

From the Prussian to the Swabian Sea



PHOTO: HEINRICH, AROUND 1900

The first Institute building of the Vogelwarte Rossitten – the former studio of animal painter Heinrich Krüger.

In 1901, the first “ornithological-biological observation station” was founded on the Kurish Spit in former East Prussia: the Vogelwarte Rossitten. Much more than a field station even with regard to its constitution, the ornithological station grew from humble beginnings into a successful institute with wide ranging research plans. Created from a private initiative, its development led via the German Ornithological Society (Deutsche Ornithologische Gesellschaft – DOG), the Kaiser Wilhelm Society (Kaiser-Wilhelm-Gesellschaft – KWG, from

1923), and the Max Planck Society (since 1946) finally to the Max Planck Research Centre for Ornithology (from 1998) – and it is this development as an institute which mirrors a substantial part of the development of ornithological research described in the following article.

Towards the end of the 19th century, the time was ripe for the founding of an ornithological “observation station,” i.e. an institute in the sense of an observatory, but in this case for observing low flying “celestial bodies” – migratory birds in particular. The ideas put forward by Aristotle, as the founder of scientific ornithological research, on the hibernation of birds – particularly swallows, in muddy stretches of water, or the transmutation theory – the transformation of “summer birds” into “winter birds” – were superseded. And even the very precise observations of individuals such as Friedrich II, described in his famous work “De arte venandi cum avibus,” had reached their limits.

In the meanwhile, chance observations and reports from travellers pointed to continent-wide and even world-wide movements by migratory birds. Verifying this required ap-

propriate research methods and equipment, and for this reason, discussions went on for days on the subject of the “setting up of ornithological observation stations over the whole inhabited earth” at a special meeting convened at the first “International Ornithological Congress” held in Vienna in 1884.

FROM THEOLOGIAN TO “BIRD PROFESSOR”

The ideas generated in Vienna led to an explosion in Germany: Johannes Thienemann was so inspired by the idea, of an ornithological station on the one hand, and of the bird migration paradise of the Kurish Spit in the “Prussian desert” on the other, that in a rousing lecture on the “Purpose and aims of an ornithological observation station in Rossitten” at the Golden Jubilee celebrations of the DOG in Leipzig in 1900, he suggested that a corresponding institute be founded, something which happened just one year later. He himself renounced theology, took up the study of biology, and soon became the internationally renowned “bird professor” at the “Vogelwarte Rossitten”, founded with “unspeakable effort.” In 1923, the KWG took the institute

Desert

When JOHANNES THIENEMANN visited the Kurish Spit for the first time in 1896, he witnessed a “bird migration so great as had never before been seen in Germany.” This experience sowed the seed as to “... whether something lasting might be created here.” This idea became reality in 1901 with the founding of the “VOGELWARTE ROSSITTEN,” and since 1946 has continued to thrive in the “VOGELWARTE RADOLFZELL,” as DIRECTOR PETER BERTHOLD outlines in the following report.



PHOTO: ARCHIVE VOGELWARTE, AROUND 1946

over, giving it a solid operational framework.

The research framework for the newly founded institute in Rossitten was marked out very broadly by the constitution it had inherited from the DOG under “Purpose of the ornithological station.” It included no fewer than nine main research areas, namely

- observation of bird migration, divided into nine areas, such as the migration time of individual species, direction of the migrations or height and speed of the migratory flight,
- observation of the birds’ way of life,
- research on moult and change of colour,
- appraisal of the economic value of the birds,
- research on the effective protection of birds,
- establishment of a bird collection,
- procurement of research material for the scientific state institutes

Ernst Schüz and Rudolf Kuhk in front of Schloss Möggingen, the headquarters of the Vogelwarte Radolfzell, at the new beginning of the Institute.



The General Secretary of the Kaiser Wilhelm Society, Dr. Friedrich Glum, at the 25th anniversary of the Vogelwarte Rossitten on June 1st, 1926 in front of the "Ulmenhorst" branch. Third from left: Johannes Thienemann.

PHOTO: ARCHIV VOGELWARTE

- expansion of individual points to other animal classes and
- dissemination of knowledge on native bird life.

This meant a programme of gargantuan proportions for the one-man operation that had started with Thienemann. Despite his modest work opportunities, Thienemann initially tried to do justice to all of the research duties laid down in the constitution. At first he devoted himself in particular to a great deal of practical protection of birds, carrying out, for example, numerous experiments with artificial nesting holes, or investigating the relationships of bird protection to agricul-



PHOTO: ARCHIV VOGELWARTE

A "stork experimental flock" for orientation experiments at the Vogelwarte Rossitten in the 1920s.

ture and forestry, and especially to fruit cultivation or beekeeping, and to hunting.

Later Thienemann moved away from practical protection of birds and concentrated increasingly on research into bird migration. As far as bird protection was concerned, he believed himself to "be best able to serve it if, by carrying out research into migration, he shed light on the potential dangers for the birds when migrating and in their winter quarters, and also educated mankind in particular with regard to a good and healthy relationship to the bird world."

The focus of Thienemann's research into bird migration shifted further and further away from a

predominantly descriptive portrayal to a first analysis of the causes and steering mechanisms of bird migration, as well as to the carrying out of the first experiments. Thienemann's outstanding and lasting contribution is the "bird ringing experiment," the widespread introduction of bird ringing, which had been invented by the Danish teacher Christian Mortensen shortly before Rossitten was founded. By extending this practice of marking individual birds with metal rings on the lower horned part of the leg, Thienemann helped to promote a scientific method to international success, which even today – after one hundred years – is still being spread, in particular in Africa, Asia and South America, but also in Europe, where it is being carried out with a new kind of synthetic ring as well.

In the "Rossitten era," approximately one million birds were ringed up until the end of the Second World War, and roughly a further 4.5 million since 1946 under the auspices of the "Vogelwarte Radolfzell" as its successor institute. Today there are 37 national ringing centres operating in Europe alone, which mark in the region of three million birds annually. At an international level, more than 200 million birds have now been ringed, and millions of recaptures or recoveries of ringed birds give information on migratory paths and times, winter quarters, staging areas and much more; so now we know at least the most significant details of the global network of migratory routes.

In the meanwhile, ringing has opened up many new areas of work, such as, for instance, the detailed study of bird populations by means

of coloured rings – likewise initiated in Rossitten, or the regular carrying out of "censuses" for continuous recording of song-bird populations, as developed by the Vogelwarte Radolfzell, using a standardised procedure for capturing birds in the "Mettnau Reit Illmitz Programme." It is true that nowadays we do have at our disposal ultra-modern new methods, such as satellite telemetry, for the individual tracking of migratory birds; however, traditional ringing will very probably still play a dominant role for decades, if only because of its relatively low costs and high efficiency.

A HISTORICAL EXPERIMENT-RELAUNCHED

Shortly before his retirement in 1929, Thienemann carried out so-called release experiments with swallows and storks, experiments which marked the beginnings of orientation research – approximately at the same time as Canadian W. Rowan began the first experiments into the control mechanisms of bird migration. Young storks reared from 1926 to 1928 which were held back and released late (after the old storks had gone) showed normal migratory behaviour to the Black Sea area, even without being led by the old birds. From there they turned towards the west, which Schüz later suspected was a "digression." From today's standpoint it might have something to do with a (genetically) programmed change in direction generally made by storks when they have flown over the Sinai Peninsula and migrate to the Sudan and Chad. Working together with Russian colleagues, we are currently investigating this exciting question by repeating Thienemann's experiment; the young storks are



Certificate of participation issued by the Vogelwarte Rossitten to amateur co-workers participating in ringing courses in the 1930s.



Young storks being transported to the Vogelwarte Rossitten for orientation experiments.



The museum building of the Vogelwarte Rossitten with aviaries in the mid-1930s.

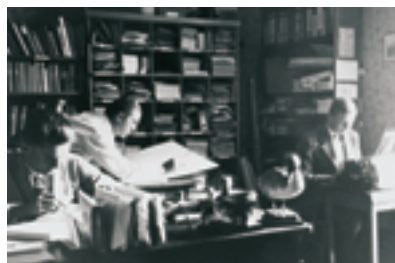
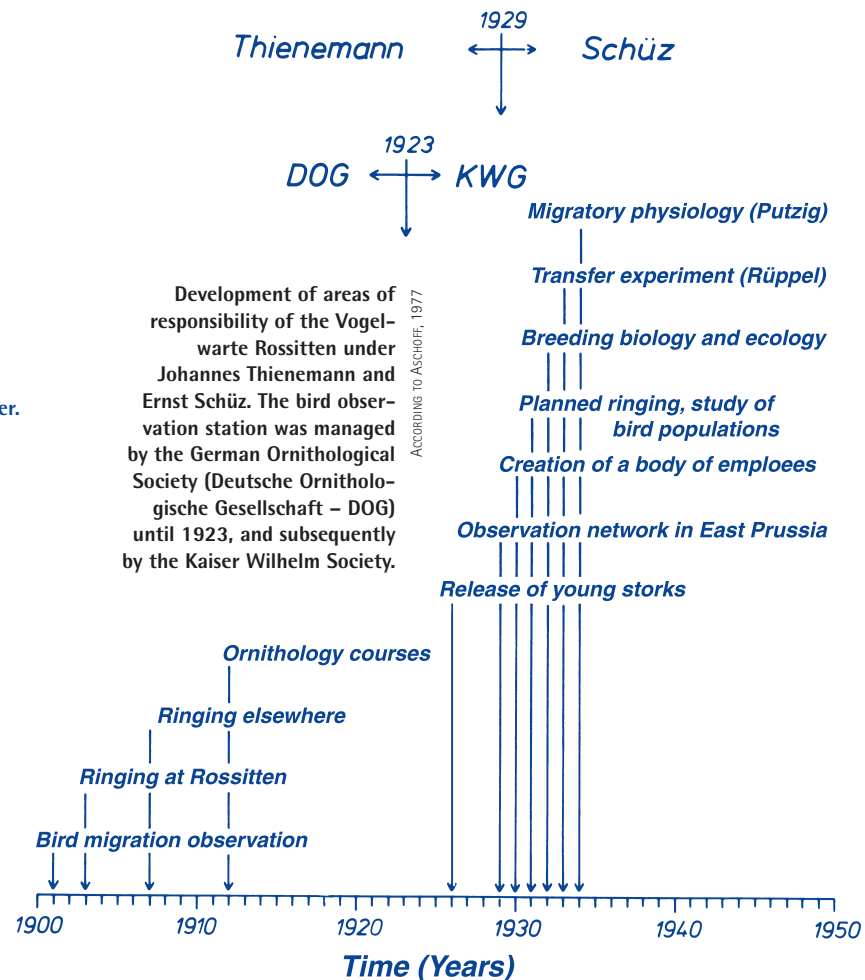


PHOTO: SCHÜZ, 1933

Scientific work at Rossitten in 1930: Rudolf Mangels, Werner Rüppel, Gustav Kramer.



PHOTO: KRAUSKOPF

Johannes Thienemann (right) and Oskar Heinroth in Königsberg in 1929.



PHOTO: SCHÜZ, AROUND 1935

Observation stand made from driftwood at the Vogelwarte Rossitten on the Kurish Spit (with Rudolf Mangels, Friedrich-Wilhelm Merkel, unknown, Dieter Schüz).

being reared in the same place, at Rossitten's successor institute – the Rybachy Biological Station –, and after their release will be continually tracked using satellite telemetry.

The chronological table on page 70 shows that, following the transfer of the management of the Vogelwarte Rossitten to Oskar Heinroth (as the Berlin-based director) and Ernst Schüz at the institute, the areas of work immediately continued to expand; there was recording of populations, more breed-biological and ecological studies, transfer experiments, and finally migratory physiological investigations, particularly by P. Putzig, who was interested, amongst other things, in the role of the thyroid gland in the control of migration.

It was not long before the highly successful work of the institute in Rossitten had found followers: in the Hungarian Ornithological Centre, as early as 1908, in the Helgoland Ornithological Station (to which Hiddensee, the third German ornithological centre, joined in 1936) in 1910, and over the course of the years in most countries of the world, including, more recently, Albania, Slovenia, and the Turkish part of Cyprus. Following the loss of Rossitten due to the Second World War, the institute was continued in 1946 by the Max Planck Society as the "Vogelwarte Radolfzell" at Lake Constance. This move directly across Germany did not happen by sheer chance, but was as a direct consequence of the personal relationship between the man who was later to become its main patron, Baron Nikolaus von und zu Bodman, and Ernst Schüz.

As a great lover of nature and birds in particular, Baron von Bodman had already been co-founder

of an association of a "Southern German Ornithological Station"; from 1938 – 1944, he had also set up a "Ringing Centre for Baden and Württemberg" as an offshoot of Rossitten, and for a long time had hankered after a "proper" ornithological station in his area. As Schüz, being a Swabian, was also not averse to a return to southern Germany, the ornithological station was happy to move into the emergency accommodation offered by Baron von und zu Bodman at the Wasserschloss Möggingen. At that time, there was no hint of the ornithological paradise to which the institute had been moved; the richness of the Lake Constance basin in breeding, migratory and resting birds, in habitats within a distinct mosaic landscape, and, since then, in nature reserves, far excels the area around Rossitten and has made the new location an eldorado for ornithological research.

So, a temporary move made in an emergency was to become a permanent home. Today the ornithological station still has its headquarters in Schloss Möggingen by friendly arrangement with the current lord of the castle, Dr. Konrad Freiherr von und zu Bodman and his family, and has become a well-established institute in Baden-Württemberg, with close links to the universities in Constance, Freiburg and Tübingen.

Being small, for a long time the ornithological station remained affiliated to other institutes or departments, or was led by directors in another area in conjunction with local managers. On Thienemann's retirement, Ernst Schüz became the regional manager from 1929 to 1936, whilst Oskar Heinroth of the Berlin Zoo held the directorship of

the institute, until Schüz took over the complete management from 1936 to 1959. When the ornithological centre became affiliated to the Max Planck Institute for Behavioural Physiology, it was to be headed by Gustav Kramer as director; however, he had a fatal accident in the year of his appointment in 1959 whilst capturing test birds. From then on, the ornithological station was successively affiliated to the departments of Konrad Lorenz (1959 to 1967), Jürgen Aschoff (1967 to 1979), Wolfgang Wickler (1979 to 1991), and Eberhard Gwinner (1991 to 1998), whilst in Radolfzell, local management was held by Rudolf Kuhk (1946 to 1967), Hans Löhr (1967 to 1976), Eberhard Gwinner (1976 to 1991), and Peter Berthold (1991 to 1998).

These frequent changes in the management of the institute gave the ornithological station many important and crucial stimuli, for instance during the Lorenz era with regard to bird keeping and ethological studies, or during the Aschoff period, when biorhythmic questions were addressed.

The fact that research in Radolfzell has deepened as well as developed very broadly is due to a multitude of reasons: there were the various outside influences mentioned above and it was also possible to build on the broad foundations laid down in Rossitten. Added to that were specific challenges faced by ornithologists, caused in particular by declines in bird populations and general changes in the environment. And last but not least, there had been close collaborations between Eberhard Gwinner and the author of this report since student days.

Today, the work of the Vogelwarte Radolfzell comprises more than ten

areas of research, with numerous specialist areas, namely bird migration research on the field and in the laboratory in virtually all areas that are topical at present, annual cycles, evolutionary biology, behavioural and population genetics, molecular biology, population dynamics, breeding biology and pairing systems, nutritional biology and distribution, ecomorphology and behavioural ecology, as well as broadly structured fundamental research in the area of species and environmental conservation.

"GROWING OLD GRACEFULLY", CRISES NOTWITHSTANDING

Few institutes attain the venerable age of one hundred years, but a great deal fewer are granted the distinction of leaving their legacy to several successors and thus being able to survive. Precisely this has happened to the Vogelwarte Rossitten: It did not just resume its work as the "Vogelwarte Radolfzell" as part of the Max Planck Society in southern Germany following its war-induced closure in 1946, as has already been outlined, but after some time, work was continued at its previous location in the former Rossitten: in 1956, at the instigation of the ornithologist L. O. Beloposkij, in the fishing village now known by the new name of Rybachy, the "Rybachy Biological Station" was founded as a branch of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg.

The work of this station is concerned predominantly with ornithological matters and bird migration in particular. With approximately thirty employees, it is today mainly supported by the Sielmann Founda-

tion, and works closely with western partners – particularly the Vogelwarte Radolfzell – in various areas. Both institutes operate a joint trapping station in Rybachy, set up in accordance with the "Mettnau-Reit-Illmitz Programme" guidelines, and white storks from the Kaliningrad region are being tracked using satellite telemetry. Scientists and graduate students are also exchanged – and so Thienemann's legacy lives on successfully in two places.

In 1998, the Max Planck Institute for Behavioural Physiology in Seewiesen was closed, and the ornithological department in Andechs and the Vogelwarte Radolfzell were merged into the "Max Planck Research Centre for Ornithology." The "Vogelwarte Radolfzell" and "Biological Rhythms and Behaviour" departments are currently headed by directors Peter Berthold and Eberhard Gwinner.

As both institute directors are due to be given emeritus status in several years, a permanent panel, which started its work in August of this year, has been appointed to plan for the future. The institute directors are in agreement with the Scientific Advisory Board and the research panel of the Max Planck Society. They agree that the focus of future research is in the areas of biodiversity, evolutionary biology, biorhythms, population ecology and ecophysiology. Birds can play an excellent role in the hotly debated area of recent climate warming, great changes in biodiversity and microevolutionary processes. Detailed research ideas on these subjects have been drawn up and are currently under discussion. ●



PHOTO: ARCHIVE VOGELWARTE

Employees of the Vogelwarte Radolfzell catching song-birds for ringing in the reed belt of Lake Constance (Markelfinger Winkel) in 1946.



PHOTO: QUERNER

Peter Berthold and Alexander Bardin, Institute Director of the Rybachy Biological Station, in front of the Institute building in Rybachy in 1991, with the new and old Institute plaques.