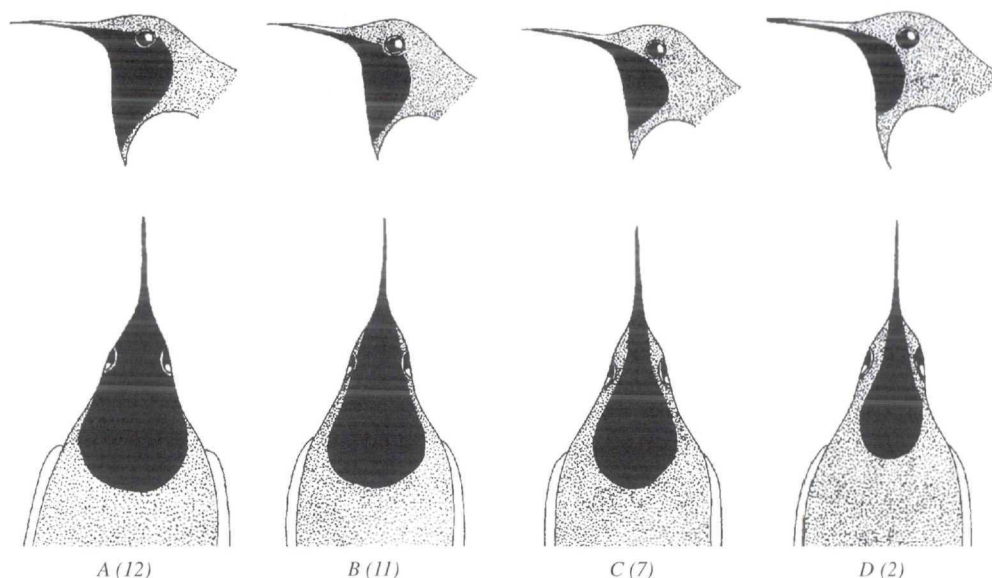


Figure 10: Types (A-D) of coloration of throat and breast in male wallreeper (number of birds found within type in parentheses).

throat and breast (figure 10). In type A (12 males), the black area reached to above the eye and furthest down and across the breast. In type B (11 males), the black area was a little smaller and just reached the eye. In type C (7 males), the black area on the throat and breast was much reduced and did not reach the eye. In type D (2 males), the black area was at its smallest and did not reach the breast nor the eye. The black area in males was not bordered by white as in females.

The females showed even greater variability. Six types were distinguished, relating to the extent of the black area on the throat (figure 11). In type A (10 females), there was no black at all, birds having a white chin, throat and breast. In type B (10 females), a small black spot in the centre of the white

throat was visible (5 of these did not even have a clear compact spot but rather a local concentration of black feathers appearing as a spot from a distance). Fourteen females (types C–F) had more extensive black areas on the throat and partly also on the breast but the black was always bordered by a white strip. Furthermore, the black on the throat was less saturated and generally duller than in males.

3. 2. Differences in coloration between males and females

The birds of the 43 breeding pairs (39 complete pairs, three nest sites attended by female only, one nest visited by male only) studied in the field, showed clear differences between the sexes. Apart from the already mentioned difference in the pattern of throat and breast (figures 10–12), males usually

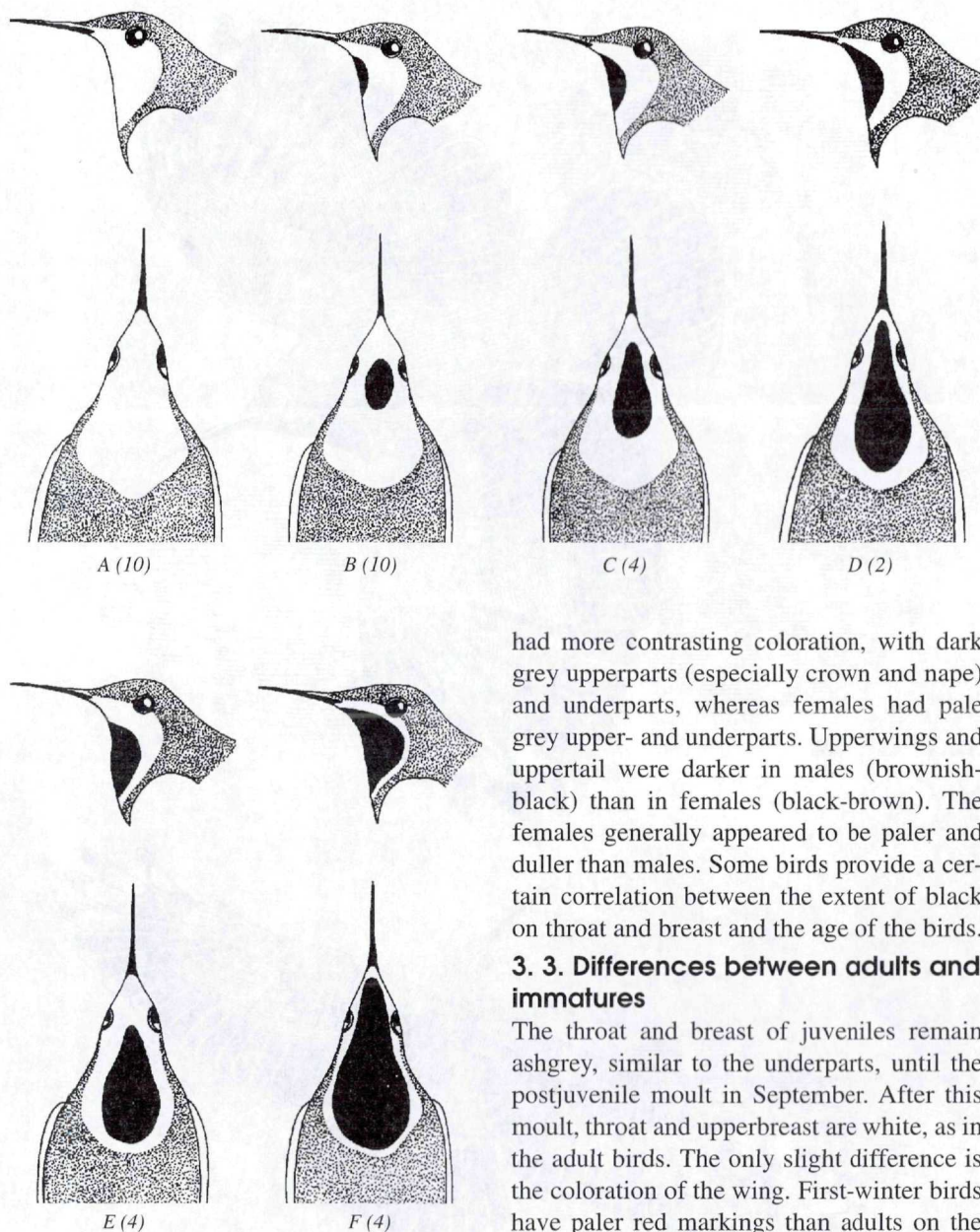


Figure II: Types (A–F) of coloration of throat and breast in female wallcreeper (number of birds found within type in parentheses).

had more contrasting coloration, with dark grey upperparts (especially crown and nape) and underparts, whereas females had pale grey upper- and underparts. Upperwings and uppertail were darker in males (brownish-black) than in females (black-brown). The females generally appeared to be paler and duller than males. Some birds provide a certain correlation between the extent of black on throat and breast and the age of the birds.

3. 3. Differences between adults and immatures

The throat and breast of juveniles remain ashgrey, similar to the underparts, until the postjuvenile moult in September. After this moult, throat and upperbreast are white, as in the adult birds. The only slight difference is the coloration of the wing. First-winter birds have paler red markings than adults on the lesser and median wing-coverts and primary coverts and also on the remiges. Adults

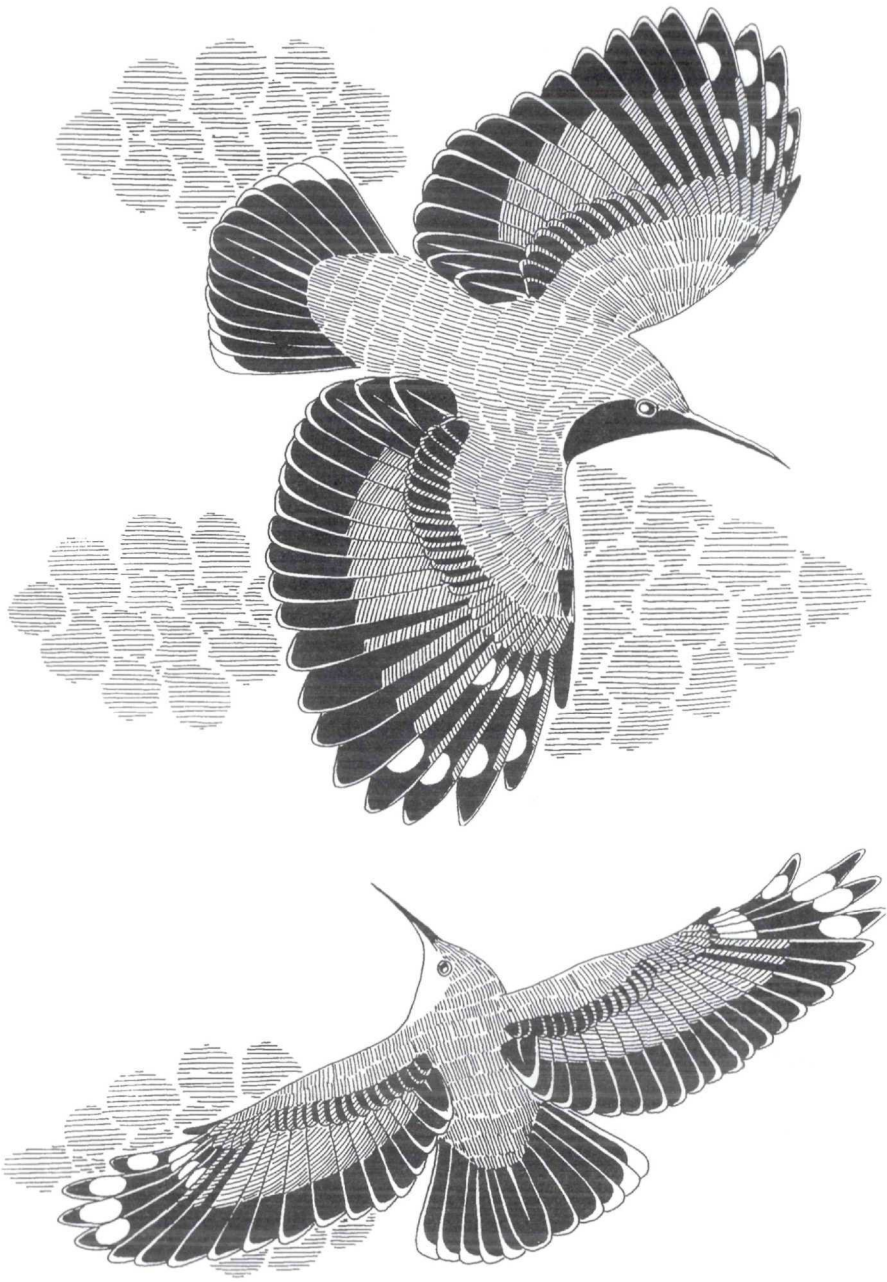


Figure 12: Male (above, type A) and female (below, type A) of the wallcreeper in flight.

(second year and older) have deep red wing markings over a greater area of the wing.

4. Acknowledgements

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Herbert Krösche

† 26. September 2000 – Wolfsburg, Deutschland

Dr. med. Heribert Einhauser

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