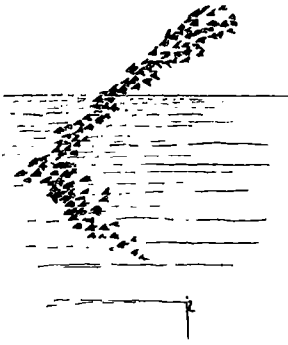


HANS CHRISTIAN CORNELIUS MORTENSEN: ASPECTS OF HIS LIFE AND OF THE HISTORY OF BIRD RINGING

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A brief description of Hans Christian Cornelius Mortensen, the first to use individual numbered rings in the study of bird migration, with information of some aspects of the history of bird ringing. This paper is a slightly modified version of the opening lecture at the conference *Bird Ringing 100 Years*, Helgoland 1999.

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Only a few Danish zoologists are known worldwide, and their private life is even less known; one of them is Hans Christian Cornelius Mortensen. Very little is printed about him in any other language than Danish. He was born 27 August 1856 near Copenhagen as son of a teacher and keen botanist. He died in 1921, which means that only few of us alive today were born before he died.

Mortensen started at the University of Copenhagen as a student of theology, but soon he changed to medicine. At that time the study of medicine included intensive studies in botany and, to a lesser degree, zoology. But the study of medicine was not the study to satisfy Mortensen, so he changed over to natural history. However, he spent so much time as a teacher in primary schools or in private homes, obviously to earn his living, that after 13 years of study he still had no degree. In 1887, however, he was awarded 'accessit' for a university prize essay on Danish reptiles. In 1888, still without a final degree from the university but with the reputation of a skilled and a well-informed teacher and a gifted educationist, he got the position as teacher in natural history in Viborg.

All over Europe we find in the 20th Century a great number of highly skilled university graduates employed as teachers in high schools or

teachers training colleges, as there were far too few posts in the universities. In the cathedral school of Viborg, Mortensen found himself surrounded by several such persons. By the way, the cathedral school in Viborg was in many ways leading in the work that changed the educational system in Denmark in the latter half of the 20th Century. We know from the memoirs of some of his students that Mortensen was a pioneer in the new educational system in a period when rote learning was the standard. He expected an analytical answer to his questions, and refused to accept a word for word reproduction of the text in the books. Perhaps he was the very first Danish schoolteacher to take his students out into nature to demonstrate living organisms and the way they lived. Mortensen lived in a small provincial town, but his house was located in its outskirts, close to nature, where he spent much time studying birds and mice. In 1897 the Royal Danish Society of Science awarded him its Gold Medal for a thesis on mice. Unfortunately this thesis was never published. During his life as a teacher, Mortensen was very rigorous and consequently not loved by all his students. Some of them, however, later wrote with great affection about the man who taught them to love nature.

On the 9th of August 1891, Mortensen married Ingeborg Lemming (23 June 1858 - 8 July

1938). Ingeborg herself was a very special woman, teaching especially German, but also French and English. She was active in the feminist movement and in organising lectures for the citizens in town. But beyond that she was a very helpful secretary and daily support to her husband. In his younger days, Mortensen had a very strong physique. He could walk for hours and climb any tree. He was tall, heavy and with hairy hands. He dressed in a very odd way in a uniform-like dress with many pockets. Characteristic, too, was his way of walking, which one of our great poets, Johannes V. Jensen, a Nobel Prize winner in literature 1944, who was his student in the years 1890-93, described as 'tigerlike'. One of his peculiarities was his preference for yellow paper. He claimed it was better for the eyes than white paper. His consideration for his eyes also made him use a yellow eye shadow. Very few photos of Mortensen are published, but some are to be found in Jespersen *et al.* (1950) and in Oldendow (1976). He was well known in town, not only by his characteristic appearance, but also as a strong opponent to drinking coffee, smoking tobacco and using alcohol. His ringing business also stamped him as crazy by many. He suffered often from the negative way he was referred to by his fellow townsmen. Obviously, this ascetic way of life was the reason why his economy could cope with the expenses necessary for his experiments with bird ringing, as his income as a teacher was very modest. We know that he took an active part in the music life of his town, and that he often was seen in the late evenings on his way home with his cello on his back. He too played the piano at the morning assembly in the school.

On the 6th of June 1890, Mortensen caught two Starlings *Sturnus vulgaris* in one of his nest boxes. The first bird got a ring made from a thin plate of zinc with an inscription both outside (with metal-ink) and inside (engraved) '*Ynglede i Viborg 1890 M*' (i.e. 'Bred in Viborg 1890 M'). The next got a much smaller ring with nearly the same inscription. Intense observations during the following days have convinced Mortensen that the method was not good enough: the rings were

too heavy. No doubt he spent a lot of time during the years to come analysing what he saw, and subsequently in the summer of 1899, to be precise on the 5th of June, he ringed the first Starling with a tiny aluminium ring with the inscription: '*VIBORG I*'. Before the end of the year he had ringed 165 Starlings, nearly all adults. Most of the Starlings were caught in some of his twelve 'snappers', i.e. nestboxes with an automatic closing mechanism. Mortensen made nearly all the rings himself. Only in his last years did he accept help from others. He cut the aluminium sheets into pieces, treated the pieces with sandpaper and stamped address and individual numbers on them all. Many of the rings were treated in quite an original way: they were placed in a metal box together with dry sand. Then he selected good students to carry the box for days in their pockets, so that the edges of the rings could become absolutely smooth. As a teacher he knew a lot about the human mind, and therefore he predicted that the mention of a recovery in newspapers would lead others to report a neighbouring number. In order to overcome that problem he added in random what he called a 'control letter'. Mortensen only accepted a recovery if the control letter was correct. Starlings, White Storks *Ciconia ciconia*, herons Ardeidae and gulls Laridae could be ringed thanks to his many enthusiastic helpers. But when he started ringing ducks Anatidae, he had to buy the birds from the owners of the duck decoy on the island of Fanø. Travelling expenses, purchase of aluminium for the rings, tools for striking the rings, paper and stamps, all this was actually too much for a man with only a teacher's salary.

During the following six years, Mortensen ringed 1550 birds, and being reasonably satisfied with his results, he dared on 30 October 1906 to apply the Carlsberg Foundation for a financial support of 500 kroner for 'his experiment to achieve information on the travel of migrants by means of marked birds'. He got the money and again in 1907, 1909, 1911, 1914 and 1921 he got a total of 3000 kroner, a sum that by no means covered the expenses for his ringing activity. Mortensen's diaries are kept very carefully and include

great many details. Register books as such were not his style, because they were too expensive. He sewed together small sheets of yellow paper and made in that way a journal for 100-250 birds, using one page for each bird or for each brood. All recovery letters were saved, and are still preserved in the Zoological Museum, University of Copenhagen. Even though Mortensen was a devoted non-smoker, he used empty cigar-boxes for storing the letters, species by species. Whenever he received information about one of his birds, he sent the finder an elaborate, handwritten questionnaire in the finder's own language. He would ask for additional information about the finding date, the finding place, whether the species was common or not at that time of the year, if the ring had injured the leg, which local newspaper he should contact about this recovery and many other details. No doubt, Mortensen used a considerable amount of time dealing with the ringing of birds. On 30 October 1914, he wrote in a letter to the Carlsberg Foundation: 'For 15 years, the major part of my free time from the school has been occupied with my attempts to elucidate the routes of some of our migrants'.

It was obvious for Mortensen to start with Starlings: they breed in boxes where they can easily be caught; and they often breed near houses, where they can be observed. Storks too, breed near, or on, houses and even though they proved not to be that easy to approach, it was overcome. Ducks could at that time be bought from professional bird catchers and later were hunted all over their distribution area. In other words: Mortensen's choice of bird species was carefully planned. Mortensen was a member of several European ornithological societies, and in 1906 he was one of the founding members of the Danish Ornithological Society. In 1909 he was appointed a corresponding member of the Hungarian Ornithological Society, the only visible honour he ever received, and even though he corresponded with most of the well known ornithologists of that time, his death was hardly noticed outside Denmark. In June 1952, however, a memorial plate was placed in Viborg by a group of his former stu-

dents, but then he had been dead for more than 30 years. The inscription, written in Danish by Johannes V. Jensen, read:

H. CHR. C. MORTENSEN
1856 ORNITHOLOGEN 1921

HANS VID OG SINDRIGHED BAR FRUGT,
HVOROM DER GAAR I VERDEN RY.
HAN FULGTE FUGLEN PAA DENS FLUGT;
SELV BLEV HAN I DEN STILLE BY

In English: "H. Chr. C. Mortensen, 1856 The Ornithologist 1921, The fruit of his ingenuity and knowledge made him reputed in the world. The birds he followed on their journey; but in the quiet town he stayed himself".

During World War I, when Denmark was neutral, Mortensen acted as a middleman for ringing centres in belligerent countries, a job that took rather much of his time. Dr Hugo Weigold, who for a series of years worked at Vogelwarte Helgoland, went to China in 1913 where he was trapped when the war broke out in 1914. Due to the effort of Mortensen, Weigold's family was informed that he was happy working in a German school in the city of Canton, or Guangzhou, as it is called today. In the summer of 1916, Mortensen became rather ill, an illness that obviously accelerated during the years to come, forcing him in September 1919 to ask for an early retirement (he was only 63 years old). Mortensen was now very weak and was restricted to his bed or sofa for most of the time and during the last year of his life he could not write when sitting, only when lying on his sofa, which forced him to invest in a fountain pen. He felt miserable that he could not finish some of his manuscripts, but on the other hand, he refused to let his friends do it. His last paper on Storks (Mortensen 1920) was delayed for nearly two years as the ornithological society had no money for the printing. In the end, Mortensen himself had to contribute considerably to the printing expenses. When he died on 7th of June 1921, he left behind two manuscripts: one about gulls, which his widow prepared for publishing

(Mortensen 1922), and one about herons, subsequently published by the person who ringed nearly all the 186 Herons with Mortensen's rings (Saxtorph 1922). There were no children in the marriage, and his widow survived him by seventeen years.

But his idea was widely recognised. In 1903, J. Thienemann at Rossitten, in the former German province East Prussia, started what Mortensen himself in a letter of 28th of October 1910 to The Carlsberg Foundation with pride called 'large-scale ringing'. Also in 1903, ringing was started in Hungary; in 1904 in Helgoland, Aberdeen and London; New York in 1909; Göteborg, Leiden, Bern and St. Petersburg in 1911. Around 1930, ringing centres were functioning in virtually all European countries, in North America, India, Australia, New Zealand and some countries in Africa and South America. It is remarkable that bird ringing as such has not changed at all since then: in the field, it is still carried out by volunteers and in the office, the work is still carried out by an under-manned staff. Even the scope for bird-ringing is strictly basic science, the practical work with bird ringing was nearly everywhere administrated by more or less private organisations and not by university laboratories. As far as I can judge, it was even often dependent of the interest of a single person. In Denmark, Mortensen's work was continued by private persons and after 1931 by the University of Copenhagen. In Norway and Sweden, bird ringing was supported by private persons or museums outside the university world. In England, the private magazine 'British Birds' started the bird ringing, and bird ringing in the British Isles is still run by a private organisation. The political and linguistic division of Europe made it impossible to create a single bird-ringing centre, as was done in North America. No doubt, the lack of frequent personal contact among scientists was the reason why the idea of co-operation in the ringing of birds took such a long time to mature. Every centre, big or small, worked out of its own possibilities and the interest of the leader. In several cases, due to conflicts between ornithologists, or between ornithologists

and hunters, competing centres were created. This is true at least for the Scandinavian countries and to some extent also for Italy, France, Germany and England. In the beginning, nearly all ringed birds were nestlings or nest-box breeders. In The Netherlands and at Rossitten, however, traditional catching methods were applied for the ringing of adult birds. Colonial breeders as gulls and terns were obvious targets, as hundreds of nestlings could be ringed in a short time. Originally, most interest was paid to the question of whether the birds returned to their native area or not. Information about the migration route, however, was also interesting. Evidently the pioneers in bird ringing were unaware that especially the small passerines had such a high mortality that only very few were still alive the following year. What they probably did not bear in mind either was the fact that a ringed bird, once again in the hands of a man, should subsequently be reported.

In 1915, Wells Cooke published a paper entitled 'Bird Migration' with the results of bird ringing in North America (Cooke 1915). Friedrich von Lucanus published already in 1921, the year when Mortensen died, most of the known ringing results in his book '*Rätsel des Vogelzuges*' ('The mystery of bird migration'). Due to World War I, he could not obtain all results, but in the third edition (1929), no less than 70 pages were used for a chapter called: '*The migration of the individual bird species as demonstrated by results of the ringing experiments*' (Von Lucanus 1929). Ten years later, Schüz & Weigold (1931) published their '*Atlas of the migration of palaeartic birds demonstrated by ringing results*'. Here they mapped, species by species, all recoveries for the first 30 years of bird ringing. This was obviously a very important work, which in many ways showed the direction for future bird ringing. In the years 1973-1985, Zink (1973-85) published a very impressive atlas dealing with the recoveries of European passerines (*Der Zug europäischer Singvogel*). In the same period, The Academy of Sciences of the USSR published a series of papers dealing with the migration of birds in Eastern Europe and North Asia. A project which paralysed

the daily routine work in all the East European ringing Centres for years (Anonymous 1978-1989).

During the last 100 years, a great number of books dealing with birds have included selected results from bird ringing. A countless number of papers dealing directly or indirectly with bird ringing have also been published. Already during his exile in England, the Pole W. Rydzewski tried to convince all the different ringing centres to apply at least a standard way of publishing the results. Rydzewski continued his efforts in the years to come by private letters and by his own ornithological bulletin 'The Ring' starting in 1954. But Europe was still suffering from World War II, and many of the leaders of the national centres were either unwilling or unable to cooperate. In 1962, a meeting between all the leaders of the European ringing centres was announced to take place in Paris in 1963. Nearly all centres from the non-Soviet controlled Europe were represented. At the beginning of the meeting, the delegates were anything but positive toward the suggestions put forward by Robert Etchécopar from the Paris ringing centre on behalf of a small group including Robert Spencer from England, Albert Perdeck from The Netherlands and Gerhard Zink from Germany. During this initial meeting, the delegates took part in excursions to the valley of the Loire and to the Biarritz area in the Pyrenees. Plenty of free time between lectures offered an opportunity for many man-to-man talks and especially between the three and all the other delegates. At the end of the meeting, everything had changed and now all accepted that the way forward demanded a common tune. The organisation of EURING was born, but the future would show that too often the delegates were not receiving sufficient back up when they returned home.

Since 1963, annual board meetings were arranged and general meetings took place at about three-year intervals. The idea of a common coding system, a common database centre, common EDB-programs, colour ringing rules and ringing projects were, among many other things, some of the items discussed. Often there was not full

agreement about the decisions and more often the political and fiscal background at home was not prepared to carry out the decisions taken in EURING. Most of the centres worked, and still work, with extremely limited financial resources. Some centres had free access to big mainframe computers, some could not even get a small amount of money for programming. Some could buy their own electronic equipment while others could hardly buy a calculator. EURING obtained a substantial grant, which during the years 1974-84 allowed centres to code all their recoveries according to a common code and to have all their recoveries first on punch cards and later on tape. Since the raise of the Iron Curtain, the eastern ringing centres have joined EURING and new grants have been obtained to help these ringing centres in many different ways. Today, we must all send our thoughts to the man who saw what no others were able to see. If he was here today, I am sure that he would be very proud to see the many results we have gathered up to now and the many papers written about so many aspects of the annual travels of birds. But he would no doubt envy us for being able to buy rings at a factory today. Most of Mortensen's papers were translated into English and published in 1950 by Jespersen & Tåning (1950), where a full list of his publications can be found. Unfortunately, so far no attempt of publishing a list of Mortensen's innumerable contributions to newspapers has been made. Oldendow, a former student of Mortensen, published, unfortunately in Danish only, a devoted account of Mortensen (Oldendow 1976). Further information about the early history of bird ringing is to be found in Drost (1929) and Von Lucanus (1929).

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SAMENVATTING

Deze bijdrage bevat een beschrijving van het leven en werk van de Deen Hans Christian Cornelius Mortensen, voor zover bekend de eerste persoon die individueel genummerde ringen gebruikte om een beter beeld te krijgen van de verplaatsingen en trek van vogels in het wild. Daarnaast wordt een beknopt overzicht gegeven van de historische ontwikkelingen van het ringonderzoek. Dit artikel is een enigszins aangepaste versie van de openingsvoordracht op het internationale congres *Bird Ringing 100 Years*, Helgoland 1999.

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