

Emperor Frederick II of Hohenstaufen

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INTRODUCTION

Emperor Frederick II of Hohenstaufen is considered to be the foremost falconer of all time (Burns 1944, others?). His major treatise on falconry and principal literary product of his life, *De Arte Venandi Cum Avibus*, was written during “the mature years



This article is from a new book edited by Tom Cade soon to be published about gyrfalcons.

of his reign” following “thirty years of preparation for the task” (Wood and Fyfe, 1943). Created primarily between the years 1244 and 1250, the work has maintained not only a biblical stature among falconers worldwide but “has long been recognized as the first zoological treatise written in the critical spirit of modern science” (Shearer, 1935).

The scope of his work is clear when quoting the Emperor directly from the *General Prologue to the De Arte Venandi Cum Avibus*: “We have investigated and studied with the greatest solicitude and in minute detail all that relates to this art, exercising both mind and body so that we might eventually be qualified to describe and interpret the fruits of knowledge acquired from our own experiences or gleaned from others. For example, we, at great expense, summoned from the four quarters of the earth masters in the practice of the art of falconry. We entertained these experts in our own domains, meantime seeking their opinions, weighing the importance of their knowledge, and endeavoring to retain in memory the more valuable of their words and deeds.

As the ruler of a large kingdom and an extensive empire we were very often hampered by arduous and intricate governmental duties, but despite these handicaps we did not lay aside our self-imposed task and were successful in committing to writing at the proper time the elements of the art.”

Although Frederick II wrote about several kinds of falcons and a variety of methods used in the pursuit and capture of different types of quarry, there is no doubt that he held gyrfalcons in highest regard and their flight at cranes most esteemed of all. Bearing this focus in mind, the purpose here is to probe principles at the foundation of his art, to review carefully selected aspects of his practice, and then to compare his approach with the way modern falconers work with gyrfalcons. In the *Author’s Preface* to Book II, Frederick defined theory as “the general mental survey and understanding of the principles of our subject without reference to its practical application” and practice as “the knowledge of how to put into operation the rules that we shall expound.” These same definitions will serve admirably throughout the context of this work.

The nature of humans and gyrfalcons has likely remained similar from the reign of Emperor Freder-

ick II until modern times. Cultural and environmental circumstances, in contrast, are very much different. A focused look at the art and practice of falconry with gyrfalcons then and now reveals much regarding the basic constitution of these *Great Falcons of the North*.

THEORY

Fundamental Premise

The Emperor’s fundamental belief about falconry is clear from the title of Book I, Chapter I of the text, *Falconry Is an Art More Noble Than Other Forms of Hunting*. Here he classified all hunting into three categories “that in which inanimate instruments are employed; that in which live animals are trained to catch other live animals; and that in which combinations of the first two are used.” The first category included the use of “nets, snares, slings, bows, arrows, and numerous other instruments.” The second employed “dogs, leopards, and other four-footed beasts, as well as birds of prey.” Frederick gave no examples of the third category, which employed combinations of the first two. He referred to the “noble character of falconry” and believed it, “more worthy than other forms of hunting.” He thought a practitioner of falconry “will in this way learn more about the secrets of nature than if he followed other kinds of venery” and further that falconry “does not commend itself to the majority because skill in it is difficult to acquire and because it is more refined.”

The birds used in falconry, Frederick wrote, “are indeed more noble instruments of the chase than inanimate objects or trained quadrupeds.” Other forms of hunting “are less noble because they depend merely upon the use of artificial implements,” “or they are carried on by means of four footed animals.” Quadrupeds, he pointed out, are slower, more easily domesticated, less “wild and shy,” “limited to the earth’s surface” and more “readily caught” than birds of prey which “can be captured

and trained only by finesse.” He concluded, “not only that the art of falconry presents greater difficulties but requires more unusual skill than do other forms of venery.”

Frederick II was keenly aware of the “inborn antipathy” birds of prey show toward mankind; “yet by means of this noble art one may learn how to overcome this natural aversion, to win their confidence, and to induce them even to seek those they previously avoided” (Book I, Chapter 1). He set forth the premise that birds of prey can be taught to go beyond what they do in natural conditions and “hunt and capture even such birds as cranes, bustards, geese, and other large game birds that are bigger and heavier than those they capture alone in their wild state, as well as to take smaller quarry not only in their natural fashion but more often than is effected by other methods.”

For the above stated reasons, Frederick was a most passionate and dedicated falconer. He pointed out that: “Any dabbler in venery can readily hold in leash or let loose dogs or other quadrupeds; but in the pursuit of falconry no tyro can so easily join in the chase, either to carry his birds or to throw them off at the quarry. Falcons and other hawks are rendered clumsy or entirely unmanageable if placed under control of an ignorant interloper. By using his hearing and eyesight alone an ignoramus may learn something about other kinds of hunting in a short time; but without an experienced teacher and frequent exercise of the art properly directed no one, noble or ignoble, can hope to gain in a short time an expert or even an ordinary knowledge of falconry.”

The first chapter ends by concluding falconry to be “intrinsically an aristocratic sport; and one may once more add that it is nobler, more worthy than, and superior to other kinds of venery.”

Attributes of Good Falconers

Book I of the treatise is remarkable in revealing the ornithological world as known to Frederick II.



Falconers and their charges.

His thorough review was necessary because as stated in the *Author’s Preface* to Book II, “a work of this kind in its very nature involves a study of waterfowl, neutral birds, and land birds, raptorial as well as harmless species.” Frederick II obviously believed a complete knowledge of avian natural history and behavior was requisite to successful falconry. He once again affirmed, “it is not everyone who can qualify for the practice of falconry; only an indefatigable, enthusiastic lover of it, who is fitted for the sport at the same time by instinct and by training, can succeed in it.”

Chapter XLVII of Book II is titled, *Of Falconers and Their Qualifications*, and here he went into detail on the topic. Physical and mental attributes discussed include being “of medium size,” “moderately fleshy,” “diligent and persevering” and in possession of “marked sagacity.” Other essential qualities include “a retentive memory,” “good eyesight,” “hearing should be acute,” “a good carrying voice,” being “alert and agile,” “of a daring spirit” and “able to swim.” The falconer “should not be too young” and “have reached manhood’s estate,” “not be a sleepyhead, nor a heavy sleeper” and “should not be the slave of his stomach.” “A drunkard is useless.” “A bad tem-

per is a grave failing” and “laziness and neglect in an art that requires so much work and attention are absolutely prohibited.” As is true throughout his work, Frederick II provided ample reasoning to substantiate his claims.

Health

The ability of a falconer to maintain good health in his birds was of paramount importance to the Emperor “because their usefulness depends upon it; and he must learn how to treat birds that become ill” (Book II, *Authors Preface*). In Book II at the end of Chapter XLVIII, Frederick II stated that for the falconer, “it is imperative that he should also be governed in his relations with his birds by the state of their health.” The Emperor then went into considerable detail about how good health is recognized in a falcon. Specific methods for feeding, daily care, and training presented throughout his work all focus on his belief in the vital importance of maintaining healthy individuals. Some of these specifics will be discussed in the following section on his practice, but it seems prudent here to mention that health was of special concern with gyrfalcons. These birds could only be obtained from far away lands after long journeys and great

efforts. That the Emperor was fully aware of the inherent problems is clearly evident in Chapter XV of Book III, *On the Characteristics of Proper Flight; Also on Signs of Injury or Fatigue in Falcons*, where he wrote, “Falcons that are worn out from bad methods of transportation, a long journey, or much bating, will give evidence of their fatigue when flying to the lure.”

The Primary Aspiration and Aims of True Falconers

In one relatively short, concise, and brilliant piece of prose found in the *Author’s Preface* to Book II, Emperor Frederick II made what could well be the most profound statement ever written to identify the true essence of falconry. He wrote, “The falconer’s primary aspiration should be to possess hunting birds that he has trained through his own ingenuity to capture the quarry he desires in the manner he prefers. The actual taking of prey should be a secondary consideration.” These direct yet eloquent words pierce straight into the heart of the art. Falconry, according to the Emperor, is much more than taking quarry with a bird of prey. The hunting bird must be somehow convinced by the falconer to hunt not only the specific quarry he selects but also in a certain way,

which he favors. This is indeed a remarkable accomplishment, for it often runs contrary to the falcon's natural propensities. The falconer must possess a deep understanding of the falcon's physical and mental constitution, a similar thorough knowledge of the selected quarry, and also recognize how both will behave and interact in a wide variety of hunting situations. We will return to a further discussion of this outwardly simple but visionary statement when comparing the Emperor's theory and practice with modern falconry.

Chapter XLVIII of Book II is titled, *Of Classes of Falconers and of the Aims of the True Falconer*. Here the Emperor focused in clearly on his subject. The first five paragraphs are quoted in entirety below.

"Falconers may be divided into several categories. The chief object of some is to use as food the avian and (occasionally) ground game which their falcons capture. This quarry they eat avidly or make other profitable use thereof. Others think neither of their stomach nor of mere gain, but only of the enjoyment of securing a satisfactory flight for their birds. Others, again, boast and talk about the number of birds their falcons seize. Still others have no pleasure in such accomplishments and aspire to have only fine falcons, better trained than those of others, that have gained honor and pre-eminence in the chase. When these aspirations are satisfied they feel they have been fully repaid for their trouble.

The first-named purpose of the falconer is objectionable because it leads to worry and exhaustion of his falcons as a result of his eagerness merely to acquire much quarry for the table. He cannot hope to keep good birds long. Nor are those in the second category more to be approved, since he who has always

in mind a desire to see his birds make brilliant flights is difficult to satisfy and is tempted to spur them on to intolerable exertions that are sure to weaken them - a policy that is childish and not correct in its technique.

The third class must also be censured because they are likely to overstep the mark of good falconry and misuse their birds.

It is only the fourth group that is to be fully approved. A falconer in this class secures the best hunting

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It should be the endeavor of the falconer who keeps birds of prey, skilled in hunting other birds and certain four-footed animals, to do so in the manner most creditable to himself while observing with the greatest care the noblest canons of falconry."

As with his emphasis on good health in birds used for falconry, the Emperor's "primary aspiration" and "aims of the true falconer" identified above are apparent throughout the practice of his art. This will be evident here when reading the section that briefly reviews methods used to develop gyrfalcons for flights at cranes.

The Stature of Gyrfalcons

There is no question that Emperor Frederick II valued gyrfalcons for use in falconry more highly than all other kinds of falcons. In the *Author's Preface* to Book III he wrote: "And since the gerfalcon is the most noble of her race, as was demonstrated in Book II of this work, we shall begin with a consideration of that falcon and, in doing so, touch upon the different instruments used by various people, as well as the diverse methods employed by them for training purposes. When we have done this we shall be able to select and adopt the best."

At the very core of his art in both theory and practice stood the noble gyrfalcon. Perhaps the most revealing quote in the entire work regarding how the Emperor viewed gyrfalcons in relation to all others is found in Book IV at the end of Chapter XXVIII that is titled, *Of Cowards and How to Deal with Them*. Here he set down the following: "although we have singled out the gerfalcon as the crane-falcon par excellence, the fact must not be overlooked that she is very easily taught to hunt everything that any other falcon can chase and with greater facility and swiftness, since she excels in courage, power, and speed. By whatever method other falcons are taught to capture any bird the gerfalcon may be instructed even more expeditiously to do the same."

PRACTICE

Introduction

The monumental work of the Emperor Frederick II actually consists of six separate books, and Books II - VI deal specifically with the practice of his art. Here we carefully but briefly deal with Books II - IV which cover precisely the topics that their titles proclaim: Book II, *Of Falcons Used in Hunting, Their Furniture, Care, and Manning*, 80 chapters; Book III, *On the Use of the Lure; on Training Falcons to Fly in a Cast; on Educating Gerfalcons to Fly at Cranes; and on Hounds Used in Falconry*, 28 chapters; and Book IV, *Crane Hawking with Gerfalcons and Other Falcons*, 29 chapters. Selected for discussion are small bits of the Emperor's practice considered most relevant to the focus of our current work on gyrfalcons. Readers are encouraged to refer to *De Arte Venandi Cum Avibus* directly for a thorough study of the Emperor's theory and practice of falconry.

Proper Age to Take Falcons and Feeding

The Emperor discussed obtaining young falcons from their eyries from taking eggs to various aged "nestlings and the so-called branchers" (Book II, Chapter XXX). He clearly believed the older they were taken from the eyrie the better in terms of proper development, strength, and overall health of the individual. He did not think man could raise young nestlings without impairing growth and causing other defects. Methods of feeding and raising young were used that simulated natural conditions as closely as possible, and he recommended that falconers "observe the feeding methods of the mother bird, for her system of nourishing her young is far better than any one man may devise, and it should therefore be adopted" (Book II, Chapter XXXIII). He also discussed catching falcons on migration, their wintering ground, or when they return to nesting areas in spring, and mentioned that both immature and adult birds can be taken (Book II, Chapter XXXI).



Lowering a man over a cliff to an eyrie.



Falconer with a cast of falcons.

Regarding kinds of food to use he believed birds were more suitable than “quadrupeds” (Book II, Chapter XXXIII) and that: “Wild birds (especially those that feed on grain and fruit) furnish more sustaining and better food than those of the barnyard. Wild fowl that eat meat, particularly worms, are less nourishing. The flesh of birds that feed on fish is the least desirable. Young falcons should be given the flesh of domestic fowl, like hens and pigeons, only when it is impossible to secure birds of the fields, such as [wild] pigeons, doves, thrushes, larks, wrens, partridges, and other small birds that are generally con-

sidered good as food.”

He further wrote: “the flesh of domestic animals does not agree with the growing falcon as well as that of wild beasts, for the farm animals live in less pure air and consume less suitable food than their wild counterparts. The former also get less exercise while searching for food and have more superfluous fat.”

Handling Techniques, Equipment, and Influence

With few exceptions, most of the techniques and equipment identified by the Emperor in Book II have been well known to falconers since his reign and up to today.

His methods clearly are the foundation of falconry worldwide over the past seven and a half centuries, and with the help of his son Manfred, they achieved unsurpassed influence on the art and practice. The screen perch used commonly by falconers since his reign is perhaps the only significant piece of modern falconry equipment not mentioned by the Emperor, excluding, of course, the recent employment of radio telemetry. Even the bells illustrated in the original manuscript are strikingly similar to those obtained during modern times from Ardabil in northwest Iran and also those imported into America from Leipzig, Germany for Native Americans during the fur trade era (Carnie, pers comm). Frederick was responsible for introducing European falconers to the use of the hood; a practice adopted from the Orient (Book II, Chapter LXXVII) as well as countless other basic practices far to extensive to review here.

Emperor Frederick II established the traditional approach to taking, manning, and handling falcons. He recommended taking eyas birds at the “brancher” age, appropriate housing, equipment, feeding schedules, capturing and transporting procedures, and proper “carriage of a falcon on the fist” (he used both hands depending on wind direction). Nine chapters in Book II focus on the topic of bathing alone and how to avoid or deal with it. He covered training of the seled falcon through the senses of taste, hearing, and touch (Chapter LIII) and taming of falcons by the gradual restoration of eyesight (Chapter LIV). Horses, carrying falcons in and out of mews doorways, the bath, and *On Sprinkling the Falcon with Water* are all thoroughly discussed in his typical practical manner based on extensive personal observation and experience. As stated in the *Translator’s Introduction*, “there is little speculation, and very little verbal digression. Nor is he dogmatic in expressing his opinion; whether he approves or disapproves, he gives his reasons for his conclusions.”

Luring and Use of the Creance

The first fifteen chapters of Book III focus on luring and basic principles used throughout the Emperor’s practice are clear. During training, he provided meaningful rewards which not only built confidence in the falcon, but also anticipation and eagerness to behave in the desired manner when given the opportunity to do so. For example, in Chapter II titled *On Various Classes of Falconers Who, Reprehensibly, Do Not Use a Lure*, he listed several

reasons why forgoing the lure misleads the falcon into problem behaviors. Employing live pigeons or chickens regularly to call back a falcon will, among other maladies he pointed out, make the falcon “more willing to return to her master than to attack a crane.” When training a falcon to come to the lure he used meat, “we have observed the falcon to enjoy most.” He tied this to both sides of the lure “so that no matter upon which side that device falls to the ground there is meat in evidence,” and he took carefully outlined steps to make sure the falcon “will be fairly eager for food.” After establishing a pattern of consistent response, the Emperor strengthened desired behaviors with suitable rewards while guiding the falcon toward envisioned goals. He wrote, “owing to the favorable experience, she will come a longer distance to the lure.” The basic technique of reinforcing actions that gradually merge and create a confident and proficient crane hawk is seen throughout his procedure.

Use of the creance also illustrates a primary focus on safety, health, and reinforcement with a minimum of negative experience. He pointed out after listing options that “A meadow is by far the best locality for outdoor luring, as there is no obstruction of the line, the fal-

con’s feathers do not suffer harm, and the meat on the lure remains unsoiled. The shorter and thicker the meadow grass, the better the situation for our purpose.” Wet grass was to be avoided because “a falcon who sees dew-sprinkled grass will think there is water beneath it and may not come down at all.” If forced by the creance to land in this situation, the falcon will be “more frightened than if she fell into dry grass.” For similar reasons, the Emperor advised against lure flying on

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could be used for the purpose of illustration, but those outlined above are sufficient examples of his steady focus on safety, health, and continual orchestration of favorable experiences that build confidence in the falcon, based on meaningful rewards that guide the developing hunting partner along a selected course.

Flying in a Cast

Considerable insight into falcon psychology and handling methods can be gleaned from the Emperor’s discussion of flying birds in a cast (Chapters XVI - XVIII). Gyrfalcons and sakers were “most frequently taught to take large birds, in whose capture co-operation is more necessary than in hunting small birds.” Falcons that flew in a cast learned their lessons with the “hare train” and “crane train” more easily than others, but the Emperor pointed out that “Some birds can be flown together and some cannot,” and also “that there are fewer gerfalcons and sakers that fly well together than of any other species.” He further revealed that “neither her acts nor her appearance may indicate a falcon’s disposition to collaborate; because some birds will sit quietly together on the same perch yet cannot be flown in a cast and will

not associate in other ways. On the other hand, falcons that will fly together do not always agree to remain on the same perch and to live harmoniously otherwise. They must be tested in action, and the best method of doing this is to fly them in unison to the lure.”

The Emperor then entered into a fascinating account of how to test their compatibility and teach cooperation when a falcon showed any of “at least three signs by which birds of prey manifest unwillingness to work together.” In very brief re-

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view, he encouraged non-cooperative falcons to focus their attention on a hare “because a falcon bears greater resemblance to an avian lure than to a quadruped hare.” When confident on the hare train, he fattened the falcon and flew her at the train with an experienced “make falcon” achieved the desired collaboration repetitively, lowered her weight once again, and then entered the falcon with an agreeable partner at cranes.

When discussing falcons flown in a cast who crab while standing on the quarry (Chapter XVIII), the Emperor identified two primary reasons birds “refuse to stand peacefully side by side on their quarry.” The first is fear of losing her prey and “she spreads her wings and tail over it, bends her head, and turns her back to her approaching companion.” The second is a fear of being directly attacked by the other bird shown when “she opens and spreads her wings, faces her foe, flattens her feathers, opens her beak, and fixes her eyes upon her enemy. As soon as her associate reaches her, she attacks with beak and talons.” He then described related postures in the second bird approaching the first already on the quarry.

Building Power and Courage

After explaining luring and teaching falcons to fly in a cast, the Emperor outlined his procedures “for instructing falcons to capture quarry. As gerfalcons always take precedence in our consideration, and as they must be taught by methods that vary according to their individual characteristics, we shall discuss first the various kinds of gerfalcons” (Chapter XIX). He reviews eyases and those “taken wild after leaving the nest” both before and after the moult. Negative effects from long journeys are discussed, and he recommended several pre-

scriptions of rest based on specified individual characteristics “so that they may recover their strength and keenness.” He noted that “An eyas is less harmed by bad handling than a wild caught falcon,” and this was “primarily because they are more accustomed to captivity.”

Key to success in his program was establishing a solid foundation of physical and mental health in the gyrfalcon, and this could require

tions explain how to encourage pursuit of the hare train including tying meat to a “counterfeit hare,” how to pull this dummy on foot and from horseback, and the employment of hounds. Skilled assistants were required throughout the process. The Emperor’s preference for using a hare rather than a goose, bustard, or other bird at this preliminary stage in development “is that no other flight is more beautiful or more resembles the flight at a crane than that learned with a hare.” He further explained that it is undesirable to have the gyr chase these other birds when hunting cranes. He recommended flying hares around “plantations and thickets,” which taught the gyr “to throw up to greater heights - a necessary accomplishment in crane hawking.” All eyases and badly handled passage or haggard gyrs required this training.

The Crane Train

Chapters XXII to XXVII deal specifically with the highly refined process of instructing the gyrfalcon with the crane train. It began by lowering the falcon’s weight, and “Those birds that are naturally more eager and courageous have less need of being reduced than those that show less spirit and keenness.” The gyrs weight was adjusted based on her “eagerness to fly, taking care to maintain her strength.” The Emperor found it “necessary to have her thinner when flown at a train than when entered to free-flying birds or hares.” The procedure was timed to coincide with crane migration, and sometimes done before moult to “facilitate their further training when they are again brought into the open.” He advised that, “Lessons with the train should be pursued without any interruption, and once begun they should be completed in their regular order.”

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a full year or more of careful handling after acquiring the bird. The Emperor recognized that “Power and courage are two qualities requisite in gerfalcons if they are to make good hunters. To be powerful they must be sound in health and must be and must have been well treated. Their courage is derived from a virile will power. For this, also, careful handling is essential, for improper treatment may render them inactive and awkward.”

When the gyrfalcon was strong and healthy enough to begin training for hunting, the first step was to fly her at hares. Detailed instruc-

The Emperor provided elaborate and specific instructions for preparing a live crane for use as a train. The crane’s claws are blunted not with a knife but “are charred by means of a lighted wooden splinter until their sharp (needle-like) points are blunted and thickened; then when the crane strikes no serious injury is inflicted on the falcon.” Frederick continued:

“The beak is rendered harmless by passing a small cord through the opening in the two nostrils and binding the lower mandible to the upper, so that the crane cannot bite. Then the crane must be seeled so as to render her quite blind and unable to see when and where to strike the falcon.

A weak crane may be used for the train at the beginning of the instruction period, but it should be able to stand on its feet.”

Frederick then described how to carry a strong crane in a cloth sling between two sticks and explained: “The crane’s efforts to escape, the carrying about, and the bending of its legs in the sling, which causes pain in the knees, all contribute to stupefy and weaken the bird to a point where it can be utilized in the train.”

The Emperor then provided specific instructions for placing leather straps like jesses on each leg which join to a two-foot cord: “the opposite end of which is fastened to a single cord at least ten paces long and the size of the shaft of a goose quill. A further requisite is an iron stake a foot in length with a sharp point and a head large enough and flattened laterally to provide space for a hole the size of a man’s thumb.”

After making all the above preparations, the Emperor described clearly how to set everything up in a “meadow or a flat grassy place where the herbage is short and sparse.” Meat to entice the falcon was tied to the crane’s back in a specified manner. With all in readiness, “one man stands at the end of the cord stretched across the wind, while a second falconer stands holding the gerfal-



con at such a distance behind the crane that she can see the meat on its back. A third man takes his position near the second assistant on the side away from the hand holding the falcon.”

The Emperor described thoroughly how to proceed from this starting point in the use of the crane train for the gyrfalcon’s education. In a gradual way, the train began to resemble a strong, wild bird as the gyr developed positive association with the quarry and confidence in flying and catching cranes.

As a further example of the thoroughness of the Emperor’s methods, he clearly explained how

to make a dead crane call “to teach a falcon to recognize the call of the crane.” After describing how to make the incision and draw out the voice box, he instructed “the falconer should then grasp the end of the pulmonary tube and blow into it, inflating the lungs and trachea with air. Taking care not to allow the air to escape between his fingers, let him pinch the end of the larynx, near his mouth, and remove it from his lips. When he wishes to imitate the voice of the live crane, he has only to compress the sides of the bird and release the end of the tube held in his fingers. The crane will then emit the same call as the live one.”



Crane Hawking

When being rewarded with a good meal following a successful flight at the train, this was done to build a positive association with the crane's voice. He even had an assistant move the crane's wing "to make her think the quarry is still alive and giving voice."

When the gyr was ready to be entered at a captive flying crane, the trainer used a make hawk and the pupil was flown with it in a cast. If the gyr could not be flown in a cast, the crane's feet and beak were secured in the manner mentioned previously to prevent injury to the falcon. Throughout the training process assistants were required, but at this point more were needed "because the crane now in use is stronger than those previously employed and the flight of the gerfalcon is longer." Assistants were "posted to windward ahead of the crane, another to the right, and a third to the left of the quarry, so that no matter in which direction the bird flies, or turns, a man on horseback is at hand to give aid."

The falconer was expected to release the gyr at the crane when it flew and not before. Assistants were instructed to remain still until the gyr passed by them, then chase and be ready to assist the gyr by restraining the crane's feet. Movement from an assistant too soon could cause the gyr to fly to him for food. Falconers were advised to vary training spots and not use the same ground more than twice in a row to accustom the gyr to fly in different locations where cranes are found.

The long procedure elaborated by the Emperor was not required for all gyrfalcons. As he explained, "the method we have described for the education of gerfalcons is adapted to the less spirited of them. A courageous falcon will not require such long, continued training." Again, this seems directly related to the long, difficult journeys necessary for Frederick II to obtain gyrfalcons.

In the final chapter dealing with the crane train, the Emperor commented *On the Value of the Train*

in the Education of the Gerfalcon. Here he pointed out that although some courageous falcons will attack wild cranes without preparing them with the train, it could be a big mistake to allow them to do so. The gyr may be injured, discouraged, and "the oftener she is flown at a crane in this fashion the less eager she will be to fly at such quarry." This forced the falconer to revert to using a train, but the gyr quickly recognized the weakened and easy crane and had already learned that the wild crane is "much stronger." He explained how "in this manner she develops the bad habit of refusing to fly at a wild crane, since she is able to distinguish it from that used in the train. For this reason it is only before they are entered to wild cranes or other large birds that the train is useful in giving instruction to both timid and courageous falcons."

In the previous chapter, he had already pointed out that "having once flown her at a strong crane, she must never be given a weak quarry; for this leads to bad habits."

The Emperor's procedure in using the crane train was clearly to make the gyr "become so habituated to good results that in case she fails, through lack of assistance or some accident, to capture a crane at which she is flown, she will not thereby be rendered overcautious in future flights. Thus the effect of previous successful operations will prevail. This would not be the case were she flown first to large birds without practice with a train, for she would then have no memories of former happy experiences."

CRANE HAWKING

Primary Requisites

Following his discussion of the train and using hounds to assist the falcon, the Emperor began Book IV titled *Crane Hawking with Gerfalcons and Other Falcons*. The initial chapter is *On Cranes and Their Feeding Habits* because "it is important to know where cranes are generally found, for they shift their habitat with the changing seasons, the

hours of the day, and the prevailing weather." The text that follows reveals a remarkable understanding of cranes, essential when hunting them at the sophisticated level of the Emperor's practice. Consider the next four chapters (II - V), which convey learned information about the best seasons for hawking in different regions, suitable weather, time of day, and specific districts most appropriate for crane hawking. The Emperor was far beyond just catching cranes with gyrfalcons. He employed a huge command of gyrfalcon and crane behavior and nature along with an exhaustive knowledge in the theory and practice of falconry to capture his chosen quarry in the manner he preferred. Doing so, Frederick II achieved his primary aspiration in the art.

A small group of cranes was best to enter a novice falcon "since cranes assist each other against a common foe," but deciding between a group of two or three depended on the presence of young birds. It was a mistake to fly such small groups near a large flock of cranes because the falcon may not fly the selected birds boldly and if she did catch one, "many, if not all, of the other cranes would come to the assistance of their captured companion," (Chapter VI). Later in Chapter VIII, the Emperor provided instructions *On How the Mounted Falconer Separates Two or Three Cranes from a Flock*.

On the Equipment Suitable for a Falconer Hunting Cranes is the title of Chapter VII. Requirements of clothing to be worn, behavior and equipment of the horses to be employed, and essential falconry equipment, including how to use it, are all described. Chapter IX is titled *On the Signs That Cranes Will Remain Quiet While the Falcon Is Being Slipped*. Here the Emperor made use of his extensive observations to describe how to recognize the disposition of the cranes being flown, a skill that was elemental to serving the falcon at the proper moment.

The Emperor identified four primary considerations for a falconer who hawks cranes (Chapter X):



Falcon resting on board a ship during a storm.

"These are the nature of the locality, the direction of the wind, the provision of dogs for co-operation in the hunt, and the nature of the aid he himself and his fellow falconers can bring to the falcon. The last-named assistance is indispensable because, though the crane, strong and dangerous, may inflict only a single wound on the falcon, that injury may prove to be a serious handicap."

He continued: "In this form of the chase, there must be at least four men in addition to the falconer, or falconers, who are to fly their birds. If there are more, all the better. They must be mounted on fast horses, and each man should if possible be accompanied by a trained hound. It is absolutely necessary to have at least one dog; and any number up to four is desirable."

He pointed out that it is es-

sential for the falconer to "first of all make himself familiar with the entire region in which he intends to go crane hawking."

To Proceed

Chapters X - XII go into detail about posting assistants in various circumstances including: *On the Posting of Assistants on an Open Plain Free of Obstacles, Either on a Quiet Day or When a Breeze Is Blowing; On Posting Assistants on a Plain Where There Are Impediments to the Hunt, Both in a Breeze and When the Air is Quiet; and On Posting Assistants on a Hillside under Various Conditions of Wind and Terrain*. Chapters XIII - XVI then explain where the falconer should position himself: *On the Position of the Falconer in a Breeze on a Plain without Obstacles; On the Post of the Falconer in a Breeze on a Plain with Obstacles; On the Position of the Falconer on a*



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Hillside That Presents No Obstacles, On the Position of the Falconer on Either a Windy or a Quiet Day; and On the Position of the Falconer on a Hillside with Obstacles and on Either a Windy or a Quiet Day. Frederick II had a remarkable understanding of how to proceed under various circumstances after suitable locations to hawk cranes had been selected. Chapters XVII - XXI discuss precautions, hounds, *On Encircling the Cranes on Horseback before Slipping the Falcon, On the Nature of the Assistance to Be Given a Gerfalcon When Flying at Cranes, On the Gerfalcon That Binds to Her Quarry, and On the Gerfalcon Unable to Bind to Her Prey, and on the Proper Treatment of That Condition.* The Emperor emphasized that when approaching cranes "there must be no quickening or slowing down of pace and no delays, for frequently this uneven progress disturbs the cranes and causes them to take alarm, rise, and fly away." He had not only the approach down to a refined art, but also what to do when faced with a number of contingencies after the gyrfalcon began her flight. Of main concern was proper presentation of the quarry followed by effective assistance to prevent the crane or cranes from injuring the gyrfalcon. A gyrfalcon that bound to a crane required immediate help from the nearest assistant who galloped over, dismounted, and ran to her. "He should then seize both legs of the crane, bind them together, extend them along the ground backward, and place a foot on them. Also, the crane's beak must be forced into

the earth up to the eyes. Its breast is then exposed. The falconer must now hold the crane's wings with his hands and allow the falcon standing on her quarry to deplume it."

To further reward the falcon, the crane's heart was removed for her to eat and the breast slit open with a knife to make feeding easier. The gyrfalcon was fed well, rested, and then flown again two days later.

Gyrfalcons sometimes took a crane but were unable to hold on for various reasons. This may have occurred due to locality, the strength of the crane, help from other cranes, the gyrfalcon having been too fat, human assistance having been too late, or the appearance of eagles. When caused by the falcon being too fat, immediate rewards of food were not given and the gyrfalcon's weight reduced. In all other cases, the gyrfalcon was rewarded well with food either from a captive crane or lure to build the falcon's confidence while preventing discouragement. When a gyrfalcon was injured, she was fed well and kept quiet long enough for a complete recovery "not only to regain her health but that she may forget her injuries."

In Chapter XXII, the Emperor identified six reasons why a gyrfalcon might fail to capture a crane: "(1) that she was not given sufficient practice with the train; (2) that she is too fat, or (3) too thin; (4) that she was frightened by eagles or vultures; or (5) she may abandon pursuit of the crane for that of other birds (an act called checking); and, finally, (6) the quarry may have eluded her

through effective and clever maneuvers."

The Emperor then described how each of these is recognized and how to deal with the situation. In one fascinating paragraph, Frederick II wrote: "We have ourselves witnessed such craft and shrewdness in cranes that one might believe them to possess reasoning powers. For example, after we had slipped a gerfalcon at them and she had separated one of the birds from the flock and was in pursuit, her quarry, happening to see vultures standing in a field, took refuge among them and so gained sanctuary, because the gerfalcon would not then dare to attack the crane. It seemed as if the crane knew the falcon would think the vultures were eagles that she would not have the courage to approach."

Throughout his writing, one gets an unmistakable impression that Frederick II not only had the highest regard for gyrfalcons, but also a similar level of appreciation for his primary quarry. The crane challenged the gyrfalcon like no other quarry known to the Emperor, and here lies the foundation for his passion. He flew the most noble, capable, and courageous falcons at quarry that challenged the falcon and falconer to the utmost, and he did it at the epitome of refinement in the art. No one before or since has taken the art of falconry with any kind of hunting bird flown at any type of quarry to a higher level of perfection than did the Emperor Frederick II when flying gyrfalcons at cranes.



Figures of falconers illustrating the proper handling of falcons to prevent bating.

Flying Gyrfalcons in a Cast was for Training, Not Crane Hawking

The Emperor did not, as is commonly believed, routinely fly a cast of gyrfalcons at cranes. Flying birds together was done primarily to show a novice in training what was expected. Chapters XXIII and XXIV cover this topic in detail. The experienced make hawk was slipped at the cranes before the novice who would follow and join on the kill. Specific instructions on how to accomplish this successfully based on the experience and characteristics of each bird are provided. A primary concern, as always, was preventing harm to either falcon. The goal was to develop an admirable performer that would take cranes alone. He advised against flying birds "continuously together, for if they fly uninterrupted in a cast they develop bad habits. When one falcon expects always to be assisted by the other she loses her

desire to fly alone." Again he pointed out, "gerfalcons and sakers are among those that are least willing to fly double." He recommended that neither, "should, as a rule, be flown in a cast." In comparison he mentioned, "peregrines and noble falcons, who are not so strong or competent in taking their prey as gerfalcons and sakers, may be flown as many as three together with good results; and the cranes will be unable to escape."

Flight Characteristics

In chapters XXV and XXVI, the Emperor described the various modes of flight displayed by falcons entered to, first standing cranes and then cranes on passage. He talked about a high, low, and moderate approach, flying fast or slowly, and following a "direct or an indirect line." The advantages and disadvantages of each were then analyzed. He concluded that

"lofty flights over flying cranes are the most laudable and promising, for the falcon whose pitch is high dominates the crane wherever it may be and does not permit it to fly far off. She can stoop harder and, after the stoop, rebound to greater heights, giving an exhibition of beautiful and elegant flying. She is less exposed to injury, since she can dominate the crane and not allow it to fly wherever it pleases or to travel far from the falconer's assistants, from whom she may receive help."

The gyrfalcon would either "bind to" its quarry or "force it to earth, but neither bind to nor hold it." Some falcons would circle above the grounded crane, others would land nearby and watch the quarry. Binding to and fighting with the crane was not preferred because "the falcon cannot battle with the crane without sooner or later receiving an injury from her quarry." Both favorable and unfavorable

elements of waiting in the air above the crane and watching from the ground are discussed. For example, when "flying about overhead she can quickly overtake a crane that has risen from the ground," and she may not be able to do this when starting from the ground. Further, when in the air "the falcon cannot be harmed by other cranes coming (as is their custom) to the assistance of their companion prostrate on the ground." When in the air, the falcon also would not become wet from vegetation or be hampered when taking off from "long herbage or high grain."

The falcon watching its crane from the ground, however, does so "with less exertion than in the first method, and she is more inclined to await the arrival of human or canine assistance before initiating her attack." She is also better able to focus on her selected victim and not check on other cranes.

One can understand how Frederick II was able to fly experienced gyrfalcons at cranes without injury. His gyrfalcons learned to wait for human or canine assistance. Their primary job was to dominate and force the crane to ground, and then keep it subjugated until help arrived. The gyr would then be rewarded from the dead crane as described previously. All participants including falcon, quarry, dog, falconer, and assistants had pivotal roles that were integral to success in crane hawking, which was, at its best, a beautifully orchestrated endeavor by a master falconer.

MODERN FALCONRY COMPARED WITH THE EMPEROR'S ART

Cultural Appreciation of Falconry

Falconry reached its zenith as a highly esteemed pursuit during the reign of Frederick II. Today the art is admired less in the United States of America and most other countries. America's heritage is founded upon firearms as weapons of war and implements of the hunt. There is no long history of falconry, and practitioners of the art are considered

suspect or, at best, odd in our relatively new nation. Falconry has even been judged cruel and unethical by some (Edge 1943, 1944, Hilton 1978, 1980). Sentiments like these led to the largest undercover sting operation ever orchestrated by the U.S. Fish and Wildlife Service being directed at the falconry community and resulting in no substantial wrongdoing (McKay date). The birds and their habitats will benefit when awareness of the respectable nature of falconry overcomes fear and ignorance that cause modern critics to cling to unfounded objections of the ancient art. Modern scientific studies clearly reveal falconers to be "environmentally concerned and active, and the majority are involved in conserving and managing raptors and/or educating the public about raptors" (Peyton et al 1995).

America has become a leading force promoting a worldwide environmental awareness, but our most admired naturalists have rarely been falconers. However, closer examination reveals that modern falconers often do become employed in environmental and educational professions. Compare this with Frederick II who, as stated by Burns (1944), "combined the practical talents and experience of the expert falconer with powers of observation and insight that made him the most gifted naturalist of his time." Prominent modern examples of falconer/naturalists include Frank and John Craighead. These identical twin brothers made many significant contributions to wildlife biology, the conservation of wild and scenic rivers, and even as wilderness survival trainers for the United States Armed Forces. Another good example is the falconer led recovery of peregrine falcons, the first bird ever to be removed from the United States List of Endangered Species. The Peregrine Fund founded by Tom Cade and located at the World Center for Birds of Prey in Boise was primarily responsible for the peregrine falcon recovery. Most persons involved with this effort were falconers who merged thousands of years of applied technology from their

art with modern environmental science. Their phenomenal successes worldwide confirm that falconry continues to advance the naturalist's aim.

Attributes and Aspirations of Falconers

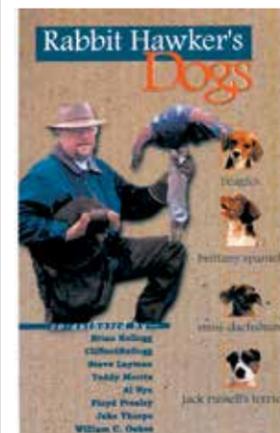
The attributes of good falconers outlined by Frederick II hold true in modern times. Falconry was reserved for the highest stratum of society during the Emperor's reign, but all socio-economic classes practice today in America. American falconers in general, however, represent "an affluent, middle-aged, well-educated group of hunting specialists with an intense interest in their sport" (Peyton et al 1995). This profile parallels that of falconers during the reign of Frederick II. The birds, human nature, and basic requirements of the art remain stable while politics and cultures change.

Modern falconers are typically not as discriminating nor refined in their aspirations as was the Emperor. Taking a selected quarry in a preferred manner was primary for Frederick II while the actual capture of prey was secondary. Although there has been considerable growth over the past thirty years toward the ideal established by the Emperor, modern falconers still tend to place emphasis on either killing game or spectacular flying rather than a mature balance between the two.

When examining the four categories of falconers defined by Frederick II, we recognize that few today fall into the first class of catching game primarily for food or other profitable use. Many more join ranks with the second group whose primary motivation is the enjoyment of sensational flying. When taken to the extreme, killing game becomes not only less important but meaningless. Modern sky trials are competitive with a *higher is better* focus that promotes this category. As Frederick II pointed out, expecting too much can weaken a bird and is an immature strategy. Perhaps an equal number of falconers today are in the third group and judge their accomplishments by the numbers

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of quarry taken. This emphasis also can abuse birds by pushing them beyond healthy limits. Only a few falconers in modern times achieve the fourth level of practice where the primary goal is to have well-trained birds in peak condition that earn distinction and supremacy in the chase. The falconer's reward at this prestigious level is deep appreciation of a magnificent predator interacting with challenging prey and is unrelated to social or material gain. It also has nothing to do with the kind of hawk flown and can be achieved with merlins on starlings, Cooper's hawks on quail, goshawks on snowshoe hare, peregrines on red grouse, and countless others as well as with gyrfalcons on sage grouse.

Use of Gyrfalcons and Handling Methods

Although gyrfalcons are valued higher than all other species today in monetary terms, for practical use in falconry they have been somewhat of a mystery for over two

hundred years. Ronald Stevens and a few others made some forward movement with gyrs during this time, but full realization of the great power of these magnificent birds as revealed during Frederick II's reign became for the most part a lost art. It is ironic that the advent of captive breeding combined with the use of imprinted birds led to modern grand flights with gyrfalcons. These are new methods unknown to the ancients. Captive breeding and the employment of imprinted gyrfalcons for high, waiting-on flights at game created a new paradigm in a truly ancient art. Related excitement inspired the renaissance in falconry with gyrfalcons.

Training methods used today are generally less refined than those used by the Emperor. He certainly made use of many more assistants than is the case today. Interesting training gadgetry unknown to the Emperor like balloons and kites have been employed by modern falconers to encourage gyrs to wait-

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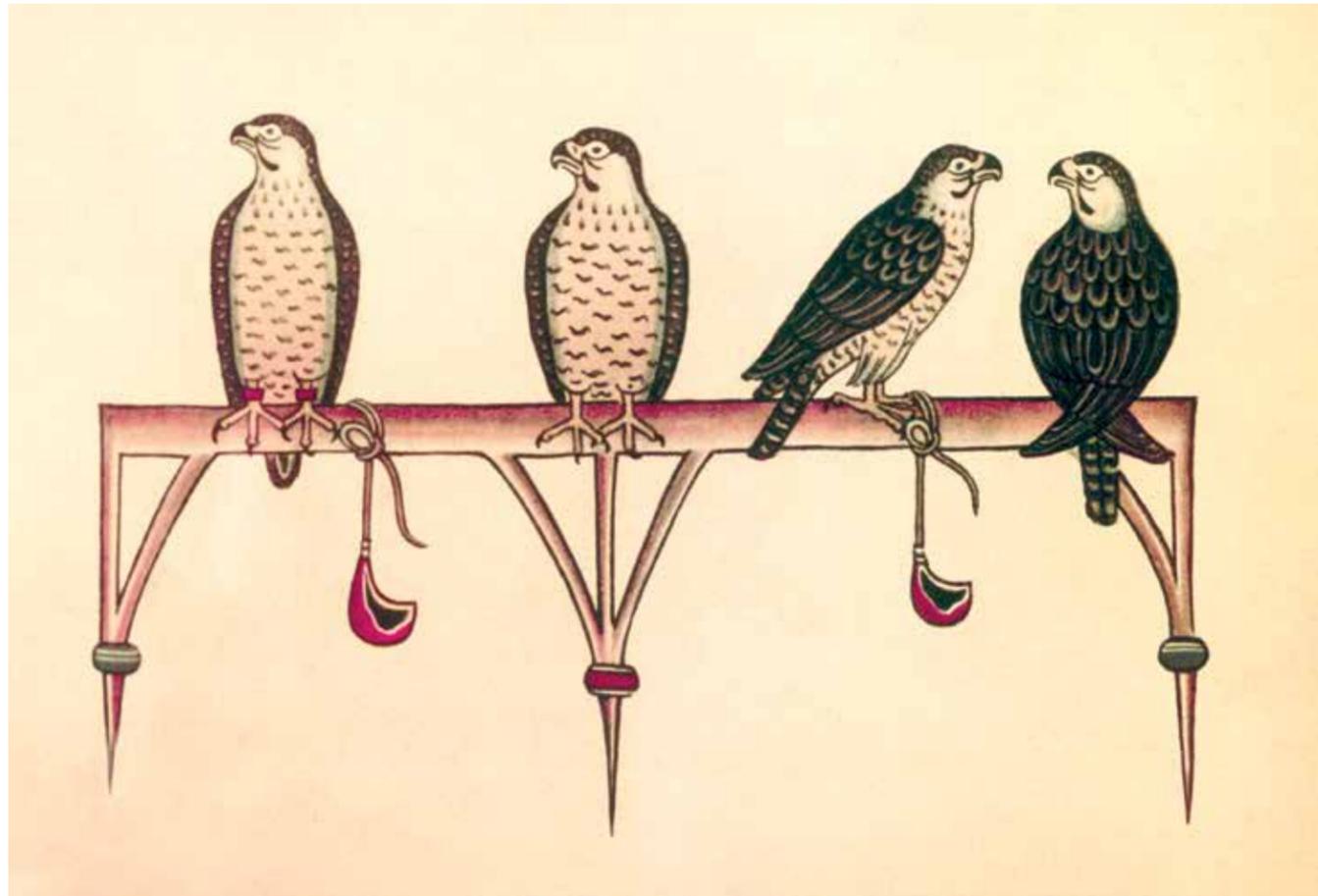
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on at a high pitch. Emphasis on health, gradual conditioning that leads to a set goal, and building power and courage with meaningful reinforcements as stressed by Frederick II is, paradoxically, seen more with the guided development of imprinted gyrfalcons than other modern methods. The new paradigm achieved with domestically produced and imprinted gyrfalcons incorporates the basic principles of Frederick II's approach to falconry more than traditional methods of training and handling in use today.

Crane hawking and sage grouse hawking are similar in that both pursue formidable and challenging quarry. Thorough understanding of cranes and grouse, the falcons used in the pursuit, and how predator and prey interact in various circumstances is essential. Dogs are used for both the flight at cranes and at grouse, and extensive preparation is required before finished results can be seen in the field. Primary differences are that in crane hawking,



Falcons on a low perch.

gyrs were flown from the fist and numerous assistants were needed. Assistants are not necessary to hawk sage grouse, and gyrs are flown like never before in the long history of falconry, from a high, waiting-on perch.

The Emperor Frederick II and his son Manfred flew gyrfalcons at cranes in the grandest and most sophisticated manner possible. Today we are expanding the employment of gyrs in falconry into new horizons and similar high levels of the art and practice. Great falcons of the North are truly in a time of renaissance. The gyrfalcons' unfathomable power and presence once again fill falconers' skies with grace.

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