

## Mrs. Givens Reviews Articles From DAR Magazine At Local Chapter's November Meeting

For its November 21 meeting, members of the Mary Slocomb Chapter, Daughters of the American Revolution, assembled at 2:00 p.m. in the Western Steer dining room with Mrs. Pearl H. Sloan as hostess. After assembling, the members were served a delicious dessert with coffee.

Mrs. J. M. Morrow Jr., regent, presided and opened the meeting with the DAR rituals, assisted by Mrs. Sloan, chaplain; Mrs. W. B. Harris Sr. and Mrs. R. E. Hunt-Sherberger. Minutes of the October meeting were read and approved.

## IOTA ZETA PROVIDES FOOD FOR NEEDY



Several times each year the members of the Iota Zeta Chapter of Beta Sigma Phi sorority reach out to needy families with food. Aleta Yandle is placing one of several boxes of food in her car to be delivered to those less fortunate in the Mooresville area. This project of love and thanksgiving is just one of the many ways the organization reaches out to touch other lives.

## CELEBRATE CHRISTMAS

## Send the Very Best

Only a Hallmark card can say, "You deserve the best." Choose your Christmas greetings from our assortment of boxed designs in traditional to contemporary styles. Send the best—Send Hallmark!



**THE VILLAGE STORE**  
110 S. Main Street, Davidson, NC 28036  
(704) 872-4440

## CELEBRATE CHRISTMAS

## Lose weight in '88

with our 8 weeks for \$88.00\*



Temptation. It comes with the holidays. And in many cases, it lingers on in the form of unwanted pounds in the months to follow. Well, you're in luck. Because with Physicians WEIGHT LOSS Centers, you can enroll now and diet after the holidays with our 8 Weeks for \$88.00\* Holiday Weight Loss Special.

Our professionally supervised, nutritionally sound, real food diet assures you the weight loss of up to 4 pounds per week.

So don't let temptation put a damper on your holiday. Call Physicians WEIGHT LOSS Centers for your appointment today. After all, our 8 Weeks for \$88.00\* Holiday Weight Loss Special is a gift worth giving—to yourself.

Mon.-Fri. 8:30 a.m.-7:30 p.m.

**1708 Davie Avenue**  
**OAKDALE CENTER**  
Statesville, N.C.  
(704) 872-0998

**Physicians**  
**WEIGHT LOSS**  
**Centers.**

**Fairgrove Church Rd.**  
**Hickory, N.C.**  
(704) 324-0076

With you every day, every pound of the way.

\*Not valid with any other offer. Each Center independently Owned and Operated. Offer Expires Dec. 18, 1987. © 1987 Copyright Physicians WEIGHT LOSS Centers America, Inc. - Atlanta, Ohio 44133

Mrs. Jerry Ervin, treasurer, reported all expenses paid and a healthy balance in the treasury.

National Defense Chairman Mrs. Richard Givens gave reviews from articles in the November National Defender Magazine. One was a reply by veteran war correspondent Charles Wiley to a 13-year-old junior high American student who, after studying a nuclear war curriculum wrote: "Everybody thinks that Russia is the bad guy. We found out that the U.S. is just as bad because we're doing the same things like making nuclear bombs, like we dropped, the first bomb." Wiley responded that the United States is the world's greatest democracy, nation of Washington, Jefferson, Lincoln, the Constitution—and some flaws, past and present that we are always busy correcting. The USSR, a totalitarian police state is the nation of Lenin, Stalin, concentration camps, tens of millions of political murders and destroyers of all basic freedoms. The American project to make atomic weapons was suggested by scientist and pacifist Albert Einstein, who knew that the U.S. must win the nuclear race to stop Nazi nuclear experiments and ensure the future of civilization. That first bomb at Hiroshima brought the war to a quick end; it saved millions of lives—civilian and military—and prevented the total destruction of Japan.

Immediately afterwards, our country, the most powerful nation in history brought its forces home, scuttled part of its navy and air defense, conducted the greatest demolition in history, wrote off billions of dollars of wartime aid to the nation of Lenin, Stalin, to seek no reparation from our enemies, poured out billions to friends and former foes, to help them rebuild their economy. The U.S., never an aggressor nation, asked from other countries all over the globe only enough territory to bury our dead. Visit these cemeteries in Europe, Hawaii, and Arlington, VA, they are not the most beautiful and tragic places on earth. Here is the good guy, who stood against totalitarian aggression. Be proud of your country—Good Guy, U.S.A.

The second article reviewed by Mrs. Givens was entitled "The Coddle Creek News Items."

—The regular joint meeting of the circles of Coddle Creek Associate Reformed Presbyterian Church will be held next Sabbath afternoon at 4 o'clock in the church chapel.

—The members of the church's executive board will meet at 4 p.m. next Sabbath.

—The YPCU is sponsoring a program by the Covenant Players on Saturday evening, Dec. 12. The Covenant Players is a group of Christian actors, whose ministry is to teach and encourage Christian commitment by means of drama.

The youth groups will be caroling on Dec. 13. Remember to bring fruit and candy for baskets that will be given to our sick and

The earliest covered bridges were plain-sided; later versions were

## Coddle Creek News Items

—Mrs. L. M. Karriker

—Mr. and Mrs. Pat Patterson presented their son, Matthew Ryan, for covenant baptism last Sabbath during the morning worship service.

The Rev. James Hunt, who officiated, was assisted by Mrs. Graham, an elder and great-grandfather of Matthew.

—Mr. and Mrs. On Wilson attended a rally reunion at the Lure home of Mr. and Mrs. G.W. Cheek of Charlotte.

—Mr. and Mrs. John Danofrio of Cape May, N.J., spent Thanksgiving here with Mr. and Mrs. Richard Jarvis of Concord.

—Dr. and Mrs. Dill Allison of Due West, S.C., Mr. and Mrs. Humphrey of Beaufort, S.C., Mr. and Mrs. Bobby Allison of Pickens, S.C., and sons, Mark and David, visited last week with Mrs. Eva Craven.

—Mr. and Mrs. Crawford Graham attended a family Thanksgiving dinner at the home of Mr. and Mrs. Phillip Karriker and family.

—The Rev. James Hunt and family spent Thanksgiving with the Roger Gupton family at Lillington.

—Flowers were placed in the sanctuary of Coddle Creek Associate Reformed Presbyterian Church last Sabbath to the glory of God and in memory of Mrs. Evelyn Honeycutt Johnson by the Presby Bible Class.

—Mrs. Laura McLaurin has returned to her home in New Orleans, La., after spending the Thanksgiving holidays with her daughter, Nancy Myers, her husband, Steve, and children, Haley and Stephen.

—Mr. and Mrs. Fred Brotherton hosted a Thanksgiving dinner at their home on Sunday for their children and their families.

—Mrs. Ila McConnell, Doris Roberts, Pam and Angela Gaiety visited Mr. and Mrs. Gerald Slope in Charlotte during the holidays.

—Mr. and Mrs. Murray Rogers visited their daughter, Libby Rogers, in Waxhaw over the past weekend. While there, they visited Mrs. Mary Ann Kinney of Benson.

—Mr. and Mrs. Bimble Staton and children, Ryan and Heather, visited Sunday with Mr. Staton's parents, Mr. and Mrs. Burgess Staton of Ansonville.

Miracle of Our Constitution. It notes that our U.S. Constitution, adopted Sept. 17 as the longest lasting constitution in the world's history, guarantees our liberties—religious, political and economic. The 55 delegates from 13 states who met in a hall-car room in the Independence Hall, Philadelphia, were men of extraordinary vision, wisdom, and commitment. They had a shared sense of mission. They acknowledged the truth of the Declaration of Independence in which are five references to God: God as creator of all men; God as source of all rights; God as supreme lawmaker; God as the world's supreme judge; and God as our patron and protector.

The steady hand of Gen. George Washington guided the convention by the force of his personal leadership. He stated in his approach to the task: "Let us raise a standard to which the wise and honest can repair. The event is in the hands of God."

Benjamin Franklin, 81, said: "I have lived a long time and the longer I live, the more convincing proofs I see of this truth: That God governs in the affairs of men. I believe that, without his concerning aid, we shall not succeed in our deliberations, of such extraordinary thinkers, after nearly four long hot months, came the constitution which preserves our God-given individual rights and a government in which liberty and justice are twin goals. For the first time in history, government was proclaimed to be the servant of the people, rather than master—government by the consent of the governed—We the People!"

Mrs. W.R. Adamson presented a delightfully interesting program on the topic "Covered Bridges—A Vanishing Historical Heritage" in early America, bridges were made of wood. To preserve the wooden spans from weathering and decay, our pioneer ancestors built protective structures. These covered bridges became places where horses might rest, travelers might shelter in storms or heavy night lingers. They also served as a means of direction, such as "so and so lived beyond the covered bridge."

The earliest covered bridges were plain-sided; later versions were

lattice-type construction. In pre-civil war days, covered bridges were a common sight. Over the years, they have become a vanishing breed. North Carolina once had 40 covered bridges; today there are only three—one in Catawba County and two in Randolph County. Pennsylvania claims to have the most preserved bridges still standing. Most prevalent in Amish country, they are well-built, painted and well-preserved. There is a strong movement today to protect, commemorate and preserve these historic reminders of our past.

Mrs. Morrow expressed appreciation for the Chapter members to Mrs. Adamson for well researched program.

The meeting closed with a reading of a letter from the President General, Mrs. Raymond Fleck, a message of thanks for the work of Daughters in observing and honoring 98 years of D.A.R.

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

Although a smaller percentage of mammals migrate—many simply hibernate through winters—they do so for the same reason as birds. Moose in Canada and Alaska, for example, leave their mountain homes in the winter to forage in less snow-covered valleys. Zebras, wildebeest and gazelle follow vegetation patterns that change with the wet and dry seasons of tropical Africa. As with birds, mammals travel to locations that enhance their reproductive ability.

Sea mammals, such as dolphins, track schools of fish—the mainstay of their diet—southward to the tropics in winter. Marine mammals, in fact, make some of the longest migration journeys. Whales are known to travel up to 12,000 miles a year

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

Although a smaller percentage of mammals migrate—many simply hibernate through winters—they do so for the same reason as birds. Moose in Canada and Alaska, for example, leave their mountain homes in the winter to forage in less snow-covered valleys. Zebras, wildebeest and gazelle follow vegetation patterns that change with the wet and dry seasons of tropical Africa. As with birds, mammals travel to locations that enhance their reproductive ability.

Sea mammals, such as dolphins, track schools of fish—the mainstay of their diet—southward to the tropics in winter. Marine mammals, in fact, make some of the longest migration journeys. Whales are known to travel up to 12,000 miles a year

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

Although a smaller percentage of mammals migrate—many simply hibernate through winters—they do so for the same reason as birds. Moose in Canada and Alaska, for example, leave their mountain homes in the winter to forage in less snow-covered valleys. Zebras, wildebeest and gazelle follow vegetation patterns that change with the wet and dry seasons of tropical Africa. As with birds, mammals travel to locations that enhance their reproductive ability.

Sea mammals, such as dolphins, track schools of fish—the mainstay of their diet—southward to the tropics in winter. Marine mammals, in fact, make some of the longest migration journeys. Whales are known to travel up to 12,000 miles a year

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as

returning to the tropics increases a bird's lifespan, returning to North America has advantages. The birds come to feast on the abundant, springtime supplies of insects that fuel reproduction, he says. The nutritious food increases the size of their broods.

The birds leave not because of encroaching cold weather, but because their diet—insects—disappears. Indeed, lack of food, Gauthreaux says, is "the ultimate cause of migratory movements."

Further, while many people think that migratory birds in North America belong to "us," these birds really have two homes, each one important to their survival, he adds.

Migration also implies an escape from environments that, seasonally, become hostile. Birds and other animals, for instance, migrate within tropical regions, Morton says. The tropics—once considered an extremely stable environment—undergo many changes during alternating wet and dry seasons, he says. The phenomenon is poorly understood, but each seasonal shift affects food supplies and other factors, critics say to at least one survival. Birds that normally live in the forest canopy, for instance, might move to the forest understory during dry seasons when various food sources, such as insects, become scarce.

Although a smaller percentage of mammals migrate—many simply hibernate through winters—they do so for the same reason as birds. Moose in Canada and Alaska, for example, leave their mountain homes in the winter to forage in less snow-covered valleys. Zebras, wildebeest and gazelle follow vegetation patterns that change with the wet and dry seasons of tropical Africa. As with birds, mammals travel to locations that enhance their reproductive ability.

Sea mammals, such as dolphins, track schools of fish—the mainstay of their diet—southward to the tropics in winter. Marine mammals, in fact, make some of the longest migration journeys. Whales are known to travel up to 12,000 miles a year

BY WILLIAM G. SCHULZ  
Smithsonian News Service

Black chevron-formations of birds in a late-autumn sky are a familiar, perhaps melancholy, sight. The birds' orderly squadrons point the way from the arctic chills, that inevitably follow their passage. "South" is the obvious destination of these migrants; indeed, their flight is a biological command.

In one sense, people migrate too. They leave behind sweaters and coats during cold northern winters to soak up a tropical sun or the radiating warmth of a desert.

These experiences help people understand migration phenomena, but they also skew somewhat the complexity of these astounding mass movements. While biologists often "know" what "factors" drive animal migrations, answers to some important problems remain elusive.

Migration for birds and many other animals—actually occurs year-round. For example, as early as late July, migratory birds start showing up again in the tropics, "Dr. Eugene Morton, an ornithologist at the Smithsonian's National Zoological Park—in Washington, D.C., says. The peak of this migration, he adds, occurs in early autumn, tapering off throughout the rest of the season. By winter, approximately one-half of all birds in North America—more than 250 species—have migrated to Mexico, the Caribbean islands and Central and South America.

Birds in North America head south. Morton continues, because the warmth and other conditions in the tropics favor their longevity. The long flights over thousands of miles are hazardous, especially considering the energy output required. But "tropical birds live longer," he says, "and this tends to counterbalance the costs and hazards."

In fact, biologists define migration as "a pattern of movement that permits organisms to exploit environments only for a portion of the year." Dr. Sidney A. Gauthreaux, Jr., a professor of biological sciences at Clemson University in Clemson, S.C., says. And just as