

## **John T. Emlen Jr.: A Naturalist for All Seasons, Part 1: The Making Of A Naturalist-Ornithologist, 1908–1934**

by *Sumner W. Matteson*

**D**r. John Emlen, who died November 8 1997, in Madison, was a superb naturalist and ornithologist, and perhaps Wisconsin's most distinguished professor of zoology. The following paper (Part 1 of a three-part series) presents excerpts from Dr. Emlen's recent privately published autobiography entitled *Adventure Is Where You Find It: Recollections of a Twentieth Century American Naturalist*. About the title for his book, he noted: "Launching a career in the first decade of this century, expecting to terminate it in the last decade of the same, and spending most of the interim as an enthusiastic naturalist, led to the title for my informal book."

Part 1 focuses on Emlen's early years through college. Part 2 charts the beginning and middle stages of his professional life. Part 3 begins with Emlen's account of research on seabirds in the North Atlantic during the summer of 1960 and ends with a vivid description of a 1989 World Wildlife tour of Argentina. Following the conclusion of his autobiography, I will present selected recollections from some of his graduate students, as well as a com-

plete list of Emlen's published writings. A brief biographical sketch follows below and provides a contextual framework for viewing Emlen's extraordinary life and the attendant excerpts from his book.

John Thompson Emlen was born at home in Germantown, Pennsylvania, on December 28 1908. His father, John, "came from a line of Welsh Quakers" and John Jr. and siblings Sue, Mary, and Woodruff grew up three blocks northeast of the Emlen family residence on Coulter Street and three blocks north of his mother's (Mary) home on Germantown Avenue. He attended Germantown Friends' School, just as his parents and grandfather had before him, and belonged to the Society of Friends. Emlen also followed his father and grandfather to Haverford College, where he received his B.S. in 1931. He felt this was a seminal period:

The third decade of the twentieth century—the decade of the 1920s when I attained adulthood—marked a first in world history. Natural history would no longer be considered just a recreational diversion but a solid, scientific discipline

like anatomy, physiology, or biochemistry. Animal behavior, a central element of natural history, and one to which I was attracted in college and which I eventually embraced as my adult profession, was being viewed in a different light. It was being promoted into a new, more dignified field—ethology, a name apparently coined by a practitioner sensitive to the informal implications of the old traditional term.

Emlen received his Ph.D. in ornithology from Cornell University in 1934, the year he married Virginia Merritt of Ithaca, New York. They were, in time, blessed with three sons: John Merritt Emlen, who works for the U.S. Geological Survey in Seattle, Washington; Stephen Thompson Emlen, professor of behavioral ecology at Cornell University in Ithaca, New York; and James Woodruff Emlen, Vice President for Exploratory Research at Connetics Corporation in Palo Alto, California.

In 1934, Emlen journeyed to Madison, Wisconsin, to work for Aldo Leopold and then for the U.S. Biological Survey as a biologist conducting surveys of waterfowl habitat along the Upper Mississippi River. From 1935 to 1942 he served as a zoology instructor in the biology department at the University of California-Davis in the Sacramento Valley. In 1942, he joined the John Hopkins School of Hygiene and Public Health to work on an extensive rat control project in Baltimore, Maryland. In 1945, he returned to Madison as associate professor of zoology at the UW-Madison. He became a full professor in 1947, served as department chairman from 1950 to 1953, and retired in 1974. During this period, he pioneered evolutionary field studies in the ecology and behavior of birds and mammals, and he mentored 39 doc-

toral and 22 master's students at the UW. He found working with graduate students particularly rewarding:

During my own subsequent career in ethology, one thing stands out. My students, particularly my graduate students in animal behavior, were not only my pride and joy but my everyday companions on the job. With most of them I was able to get out into the field, even on a few of their overseas research projects. . . .

During those spring semesters in the late 1960s and early 1970s, until my retirement from the university in 1974, I helped several students get started on their overseas research. These included George Schaller to central Africa on his gorilla study, Norman Owen-Smith to southern Africa on his rhinos, Richard Penny to the Antarctic on his penguin study, Roger Evans to New Zealand to study Red-billed Gulls, and Gordy Stephenson to Japan on his monkey project. All in all, it was an ideal arrangement for both the students and me, their professor.

My other students, working on their home-based projects in the states, were not neglected. I still had adequate time for their special programs during the summer sessions and fall semesters when I was still on campus.

During the course of his UW tenure, he presided as president of the Wisconsin Society for Ornithology (1955–1956), president of the Wilson Ornithological Society (1957–1958), and, soon after he retired, as president of American Ornithologists' Union (1975–1976). He also served as president of the Cooper Ornithological Society (1939–1940). Among notable awards bestowed on him was a John Guggenheim Fellowship, a Fulbright Fellowship, and the highest honor in American ornithology—the Elliot

Coues Award—which he received in 1973.

After his retirement, Emlen and Virginia conducted research overseas in several countries, and in Wisconsin he coordinated rare bird surveys for The Nature Conservancy during 1987 to 1990. In recognition of Emlen's exceptional tenure at the UW, a scholarship fund was established in his name in 1994 to award to a graduate student who demonstrated outstanding potential for creativity in field research.

### THE EASTERN YEARS (1908–1926)

The Emlen family was tight-knit and worked together: his father and grandfather, James, shared an office in Philadelphia “where they managed the business affairs of several pioneering social service organizations.” Emlen proudly described his heritage and the origins of his yearning to explore the natural world.

The first of the Emlen tribe to appear in America was apparently a young Welsh lad, George Emlen. Responding to a streak of religious zeal, George joined William Penn as his personal cabin boy and shipped out from Cornwall in 1681 to join Penn's Quaker colony in the City of Brotherly Love—Philadelphia.

Mother's father, Woodruff Jones, was a businessman, chemist, and accomplished musician, serving as organist for Germantown's Westside Presbyterian Church where his daughter Mary (my mother) occasionally pinch-hitted for him at Sunday services. The Jones tribe made their appearance in America in the early 1700s, bringing a series of distinguished citizens to the Philadelphia area including the statesman Samuel Carpenter and General Isaac Wistar, a true western adventurer and writer of the 1840s

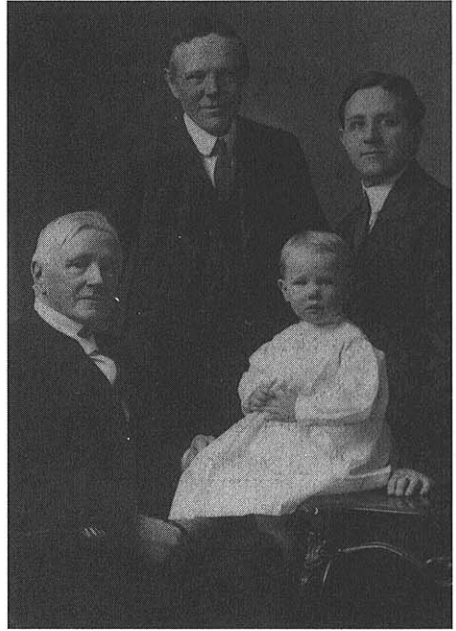


Figure 1. John T. Emlen Jr. as a very young boy with his father, grandfather, and great grandfather. Emlen Family Archives.

and later a military man who distinguished himself in the Civil War. Perhaps Cousin Ike's genes had something to do with the restless spirit of adventure that stirred me to my escapades of the mid-1900s as reflected in this little book and to my interests in the biological sciences, for among other things, he was the founder of the Wistar Institute of Anatomy in Philadelphia.

Emlen's earliest memories were steeped in Quaker life and tradition, and it did not take long for him to begin daydreaming about lands beyond America.

Among my earliest memories were Sunday morning walks to Grandpa and Grandma Jones' house on “Main Street” where we were occasionally permitted to play a few notes on Grandpa's pipe organ before crossing the street to the [Ger-

mantown Friends] Meeting House grounds. Friends (Quaker) meetings were generally silent affairs where we kids were encouraged to sit and try to focus our thoughts on beautiful and inspiring people such as Great Grandpa Emlen or Aunt Sally Moore, whose serene countenance was indeed inspiring.

Meeting was followed by Sunday school held in the neighboring Sunday school building, after which we would dash home to offer a hand of help to Lizzie Gamble, Mother's Irish kitchen helper. By this time Lizzie would be churning the crank on our ice cream freezer, a job that progressively became heavier and heavier as the cream slowly thickened into the semisolid state that we kids all looked forward to as the best dish of the week.

Sunday dinner was also the occasion when Father, as a member of the overseer's committee, would often round up some interesting foreign visitor or visitors after the meeting and bring them home to introduce to his family. People came with strange names and strange accents from Japan, Afghanistan, Lebanon, and other distant places that I was familiar with through my stamp-collecting enthusiasm. Those Sunday afternoons my sisters and brother spread out and displayed our amateurish stamp collections as the visitors entertained us with tales of their homelands, occasionally reaching down into a deep pocket to find a crumpled stamp. These Sunday occasions were very special for me, firing up my enthusiasm not only for stamps but also for the world of adventure in distant lands around the world.

Many a Sunday afternoon was spent in the company of his grandfather, great grandfather, and great grandmother at "Aunt Sally's house."

Grandpa was generally the center of attention. While Great Grandpa and Great Grandma sat quietly nearby, Grandpa was drafted to draw cartoons or

compose poems on the cardboards that we kids had brought along for the occasion. How I wish I had saved more of those Grandpa creations—generally clever and funny drawings of animals reminiscent of those he had drawn and had bound into a book for his son, my father, back in the early 1880s.

The Emlen kids lived a carefree life during summers, and John especially loved to romp around the family's

. . . big backyard, the main part being big enough for vigorous soccer games, and, on occasion, roughly marked out with lime as an unofficial, substandard-sized tennis court. A smaller unit surrounded by a low hedge sheltered five small flower garden plots. This consisted of a central circular plot with a bird bath and a swing surrounded by four smaller plots, one for each of us children. Suspended from a sturdy wooden frame, the swing was an idyllic spot to while away the hours after school or to tease little sister



Figure 2. Emlen at age 12 (back left) with his siblings, Sue, Mary, and Woodruff. Emlen Family Archives.

Mary or brother Woody by swinging them too high. For the winter months Father had a sturdy, 6-foot wooden toboggan slide erected with a slope that we would pack with snow. Here we would launch our Flexible Flyers at the top to dash diagonally across the yard and, when the ground was icy, around the west end of the house to the hedge on School Lane.

Emlen's first lively and soon-to-be-serious interest in birds began with the domesticated chicken.

Aside from canaries, pets were generally frowned on by my parents in those early years, but Grandpa Emlen had an old (30 years old) carriage horse named Queenie and a beautiful airedale dog

named Lassie that we children all loved. I apparently loved animals from the start and eventually wore down my parents until they bought me some pets of my own. The first was a Bullfinch that uttered a variety of largely unmusical chirps, and the second was a Shama Thrush that had a rather lovely song.

But my longing for more pets remained almost overpowering until my parents announced one day that they were presenting me with a flock of chickens. I can't remember what year that was, but one day a carpenter appeared with a pile of lumber and wire fencing and started building a chicken house and fence behind the garage. Mother looked on this as an introduction to business for me, and we made an arrangement, then and there, that I would start a bank account and, at an agreed-upon price, sell the eggs to her and buy the feed, a protein-rich mash called Lay-or-Bust guaranteed to produce eggs.

Seven beautiful hens, white Plymouth rocks, were established and promptly given names suggested by their physical traits. Grandpa Emlen commemorated this start of my ornithological career with one of his poems:

*My chickens are seven;  
If I had four more, there would be  
eleven.  
The hens lay eggs; the rooster crows;  
They scratch for food with their fingers  
and toes.  
They roost up high, as chickens should,  
Then walk down stairs on a stick of  
wood.  
They take a drink from a clean tin  
pan,  
And then get busy as fast as they can.  
When Johnny comes out in the early  
morn,  
He gives them water, sand, and corn.  
And when he sees they're warm and  
dry,  
He shuts the door and says, "Good-  
bye."*

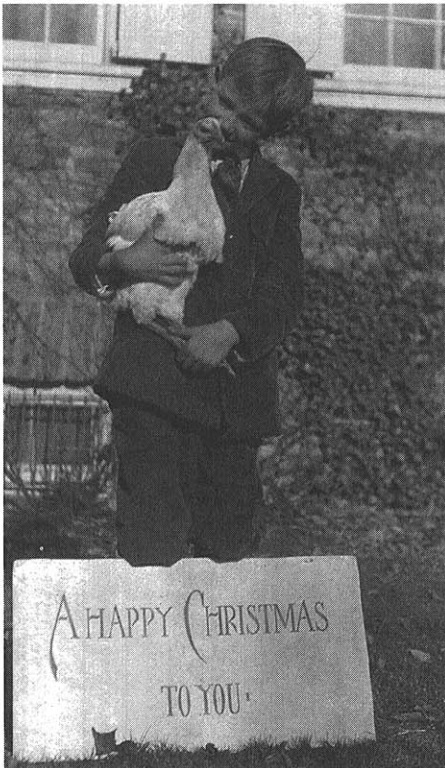


Figure 3. Emlen and pet chicken, Germantown, Pennsylvania. Emlen Family Archives.

Starting immediately, my daily before-breakfast chores included scraping the dropping boards under the roosting perches with a hoe, putting the scrapings into a manure can, dusting the boards with sand, removing fouled straw from the floor and the outdoor hen yard, and distributing feed and fresh water in the appropriate containers. Then I had time to get acquainted with my flock, usually sitting down with one of my favorite hens on my lap until a cry of "Breakfast's ready" came from the kitchen. I got to know each bird intimately by physical, primarily facial features, yes, and by voice. Each bird had a distinct personality and I came to have my favorites and my dislikes. They, furthermore, seemed to recognize my reactions to them and respond. (Seventy-five years later, as a professional animal behaviorist, I remain puzzled and fascinated by those memories, still rather vivid in my mind.)

Eggs soon appeared in the straw-filled nest boxes on a lower shelf, and I proudly brought them in to Mother for family consumption. As the season advanced, egg production increased until there was often one egg per day for each hen. I was in business and I loved it; the chickens were a real success for which I somehow felt a great deal of responsibility.

As spring weather came, some of my chickens began to crouch when I approached and to develop new and strange clucking sounds. This, I came to realize, was a sign of the broody condition. My chickens were capable of raising chicks, but for this I was told the attention of a male would be required. The idea did not appeal, but I yielded after my father explained to me the facts of life and reproduction in animals. My chickens were teaching me the fascinations of the world I lived in.

That spring I built a chicken coop, a roomy wooden box with vertical slats in front to keep the mother hen inside while her brood of tiny chicks would be

free to wander outside into a 6- by 2-foot screened runway. A dozen fertilized eggs, collected from the hen house after the rooster had done his job, were placed ceremoniously on a soft bed of straw in this box under my favorite hen, Methuselah Jane, who sat there patiently, protesting any time I disturbed her, for 21 days. On the twenty-first day, tiny peeps could be heard when I carefully raised the coop's lid. Within a few minutes a tiny yellow head appeared from under Mussy's wing. The miracle of life had happened right here in my homemade chicken coop. The next day, 12 chicks were there, cautiously venturing out from under their mother to explore the world of the coop and what lay beyond in the mowed lawn on which the run had been placed.

In the following years more chicks were raised, and my egg business boomed, producing more than our family of six could consume. But now there were new problems. That big rooster resented my intimacies with the hens, which he recognized as his personal property. Unfortunately his responsibility did not extend to the cleaning and feeding with which I was charged. My shins became black and blue as he charged at them, pecking and beating them with his remarkably bony wings. My only defense was to kick him away. But despite my best kicks, which sometimes catapulted him clean across the chicken yard, he invariably returned with even greater determination. Something had to be done! I consulted Father who suggested that it might be necessary to kill him. This horrible thought was at first unthinkable, but as the days went on and my shins got bloodier, despite the protection of long pants and specially designed shin guards, I conceded.

One day, [local hired hand] Alec was instructed to bring out the axe, and the following Sunday we had roast chicken for dinner. I had learned another of life's cruel messages: painful decisions

must sometimes be made at the sacrifice of fondly held principles. The death of any animal or bird was always very hard for me to face in those early years, particularly when my little chicks died. I buried each tiny corpse with a little wooden cross against the back fence and shed genuine tears of grief before I slowly came to realize that death is just an aspect of any life in the real world and must be accepted.

There was certainly more to life than what occurred in Emlen's backyard, as he soon discovered during trips in the family's first automobile. In those early years, cars were still novelties, he recalled. And how easily forgotten it is that horses were an important part of the local economy, even during the first two decades of this century.

Horses were still abundant, pulling a variety of carts and delivery wagons. Their clop, clop, clop was a familiar sound from my bedroom in the predawn hours, the bobbing light from their gas or kerosene lanterns on my bedroom ceiling closely matching the sound of the horseshoes on the cobblestone pavement. Mother remembered from her childhood how the streetcars of that period were horse-drawn. The world had come a long way since that time.

Our first family car, a 1919 Dodge touring car, was a pride and joy. Big enough to seat the whole family of six, it was driven by Mother every Saturday morning to Costello's market on Spring Garden Street, a 14-mile roundtrip through scenic Fairmount Park along the Schuylkill River with its many bridges and monuments. Along the route were several flowing springs with pipes spouting clear, cold water from the mouths of carved lion heads. Here we would stop to fill a couple of 5-gallon water bottles. Our tap water at home was strongly chlorinated, an early response to the pollution that was already a problem in Phila-

delphia. Our principal activity as passengers, however, was identifying the cars that we passed, especially the huge Pierce Arrows and an occasional Mercedes or Rolls Royce.

My attention on these Saturday morning trips was also drawn to the flocks of ducks swimming on the river. From our family bird book, a little paperbacked Reed's bird guide, I discovered that they were American [Common] Mergansers. I was particularly curious to note that there were many more of the brown-headed females than the handsome green-headed males, and I wondered why. These birds and others that I encountered on walks and sketching trips with Father in the upper or Wissahickon portion of the Fairmount Park awakened an interest in birds that was to influence my entire life.

Early on, school life held little of Emlen's attention. Instead, he found himself increasingly drawn to birding.

School was a bore. I hated it, but pressures from the teachers and my parents were such that I only played hooky once, and I found that even more boring. I went to kindergarten at age four, but my parents were advised that I should repeat it. The reason given: I had pulled the little girls' hair and perhaps might learn better manners with a second year of the discipline. . . .

My best school friend, Ben Hiatt, shared my interest in birding in the Wissahickon "wilderness" areas, especially the cavelike recess under Walnut Lane bridge where we had a secret hide-out. Breininger's Hill, a rather desolate hilltop, also had its peculiar charms. Here in the spring we would take our butterfly nets and collect a few sulfurs and mourning cloaks. In winter we would take our Flexible Flyer sleds to the hill and dash recklessly down the steep slope out onto the thin ice of Wissahickon Creek near the historic Rittenhouse Mill. My friend-



Figure 4. Emlen family expedition in Dodge touring car, circa 1919. John Jr. is third from left. Emlen Family Archives.

ship with Ben continued as our serious interest in birds developed through the high school years. That common interest led to many expeditions around Germantown and later to the New Jersey shore and elsewhere.

In addition to birding and natural history, young Emlen's other passions were stamp and cigar band collecting and photography, which he pursued by setting up a makeshift darkroom in the basement.

The old [cellar] coal bin was converted into a darkroom with wall boards extended to the ceiling and with the installation of a sink, basic plumbing, a red darkroom light, and a simple enlarger made from an old-fashioned view camera. In spite of the light leaks that I could never seem to completely eliminate by dousing all other cellar light, or control with a big red, threat-of-death sign at the top of the cellar stairs, I got what were, for me, reasonably acceptable results with developing trays and a homemade easel mounted on a railroad car from our Christmas train.

Soon, the inventive boy wonder was moving beyond photography and experimenting with radio transmissions.

. . . my friends and I learned the basic elements of crystal radiography and found a simple model for mounting the elements of crystal sets on a 6-by-10-inch board. With each set we would climb up and mount a 75-band antenna with lightning arrester on the roof of any neighbor's house if we could convince the owner that he really wanted a radio and that it was safe. By poking blindly with a wire prong into the crevices of a small crystal in one of these sets, we could usually find station WCAU in Philadelphia and occasionally, with luck, WEAJ in New York or even KDKA in Pittsburgh. With simple five-dollar earphones clamped on our heads we would exclaim with triumph as we demonstrated our skill and triumphantly turned over the headset to the bewildered customer.

But it was the natural world that increasingly fascinated and attracted Emlen; something encouraged by weekend and summer trips to a rented



house at Buck Hill Falls in the Pocono Mountains, about 100 miles north of Germantown. Then, in 1915, to accommodate a growing family (there were now six kids), his father designed and contracted the building of a large house at Pocono Lake Preserve, about 12 miles from Buck Hill, and about a mile from the preserve's newly constructed headquarters, which among other things included a dining camp and tennis courts. Here, amidst a bucolic setting, young Emlen became truly enraptured.

For me this new site was paradise: deep dark spruce forests where hundreds of red efts roamed the needle-covered ground and where birds of many species nested and foraged overhead; sunny grass-bordered roadways where butterflies, grass snakes, garter snakes, frogs, and toads abounded; and a lake with fish and unlimited opportunities to swim and

boat. A pair of huge barnlike icehouses across from our house were an eyesore for perfectionists. But they were no problem for me and my interests in exploring and getting acquainted with, at least what I saw as, the world of nature. We moved in that summer, and for the next ten years, we spent our school vacations there.

Father still had to return to Philadelphia by train during the week but came back on Saturdays to join in our fun, to indulge himself in the tree trimming that was required to maintain a view of the lake, or to play a few sets of tennis with his friends. Grandpa Emlen, however, had retired and was a full member of our inner family. Some of my best memories were of fishing with him for sunnies, perch, and an occasional bass off our dock. We were supposed to come back to the house at dusk, but often we were detained by a good run of catfish or an especially big bass. We usually used worms dug near the icehouses, or grasshoppers



Figure 5. Emlen summer home (designed by John Jr.'s father) in the Pocono mountains of Pennsylvania, showing cupola, sleeping porch, and John's sisters on front step, circa 1926. Photo by Mary Carpenter Metz.

caught in Wagner's hilltop pasture up Wagner's Run.

After 1919, when we had our own car, we would drive up from Germantown at six in the morning, Mother in duster and cap, Father, sitting beside her, reading the AAA tour book. This wonderful book described not only all the towns that we would pass through but also each turn we were supposed to take, the school houses, churches, or large trees that served to identify these turns, and bits of history about the villages, graveyards, or churches we would pass. Once we arrived at the Pocono house we would rush to turn on the water, take down the tight wooden shutters built for winter storms, and open up the cupola at the top of the steep wood cupola stairs. Then, if time permitted, we took a dip in the cold water off our dock and perhaps sampled the fishing prospects at dusk.

If it was too late to cook a supper we would phone the preserve headquarters and take the 20-passenger *Heron* or, if, as often happened, that handsome boat was out of commission, the smaller *Perhaps* down to the dining camp. There we had a delicious meal with our friends, often ending with a scrumptious piece of strawberry shortcake or a slice of even more scrumptious huckleberry pie. These were the preferred desserts of the Reds and the Blues, respectively, the two teams into which all members of the Pocono Lake Preserve were equally divided for a full program of summer sports and athletic competitions. Even those who, like us, lived far from this center of activities and rarely were present to participate, knew the team they belonged to and supported their side vigorously in the ongoing competitions.

I enjoyed such competition as a loyal Blue 11-year-old, but I was more interested in the ever-present opportunities to explore the woods and the old logging trails that led through the seemingly endless miles of forests, bogs, and mountain pastures. I particularly loved the

shallow, flooded areas at the inlets of the Tobyhanna and Tunkhannock creeks where rising water from the dam, 5 miles downstream, had killed the old trees, creating stumps that provided nesting cavities for tree swallows and bluebirds and where a family of beavers had their home up against a steep bank. Rowing as quietly as our squeaky oar locks would permit, Grandpa and I might surprise one of the residents of this house, swiftly gliding back with a freshly cut log. Generally he or she seemed unaware of our presence until suddenly a loud slap of the tail announced that the beaver was indeed aware of us and probably resented our intrusion. I was obliged to stick with our squeaky old rowboat until I could swim the quarter mile across the lake in front of our dock. Only then was I permitted to take out *Sujomawo*. A blend of our names, *Sujomawo* was the beautiful green Old Town that was tied to a stump in our canoe slip.

Until that day Grandpa and I would row down to the post office for the mail almost daily, past a recently abandoned eagle nest that seemed to reflect how the wilderness legacy of early times was disappearing. Great Blue Herons were still present, however, and often we would flush a female merganser. One bird that we used to see occasionally that was lost for several decades, but is now (1990) back with conservationists' help, was the Osprey, that gorgeous, eagle-like fish hawk whose thrilling cries and plunges from the sky for fish were always a joy to behold.

Sundays were days of rest, or at least, relative rest. Quaker meeting services were held in a beautiful grove of old spruces, hemlocks, and maples, an appropriate and inspiring setting for contemplation which in my early teens I was beginning to appreciate. Even more appreciated by my young mind were the song services in the evening, when 20 or 30 of the summer residents assembled on a semicircle of wooden benches to

sing good old-time hymns as a pump organ attempted to keep us together. Best of all were the times when the Hampton singers joined in. Workers at our dining camp, these singers came from the Hampton Institute in Virginia where Father had taught before I was born. This chorus of gorgeous voices, ranging from high sopranos to thundering double basses, exposed us to a wide variety of beautiful spirituals, music that made a profound and lasting impression on my young ears.

Local excursions from our cottage included trips to the bridge across Wagner's Run where a short trail leading down into the creekbed provided access to the stony bottom with its gurgling flow of crystal clear water. Inspired to present our old Dodge at its beautiful best, we took it down for a bath every week or so. Each family member, equipped with a bucket, rags, and sponges, would plunge in with no thought of trying to remain dry. With no windows to roll up, the isinglass curtains protected the car's interior as the bath was initiated with buckets-full, followed by a frenzy of spongy swipes over the body and brisk scrubs around the discs and frames of the wooden-spoked wheels.

We all were berry harvesters, and on these excursions we were usually joined by Lizzie and Izzie Gamble, the two Irish girls who spent most of those summers with us at Pocono. We particularly liked blueberry picking, and I often imagined myself in these activities as a primitive Indian harvesting the crop as an essential source of food for the family. Blackberries were also numerous in August. Elderberries were picked by the fistful from the large clusters of tiny fruits on the flower heads, then placed in cheesecloth bags. These bags were vigorously squeezed until our hands were red with the juice, and then were allowed to drain into a pot to provide the basis for a delicious jelly.

A chain of three small islands, origi-

nally three hillocks before the dam was built, provided sites for overnight camping expeditions less than a quarter mile from the house. Sleeping bags were unknown to us at that time, but old army blankets, held together with huge blanket pins, spread out on a thin layer of pine or spruce needles provided the essentials for a bed much preferred to a real bed or an army cot in the house. Mother or Father usually would go out with us to share the hot dogs or can of baked beans that was hastily assembled for the occasion. They then left us kids to our devices and returned home where they could listen for cries of distress or could summon us if necessary with a big bell that hung on the front porch.

For rainy days we had a huge fireplace, the front of which opened to our living room and the back to our back yard. Peering out from a window or standing out on the porch under the sheltering roof, I would listen to the tree frogs tune up or the "rain crows" (Black-billed Cuckoos) sound off with their weird croaks. The start of a rain also might rouse a few beautiful arpeggios from one of the Hermit Thrushes that nested nearby, or if it was dusk, from a Whip-poor-will somewhere off in the forest.

On these rainy days my sisters usually settled down on one of the cushion-covered benches that rimmed our living room at this time, and I would rather reluctantly join them. I never really liked reading much and rarely read just for the fun of it. Mother was distressed at this and assigned the hour after lunch as a reading period each day. I used this hour for bird study, bringing down volumes from the well-stocked shelves in the living room, especially the two-volume *Birds of New York* by E. H. Eaton with its beautiful Fuertes plates or the 1912 edition of Chapman's *Handbook of Birds*. I was fascinated with birds' scientific names and spent much time learning these. I thoroughly enjoyed adventure books such as Jules Verne's *Journey to the Center of the*

*Earth* or Johann Wyss's *Swiss Family Robinson*, but I found reading of any kind strenuous and tiring. Many years later I slowly came to realize that I must have had and still have a form of dyslexia, a problem still poorly understood.

One memorable Pocono experience involved photographing beavers at night, not a simple affair by any means in those days.

One winter a good many years later (1925), after I had developed an interest in nature photography, my father, always alert to my boyish enthusiasms, discovered that a friend of his had a hobby of flashlight photography of wildlife. He told this friend about my interests and a few weeks later this gentleman, Henry Rex Carey, asked me to join him on a wildlife photography winter trip to the Poconos. Furthermore, he instructed me in the fine points of "camera trapping" as they were developed at that time. He helped me design and build the basic equipment needed including a camera box and a flash gun with a powder tray. The latter was connected to a trigger wire leading to the point where the prospective animal would trip the entire mechanism and take its own picture. Armed with two camera traps we travelled to a well-known beaver dam down creek from the Pocono Lake dam and set out our gear. Some time during that night the beavers tripped and took their photos, souvenirs of a wonderful experience and a thrilling adventure in natural history.

Emlen's Pocono experiences left such an indelible impression that he found himself thinking about them throughout his life and career. Indeed, his interest in bird study can be traced back to this period, as well as to the influence of a "nature study teacher, Miss Trueblood" when he was eight or nine years old. His interest in birds was

much more than mere hobby; it was full-blown passion and an unbridled dedication characterized by a marked attention to detail that was most unusual for a young teenager.

My first notebook presented a systematic list with dates from 1919 when I was ten. It listed 51 species including such interesting identifications as hoot owl, poll parrot, wild duck, petrel, and crane. In 1920 I had 80 species listed, all of them recognizable and more or less correctly spelled. Two years later I was keeping daily lists at Pocono, checking what I considered the special finds and planning special trips for what I regarded as rarities. By 1924 I was keeping notes on field identification marks and describing songs quite creditably with words and personally devised symbols.

During these years my birding was restricted largely to afternoons after school was out, Saturdays, and Sunday mornings before the required ten o'clock return for Quaker meeting and Sunday school. I soon came to recognize that birding was most satisfactory during the first hours after sunrise. I was up with the sun practically every day to hop on my bicycle and dash out for an hour or so at Breininger's Hill, Gypsy Lane Hill with its Yellow-breasted Chat, or the Queen Lane Reservoir with its mergansers. On Saturdays, Ben Hiatt or brother Woody often joined me for a trolley ride to Mt. Airy or on to Chestnut Hill and Whitmarsh Valley where a wide variety of relative rarities might be found such as Barn Owls, Long-eared Owls, Wilson [Common] Snipe, and Grasshopper Sparrows. Identification and subtle field marks of both color patterns and songs were seriously studied and discussed on these trips.

When I was fifteen (1926) I applied for and, surprisingly, was issued a federal bird banding permit by the U.S. Bureau of Biological Survey, allowing me to capture and band birds of almost any species. Permit conditions were that I had to



Figure 6. Emlen family in front of pull-behind camper trailer during camping trip (about 1921). Emlen Family Archives.

be able to identify each bird with certainty and had to keep and submit meticulous records on each bird I banded to the central office in Washington. A set of numbered bands, 50 of each small size and 10 of the larger sizes, was provided, and I was in business!

The best way to capture birds was to trap them in wire cage traps. I quickly acquired—with my weekly allowance of 50 cents—a small roll of hardware cloth, with which I made a funnel trap and several drop traps. The few sparrows and starlings that entered these traps provided much excitement. But I longed to band migratory birds such as robins that did not respond to the standard baits, birds that would leave each year, perhaps to return another year. For such birds with a history of travels I would receive postcard reports from the Washington headquarters! Nestling birds taken from their nests a day or two before they fledged provided such opportunities, and for several years I added nest-finding to my ornithological activities.

But further opportunities were constantly presenting themselves. One day Ben and I discovered a robin-blackbird

roost in Cresheim Creek valley only a mile or so from home. Here thousands of grackles, starlings, and robins, plus a smattering of other species swarmed into a grove of 15-foot pine trees every night during the spring and fall migration seasons. Ben and I saw the challenge and grabbed it. Many of the birds, particularly the robins, were only 6 to 10 feet up. Hastily we designed a clap net consisting of a vertical pole and two wing poles between which a net would be stretched. Roosting birds, dozens of them at a time, could then be flushed into the net by a helper, the net gently closed and lowered to the ground by the operator, and the captured birds banded. What could be simpler?

A clap net, as described in a bird-banding bulletin, was to be constructed with 12-foot slender bamboo poles and lightweight fish netting. Of course, we did not have these materials at our disposal. Available substitutes were three rather heavy wooden clothes poles from the back yard and a segment of tennis netting used in the tennis ball backstop on our porch. Although a clumsy and awkward substitute for the clap net described

in the bulletin, this contraption would presumably fill the bill.

Armed with this awesome rig Ben and I proceeded to the roost one dark evening. Perhaps not surprisingly this first trial run was not a success. Ben crept silently into the dense pines from behind while I, a flashlight held in my teeth, stood waiting on the bordering lawn area, poised to pounce when the first bunch of birds burst forward into the net. The birds flushed, I pounced, and I missed.

More seriously, however, the poles were so heavy that I fell forward with their weight, the pole bases neatly lifting out the entire seat of my pants. After disentangling me from the pile of belts, poles, and torn pants, we drove home. I was sixteen now so fortunately we did not have to return by trolley in my condition!

We now reorganized our approach. With headlamps, a revised clap net, and a new pair of pants, we returned on subsequent nights and with great success. Over the next weeks we captured dozens of robins and grackles, smaller numbers of starlings and cowbirds, and one phoebe, Yellow-billed Cuckoo, and, yes, a Sharp-shinned Hawk. My banding program of migratory birds was now firmly established.

In 1925 Ben and I discovered that the Reading Railroad was offering Sunday excursions to the New Jersey coastal resorts for fishermen for a dollar fifty, a price that Ben and I could afford. My parents hesitatingly approved. Taking the Germantown local into the Reading terminal and the Delaware River ferry to Camden, Ben and I hopped on these excursion trains. In an hour or so we were down at one of the ocean beaches: Ocean City, Barnegat, Avalon, or Cape May, checking for sea birds or shore birds in the winter months or, with a batch of bands in hand, for the nesting colonies of night herons or the treetop nests of Ospreys. We banded dozens of these birds and over the following years

were receiving the reports from Washington, citing recaptures and recoveries from as far away as Brazil and Uruguay. With these reports and my stamp collection, I now felt myself a citizen of the world!

After I acquired my driver's license at age 16 (1925) I was requesting use of the family car almost every weekend. Sue, a year older than I, was jealous but without the demands for personal transportation that I voiced. And, in 1926 she was off to college and out of the competition. So, unless my parents had important priorities, I and my birding buddies—brother Woody, cousin Hank Bennett, Ben Hiatt, and Bill Doak—often had the necessary transportation for overnight trips to the New Jersey beaches, the Delaware City marshes, or Maryland's eastern shore. I was already familiar with the beaches and salt marshes from Cape May and Stone Harbor to Ocean City and Brigantine from our earlier railroad excursions. Now, with access to a car and family camping equipment, I was essentially free to pick up and go birding whenever an open weekend came up.

There were few problems finding campsites in the 1920s, and we rarely had to worry about obtaining permission. I recall one Friday evening when we failed to reach our planned destination, a tiny woodland cemetery lot near Marydel, Delaware until nearly dusk. We had camped there the previous year. While Hank and I were starting the campfire and preparing the hamburgers, Woody and Ben were unrolling the sleeping bags and starting to lay them out in four shallow, linear troughs that marked four collapsed graves, each headed with a small grave marker. Suddenly a tall dark stranger appeared and, saying nothing, sat down on a gravestone. We greeted him and after a brief silence, proceeded with our chores.

Then after several more minutes of slightly tense silence, he spoke up: "Where you fellows from?"

“Germantown,” we replied. “Just a bunch of birders on a weekend outing.”

Another long silence. “You were here last year, weren’t you?” he asked.

“That’s right,” we volunteered, “and didn’t we see you as we were leaving?”  
“Yep.”

“And who are you?” we asked.

“Oh, I’m the preacher in the little church down the road,” he volunteered.

Within a few minutes our hamburgers were done, and he quietly accepted one. “Come again and make yourselves at home, any time,” he said, and he walked off into the darkness.

I wonder if a similar encounter would have been so friendly today. Would we or could we walk as freely and as self-confidently in such a situation in the 1980s or 1990s? And, would we be greeted with as open a mind?

On another weekend outing, this time to Delaware City, a favorite birding site near the head of the Delaware-Chesapeake Canal, we camped at the edge of a grove of huge elms in which about 50 pairs of Great Blue Herons had their nests. Among these trees was a huge dead chestnut tree, the leafless corpse of one of the many chestnuts that had dominated the eastern forests only a few decades earlier. And, in the top of this chestnut a Great Horned Owl had its nest with two large nestlings. All through that night the herons filled the darkness with groans and shrieks of alarm each time the owls came in or left.

By morning we had decided that those baby owls must be banded. After a rather risky ascent with climbing irons and a safety belt, we reached the nest. The owlets were lowered to the ground in a cloth bag, banded, and returned. Next weekend we were back for more birding and a check on our owls. The owls were gone, and so was the chestnut tree! After an obviously long lifespan plus many months, if not years, as a gaunt arboreal skeleton, that old monarch had fallen down obviously within a few days of my

ascent to its crown to band those little owlets. Neither they nor I could guess how narrowly we had escaped the final demise of that ancient monarch with its current residents.

The New Jersey coastal beaches and the tidal marshlands and vegetated ridges behind them were full of interesting birds. A stretch of sand dunes on Brigantine Beach had been selected by distinguished ornithologist J. Fletcher Street as the staging area for a movie he had visualized as entertainment for the annual banquet of the American Ornithologists Union meeting to be held in Philadelphia that year—1925. To make this movie he needed some Great Auks—giant, flightless seabirds exterminated by early egg collectors in the North Atlantic in the 19th century—and a couple of “cavemen hunters.” A string of cardboard models filled the first requirement, and for the cavemen he conscripted Ben and me, to be dressed in a couple of old bear skins he would borrow somehow from a museum. We were instructed how we should emerge from behind the cover of dense myrtle bushes with bows and arrows, while the auks were pulled slowly across a small clearing. All went well for the preparations, except that the selected day turned out to be extremely cold and windy for which the bear skins were scanty attire. Despite basic precautions Ben and I nearly froze. The pictures were shot, but the two teenage actors finished their assignment in a condition that caused Fletcher considerable worry. Desperately, he tried to deaden our discomfort with a swig of brandy, our first experience with this tried and true antidote. The actors survived without injury or regrets, and the distinguished scientific audience that viewed the film a few months later was well entertained by this little episode of historical ornithology.

Emlen’s birding pursuits “left me little time for girls, and I was, frankly, not



Figure 7. A birding expedition to a Great Blue Heron rookery at Delaware City. Emlen Family Archives.

much interested. Katherine Sonneborne, ‘Sonny,’ was fun at parties and on picnics, but I saw her only occasionally. I hated dancing and avoided dressy parties whenever possible. Many years later, Sonny, then at Swarthmore College, introduced me to Jinny Merritt who changed my outlook on girls and eventually wound up as my wonderful wife.”

He continued to struggle with school; he simply wasn’t interested, and perhaps his dyslexia, unknown to him and his parents at the time, was complicating matters. He recalled his high school years this way:

My school performance through the high school years at Germantown Friends’ School was a near catastrophe. In academic subjects—English, history, and arithmetic—I generally earned Bs or Cs; in French and Latin my grade was

often a D. Only in physical education, science, and “sloyd” (a carpentry exercise) did I pull an occasional A. Somehow I hoped that G.F.S. graded more harshly than other schools, but my sisters and many of my friends did far better than I, and with college entrance exams coming up I was worried. At the end of my senior year I took four college entrance exams, and I flunked three of them!

I had my heart set on Haverford, a college with very high standards, and I was not going to give that up easily! I had followed Haverford’s performance in sports and even in academic activities for several years. I had also ridden my bicycle the 10 miles to the campus to see several football games. I just had to go there! Perhaps my parents had been right: “There are other things in this life besides birds”! What could I do?

Father made an intensive inquiry and discovered a tutor in Philadelphia with special qualifications who would take me





Figure 8. Emlen climbing to a Great Horned Owl nest in the Delaware City heronry. Emlen Family Archives.

on for intensive work on the two exams I would need to repeat, French and English composition. I started immediately and a month later took the exams. Amazingly I passed both, and even more amazingly, Haverford accepted me.

Emlen's father, always keen to the expanding needs and wants of his children, decided to purchase in 1924 "a one-third share in a small, rustic shack on the Mt. Misery branch of the Rancocas Creek in the pine barrens of southern New Jersey, only 45 miles from home." Life in the pine barrens exposed John Jr. to an entirely new part of the natural world.

To get there we merely had to take the Delaware River ferry and head due east

through Mt. Holley and Pemberton to the railroad station at New Lisbon. When going as a family we drove the rest of the way, but sometimes my parents would take me as far as New Lisbon, then I would go on by myself. That part of the trip involved a one-hour clackety-clack railroad trip and a one-mile walk along a sandy, wilderness road from the station where the engineer would stop if properly notified.

There are few places in this world that in the 1920s could still boast the wilderness features of the New Jersey pine barrens so close to a major modern city. Our cabin stood on a high bank of the creek a half mile from the nearest neighbor. We could plunge directly into the chilly, deep current to be swept downstream in the swiftly flowing, cedar-colored water. We could also launch a canoe, the bow man primed to ward off snags and fallen logs at every point, while the stern peddler leaned first on the right, then the left in attempts to stay in the narrow, 10- to 12-foot channel. This involved a strange kind of paddling: dodging or ducking obstructions every 10 or 15 yards, often "turning turtle" or capsizing. Far different from what we had known in the placid water at Pocono, this canoeing brought challenge and excitement that we came to love. The big problem was to get back; often it was easier to beach our canoe under the bridge a mile downstream and carry it back on our shoulders.

There were many streams of this type winding tortuously through the nearby peat bogs. Some were a little wider than our Mt. Misery stream, but many were just too small to float a canoe. On one occasion, a young teacher from Penn Charter School, Hen Evans, and his wife, rounded up a small group of wilderness addicts (including me) from several Philadelphia schools and challenged the Wading River from a launching site not far from New Lisbon to its outlet into the Tom's River estuary where it enters the



Figure 9. Cabin on Rancocas Creek in the New Jersey pine barrens (near New Lisbon) where Emlen's family spent many weekends (1924). Emlen Family Archives.

open tidal grasslands. It was a five-day trip with many thrills and many spills. No one could guess how many miles we travelled in those five days, but because of the river's snaky course, we covered only about 20 miles on the map and ducked under only two small wooden bridges, no highways!

Ever aware of his son's interest in birds, Emlen's father did everything he could to foster that interest.

Father was constantly getting ideas on how he might help me promote my progress in ornithology. Discussing this one day in 1925 with Witmer Stone, ornithologist at the Philadelphia Academy, he came up with the idea that I might be admitted to the summer school course at Cornell University in Ithaca, New York. This course was being taught by Dr. Arthur Allen, the foremost, in fact the only, professor of ornithology in the country

at that time. As a high school boy I could receive no credit, but I could live my hobby, and, rubbing elbows with serious students and graduate students, see what ornithology was all about.

The idea was a great success. I attended lectures, studied museum specimens, read the bird literature of the period, and took field trips. Most exciting for me, I also learned the essentials of bird photography, using my hard-earned Graflex. My fate was sealed; there was no turning back now. Father had undone any progress he may have made in convincing me of the truth of his argument that there were other things in this life besides birds. With just one more year of high school I was going to have a hard time maintaining even a respectable grade point, adequate to make it to college.

The following summer, 1926, we made arrangements for a family trip to En-



Figure 10. The summer ornithology and advanced ornithology classes at Cornell University in 1925. Arthur Allen and his wife, Elsa, are in the center (Nos. 46 and 45). Emlen, still a teenager, is in the back row (No. 2). Photo courtesy of A. A. Allen Archives, Division of Rare and Manuscript Collections, Cornell University.

gland and Scotland. We would sail from New York on the Holland-American liner, the *New Amsterdam*, and dock at Southampton. Then, while Father and Sue went on to Paris, Mother and the three young'uns would take a train to Cornwall and find quarters at the Housel Bay Inn at Lizard Point, on a high rocky cliff near Land's End. Recognizing the previous summer that this trip was under

consideration, I had made a special point at Ithaca to look over books on English birds and examine whatever specimens of English birds were available. I also primed myself on petrels and shearwaters—sea birds that we might see from the *New Amsterdam* on the crossing.

I kept a careful dairy of that whole trip, filling 260 pages of a 6- by 9-inch notebook with descriptions, notes, and daily

bird lists and sketches. The diary also included an appendix covering meals, weather, animals, gardens, parks, traffic, customs, habitat types, towns, cities, flowers, mammals, and, of course, birds of which I identified 129 species. The whole notebook was meticulously indexed with 13 pages of index items from "Abbey, Glastonberry" to "Zoo, London." That indexing job alone must have taken a good many of the 10 days of our return boat trip between Southampton and New York.

Most of those pages are terribly dull, long lists of scientific names of the birds I identified. I felt that it was important to list both the common and the Latin names, along with other details such as when we arose (generally half past six), what we had to eat, etc. But I also recorded a number of interesting, exciting, or just amusing adventures that I shall briefly relate.

On our first morning at Housel Bay, Woody, then only twelve, and I were up at sunrise. We scrambled down the slippery and often crumbly cliff in front of the Inn to its base where many gull chicks, still flightless, were hiding in rock crevices or swimming out into the surf. Unfamiliar with such situations, the first we had ever encountered, we were at first concerned that many of these young birds were in danger of drowning or being dashed against the rocks. We tried to rescue them, but after gradually becoming aware of the folly of such efforts, we turned to watching the sea urchins and crabs that were scurrying among the boulders.

After perhaps an hour of such fascinating activity we suddenly realized that the tide was rising rapidly and had already flooded the pathway by which we had come down the cliff. No other proper escape route was visible, and we were already late for breakfast at the Inn. We looked down at the surf just as a huge breaker sent spray over our feet and eyes. Then, a bit worried, we looked up. There

was a possible escape route up the nearly vertical cliff where an old clay pipe had at one time served as a drain for waste water from the Inn. It took us almost an hour (or was it really only 15 minutes?) to scramble up that pipe and make that ascent, but we were happy to arrive before the breakfast room had closed its doors, and so was mother. She did not know where we had been and gave us stern instructions to report our plans every time before we went out again. We did our best, but it is, of course, impossible to know just where a birder might stray when he goes birding, and I'm afraid this was not the only time we were late for breakfast and not the last time we got a scolding.

Several years before our trip to England I had read a book by the 18th century clergyman, Gilbert White, who with his contemporaries was puzzled as to just where swallows and other birds went when they disappeared in the fall and whence they came in the spring. Some speculated that they dug down in the mud at the bottom of lakes to hibernate, others proposed that they flew to the moon, and still others that they just flew south to warmer climatic zones in Africa. It was amazing to me that such questions were still being discussed and that the phenomenon of migration had not been demonstrated clearly as recently as two hundred years ago. In any event I wanted to see Selbourne, Gilbert White's hometown. So I requested that we include it on our travel itinerary, along with such places as Stratford on Avon, after we had rented our touring car for the circuit of England and Scotland. Selbourne was disappointing. We couldn't find Gilbert White's house; no one we could find in the town had even heard of him. "Maybe bird people aren't as important as you seem to think they are," my sisters suggested.

One morning near Tintagel, the presumed site of the legendary castle of King Arthur, I found a small rocky islet

just offshore, on which hundreds of guillemots were crowded and apparently nesting. It was separated from the mainland (also steeply cliffed) by a channel which, although swirling with surf, was quite narrow. I had, by this time, seen many of these sea bird islets along the Cornish coast, and I was seized with a passion to see the guillemot nests, which must be densely clustered along the islet's rocky ledges. Alone, I scrambled down to the water's edge and plunged into the surf. There was a lateral current that I had not noticed, and suddenly the channel seemed wider than I had thought. Swimming back to shore and climbing up near the point I had just entered, I gazed longingly across at those birds. Perhaps it would have been very difficult to climb up on the islet's cliffs. In any event I gave up, never to see a guillemot's nest until I got to Bass Rock nearly a month later. Mother approved when I got back to the inn, and she strongly advised that I not try it again. In that brief trip in the islet's channel I got my first sting from a jellyfish, an experience that reinforced Mother's advice for me.

Bass Rock, a huge crag, rises precipitously in the Firth of Forth some 20 miles east of Edinburgh. Famous for its [Northern] gannets or "solan geese" that have nested there since time immemorial, and for which these spectacular birds were named *Sula bassana* by Linnaeus, it has been a favorite site for bird watchers from around the world. Obviously we had to see the island and its birds, so on our first day in Edinburgh Father, Woody, and I set off. Driving to North Berwick, we hired an outboard boat and headed for the huge white rock a few miles offshore. Kittiwake gulls and Arctic Terns circled around us as guillemots and Razorbills skimmed by. As we approached it became clear that the white color of the rock was created by the thousands of big white birds and by the

background of whitewash they had sprayed on the cliffs.

Bass Rock had a lighthouse, and its keeper greeted us and, very proud of his assignment to the island, took us on a tour of the most accessible nesting areas. The gannets were everywhere, each bird separated from its neighbors just far enough to be out of range of the vicious jabs of their huge pointed bill. I quickly exposed my full film pack of 4- by 5-inch negatives, all that I could afford even for an occasion like this.

The birds protested with jabs as we approached, and we were careful to stay out of reach. Birds on the steeper slopes took off smoothly, diving steeply downwards towards the sea before levelling off in a sweeping glide as they approached the water. Incoming birds approached at high speed, putting on the back-peddling brakes with their huge wings only at the last minute. Landings were followed by much protesting and confusion among the neighbors. It was an exciting and turbulent scene with the half-grown chicks contributing a significant share.

Kittiwakes, guillemots, and Razorbills swarmed on the lower ledges. Above the gannets a grassy knoll, the abode of puffins earlier in the season, we were told, was heavily populated with rabbits. Two Peregrines, probably a pair, circled above us and were presumably nesting somewhere close by.

We did not see the spectacular fishing of the gannet, perhaps because we were so absorbed with watching the nesting activities. Later we saw this to good advantage along the Aberdeen-Oban canal and on the west coast of Scotland. Dozens or even hundreds of gannets, having located a large school of fish, would plunge at top speed and in rapid-fire succession into the water, folding their wings backwards to allow deep penetration. With so many birds fishing together it was impossible to say how long each bird remained submerged, but eventually each bird popped to the surface and

took off, its fish, if it had indeed caught one, already swallowed.

The Emlen family members were enthusiastic swimmers and accordingly seized the opportunity to take a swim whenever possible. On one occasion I well remember seeing a brood of Mute Swans coasting sedately along a river (I think it was the Thames) in which we were swimming. I decided to approach and explore. Swimming up to the big adult bird I suddenly realized I was being attacked. The huge bird, not more than 20 feet away, was churning directly towards me, its head lowered, its bill open, and hissing. I turned and swam away precipitously, diving to cover my retreat. Not daring to re-emerge, I held my breath and swam as far as I could. When I finally was obliged to come up for air, I was relieved to find that the bird had abandoned the chase. I held my course, however, feeling that strange sensation that sweeps over a person when his system has been flushed with adrenaline. No damage was done, but a lesson was learned: a swan can be a terrifying threat.

### THE UNDERGRADUATE AND GRADUATE YEARS (1927–1934)

In 1927, Emlen entered Haverford College in Haverford, Pennsylvania and found the academic life to be a difficult challenge, with more time required for study than he expected based on initially poor results, but he slowly brought up his grades and ended the year quite secure. His sophomore year found him returning to his bird interests.

During my sophomore year my grades were improving so that I felt I could return to my high school hobby of bird banding. Dan Smiley joined me on this venture, and we worked out a trap-servicing schedule that assured one bicycle cir-

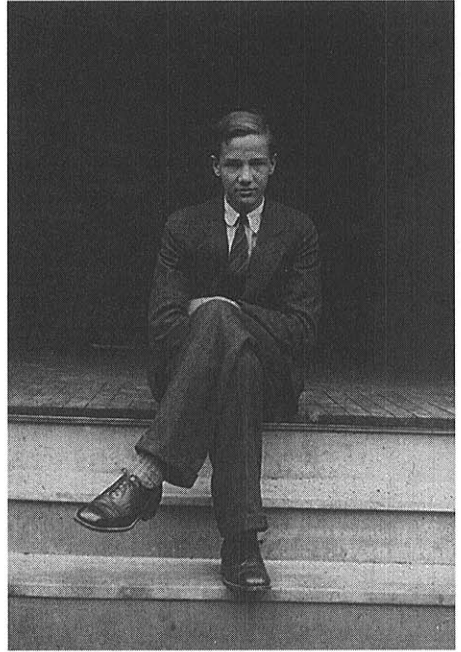


Figure 11. Emlen at Haverford College (probably 1927). Emlen Family Archives.

cuit of a campus trapline every 2 hours. When our catch jeopardized getting to the next class on time, we put our captives into a cloth laundry bag that we carried under our belts. We'd then stash the bag and band the birds between classes. The schedule was inevitably tight, and I often arrived at algebra class as the bell was ringing or even a few minutes late. "F of X," the professor, looked at me disapprovingly as I slipped into my chair whenever that happened. Our results were worth the inconveniences and embarrassments, however, and during the three years that we ran those rounds, we banded over a thousand birds, mostly juncos and White-throated Sparrows, but including many migrant warblers when we extended our traplines to include water drips above many of the traps.

We also found time on weekends to band Chimney Swifts at the Sharpless Cream Separator Works in West Chester,

some 10 miles away. A classmate told us that thousands of swifts roosted in the big chimneys there, and we drove over to investigate on May 3 1930. Seeing thousands of the birds circling overhead and, at dusk, funnelling down into the main chimney like a reversed column of smoke, we capped the chimney after dark with a screen we'd made with a trap door in it. Early the next morning we returned equipped with a thousand size 1 bands, a big cage, and related banding paraphernalia.

Armed with the proper permissions we climbed to the chimney top before sunrise and peered down. No birds were stirring, but the chorus of chipperings assured us that the birds were there. Cautiously we placed our cage on top, raised the cage door, and lowered the trap door of our screen. Within a minute hundreds of birds had swarmed up into our cage. The trap door in the screen was pulled closed to seal off any that remained in the chimney, and the cage with its hundreds was lowered to the roof top where we had our bands and banding equipment. This first haul turned out to be close to 200 birds, and it took us several hours to band them and record the activity. We raised the cage to the chimney top again and opened the doors. Again our cage was full in a minute and we repeated the procedure. After a third haul we decided the birds that remained should be given their freedom, and the cap was removed. We had banded 339 swifts that morning, six of them birds already wearing bands from other banding operators.

The following year we returned eager to re-experience the fun of banding so many birds and to see how many of our 1930 birds would return. This time we banded a total of 418 on two nights. To our surprise there were only three returns from the 339 we banded in 1930, but we were nearly three weeks later in the season and assumed the new birds must have represented a later wave of mi-

gration. As with so much of bird banding, the real joy is in the operation, although results did appear in the mailed reports from Washington in subsequent years as they did from our banding results from night herons and ospreys in Delaware and New Jersey.

In 1931, Emlen's senior year at Haverford, he decided initially to enter the University of Pennsylvania's Medical School, but Haverford's president proposed otherwise.

The president, Professor William Comfort, a distinguished scholar fondly known as Uncle Billy, wanted to see me. No reason was given. Naturally I was a little concerned, although I had no reasons except that I had once shot Professor Jones' cat with a bow and arrow after it had killed a number of birds in my traps. Of course I responded and showed up on schedule with only slight worries.

"I understand you have signed up for medical school," said Uncle Billy.

"Yes," I said, "it seems like a proper profession for a student interested in biology."

"Have you considered teaching and research in biology, with an emphasis on ornithology?" he inquired.

I had, but I had learned that the opportunities there were very limited, and I realized that my academic standing in this field was also limited.

"Well, think it over," he suggested.

I went back to Dr. Emmet Dunn, my biology professor, and discovered that he was guilty of proposing the idea to Uncle Billy. I had spent the previous summer in Honduras as a member of a collecting expedition for the Philadelphia Academy of Natural Sciences and had worked over part of the resulting collection with Dr. Dunn, joining him as junior author in a publication in the Academy's proceedings. Apparently he had been favorably impressed and, perhaps noting that my grades in chemistry had slipped badly

that year and did not match my performance in biology, had made the suggestion. The idea appealed. I dropped my plans for medical school and applied for graduate school in ornithology at Cornell, where I had really wanted to go all along.

I stuck with my plan, already under consideration, to enter the National Park Service's program as a ranger naturalist in Yosemite National Park, and from there went on to Ithaca as a graduate student with Dr. Arthur Allen and to a career in natural history with specialization in ornithology. I am forever grateful to Dr. Dunn and Uncle Billy for awakening me to the view that I could follow through with what I really wanted to do all along, which was to devote my life to the study of animals in nature.

Emlen's Cornell experience and his European trip with his parents fueled his desire to bird overseas, so when an opportunity arose to join a collecting trip to the Greater Antilles, he seized it.

Dr. Stuart Danforth, a 1925 Cornell graduate student and then a professor of ornithology at the University of Puerto Rico's School of Agriculture at Mayaguez, wrote Father asking if I might like to join him on a collecting trip to the Dominican Republic. . . . Uncle Walter Moore helped arrange passage on a Clyde Steamship liner, the U.S.S. *Huron* sailing for Santa Domingo on June 25 1927.

The ship, a small freighter was, in my mind, a beauty, although strikingly smaller and simpler than the *New Amsterdam* and the *Tuscania* in which we had crossed the Atlantic the year before. I had complete freedom to wander all over the ship, so I spent much of my time up in the bow trying to identify the numerous shearwaters and petrels. Flying fish were very abundant, and as we approached Puerto Plata on the north

coast of Hispaniola, I saw several Yellow-billed [White-tailed] Tropicbirds.

I was particularly amused chatting with the ship's doctor, obviously with no medical degree, who delighted in showing me his 'medical cabinet.' He had perhaps 20 or 30 little bottles. He was especially proud of one called 108 because it cured 108 diseases. It could also be used for shoe polish or as engine oil!

At Puerto Plata I had a couple of hours ashore and walked down a narrow gauge railroad track to see what might be identifiable in the way of birds. I was impressed with the heat, especially when I sat down on the track only to rise with haste and a burned fanny. Sparrow hawks, anis, grackles, mockingbirds, and Black Swifts were prominent, and I was particularly glad to recognize the Palmchat (*Dulus dominicus*), a species peculiar to Hispaniola that builds huge communal nests in the crowns of the royal palm trees.

Cruising from Puerto Plata to San Pedro de Macoris, we saw many more tropicbirds, pelicans, man-o-war birds, and terns. . . .

Then it was on to Santo Domingo:

Climbing a steep mountain road with dense cactus growth and agaves, we traversed a forested area with Hispaniola's highest mountain, 10,300-foot Loma Tina, in the distance, then crossed over into the Haitian part of the island. Parrots and parakeets were numerous here, and we collected several specimens. . . . The roads in Haiti were even worse than those in the Dominican Republic and, with much new-fallen rain, presented numerous problems. From San Juan to Port au Prince, the capital on the coast, we must have forded a dozen streams and assisted in rescuing three or four cars or trucks including a government mail car. Stuart's Model T was amazing. He would pause at the bank of a creek while Frank [Frank Mathews, a graduate student] and I got out, race his engine, jam the





Figure 12. Crossing a flooded creek in Haiti, 1927, during Emlen's second overseas field expedition (at age 19), sponsored by the Philadelphia Academy of Natural Sciences. Photo by J. T. Emlen Jr.

first gear pedal to the floor, and plunge in at top speed, water flying even over the roof. Almost invariably the car emerged on the other bank then stalled, water flowing from the floor and mudguards and dripping from the roof. We were ready to move on in a few minutes, however, after the spark plugs had been dried with a rag. Tires and springs were also major problems. Nearly every day we had flats, which had to be repaired on the spot with a jack, a patch, and some vigorous strokes of a hand pump.

Eventually, Emlen and company found their way to Gonave.

Gonave was thought to have several distinctive endemic subspecies of birds. . . . Reportedly, there were no wheeled vehicles on the island and . . . no towns except a cluster of little thatched shacks at Anse à Galets where

an airstrip had been prepared on a sand flat on the west coast.

In the morning we reported at the airport and climbed aboard three two-seater planes for the flight. It was my very first experience in a plane, and I studied the whole experience in detail much to the amusement and interest of my marine pilot. My gear, including helmet and parachute, were strapped onto my back. Then I collapsed into a deep pocket behind my pilot and was introduced to an array of instruments, some of which I was warned not to touch. Suddenly a man rushed toward the plane from the left, grabbed the downward blade of the two-bladed propeller, gave it a whirl, and with a couple of backfires, the engine was started. Then we were off, rising higher and higher. As we passed over a big cumulus cloud I looked down to see a tiny shadow of my plane far below, beautifully encircled by two circular rainbows, a

phenomenon that after we landed at Anse, 40 minutes later, my pilot explained we were lucky to see so well.

Our six days on the island were almost completely absorbed in birding. With each bird I encountered I would wonder if it might be a new subspecies or even a new species, since according to the literature Gonave had been visited only once before by an ornithologist, and then only very briefly. We saw many species and collected several dozen among us, particularly hummingbirds and tanagers that looked different. We had heard that there were flamingoes on a large dry lake near the north end, and I volunteered to explore that area. Many stilts, plovers, terns, and herons were on those flats, but after an exhausting trip of some 25 miles I returned with a report of no flamingoes. Lizards of several species were extremely common, and Frank collected a specimen of a rare cuckoo (*Hiatornis*) on the ridge of the island. We met Lieutenant Wirkus and found him a very intelligent and fascinating man, quite interested in what we were doing and why we were doing it.

Our wish to see flamingoes was granted some two weeks later on a large salt flat near the mouth of the Artibonite River on the Haitian northwest coast. After a long overnight drift down the tidal river with the outgoing tide, we cast anchor and waited for the sunrise. The night had been particularly uncomfortable, since we had to lie in cramped positions across a half dozen high ribs on the boat's bottom. We woke to note that our boatman was covered with open syphilitic sores. But, as the rising sun slowly lit up the eastern horizon the birds began to appear: Black-crowned and Yellow-crowned Night-Herons, Reddish Egrets, Louisiana [Tricolored] Herons, egrets, Glossy Ibis, Roseate Spoonbills, and flamingoes, in addition to a wide assortment of plovers, coots, and gallinules. It was well worth the torture that preceded it, although Stuart kept refer-

ring back to those ulcers for several weeks. . . .

My trip home was indeed eventful. After a few final weeks in Hispaniola and a week with Danforth in Puerto Rico, which included a visit to a nesting colony of man-of-war birds and pelicans on Parguera Island, I boarded the U.S.S. *Maracaibo* in San Juan for the final leg of this, my first scientific expedition. The *Maracaibo* was a 1700-ton, flat-bottomed ship. It drew only 12 feet of water when loaded so that it could navigate the shallow reef leading into Maracaibo's harbor in Venezuela. Having unloaded its cargo it was returning to New York with an essentially empty hull and little ballast. The first few days were beautiful, and I spent almost all the daylight hours on deck watching porpoises dashing in the bow waves, and flying fish skimming off to the right or left as the boat flushed them.

On the third day a strong wind picked up from the southeast, and to my surprise, the sailors hoisted two large sails on the stern deck, possibly to stabilize the considerable roll that was developing or to contribute to our northerly progress of only about 150 miles per day. By the fourth day the wind was blowing a gale, the ship was rocking and pitching heavily, and only a quarter of the 50 or so passengers were showing up for meals in the dining saloon.

That evening the captain turned his bow into the wind or slightly to the port side, sealing all doors and port holes on the starboard side of the ship for passenger safety. Many of the staterooms opened onto the deck, and I never heard how these people were assured of their essential supplies until the storm was to subside. Fortunately, my stateroom opened into a corridor on the portside. I had freedom to go out on to the narrow port deck to travel, hand over hand, down a rope rail to the narrow smoking room in the stern where a group of the hardier and more adventurous types

gathered to tell stories of their seafaring experiences.

The door on the windward end (starboard) of this corridor room was bolted, but for ventilation we collected near the leeward door to watch the storm and to estimate the height of the waves and their distance from crown to crown. The estimated wave height ranged from 20 to 25 feet, the crest-to-crest distance from 100 to 200 yards. Our boat was minuscule among these rolling giants.

Walking back along that port deck for supper was almost like an exercise in rope climbing, with rain and spray beating against our faces, but we made it to the dining saloon door and found it unlocked. The crew, surprised to see anyone about, greeted us and offered us a somewhat restricted meal that we ate with gusto, each cup or plate held firmly in racklike structures on the table top. But, before we were through with our meal a truly giant wave crashed against our supposedly inviolate port door. Water streamed through all the not-so-tight cracks and flooded down the few steps below it. But, these doors held. It was no longer funny, and we could see that on the faces of the waiters.

Should we go back to our cozy little smoking room? About five of us decided, yes, so we walked back along the 30 or 40 feet of deck and tumbled into the safety of our little retreat. I was the youngest in the group and was finding this whole experience a lark. Surprisingly, all of us were thoroughly enjoying ourselves, telling stories as we peered out into those gigantic, rolling mountains of water, alternately peering downward into a deep trough, then suddenly upwards with the floating surface spray to the crest of another huge mountain of blue-black water. It was an experience I will always cherish, scary, yes, but invigorating beyond imagination and to my young mind immeasurably exciting. . . .

Towards morning the worst of our turmoil began to get tiresome. Struggling to

stay in one place on the smoking room bench as the ship rolled and pitched left us without a moment to relax. The captain had cut the engines to minimum speed two days earlier, keeping just enough power on the propellers to permit steering and holding the bow into the wind. Under the circumstances, this was a necessary strategy, but it invited a timber-shattering jolt every 10 to 15 minutes when a giant wave would heave the flat-bottomed bow up into the air and let it down with a great jarring smack. We realized that this must have been extremely rough on the whole structure of the ship, and we started speculating, jokingly, whether the ship could possibly hold together. None of us was sick; it was just too exciting.

About midnight the wind abated, and although the ship continued to roll and pitch, we fell asleep. The next morning those giant waves were still rolling on, but the real danger was apparently over. Passengers from the starboard side were released from their prisons and brought in to the social room to recover. A ghastly bunch in obvious misery from seasickness, most of them were still in night clothes stained and blotched with pink dye from the red carpets in their state-rooms, which had flooded and splashed the occupants with dyed water. We were vividly made aware just how fortunate we had been to have been assigned to port-side rooms and beds.

By noon the *Maracaibo* had settled to a slow, gentle roll, and our starboardside shipmates were reviving. The captain appeared, and we raised a hefty cheer. He had been at the wheel for over 48 hours without rest. He said with evident conviction that it had been a terrifying experience for him and, more than all of us could realize, was the worst storm he had ever seen in his life at sea. In my juvenile innocence I had viewed it all as fun, but suddenly I realized that I had lived through a truly grave experience when the captain thanked us for staying with

him through this terrifying experience! What else could we have done?

Emlen's next trip abroad was to Europe during the summer of 1928. An eight-day boat trip brought the family to Cherbourg, France, and from there they took the train to Paris. After a few days in Paris, they travelled by train south to the Pyrenees Mountains, along the Spanish border.

Here a Spanish customs officer threatened to confiscate my arsenic, a chemical I had brought with me because it was essential for preparing bird specimens. That crisis bypassed, we drove on to Lourdes and the famous grottoes where thousands of crippled pilgrims were gathered to kiss the bones of Catholic saints and sample the healing waters of the sacred springs.

For me, however, the principal attractions of the area were the snow-capped peaks to the south. A few days later we found lodging in a small inn near Luchon, the takeoff point for climbs into the Pyrenees. At daybreak Father and I started the ascent. By noon we were up on the snow fields with wonderful vistas of spectacular peaks to the south and west. There was no clear trail to follow, but we were approaching an apparently significant peak when Father, feeling the altitude, sat down to rest. In his fifties but in good health, he was sure he could go on, but after a half-hour he had changed his mind. He said I should go on to the summit, which was perhaps another half hour away, and he would wait for me. I went on but, a bit concerned, turned back after 10 or 15 minutes.

Father was gone. I found a note saying that he had started down the steep slope and would head towards the town visible far below us. I followed his track as he half walked, half slid for perhaps a half mile when I spotted his sweater, which I remember had been tied around his waist on the ground. Now I was alarmed

and started to run. Fortunately, I found him within the next half mile. A truly welcome sight! He was O.K. but had had a real scare, possibly a small heart attack. We walked down to Luchon together, spent an extra day resting up, and were on our way again, none the worse for the episode. I had learned that people, even my dad, were vulnerable. But I had also seen some birds on that hike: Gray Wagtails, Meadow Buntings, serins (finches), Great Spotted Woodpeckers, and, best of all, a Black Woodpecker. The latter was as big as a crow with a huge red crest and an ivory white bill reminiscent of the now-extinct Ivory-billed Woodpecker in America.

Our next stop was the Riviera coast, high above the blue Mediterranean, and the ancient cities of Avignon, Arles, and Carcassonne dating from the days of the Roman Empire. Of special importance to me, however, was the Isles de la Camargue, a huge area of marsh and grass at the mouth of the Rhone River, world famous for its herons, tern colonies, shorebirds, yes, and flamingoes! We saw them all and many spectacular birds of prey: kites, lammergeiers, eagles, and the remarkable white Egyptian Vulture, a reminder that Africa was just across that body of blue water at my feet.

From the Riviera, the Emlen party moved on to Switzerland and the Swiss Alps. Mountain climbing was the order of the day, and after conquering a 13,669-foot peak named Jungfrau, with the aid of a guide, John Jr. had his sights set on climbing the Matterhorn. But Emlen's father did not want to pay the guiding fee.

So we settled on a secondary, less expensive peak, the Rimpfshorn when we discovered that Felix Biener, our favorite guide and a marvelous yodeler would take us. After several days to rest our sore feet and do some birding, we started off, hiking across the Fendelin Glacier to the

Fluh Hütte, an overnight lodging place for mountain climbers.

Our start up the mountain from the hut was in the dark at one in the morning. We carried lanterns for the first couple of miles, leaving them in a cache as the horizon started to brighten to the east. From this point the trail became steeper, with rocky scrambles alternating with snow fields. The valleys below were filled with clouds, but the peaks remained subjects for colorful tales of climbing adventures by Felix until we reached the summit at 13,790 feet. From there we were treated to a glorious view of snow peaks in all directions, including the Matterhorn, Mont Blanc, and the Jungfrau. After the 6-hour climb our legs were weary. An hour of rest in the crystal clear sunshine, with sandwiches and hot tea, plus entertaining stories by Felix punctuated with loud yodels out across the great open spaces, was a delight.

But we had to be back in Zermatt by dark and were soon on our way, joining Felix with feeble efforts to imitate his superlative yodels. I had seen no birds except for a few Alpine Choughs. But I could not deny that in spite of this, it had been a truly wonderful experience. As we approached the gentler slopes near Zermatt, we broke into a run, sliding and shoe skiing as though we were just starting. We bid our farewells to Felix, whom we would never forget, and to cap it all, we flushed a couple of ptarmigan and an Alpine marmot as we marched home to Father in triumph.

From the Swiss Alps, the Emlens journeyed to Normandy and to Holland,

In Amsterdam, following the advice of Dr. Stone in Philadelphia, I looked up Dr. Van Tienhoven, a leading Dutch ornithologist. He was very helpful. In response to my boyish request for ideas on birding places, he suggested Texel Island, a large island with extensive tidal

marshes, a day's trip to the north of Amsterdam. Furthermore, he elaborated on how to get there, places to stay, and birders to contact locally. Our time in Holland was short, and Father and Sue had other plans [Mrs. Emlen and daughter Mary had returned home at the outset of the European trip to be with Virginia Emlen's father, who had suffered a stroke]. But I could not be dissuaded, and Woody decided to join me.

Time was awasting, so without delay Woody and I rushed to the natural history museum where a wonderful exhibit of Texel bird life was on display. Then it was back to our hotel to change clothes, throw a change of shoes, etc. into our rucksacks, and head down to the railroad station for the three fifteen train to Helder at the tip of the Amsterdam peninsula. A 2-hour train trip through the fascinating Holland landscape with great windmills brought us to the ferry dock, the *Texelsche Boot*, on the island. Here we boarded and in 40 minutes were in Den Burgh, the center of Texel's human populace. The birds were up to the north, so we hired two bicycles and checked in at a neat little Dutch inn.

Shops open early in Holland, and after a quick breakfast and a few purchases, we were off on our bicycles with a strong tail wind to boost us onward to Cocksdoorp, a little town at the north end of the island where we hoped to find Mr. Bierman, the local birder, and the birds. Lapwings, skylarks, and wheatears were abundant along our road, and gulls, ducks, godwits, and several species of plovers flushed from every roadside pond.

Mr. Bierman unfortunately had been away for a month, but we registered at the *Hotel-de-Hoop* where the proprietor had a book and all the basic information on the best birding areas. We wasted no time, walked to the dike that shielded the town from the high tides, and gazed out over a broad mud flat peppered with plovers, stints, turnstones, and redshanks. Farther away our binoculars

picked up clusters of curlews, godwits, oystercatchers, and at least three species of gulls. As we walked along the dike, it was clear that the flats continued for miles and the birds with them. We now added several species of herons, the striking white European Avocets, a Curlew Sandpiper, and some Greenshanks. Far in the distance were a dozen or so European Spoonbills, which were much like our American spoonbill that I knew from book illustrations, but which were white with a striking yellow and black bill.

The tide was beginning to turn now, and distant flocks of birds were rising from the flats, forced to turn inland as their outer feeding grounds were flooded. Small flocks of ducks, primarily mallards and shovellers, were flying in toward us. On the horizon a long line of black that we had been unable to explain suddenly bulged upwards and revealed itself as a huge flock of cormorants that had been resting on a distant sandbar. A meadow of short sea grass that we crossed was carpeted with down feathers and droppings, revealing where thousands of these tidal feeders, during this, the mating period, were spending their idle hours when the lower fields were flooded. Terns of three species now appeared overhead, along with others that had apparently been flushed by the rising tides. Birds were everywhere, mostly on the wing. But the sun had set, and it was getting dark—time to amble back to our little inn, supper, and a frantic attempt to write up my bird notes.

We had a second day on Texel, and we spent it retracing our steps of the first day, seeing mostly the same species but using different strategies. Returning a little before sunset to an area near the feather-strewn meadow, we hid ourselves (flat on our bellies) in some tall grasses near the crest of a dune where we could look out over the shifting scene of water and mud flats as the tide rose. The first birds to move this time, (perhaps we had arrived too late the day before), were a

dense flock of chunky, snipelike sandpipers called knots. They came speeding in low over our heads with a great rush of wings, to land on that dry, feather-strewn pasture about a hundred yards behind us. Next, a flock of 32 glistening white Spoonbills settled in the shallow pond right in front of us. They were apparently unaware of our presence as we remained silent and motionless. They peacefully stalked back and forth, swinging their great yellow-tipped bills in wide semi-circles. One bird latched onto a large object, which it struggled repeatedly to swallow, before giving up to resume the monotonous back and forth bill-swinging. At this point the huge black mass of cormorants arose en masse from the distant sandbar, just as they had the day before, slowly breaking up into smaller groups to drift inland above us. The sky was now filled with thousands of tiny stints, Dunlins, and plovers displaced by the rising waters, many of them apparently settling on the pasture behind us. A variety of ducks, including teal, scoters, and a half dozen gaudy shield ducks [Shelducks?], now joined the Spoonbills, coasting into the little pond with swishing watery slides. Then suddenly, as though the air was not already filled with wings, everything seemed to leap into the air. There was no apparent alarm to cause such a response, which seemed to be just another phase of the rising tide and the slow submerging of the foraging terrain. In the fading daylight, mountains of birds rose up on every horizon then drifted overhead towards the mysterious roosting area behind us.

By eight thirty it was too dark to see, and the flights precipitated by the rising water were essentially over. Unfolding our cramped leg bones we struggled to our feet and stretched. A small flock of curlews flushed from behind us, giving their ever-distinctive “curlor” calls, and drifted towards the pasture, their silhouettes barely visible against the now starlit sky. Our thoughts were overwhelmed

with all we had seen during the preceding several hours as we trudged back to Cocksdoorp and our inn. It was our last night on Texel, and, indeed, our last in Holland, for the next day we would be boarding another ocean liner for a return home and another season of study and preparation for a career in, perhaps, natural history and adventures in birding.

John Jr., spent the summer of 1929 largely indoors, but exposed "to the world of birds in the world's largest collection of bird specimens at the American Museum of Natural History in New York City."

I had been introduced to the Neotropical avifauna in the West Indies and to the Palearctic avifauna in England and Europe, and I was anxious to broaden those revelations to an overview of the birds of the world. . . . My job at the museum was to catalogue a large and valuable collection of Brazilian specimens, the Kaempfer collection, an assignment that I initiated by spilling a bottle of India ink over the handsome catalogue book. Dr. Chapman, Director of the Bird Department, came in to assure me that this mishap was not fatal. In fact, thereafter he was even more tolerant and appreciative of my boyish enthusiasms.

The cataloguing was monotonous but fascinating. I learned the names and characteristics of the many species and of the Brazilian provinces from Bahia to Pernambuco and Maranhao. I also had a chance to chat with the world-famous ornithologists whom I met and had lunch with every day. I was particularly enchanted with Dr. James P. Chapin, a specialist on African birds. He had fascinating stories to tell of his experiences while collecting specimens or of tracking down rare and elusive species such as the African peacock, a remarkable pheasant-like bird. Before it was ever known in the

field, he had found a specimen in the Belgian Museum in Antwerp.

My closest contact, however, was with a shy, retiring ornithologist, Dr. Waldron DeWitt Miller, who, I found, was the final authority for all questions on specimen identification. Dr. Chapman and Dr. Robert Cushman Murphy—the big names on the staff—would drop by at least once or twice a week to ask him a question and would almost always get an answer or a helpful steer. On my first day he had an ostrich intestine from a zoo specimen stretched out, back and forth, along the corridors between the specimen cases to examine its structure and measure its length.

I often had my sandwich with Dr. Miller at noon. He had a 4-cylinder motorcycle that he loved to take out to New Jersey birding localities on weekends, a hobby that led to tragedy before the summer was over. On a trip to Spring Lake one Sunday he was killed in a traffic accident. This shy, retiring gentleman had made a big impression on my young life during those few weeks I had with him at the museum.

#### **FIELD WORK IN HONDURAS AND A MEETING WITH ALEXANDER SKUTCH**

When the summer of 1930 came into view, Emlen was "anxious to get back into the field."

Thanks again to Father and his behind-scenes maneuvering with Witmer Stone, a new opportunity emerged. Dr. James A. G. Rehm was planning to travel to Honduras to collect Orthoptera (grasshoppers, crickets, etc.) that summer and could shepherd a couple of young ornithologists who could pay their basic travel expenses. Father found the few hundred dollars required, the parents of Brooke Worth, a friend at Swarthmore, managed a similar arrangement, and the expedition was launched.

Brooke and I were to collect as many birds, reptiles, amphibians and fish as possible along routes selected by Dr. Rehn and were to deliver them to the Academy. It was hoped that we might also contribute to or directly author several scientific papers on our results. Using our field notes to supplement his report on the bird collection of 569 specimens, Dr. Stone published on the birds and named a supposedly new Pewee in my honor. Meanwhile I teamed up with Dr. Dunn, my biology professor at Haverford, to publish on the reptiles and amphibians. This article apparently added nine species of amphibians and 26 of reptiles to the known herpetofauna of the country. . . .

Our first field base was at the field camp of the American Rosario Silver Mine Company, an encampment on a steep mountain slope at an altitude of 5,100 feet. Here we were offered basic food and lodging facilities within a few miles of extensive stands of cloud forests, brushlands, and pine forests—habitats where we particularly wanted to focus our exploring and collecting activities. A mule train would be coming to Tegucigalpa in a few days, and we could join them on their return trip. There would be plenty of mules for us and our luggage. The road was impassable for any sort of wheeled vehicle. It was essentially a trail cut into the steep mountainsides, used primarily by native villagers traveling or transporting goods in mulepacks, on small horses, or, if these were not available, piled on the heads of women.

The camp was a simple cluster of about a dozen bunkhouses with an attractive mess hall and social hall for the fifteen or so mine bosses and their families. The area surrounding the buildings had been largely cleared of vegetation to discourage bandits, who had over the years made several raids on the administrators' homes and families. Beyond this clearing and down for several thousand feet was dense brushland, from which wood ma-

terials were constantly stripped to feed the charcoal pits maintained by the local natives for their fuel requirements. Foot trails in this area were characteristically very steep, although the larger trail leading down to the tiny villages of San Juan-cito at 3,800 feet and Cantarranas at 2,200 feet, where we camped for a week, were roughly graded for mule and horse travel. Pine forests—open pure stands or with patches of scrub oak—were found in the less-disturbed areas up to 4,500 feet and, in primitive time, probably to 6,000 feet where the cloud belt and its distinctive flora and fauna abruptly replaced all other vegetation.

The cloud forest, densely covering the mountain peaks, was the most readily reached about two miles west of the mine buildings at a point where the principal mine shaft plunged horizontally into the hillside. Here a high white limestone wall, lit up at night with brilliant floodlights to discourage trespassers and bandits, functioned wonderfully for our purposes by attracting thousands of spectacular moths and nocturnal insects. Night after night we walked the four-mile round trip to this point to collect specimens for the academy or for our own show boxes at home.

From this point the Tegucigalpa road plunged into the cloud forest, providing access to many square miles of largely undisturbed wonderland ranging up to over 7,000-foot elevations. Standing and gazing upward into the forest overhead, we could not but be overwhelmed by the scale and somberness of the scene. Tree trunks, buttressed with flanges like great walled partitions, towered upwards into mists that hid their crowns. Massive horizontal branches, often 50 or even 100 feet above my head, projected horizontally into great misty spaces, heavily loaded with bromeliads, orchids, ferns, and mosses, dripping with the heavy moisture that permeated the atmosphere everywhere.

Birds? The silence of the scene sug-



gested they were scarce, and we spent many hours waiting for just a peep or a cheep to give us a suggestion of at least a few. They were there, just lost in the scope and magnitude of their habitat. Dominated by large species of ground foragers or of treetop gleaners far overhead, their calls were simply occasional loud wails, shrill screams, or the sharp barks of tinamous, parrots, or trogons rather than the chips and twitters we associate with small insect or seed feeders in our familiar temperate woodlands.

With no identification guides and no list of likely encounters, we were constantly perplexed and challenged by strange sounds and strange forms flashing across our visual fields. Our limited knowledge and memory of museum specimens back home only aggravated this confusion and led to much wild speculation: An owl? A trogon? A new species? How different this was from the modern tropical bird tour with its illustrated reference books and colored plates, recorded song tapes, and trained guides experienced in the local geography and local avifauna! It was probably less efficient, but was it less challenging and fun? I doubt it.

It was here in these magic cloud forests that I also encountered my first white-lipped peccaries, my first tayra (a large fisherlike member of the weasel family), and my first mountain lion. I had seen footprints that suggested mountain lions were present, but my first encounter was as I was walking up the Tegucigalpa road near the summit when a huge tawny creature, the size of a great dane but with a long tail, streaked across the road and down a narrow game trail into the forest. As I rushed forward for another look, a native boy coming towards me from the opposite direction also saw it. When he saw me running in apparent pursuit, he shouted warnings. "Leona, Leona, Le Comé, Le Comé," he screamed. Wondering whether the boy might know more about such creatures than I did, I

hesitated, and the animal disappeared into the forest. I found more footprints to convince me that I had not been dreaming, but that was all. The animal was indeed a mountain lion. But, as always, I wished I could have seen more of it, a lot more. . . .

Our last week in Honduras was spent at the Lancetillas Experiment Station of the United Fruit Company near Tela on the Caribbean coast. Here, one day while collecting my quota of bird specimens, I spotted a small strange tentlike structure in the forest, something resembling the bird blinds I had seen years before at Cornell. Then I saw that it was placed near a large bulky bird nest and realized that it must indeed be a bird blind. Presently a young man appeared to ask what I, a complete stranger, might want, and we fell into conversation.

His name, he said, was Alexander Skutch [renowned writer-naturalist and authority on Central American ornithology]. Although he was a plant pathologist with a recent PhD degree from Johns Hopkins University in Baltimore, his real interest was in bird behavior. Having completed his routine chores for the United Fruit Company for the day, he was spending the afternoon studying the nesting behavior of a Rufus-breasted Spinetail at its nest by the blind. I introduced myself and explained my interests in birds and my mission with the Philadelphia Academy.

Skutch invited me into his blind, and I was utterly fascinated with what he showed me. Behavior was what had really intrigued me about birds all along, but to this point I had scarcely recognized it as a legitimate aspect of ornithology. Skutch had inserted a small paintbrush, dipped in yellow paint, into the roof of the tunnel-like entrance to the bird's nest. As we watched the female came, incubated the two eggs, and left with a neat, yellow stripe down her back, a readily distinguishable marker for future individual recognition.

I was thrilled and returned to the Experiment Station, determined to see more of this strange man and his work. Dr. Rehn was dubious and reminded me of my intention to collect and prepare six specimens each day. With that accomplished, he said I could see more of Skutch and his research. This fit in well with Skutch's daily routine, and I returned for a few hours of behavior watching each of the remaining two days before our scheduled departure from Honduras.

This accidental encounter was, I now believe, a turning point in my developing career. It convinced me that I should think more seriously about what I wanted to do with my life. I have had few opportunities to visit Alexander Skutch since those few days in Honduras, but to this day, I have remained a devoted fan of his extensive research and writings on Central American birds.

### **SERVING AS A RANGER-NATURALIST IN YOSEMITE**

Emlen graduated from Haverford College in 1931, and immediately sought summer employment teaching as a naturalist.

The National Park Service provided a possible entry into this field. I learned that access to their ranger-naturalist program could be achieved with a certificate of successful completion of a summer course in their Field School of Natural History at Yosemite National Park. I signed up, and equipped with my B.S. degree from Haverford, I was ready to go in early June. . . .

Yosemite was even more beautiful than we had expected. The family stayed for a few days near Camp Curry where the Field School was located and then was obliged to take the train home. I was assigned to a four-bed platform tent with about a dozen campmates, men and

women, ranging in ages from 20 to 40. In a six-week period we were expected to learn the fauna and flora of the Yosemite plus all the tricks of informing and entertaining the dudes in lecture halls, around campfires, and on the trails.

Our leader, Bert Harwell, was a master of the art of entertainment. . . . When asked about the identity of an insignificant little plant, he might answer, "Lady, there are 180 species of flowers in this park, and I'm a specialist on bears." That sense of humor apparently was part of a naturalist's job, and we did our best to emulate our instructors. . . .

Besides taking many fascinating nature walks along short, beautiful nature trails, we were encouraged to take long overnight hikes into the back country and up some of the spectacular mountain peaks. With a classmate I climbed the 14,000-foot peak of Mt. Lyell, the highest in the park and even scaled the sheer face of a striking granite dome, Starr King. We were told that it had never been climbed before, but with sneakers and inner tubes sewed to the seat of our pants, we scaled the several hundred feet to the summit only to find a beer bottle with a slip of paper carrying two names. We added ours and started down when it started to rain. We had not expected that, and for a few minutes began to worry. But the rain stopped, and thanks to our nonskid pants plus some strong fingernails, we made it safely back.

### **ARTHUR ALLEN TAKES EMLEN UNDER HIS WING**

In 1931, Emlen began graduate studies in ornithology at Cornell University, with Dr. Arthur Allen ("Doc") as his major professor. It was a joyful period in his life, and it transpired in a bucolic setting.

Having spent the summer of 1925 at Cornell as a nondegree student, I was al-

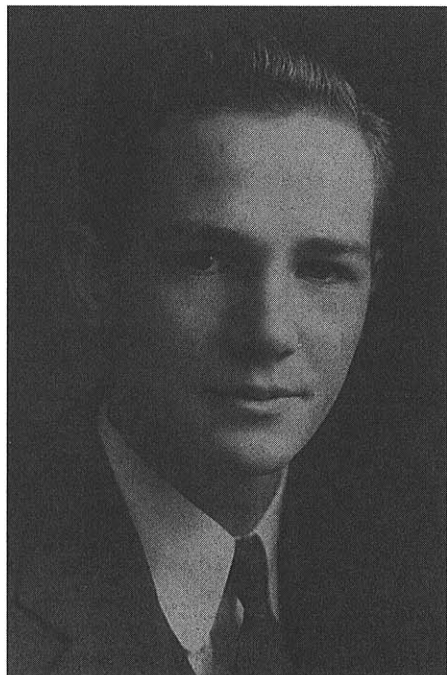


Figure 13. Emlen portrait, Cornell University (probably 1931). Emlen Family Archives.

ready familiar with the lay of the land and several of the professors, including Dr. Allen. He greeted me warmly as I described my plans and as he described what would be expected of me. My major would be ornithology, a relatively new department which for some strange technical reason had been assigned to entomology (vertebrate entomology?), and I could pick my two minors. Dr. Allen suggested that vertebrate zoology would be a good candidate with Drs. Wright and Hamilton as professors, and I readily agreed. For my second minor, I proposed geology or statistics in which I had had no training at Haverford, but "Doc," as everybody called him, thought entomology with Dr. Herrick would be better. Afraid of how I might fare with statistics, I agreed. I was assigned office space on the third floor of McGraw Hall and was turned loose to find living quar-

ters in the part of Ithaca students called College Town.

Rooms were cheap, and I found an adequate single on the third floor of a house on Bryant Avenue, a 10-minute walk from the campus, and with a selection of restaurants and "hash houses" only a few blocks away. I was alone on the third floor, a fortunate situation since the four undergraduate students below me were more interested in good times and drinking beer than in studying. I could shut my door and essentially ignore their evening antics. Girls were strictly barred from men's rooming houses at that time, but there was little or no control of men's behavior. . . .

The following year, Emlen moved to Cook Street in Ithaca and shared the second floor of a rooming house with six other students. But he was not always present.

One beautiful spring day when roommate Adger and I were immersed in textbooks and lecture notes in our rather cramped living quarters on Cook Street, it was proposed that we see what might be doing out in the countryside. Accordingly we hopped on his motorcycle and dashed out to Turkey Hill where we had been putting in some time on weekends with the N.Y. State Conservation Dept. on Gardiner Bump's Ruffed Grouse research project. Down by a creek in an apparently neglected meadow was a particularly lovely spot shaded by a large beech tree. As we contemplated the idyllic scene our thoughts drifted to camping and the outdoor life we both loved. Why not? we thought, and we did!

A farmhouse was close by, so we walked up and asked the landowner, Mr. Jenks, for permission to throw up a fence around the tree and to build a lean-to with some old planks that we had noticed nearby. To our surprise, the proprietor agreed, adding a few caveats that seemed thoroughly reasonable to us. He even

told us where we could find a couple of rolls of slightly rusty barbed wire to keep the cows at bay.

Two days later we had our new palatial residence established and a couple of hay bales strewn on the ground on which to throw our sleeping bags. We named it Tsundera beech which Adger, an irrepressible clown, insisted should be spelled "Ptszunderabeechbhu" with the first three and last three letters silent. I had no objections, and we promptly took possession with Mr. Jenk's enthusiastic approval.

We slept in this idyllic setting for the next month until summer jobs called us away. The cows were curious as we returned each evening to cook our supper over an open fire, but our fence held. A young crow that we rescued from a nearby nest provided company and conversation. We dubbed him "Get-the-hell-out-of-here" after having learned that crows can learn to talk, and surmising that the repetition of this name might provide protection against unwanted intruders. We weren't around much during daylight hours, but at least we had no evidence that uninvited guests invaded.

We learned to catch 10-inch suckers and even an occasional trout in our creek by lying on our bellies on the overhanging bank and simply grabbing the slippery prey when they signalled their presence by brushing against our outstretched fingers. Word of our new home leaked out to the members of the grad student community on campus, and our privacy was soon invaded by curiosity seekers. These visitors disturbed the tranquility, but often brought goodies, and on several occasions their visits ended in parties around the campfire. Our landlord up by the road accepted all this disturbance and, occasionally, even joined us. How lucky can one get?!

When I returned to Ithaca for the next fall semester, I found Tsundera beech intact and apparently undisturbed. I walked down in the darkness with my

sleeping bag, ready to spend that first night in the familiar setting. Intruders? Invaders? Four sleeping bags were already there, occupied by four friends from the Cook Street gang. After a bit of friendly dickering, the fifth bag was squeezed in.

A reunion breakfast of fried eggs and bacon was shared to initiate the new semester and the new academic year. Temperatures demonstrated that camping weather was over. We pitched in together to dismantle the now-historic site, returned what had been borrowed, and enthusiastically thanked our former landlord. "Come again next spring," he shouted, but we never made it.

Emlen developed a close, personal relationship with Dr. Allen, who was a towering figure in ornithology at the time. His graduate students revered and emulated him, and his influence on them was pervasive.

Reflecting Doc's interest in and great success with bird photography, all his grad students and all CUBL [Cornell University Bread Line] members sought time in the large, well-equipped darkroom in McGraw Hall. Paul Kellogg, Doc's assistant, George Sutton, and Sewall Pettingill were among these competitors, all of them leaders in the group of competent ornithologists responsible for the high reputation for which Cornell was recognized at that time. Doc was an extremely warm, easygoing man, always ready to help where help was needed.

My research, which I will describe later, involved study of the sleeping postures and habits of any bird that I could get my hands on. This included water birds—coots, grebes, and various ducks. Unfortunately for Doc, the best, and perhaps the only place available for the observation and photographing of such captive birds was the bathtub in Doc's home. I made numerous visits to this bathroom over the years, the inconven-

ience it must have caused his family notwithstanding. I would simply report that I had a bird for study. Within a few days permission to take over the bathroom was granted, and personal help was provided in setting up cameras and floodlights and taking care of the birds. . . .

Despite becoming immersed in ornithological pursuits, Emlen was not satisfied with his overall educational experience.

I was disappointed in the lack of opportunity to broaden my education through course work at Cornell. Emphasis for a PhD education was very properly focused on research. But rather than spending so much time on specialized courses in vertebrate zoology and especially entomology, I would have liked basic training in geology, especially historical geology, and in statistics, which I regarded as essential for what I saw ahead. Instead I was obliged to wade through long sessions in insect identification and a course in wing venation patterns. Although well taught and interesting to one enthusiastic for the concepts of evolution, these classes were, to my mind, scarcely pertinent for what I thought I would be doing in the years ahead.

I did get approval from my committee to audit, but without recognized credit, a course in historical geology with field trips to the Silurian and Devonian fossil beds in the Finger Lakes region and a swing up into the Cambrian rocks of Lake Champlain and the Adirondacks. I was also introduced by an imaginative and dynamic young professor, Ken Caster, to the controversial new concepts of continental drift. For the next twenty years these concepts would be roundly challenged by conservative older geologists and evolutionists who refused to give up what they had been taught as infallible truths.

Dr. Wright, one of my zoology professors, was a true, old-fashioned naturalist.

He told endless stories of his heroes—Agassiz, Cope, and Marsh, to name a few—featured in tales, sometimes slightly exaggerated, of interesting strife among 19th century naturalist explorers and collectors. Bill Hamilton, his junior partner and teaching assistant, was even more of a character and was prone to play tricks on unwary students and colleagues.

Art Hawkins and I were favorites of Bill in the sense that we understood and appreciated his wry sense of humor. He would often call us back into his private quarters after hours to share wild stories or to test our reaction to a quid of chewing tobacco or a swig of 70% lab alcohol. But with all his pranks, Bill was a square shooter who was not only a remarkably able authority on all forms of vertebrate life but also was full of first-hand animal lore. You couldn't trust Bill to give you an honest answer to a serious question, but you could detect by his expression and tone of voice when he was kidding.

It was Dr. Allen's courses in ornithology, however, as well as his encouragement, that excited and stimulated Emlen the most.

Dr. Allen's courses in ornithology and in birds of the world were highly instructive and stuck very close to what he obviously considered standard classical ornithology. He had little time for the newly emerging and exciting concepts of migration or of the physiological bases of behavior. His course on birds of the world, taught with numerous specimens and slides, was particularly instructive and served as a model for a similar course I taught many years later at Wisconsin. . . .

Newly arriving graduate students at Cornell were traditionally assigned a life history for their thesis research. Doc felt that this would offer the candidate a broad training in avian adaptations appropriate to the ornithology of the day

and to the student's special interest according to the species—a hawk, water bird, or song bird—he or she would select. Something of the rebel in me said No. I wanted to tackle some basic biological problem or some aspect of avian biology or behavior that cut across species lines, allowed inter-species comparisons, and possibly included evolutionary trends.

Although dubious, Doc was receptive, but what would the topic be? The desirability of posing and testing specific hypotheses was not appreciated in the 1930s, so I selected a broad area of research with multiple questions that would give little hope of providing explicit or useful answers. My topic was a comparison of avian adaptations to darkness, i.e., a survey of the literature on night-roosting behavior of birds. Little was known, and little still is known about how diurnal birds spend the hours of darkness or how they protect themselves against the hazards of this period, when they are essentially defenseless.

Neither Doc nor I had any idea how many miscellaneous bits of information there would be in the published literature, how fragmentary and scattered they would be, or how difficult they might be to interpret. Thus my thesis wound up with over 600 references, most of them minuscule, and 600 pages of text. Some of the observations are interesting and suggestive, but most were little more than a listing of sleeping postures and observed roosting sites. However, in looking back at that compilation, I now ponder some puzzling questions: Why do the majority of long distance migrants choose to migrate at night, and what do many sea birds, including terns, that are not known ever to alight on water, do at night when far out at sea?

Most interesting to me were the gregarious species, those that congregate in communal roosting sites during the non-breeding season. Such species were crows, blackbirds, robins, swallows, sand-

pipers, and others that, for reasons not immediately apparent, swarm in from hundreds, even thousands of square miles of foraging terrain every evening to roost together in woodlots, in reed beds, or on sand bars. Fieldwork, an essential part of any project I would undertake, focused on these nocturnal aggregations and provided most of the adventure aspects of my thesis research.

In the 1930s crows in New York State tended to aggregate with their newly reared young in small flocks in midsummer. These local groups would merge into progressively larger flocks during the fall months as temperatures dropped. By midwinter they reached peak numbers when up to 50,000 or 60,000 birds, all of this one species, would swarm into a woodlot or forest patch from foraging grounds as much as 20 or 30 miles away. It was these gigantic aggregations that demanded much of my attention during the winters of 1932 and 1933.

Foraging, largely on scattered corn in the recently harvested, widely dispersed fields, generally ceased by midafternoon. Then the birds became intent on social activities, mainly talking (cawing) and playfully interacting as they moved slowly in noisy flocks back towards the roosting site from which they had dispersed in the early morning hours. Flock size in each of the converging groups increased as subflocks merged. By an hour before sunset, essentially all of the members of the local population clustered in, forming two to four large flocks within a mile or less of the woodlot where they had congregated to sleep for the past several weeks. Feeding was through for the day. In fact many birds were disgorging little croquette-sized pellets of chaff, apparently emptying their stomachs before finally entering the small group of trees where they would spend the night. The outcry from these great, pre-roost flocks was spectacular, and I could not but imagine that their concentrated social-

izing had some significance for them. Just what it might be I never discovered. The crowding together and close interaction must have been detrimental in all respects that I could imagine: parasite dispersal, disease dissemination, and physical injury. I obtained evidence that these problems did commonly occur, but the social drive was clearly irrepressible.

The final flight into the roosting trees was generally delayed until darkness had descended. It usually occurred in silence, with thousands of the big black birds leaping into the air in a great cloud of rustling wings, circling over the treetops several times as though to test for the possible presence of enemies, then plunging into the upper, leafless twigs. If I were hidden in those trees, I could hear low, conversational whines and grunts that would fill the air as the birds shuffled about trying to find a firm, safe sleeping perch in the semidarkness. There was no cawing or screaming in alarm unless some genuine cause precipitated it, just those soft, almost human-like sounds of what to me reflected security.

Often secondary or tertiary arrivals came, each composed of thousands of individuals. These arrivals landed in the same woodlot area, scrambling to find roosting perches among their brethren, bumping into neighbors, or struggling to regain a perch-hold if a roosting twig broke or just wouldn't support the perch claimant. Peering up from the ground level I could see the hundreds of silent silhouettes against a starry canopy or a moonlit dome, but details were usually beyond my ken. The birds seemed to prefer close association, within a few inches of each other where possible, but apparently they avoided actual contact. Heads seemed to be turned back with the bills under the scapulars in most cases, but they were clearly directed forward and hunched between the shoulders in others.

In contrast to the socially dominated

and leisurely activities of the evening ceremonies, morning departures were hurried and unceremonious. Birds awoke well before sunrise and raised a huge clamor that lasted unabated until every bird was gone a half hour later. Birds literally bailed out of the trees, flaring out in many directions, as though intent on reaching some previously selected but distant foraging area. Perhaps I had been wrong in looking solely at the prolonged afternoon and evening social gatherings for explanations of the flocking behavior.

John Krebs, working with herons, recently proposed that one reasonable function of gregarious roosting and nesting might well be to provide an information center. From such a center rapid and definite morning departures in a particular direction could indicate knowledge of good foraging sites and a good route to follow for individuals lacking such information. That idea makes sense to me now; nothing of the kind occurred to me then.

A second objective of my fieldwork on crow roosting was to census the entire wintering population of this species in New York State. That crows were restricted largely and almost entirely to agricultural lands during the midwinter months, that nonagricultural areas could be checked for the purported absence of crows through systematic questionnaires, and that the approximate number of birds at each roost could be estimated with reasonable accuracy, suggested that a statewide census of this sort would be at least indicative of the total population in the state.

Maps could be prepared from these data and compared with statistics on the distribution of physiographic and habitat features. Such maps might shed light on the natural determinants of crow distribution over a large area of varied terrain. A similar survey made by a government biologist in 1911-12 for portions of the state suggested that the attempt might

prove feasible and could perhaps provide information on the stability of numbers and distribution over the intervening 21 years. I realized that I could not do the whole job myself, so questionnaires were prepared and sent to an extensive list of potential contributors: game wardens, county agents, sportsmen (including many crow hunters), and ornithologists. Reports from 262 of these informers contributed to the survey, providing data for 58 of the 62 counties of the state.

I then marked on a map the 20 roost sites identified in my 1932–33 survey and added the locations of the 16 roosts recorded in the 1911–12 survey. The relatively small proportion of the state populated by crows in winter was apparent. In addition the location of roosts in the two sets was remarkably similar. With one interesting and significant exception, the distributions of the population units and, probably, the roosting sites themselves seemed to have changed very little over the 21-year interval. Other failures to match old with new roost sites on the map could well reflect failures in the survey procedures.

One roost located in 1911 in Schuyler County in the south-central part of the state was, however, definitely absent in 1932. Its disappearance suggested an interesting story of distribution change by a whole population unit that occurred in the winter of 1922–23. A severe local ice storm that winter resulted in heavy mortality. The eyes of thousands of birds were glazed over, forcing the birds to the ground and preventing feeding. Specimens picked up by a farmer were diagnosed as having an eye disease, xerophthalmia, associated with vitamin A deficiency, but a direct physical response to the ice itself seems a more likely cause.

It seems unlikely that all members of that roosting population were killed by this single event, but the several thousand birds that had roosted up until 1922 at another location, in the vicinity of

Montour Falls, also disappeared. Furthermore the surrounding fields, well stocked with wintering crow flocks up to that date, were completely abandoned after 1922. I scoured these fields in 1932 and 1933 without seeing a single crow. Clearly the whole area, several hundred square miles of it, demonstrated as capable of supporting a good crow population, had been summarily abandoned, a remarkable phenomenon that suggests in a dramatic way how attached a whole population unit can be to a foraging area and how drastic their response can be to a catastrophe of this magnitude. A search of the literature in subsequent years revealed only one similar event—an abrupt disappearance of a relatively small population of ravens from a winter roost and its surrounding foraging areas in California in the 1920s.

Starlings are even more spectacular than crows in their gregariousness at winter roosts, especially in the large midlatitude cities like Washington, Baltimore, and Philadelphia, where they flood into the downtown buildings in hundreds of thousands and even millions. Theatergoers are familiar with these spectacles—endless rows of little black birds lined up along ledges and windowsills often in the glare of floodlights, dozing or squeaking in apparent delight at the traffic below. The roosting flights coming in from outlying areas are equally remarkable—seemingly endless rivers of swiftly flying birds, dashing overhead to join the throngs already there. David Lack, a British ornithologist trying to identify mysterious, phantom-like radar clouds reported as drifting towards the center of London every evening and out from it every morning, discovered that they were, in fact, “clouds” of starlings on their daily flights to and from the center city.

When not at a crow roost in those Cornell years, I was often checking starling roosts in barns, cupolas, or church steeples in the smaller upstate towns and vil-



lages where these structures substituted for the tall city buildings. Sitting in the darkened corner of a cupola or church tower at dusk, I could see just how the birds chose their perches for the night, and how they interacted as they prepared for the night's sleep. If I sat motionless as darkness closed in, the starlings apparently could not see me, or at least they did not recognize me as dangerous. Often they would select my shoulders or my cap as a perch, nibbling at my ears as they settled down for the night.

One evening a student friend, needing a series of specimens for his research, asked if starlings could be readily caught in such a roost. I assured him they could, and together we headed for a church in Owego where I had seen hundreds of starlings entering through ventilation slats in the steeple. We contacted the minister and got his permission to enter and climb the steeple to collect the necessary birds one Saturday evening. We promised to be out and have the place cleaned up by midnight. All went well and by ten o'clock we had a sackful of dead starlings. The job now was to get that sack, weighing perhaps thirty or forty pounds, down the ladder from the steeple tower. Finding the descent with the heavy load rather hazardous, we slid the sack down the sloping ladder to the steeple floor some twenty feet below. That's where the trouble started!

The slide was steep and swift, and the steeple floorboards were weaker than we had anticipated. The sack went right through those boards and down into the church entry, carrying a pile of bird droppings with it! How could we possibly clean up that mess before church officials and parishioners started filing in the next morning? Fortunately we found a broom and some newspapers, and by midnight we had done a pretty good job on the dirt and the shattered floorboards above the vestibule. But there was the gaping hole in the ceiling. What if any-

one should look up to praise the Lord as he or she entered the atrium in the morning? Not wishing to break the minister's sleep on a Sunday morning, we phoned him about seven in the morning and, to our relief, were assured that no one would notice it. At least we had done our best to ameliorate an unfortunate accident and, in any event, nothing more could be done at this point. No complaints were registered, and our mission had been accomplished. Praise the Lord!

In 1932 and 1933, Emlen spent his summers "working as a ranger naturalist in the National Park Service at Glacier National Park. The salary was less than the cost of the ranger's uniform I was obliged to buy plus the cost of gasoline for that western trip." Em-



Figure 14. Emlen as Ranger-Naturalist at Glacier National Park, 1932. Emlen Family Archives.

len led nature hikes daily, maintained an annotated wildflower exhibit, and gave a slide talk every evening on the park's natural history. Regarding one of the amenities of civilized life—show-  
ering—he was not a happy camper, but he opportunistically used the situation to accomplish laundry tasks as well: “. . . since they charged me 75 cents per shower, I invariably dipped hastily into the 35°F glacial water of the lake to bathe and wash my clothes, at least my socks. This was accomplished by anchoring them under rocks on the shoreline and letting the waves beat mercilessly on them while I was out all day on my naturalist chores. . . .”

Returning to many of the same park duties in 1933, Emlen recalled two unforgettable experiences in the high mountains; the latter, in part, enriched his life forever.

On one of my free days Doc Ruhle (the park head naturalist) asked if I would conduct a visiting Park Service photographer along the recently completed Going-to-the-Sun Highway connecting, for the first time, the east and the west sides of the park along a spectacular scenic route between Lake MacDonald and Upper St. Mary's Lake. The highway was not yet officially opened, but privileged persons, and I would be considered one, were permitted access for special missions. Of course I was eager to see the new route and gladly accepted.

The route, recognized as an engineering feat of major significance, led steeply up the west slope at an even six-percent grade, over the snow-capped pass and down, again at six percent, to Upper St. Mary's Lake where I had been ranger naturalist the previous summer. Mountain goats were numerous on the snow slopes at the high altitudes, and marmots

could be seen at many points along the way on both slopes.

The photographer's equipment was awesome. It consisted of a huge 8- by 10-inch plate camera with a tilting lens and plate panels to permit corrections for distortions. All of this was mounted on a tripod sturdy enough to support the whole mechanism rigidly for lengthy time exposures.

By contrast the little Kodak box camera that I carried was a joke, but I was determined to take advantage of my guest's obvious photographic experience. After watching him laboriously set up his massive equipment, carefully pan each shot, then wait (sometimes for quite a while) for the moment when the light was just right, I decided to mimic him. So when he clicked his shot, I would raise and click my little box in unison.

The name of this impressive photographer was told to me, but it meant nothing to me at the time. Years later the name would come back to me with new meaning, and the person would become an inspiration. I had escorted Ansel Adams, one of the truly great nature photographers of all time. How I now wish that I had known the talent I was hosting on that brief outing in Glacier National Park!

But Going-to-the-Sun Highway was to be the site of a much more momentous event in my life later that summer. Virginia Merritt, the lovely coed from Cornell who had swept me off my feet back in Ithaca the previous year was driving west with her family and stopped by for a few days at the Lake MacDonald Hotel. They sat through one of my evening lectures and joined me on one of my local nature walks while my blood pressure rose. Then, on the second afternoon, I took Jinny up that six-percent grade on the Going-to-the-Sun Highway in my car and popped the question, just, as I learned, my father had done to my mother some thirty years before on the Gemi Pass in Switzerland. Jinny agreed,

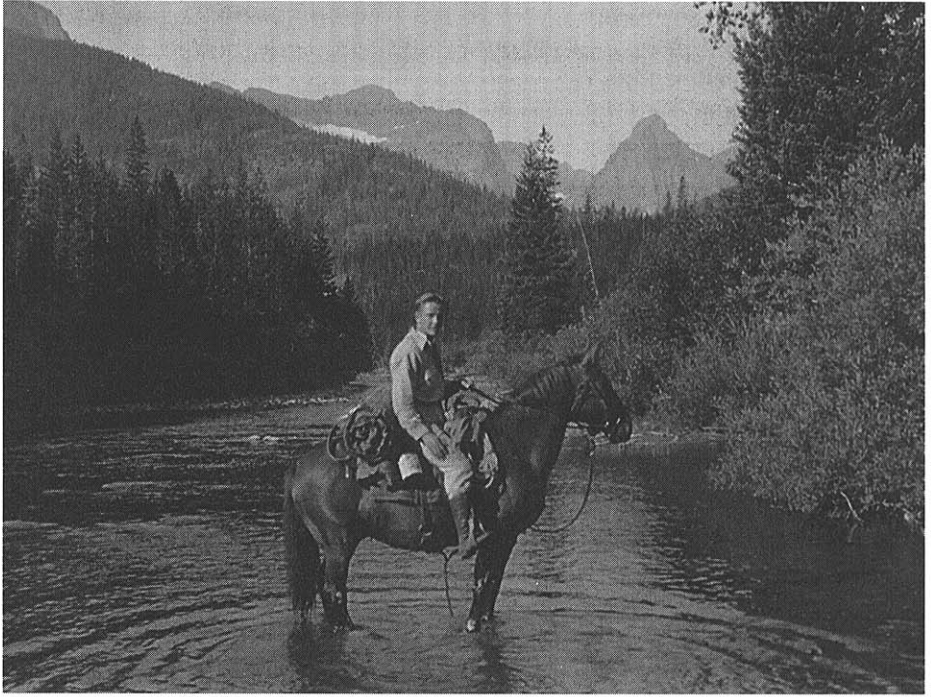


Figure 15. Emlen on horseback survey while Ranger-Naturalist at Glacier National Park, 1932–1933. Emlen Family Archives.

and we returned to report our intent to her parents at the hotel. All was downhill coasting from that moment until the following summer when we were married. All downhill except for a brief encounter with a small herd of mountain goats that blocked the highway on our descent. They reversed their direction and so did we, and we chased them uphill at 19 miles per hour, a figure that was duly recorded in my notebooks as the speed attainable by this species on a six-percent grade at 5,500 feet altitude.

Returning to Ithaca in the fall of 1933 my outlook on life had changed. There was much more I could do around Ithaca, but, having found the girl of my dreams, I was anxious to get a job and get going. I worked frantically on my thesis and with extensive help from Jinny, had it finished and typed, all 600 pages of it, by June 25 1934, our wedding day.

Emlen was married in the Ithaca Episcopal Church:

My attendance was assured from cousin Woody English who was assigned the responsibility of keeping tab on me “just in case I should find a bird’s nest on the way to the church.” I had saved enough money to trade in my old Ford for a flashy 1932 Chevrolet roadster, and we were off for a one-week honeymoon in Maine. On the way we had lunch at the swanky Lake Placid Club, and I impressed my new bride by rolling off a list of wealthy Philadelphia friends, actually vague acquaintances of my parents, who might vouch for my reputation in that city. In the dining room, Jinny recognized a waiter, an old Cornell friend from Ithaca who, sharing our spirit of celebration, helped us decide on an appropriate dessert. Selected was the item

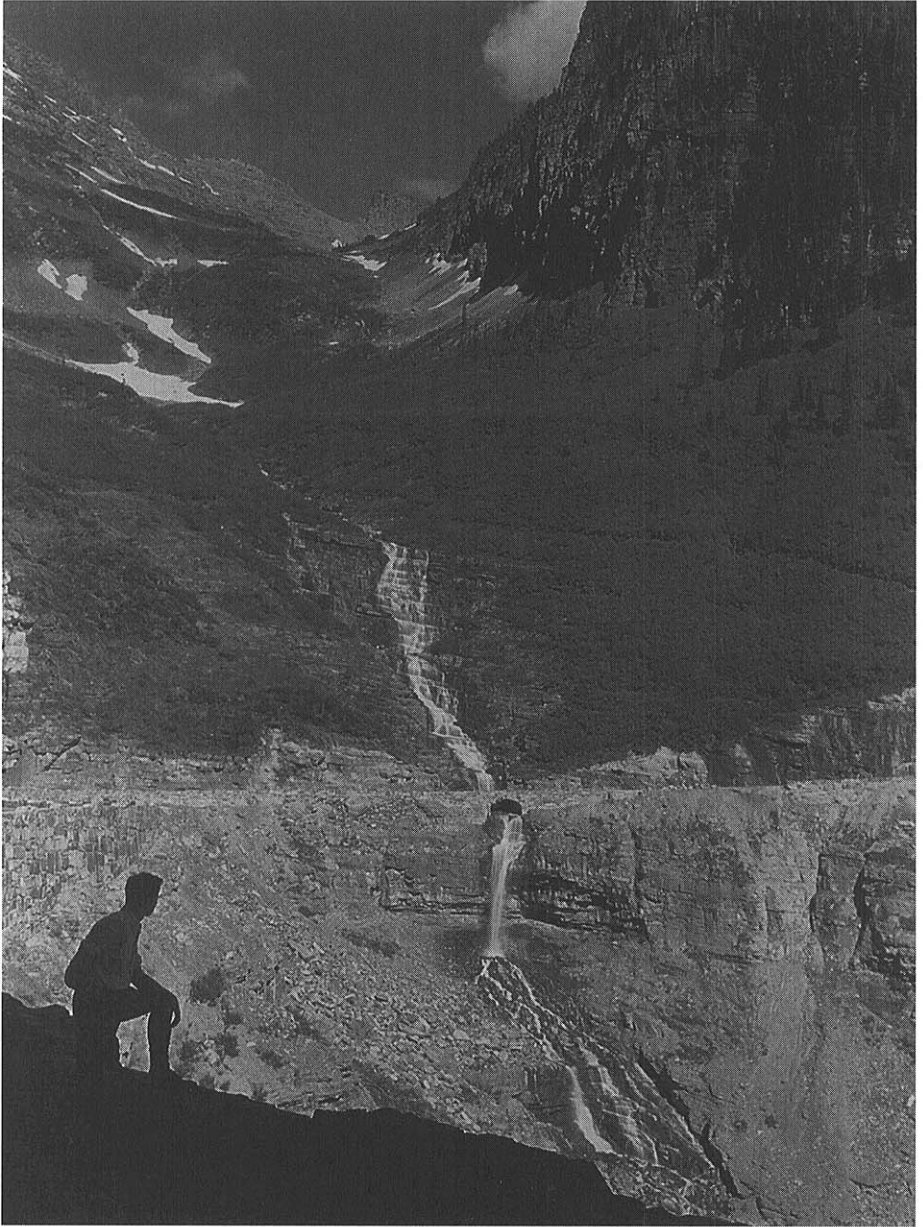


Figure 16. Photo by Ansel Adams of Emlen at Glacier National Park, where Emlen once served as personal guide for the famous photographer in 1933. Photo courtesy of National Park Service.

with the longest French name on the menu. A few minutes later he returned—holding high a plate with four stuffed prunes.

Emlen's main worry prior to his wedding day was employment. Earlier, he had driven to Madison to talk with

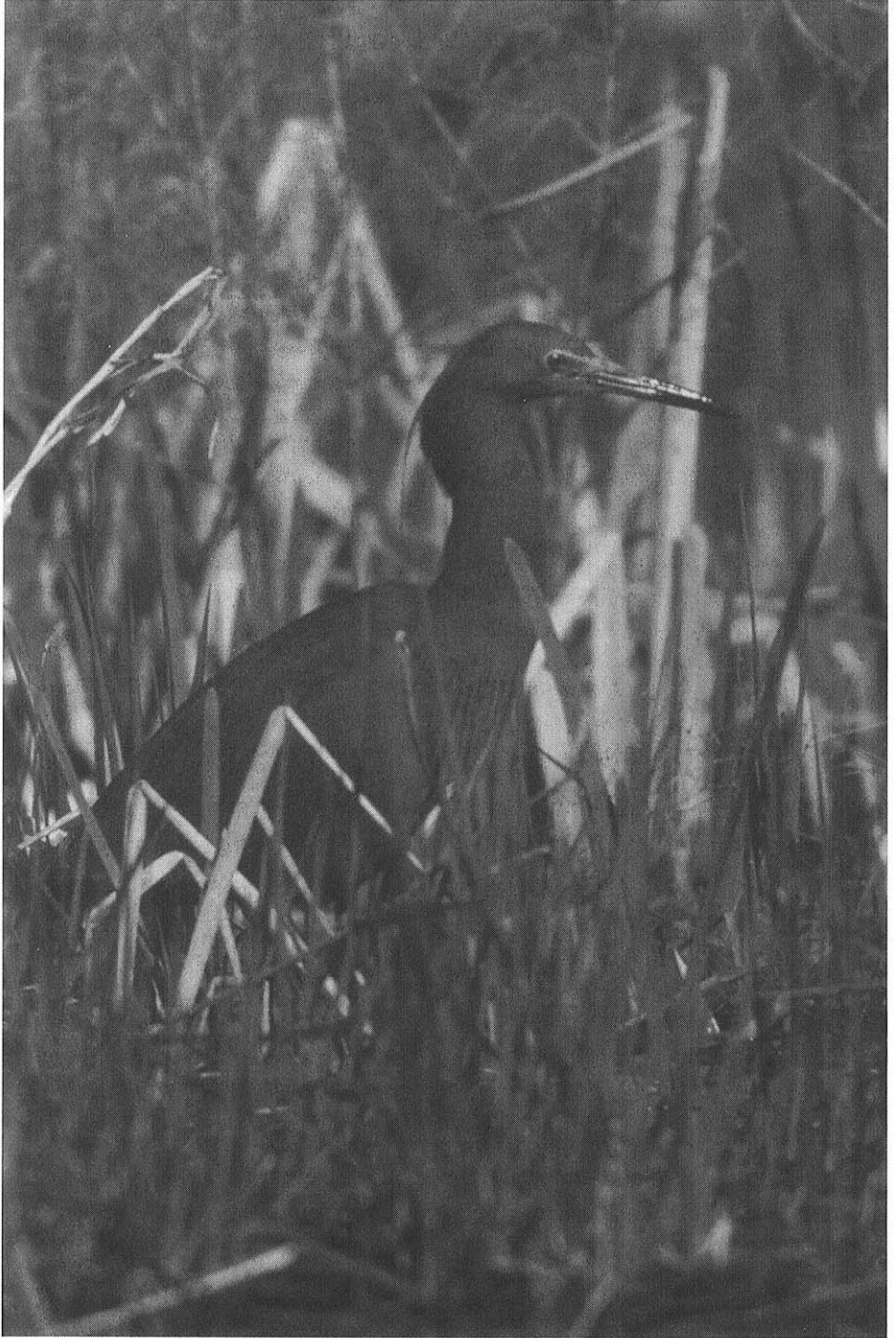
Aldo Leopold, who told him to contact him if he had no luck. Emlen had searched but had found nothing that he could seriously entertain. So he decided to contact Leopold once again. "I was desperate. I phoned Leopold in Wisconsin, and after hearing my story he said 'Come on out, I'll find something for you.'"

Leaving Ithaca was difficult for the newly married couple, but they gathered their "limited belongings together and hit the road for Madison, Wisconsin, in mid-July 1934."

Arriving on a steamy hot day, we were less than thrilled with our first glimpse of Wisconsin, but Aldo Leopold and his wife Estella greeted us warmly. They also

helped us find a room in a house on the corner of Langdon and Lake Streets, a house soon to be replaced by new University constructions and eventually the Wisconsin Center, which housed academic conventions. Forced to move within a few months we found an adequate and more permanent abode in the Clifford Court Apartments across from the campus on Orchard Street. Here we finished the year in relative comfort despite the location of our bedroom directly overhanging the Illinois Central tracks that delivered a load of mooring beef cattle to a nearby slaughterhouse every morning about half past four.

Sumner W. Matteson  
5101 Coney Weston Place  
Madison, WI 53711



Little Blue Heron *by Jack Bartholmai*