

# THE ICF BUGLE

Editor: Scott Freeman

International Crane Foundation Quarterly Newsletter

INTERNATIONAL CRANE FOUNDATION

Rt. 1, Box 230C  
Shady Lane Road  
Baraboo, WI 53913, USA  
(608) 356-9462

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## International Crane Workshop

### The Conference in India: A BARA SUCCESS

by Ron Sauey, Co-director

In early March of this year, India proudly hosted the 6th Conference of Non-aligned Nations in New Delhi, an event held every four years which this time drew delegations from 101 countries. The capital has rarely looked more splendid—or more political. Everywhere were fresh paint, bright flowers, and fluttering multi-colored flags. Huge billboards, erected along the newly-resurfaced road from Palam Airport to the city's diplomatic enclave, shouted words of non-aligned wisdom from the movement's past and present leaders, while countless thousands of smaller posters, left-overs from Mrs. Gandhi's recent and successful municipal elections, showed the smiling PM (as the great lady is universally known in India) giving the palms-together *Namaste* greeting to admirers and detractors alike. Jutting up above Delhi's ancient skyline, like the bizarre creations of a deranged Moghul architect, were an array of spanking-new "five-star" hotels, ready and willing "to do the needful," as the quaint Indian phrase puts it, for the swarms of foreign dignitaries in town for the event.

I was also attending an international conference in India at the time, but one that was not nearly so

well-publicized nor so widely-represented as the Non-aligned. As I drove into Delhi one morning and passed workmen constructing the signboard proclamations for the upcoming Non-aligned meetings, I mused about the slogans our conference would have erected along New Delhi's busy thoroughfares: "SAVING CRANES SAVES THE EARTH'S WETLANDS!!!" "CRANES ARE SYMBOLS OF PEACE—LET THEM LIVE IN PEACE!!!" "PROTECT THE CRANES AND THUS OUR FUTURE!!!"

Held a month before the Non-aligned, our conference was an international workshop on crane biology and conservation, and though we were 24 nations rather than 101, and 187 participants rather than thousands, the event couldn't have been more successful. For four days, February 7 to 10, scientists representing a majority of the world's countries that harbor these wonderful birds met at Bharatpur, 200 km south of New Delhi, to discuss the latest developments in the study and protection of cranes.

Why an international conference in a remote-sounding place like Bharatpur, India? Though certainly not high on the list of trendy places for globe-trotting tourists, India and Bharatpur had several important advantages that made them ideal for our workshop. India boasts five of the world's 15 species of cranes and one of Asia's most progressive attitudes toward nature conservation. Indira Gandhi herself is India's foremost conservationist, and she rarely misses an opportunity to champion wildlife causes.

Indeed, she met briefly with the workshop's organizers at the outset of the meetings to wish them success and to accept a photo enlargement of her namesake, "Gandhi," a Siberian Crane hatched last spring at the International Crane Foundation. The Prime Minister also allowed a painting of Siberian Cranes by Diane Pierce, which she owns privately, to be used as the design for an Indian postage stamp. The stamp was released with appropriate fanfare at the workshop's commencement ceremony.

There was another important inducement for holding the workshop in India—financial. In exchange for grain shipments, the U.S. Government receives yearly an impressive amount of rupees from India which can only be spent in that country. Some of these "excess foreign currencies" were made available to us, thanks to the splendid support and cooperation of the U.S. Fish & Wildlife Service, and we were able to pay the lion's share of the workshop's expenses in this fashion.

The city of Bharatpur was a logical choice since it is located only a few kilometers from Keoladeo National Park, quite possibly this planet's most impressive bird sanctuary, and one of only three places known to support wintering Siberian Cranes, the most endangered of their family. Created by a former Maharajah of Bharatpur, this park's existence, and the presence today of these rare white cranes, are ironically the result of the hunting passions of the erstwhile rulers, who set aside the 7200-acre area to guard their royal quarry from poachers. Today, a living testament to the protection this sanctuary's birds receive was the astonishing tameness of the 36 Siberian Cranes wintering at the park. Workshop participants with a photographic bent had no difficulty walking to within a few yards of these rare birds, whose bright yellow eyes regarded their admirers with only mild interest.

Appropriately, the first papers read at the workshop concerned the Siberian Crane. And it was at this initial session that perhaps the biggest and most welcome surprise awaited the conference participants. Dr. Zhou Fu-chang, one of the five member delegation from China, announced that 230 Siberian Cranes had been discovered this year on wetlands northwest of Pyang-hu, an enormous lake whose waters mingle with the Yangtze River in Jiangzi Province. And he had photographic proof. In slide after spectacular slide, Dr. Zhou showed flocks of 100 or more of these snowy white cranes circling and banking on black-tipped pinions in an azure sky. For those of us who have watched each winter with growing dismay the shrinking remnants of flocks at Bharatpur or Fereydunkenar, Iran, these photos were nigh to miraculous, as if in a long-forgotten part of the world someone had found and photographed a million bison or a sky black with Passenger Pigeons.

There were other highlights at the workshop, some intensely personal. There was the peculiar joy of walking into the Centaur Hotel's great vaulted lobby in



Drs. Feng Ke-min (China), Yuri Shibaev (USSR) and Hiroyuki Masatomi (Japan) discuss breeding habitats of the Red-crowned Crane, in a typical meeting at the International Crane Workshop.

photo by Steve Landfried

(cont'd on page 4)

# Cranes at ICF

## ICF's Cranes Begin Migration North

by Scott Hereford, Aviculturist

They probably had no idea what awaited them when ICF's aviculturists pulled up alongside their pens in the early morning hours of February 1st. A routine feeding and watering was not on the schedule for this elite group of cranes. They were moving . . . to the Johnson Exhibit Pod on ICF's new property, five miles north of our present location.

Twenty-one birds made the trip—the culmination of a three month quarantine period. We instituted the quarantine so we could monitor the birds closely, and prevent unwanted disease organisms from being introduced onto the new property. The birds were kept inside, decreasing the chances of contact with microorganisms. ICF staff also took extra precautions to avoid introducing any new "bugs." We donned special coveralls, wore protective foot covers, and showered and changed clothes before going from other pens into the quarantine sheds.

At regular intervals during the 90-day quarantine, personnel from the University of Wisconsin Veterinary Science Department took blood samples and cloacal swabs, and analyzed them for viruses and disease-causing bacteria. At the end of the ordeal all twenty-one cranes had passed—they were declared "clean."

We relocated five pairs of White-naped Cranes, one pair each of Siberians, Sarus, Red-crowned and Stanley Cranes, and one Brolga, one Sandhill, and one Whooping Crane. There was never any real doubt that Gee Whiz, son of Tex, would be among the first group at the new site, along with his Sandhill sidekick, Carson. Representatives of the two North American cranes species are now in adjacent pens.

To fill the rest of the pod, our goal was to exhibit cranes of as many species as possible. We did not, however, want to include our most valuable breeding birds. Since the Stanley Crane is not endangered and ICF is not concentrating on breeding them, Killer and Priscilla were selected to go. Our female Brolga, Olga, and her new mate, Bean, imported from the Honolulu Zoo, were selected for similar reasons. ICF is breeding Siberian and Red-crowned Cranes, both endangered species, so most will remain at the old site for a year or so yet. The Siberians we did choose to move are just youngsters, and will not be reproducing for a year or two. The two Red-crowns are a lovely display pair, and have not bred yet. Many of the White-naped Cranes we moved reproduce on their own, without artificial insemination.

The actual move consisted of a series of trips in the aviculture staff's cars. Two to three cranes were taken each trip. We simply carried them out of the quarantine sheds, sat with them on our laps during



A White-naped Crane "migrates" to ICF's new site.  
photo by Jeff Strobel

the five mile journey, and carried them into their new home.

There are a number of elegant new features in the Johnson Pod. Heat pads under the sand substrate should decrease the chances of cold damage to toes. Freezeless, automatic waterers are a permanent installation. An observation tower offers a vantage point for us to observe the birds in their outdoor pens.

Outside, each of the runs is divided into two sections, so we can alternate use of each side. A five foot wooden wall between pens serves as an effective visual barrier, and electrified wires on the top of the perimeter fence will halt visits by predators. There is flight netting over all the pens, so full-winged cranes can be displayed to the public. There is a sprinkling system to encourage the Brolgas, who nest during the rainy season in nature, to breed in captivity. Built-in lights will stimulate northern species, like the Siberian Cranes, who seem to require an extended photoperiod to go into breeding condition.

The birds are adjusting well to the environment of their new home. There has been one problem, however, with the waterer . . . or rather with Tanya, the Siberian Crane. She kept pulling the plug on the waterer, creating an instant micro-wetland. A slight modification rendered the plug Tanya-proof.

The cranes have dedicated the Johnson Exhibit Pod in typical form, but a more formal dedication will take place later this summer, just before the new site opens to the public.

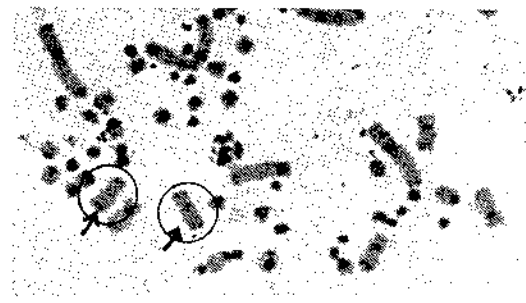
## The Z's Have It: It's a Boy!

by Shirley Russman,  
Supervisor of Aviculture

Male or female? That was the question we all asked as we stared into the glaring, golden eyes of our Whooping Crane chick, Gee Whiz. The eyes didn't tell us, but the chromosomes did.

There are several laboratory methods for sexing a crane: laparoscopy, which involves making a small incision in the abdomen of the bird and viewing the gonads with a special scope; fecal steroid analysis, which is an analysis of hormone levels taken from fecal samples; and a new technique called cytological sexing, which examines the birds' chromosome constitution.

The first method can be dangerous and often requires anesthesia. Since the second method is not



Gee Whiz's two ZZ chromosomes are circled.

always reliable, we chose the third method to try and sex our Gee Whiz. We decided to test the method by also analyzing tissue from a White-naped Crane named Cassassin. We already knew that Cassassin was a female because of her behavior—she gave the female's two characteristic chipping notes when performing the unison call.

(cont'd on page 3)



## FLYING TIGERS FLY CRANES

by Lisa Hartman, Aviculturist

It sounds like a mythological tale, but Flying Tigers have been flying cranes all over the world in recent weeks.

Flying Tigers is actually the name of an air cargo carrier that recently transported several of ICF's cranes to other breeding centers. Six Red-crowned Cranes and one Eastern Sarus have gone to Vogel-park Walsrode in Germany, while two White-naped and three Eastern Sarus Cranes have gone to ICF Board Member John Henry Dick in South Carolina.

In past *Bugles* we have reported numerous additions to ICF's crane population as a result of our well-established and successful breeding program. It seems strange, then, to be reporting a reduction in our flock. But for the continued success of the breeding program, it is vital that we maintain genetic diversity within our breeding crane pairs. The cranes we've just transferred to zoos and private aviculturists will be mated with unrelated birds to create new genetic lines, and maximize reproduction.

A complicated network of Breeding Loan Agreements exists among zoos and private aviculturists. Through this system a bird is loaned to another institution for breeding purposes, and any offspring are shared among the participants. For example, the first chick successfully reared belongs to the owner of the female parent, the second to the owner of the male parent, and the third to the institution where the parents reside. Many of cranes at ICF have been on breeding loan, and therefore belong to other zoos. But thanks to the success of our breeding program, and through this new effort to trade and transfer cranes to other centers, we hope to eventually gain ownership of all of our birds.

The actual transfer of the cranes involves a lot of work, and a degree of risk. Permits and health certificates for each bird must be obtained. Crates must be designed and built to comply with official regulations and the "comfort standards" of the cranes. Care must also be taken to ensure proper handling of the birds in transit.

But despite the time and trouble, trading and transferring cranes is the best possible way to encourage genetic diversity and increase ICF's ownership in our resident flock.

# Cranes Around The World

## Join EARTHWATCH, and ICF, in China

by George Archibald, Director

ICF members may recall earlier *Bugle* accounts of my 1982 expeditions to China, and the request of China's Ministry of Forestry for assistance in building the China Crane Center beside the remarkable 560,000 acre Zha Long wetland reserve in northeast China's Heilongjiang Province. The Chinese wanted financial aid in building a laboratory, avicultural facilities, and a visitor center at the Reserve. ICF wanted to help, but how? Every nickel of income in Baraboo is needed to operate ICF headquarters.

Where there's a will there's a way, and thanks to cooperation with a Massachusetts-based non-profit organization called EARTHWATCH, we've hit upon a plan. The EARTHWATCH/ICF program will help the cranes of China, as well as benefit EARTHWATCH volunteers who want to study cranes and other wildlife at Zha Long during the spring, summer, and autumn of this year.

The plan is very simple. Research volunteers are recruited by EARTHWATCH. I, or one of my crane-researching colleagues, will lead a group of 10-15 volunteers to Zha Long for six days of on-site research. This field work is preceded by several days of sightseeing at the Forbidden City and the Great Wall, and a train ride across the scenic countryside en route to Zha Long from Beijing. After a week of bird work in the marsh, the groups will return to Beijing via Harbin.

The entire trip covers a period of 12 days. Ten trips are planned from late May through mid-September, so the combined data can provide new insight into the dynamics of the avifauna at Zha Long.

The trip will cost each volunteer \$3,980, which includes round-trip air fare from San Francisco, all in-China expenses, and a \$500 contribution to the China Crane Center. Inquiries should be addressed to: China Project, EARTHWATCH, 10 Juniper Road, Box 127, Belmont, MA 02178, (617) 489-3030.

The following table outlines the dates of each trip and the name of the tour leader/principal investigator.

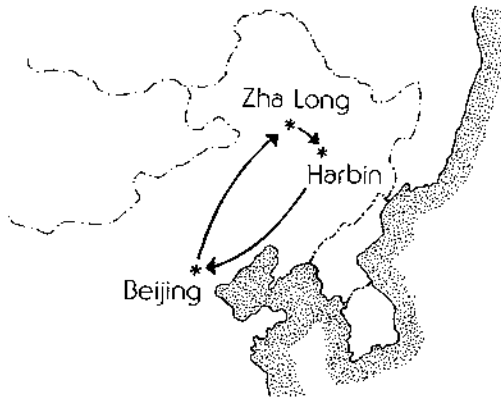
Team No.	Principal Investigator	Dates of Trip
1	George Archibald International Crane Foundation	5/30 - 6/10
2	Rod Drewien University of Idaho	6/9 - 6/21
3	Paul Konrad International Crane Foundation	6/20 - 7/1
4	Bill Gause Cornell University	6/30 - 7/12

(It's a Boy cont'd from page 2)

We had to contact several zoos, however, before we located someone who could help us with the procedure. We finally found Marc Valentine and Peter van Tuinen at the M.D. Anderson Hospital and Tumor Institute in Houston (which is affiliated with the Texas Medical Center). Peter is a graduate student at the University of Wisconsin-Madison. Marc is from the Houston Zoo. They agreed to help us sex Gee Whiz using facilities at the Cell Biology Department in the M.D. Anderson Hospital.

Sex is determined by the sex chromosomes possessed by an individual. For example, male mammals have one X and one Y sex chromosome while female mammals possess two X's. The reverse is true of birds, however: male birds have two Z chromosomes while the females have one Z and one W. These two different sex chromosomes in birds, as in mammals, can be identified because they are different sizes. The chromosomes can also be stained in several ways to determine their identity.

We knew that chromosomes are most easily visible in growing tissue that regenerates, such as feather pulp. We pulled one of the many growing feathers from Gee Whiz's and Cassassin's wings, which didn't seem to bother them much at all. We then cut off about an inch of each shaft, dropped the end into



5	Sheldon Severinghaus Asia Foundation	7/11 - 7/22
6	Richard Mitchell U.S. Department of Interior	7/21 - 8/2
7	Ronald Sauey International Crane Foundation	8/1 - 8/12
8	Tom Gause Virginia Audubon	8/11 - 8/23
9	Gerard Bertrand Massachusetts Audubon	8/22 - 9/2
10	George Archibald International Crane Foundation	9/1 - 9/13

Comfortable accommodations are already available at the future site of the China Crane Center, located beside the enormous wetland and just 25 kilometers from the major city of Qiqihar. We will stay in these facilities while at Zha Long. Each day from dawn to mid-morning, transect surveys for birds will be made from flat-bottomed boats. These boats will transport us, with experienced Chinese guides, into the heart of an ecosystem that harbors nesting Red-crowned, White-naped, Common, and Demoiselle Cranes, eastern white storks, great bustards, and 270 other species. Breakfast will be served in the field, while lunch will be back at headquarters. After a mid-day rest, surveys in the marsh will continue as we strive to document as much as possible about this little-known ecosystem.

The ICF/EARTHWATCH/ZHA LONG program provides a unique opportunity for amateur and professional ornithologists to experience, and help some of the greatest ornithological treasures in China. You are invited to participate. For more information, please call EARTHWATCH immediately.

tissue culture vessels with growth medium, and sent them off to Houston. After two weeks of nail biting and anticipation, we learned that Marc and Peter had spread the dividing cells on slides, carefully stained them, and analyzed the chromosomes. Sure enough, Gee Whiz had the male's two Z chromosomes and Cassassin had the female's one Z and one W.

This method of sexing appears to be reliable, although it requires sophisticated equipment and expertise not available in most laboratories. Peter and Marc are, however, working to develop a new technique termed the "direct squash method" which would entail squashing the tissue and staining the chromosomes directly, eliminating the need for expensive equipment, laboratory facilities and the two week delay before analysis. Other scientists, Rasch and Sasaki for example, have also been investigating several new sexing techniques.

Despite its limitations, however, the new cytological technique will enable us to sex more cranes at a younger age, and allow us to start pairing birds earlier.

We'd like to thank Peter and Marc for helping us sex Gee Whiz. For his part, Gee Whiz started whooping for the first time in mid-March. Perhaps it was his way of showing appreciation.

## Workshop Resolutions

by Scott Freeman,  
Education Coordinator

The official theme of the International Crane Workshop was an ambitious one: "Cranes and Man." It was appropriate, however, because most of the conference's discussions and presentations were devoted to strategies for harmonizing the interests of the two species.

The workshop's lengthy technical sessions culminated in a series of twenty resolutions, drafted during the week and approved at the closing session. The resolutions are now being prepared for presentation to governments and conservation agencies around the world.

The following is a brief synopsis of the resolutions, by geography. Reading it gives a succinct outline of the problems, and potential solutions, for cranes around the world.

### INDIA

Three separate resolutions passed concerning the management of Keoladeo National Park, site of the Workshop and a winter home of the Siberian Crane. Action to halt air and water pollution from nearby industries, an in-depth study of competition between Siberian and Sarus Cranes, and establishment of a major Wetland Research Institute at the park were recommended.

Resolutions for the preservation of specific wetlands in north central and east India also passed, as did a recommendation to census and protect Common and Demoiselle Cranes in the western state of Gujarat.

### EUROPE

European delegates drafted two resolutions on the Common Crane. One proposed a coordinated research program on Common Crane migration routes and ecology, and the other urged establishing a system of six wetland reserves for Commons wintering in Spain.

### AFRICA

Three resolutions emerged regarding Africa. One targeted Ethiopia, and proposed a census and habitat protection program for Wattled Cranes. A second urged a management scheme for Zambia's Kafue Flats, to make hydropower development and wildlife conservation compatible. The third recommended formal conservation measures for Nigeria's national bird, the Crowned Crane.

### ASIA

Asia was the focus of more resolutions than any other region. The re-introduction of Eastern Sarus Cranes to Thailand, from wild stock in Australia, was proposed. In Iran, delegates supported the continued color-marking of Common Cranes—a research program vital to the Siberian Crane re-introduction project. The conference also recommended that wetland surveys for Siberian Cranes be done in Iran before the hunting season is opened each spring. In Japan, participants endorsed the establishment of a National Crane Sanctuary at the wintering grounds near Izumi.

There were also several multinational resolutions regarding Asia's cranes. Wintering area surveys, breeding habitat protection, and establishment of a captive flock were endorsed for the Black-necked Crane. India, China, Burma, and Vietnam will receive this resolution. Another multinational resolution proposed that the six range states of the Siberian Crane sign existing migratory bird treaties, and cooperate on implementing a recovery plan for the great white crane. Finally, delegates urged the protection of Red-crowned Crane breeding grounds in China, Japan, and the USSR.

Unfortunately resolutions, grand as they may sound, have a way of languishing in the "in" and "out" boxes of various levels of various bureaucracies. The crane resolutions, however, are the seeds of important conservation programs, and deserve a better fate.

ICF's George Archibald, as Secretary-General of the workshop, is now circulating the resolutions for final review by the delegates. Appropriate translations will then be made, and ICF will present them, on behalf of the Workshop, to the governments and researchers involved. From then on, it will take persistent, but diplomatic, cajoling to make sure the resolutions move forward, and fulfill the potential of a successful international gathering.

## Spotlight: Owen and Anne Gromme



photo by Lou Coopey

Editor's note: The "Spotlight" column, a new feature of the Bugle, will regularly introduce some of the people who make ICF go.

In 1972 Owen and Anne Gromme performed an act of faith for which ICF will be forever grateful.

Ron Sauey and George Archibald had shown up on the Grommes' doorstep, hats in hand, asking for help in starting a Crane Foundation. They had no money, no equipment, and no cranes. What they really needed to get going, they said, was a good painting. The Grommes agreed. Owen produced "Salute to the Dawn", donated prints of the painting as a fundraising premium, and ICF was off and running.

Limited edition prints of the "Salute" and a later Gromme work, "Sacred Cranes Over Hokkaido", now hang in the homes of hundreds of ICF members. But Owen and Anne's support for ICF only started with the paintings. After that first warm reception, the Grommes' home in the village of Briggsville, Wisconsin, itself surrounded by crane marshes, became a sort of refuge for ICF's volunteer staff during the struggling, early years.

"Anne's kitchen was one place we knew we could go for a square meal," George recalls.

Beyond their flourishing friendship with ICF's co-founders, however, the Grommes provided solid support for ICF's growth. Owen was one of the first members of ICF's Board of Directors, helping consistently with sound business and administrative advice. The Grommes made a substantial, personal donation to kick off the funding drive for the purchase of ICF's new property. Owen and Anne have also introduced ICF to many people who later became staunch benefactors—a particularly appropriate role for the Grommes, since their home and studio hosts a steady stream of wildlife enthusiasts and art collectors.

In 1981 Owen and Anne accompanied George and Kyoko Archibald to Japan, where Owen researched a painting commissioned by Mr. Samuel C. Johnson. Prints of "Tancho" have been completed, and will be used by ICF as a premium in the current capital fund drive.

From home-cooked dinners to spectacular paintings—that's extraordinary support from two extraordinary people.

## The Bottom Line

by Bob Hallam, Development Coordinator

ICF had an exciting wrap-up to our fiscal year, which ended December 31st. December, 1982 was a record month for us with a total of \$60,000 toward operations, and an additional \$30,000 toward our building program, contributed. Our total support for the year was approximately \$390,000 for operations

and \$110,000 for the capital fund drive. All of us at ICF would like to thank our Board of Directors and our members for the fantastic support.

The capital fund drive for the new site's Hatchery and Chick Complex is now in full swing. ICF has raised \$125,000 toward the estimated cost of \$350,000. Our goal is to raise the balance by the end of the year.

In December, ICF received a grant of \$10,000 from the Patrick and Anna M. Cudahy Fund for construction of a Temporary Education Center. The 28' x48' building will be used for reception, a gift shop, and slide presentations. Construction is now underway, and will be completed in time for the start of the tour season this spring.

Unfortunately, we made one error in the list of special contributors published in the last issue of the Bugle. Mrs. Helen Baldwin of Baraboo is one of our esteemed major contributors, but was unfortunately omitted from the list. Mrs. Baldwin made several important contributions to ICF during our early years.

## Contributions



The contributions listed below cover the months of October, 1982 through March, 1983.

### Grants and Awards:

Edward Alexander, Stuart and Abigail Avery, Jim and Janet Balding, Bolz Foundation, Wolf Brehm, Barbara and John Canfield, Chicago Metallic Inc., Citizens Natural Resources Assn., Willard and Elizabeth Clark, Patrick and Anna M. Cudahy Fund, Frances Dewing Foundation, John Henry Dick, Mr. and Mrs. Gaylord Donnelley, Evjue Foundation, Exxon Corporation, Federated Garden Clubs of Michigan, Federated Garden Clubs of Missouri, Anne and Owen Gromme, Winston Guest, Helfaer Foundation, Mr. and Mrs. Samuel Johnson, Kohler Foundation, Krause Foundation, James Kuehn, Jay Last, Madison Audubon Society, Marshall and Ilsley Bank Foundation, Massachusetts Audubon Society, Chauncey and Marion Deering McCormick Foundation, Milwaukee Audubon Society, Charles Miller, Mrs. Gerda Mueller, Charles Nelson, National Audubon Society, Mrs. Walter Ott, Dorothy Pain, Jack Puelicher, George Ranney, Sr., Anne S. Richardson Fund, Norman Sauey, Walter Schroeder Foundation, J. R. Short Milling Co., Smithsonian Institution, Stackner Family Foundation, Mrs. John Stedman, Washington High School, Robert C. Wheeler Foundation, Wildlife Preservation Trust International, Wisconsin Power & Light, Wisconsin Society of Ornithology, World Wildlife Fund-U.S., World Wildlife Fund-Canada.

### Patrons:

Walter Alexander Foundation, Mr. and Mrs. Richard Andrews, Cecil Carpenter, Ellinger Foundation, Garver Memorial Trust, Robert A. Mantovani, Modine Manufacturing Co., Mike and Vicki Masterson, Donald Messersmith, Dr. Josephine L. Murray, Mr. and Mrs. Harold Petaske, David Register, Barbara Rettgen, Wildcat Foundation, Irvin L. Young Foundation.

### Sponsors:

Anonymous, Robert Bolz, Robert Carroll, Catherine Cleary, Norman Graham, Hershey Foundation, Lois Knower, Putnam Livermore, Elizabeth O'Connor, Doris H. Speirs.

### Associates:

Alpha Delta Kappa, Helen and Bruce Ambuel, Donald and Lettie Archibald, Thomas Ashman, Anonymous, Audubon Society of Ohio, Don and Barbara Balke, Anna Child Bird, Bill and Judy Craig, Ernestine Blakemore Trust, Warwick Bonsal, Charles Bradley, Michael and Janet Brandt, Mr. and Mrs. Edward Butlock, Curtis and Myrtle Busse, David and Stewart Butler, Mr. and Mrs. Charles Carpenter, Colin Case, Bill and Priscilla Chester, Judith Coleman, Reed Coleman, Committee for the Preservation of Wildlife, John D. Constable, Cooper Industries, Chester

and Margaret Corson, Bently Courtenay, Barbara Davison, Raymond De Clairville, P. M. and Dorothy Dickert, Marion Doherty, Mr. and Mrs. Fredrick Dohmen, Noel Lee Dunn, Marshall Erdman, Thomas France, Carol Freedman, Griswold Frelinghuysen, Herbert and Eloise Fritz, Karen Galley, Mr. and Mrs. James Galloway, Arthur Garfunkel, Lucy Gemlo, Glencoe Public Schools, Guy Greenwell, Goodmans Inc., J. J. Goodwin, Lyons Gray, Patricia Gunther, Mr. and Mrs. Ben Hallam, Robert and Vicki Hallam, Mr. and Mrs. Corwin Hamill, Mr. and Mrs. James Hageman, F. Borden Hanes, Mr. and Mrs. Eldridge Hanes, F. W. Hauf, Robert Hauser, Matthew Healy, Mr. and Mrs. Joseph Hickey, Hoy Nature Club, Industrial Coils, Shelly Innes, David Irvin, Jim Isenberg, Thomas H. Jacob Foundation, Charles Jahn, Steve and Suzanne Johnson, Alan Keitt, James Kieckhefer, William Kieckhefer, Warren King, Mrs. Robert Kurt-enacker, John and Muriel Lange, Anthony Lapham, Mrs. Velma Larkin, Warren Lehman, Charlotte Levine, Serge Logan, Marathon Box Foundation, Mabel Mc Clanahan, Dorothy McIlroy, Donald Messersmith, Raiph Moser, William Moser, Charlotte Oglesby, Carol and Cecil Oleson, Robert O'Neill, Phil Orth, Christopher Owens, Lucile Palmaro, David Pearson, Donald Pederson, Silas and Edith Peller, Eleanor Piel, Dr. Phillip Piper, Mr. and Mrs. S. Putnam, Norman Quale, Racine Railroad Products, Rahr Malting Co., Beverly Rector, Nathaniel Reed, Mr. and Mrs. D. F. Reinoehl, Allan Robertson, Bill Rogers, David Rorick, Mrs. Wilf Ross, RTE Corporation, Burton Russman, Ruth St. John, Fay Schoenemann, Mr. and Mrs. John Sensenbrenner, Dr. and Mrs. Richard Shannon, Lila Smith, Mrs. Richard Snyder, Constance Squire, Mrs. Harry Steenbock, Roxane Steinman, Joanna Sturm, Lois Theis, Mrs. A. M. Thompson, Mr. and Mrs. Bruce Thorne, Douglas Tibbets, Mrs. and Mrs. Jacque Vallier, Versa/tek, Mary Wilson Von Newmann, Water Services of America, Mrs. Howard Weiss, Ranlet Willingham, Peter Willman, Mr. and Mrs. William Wissinger, Winifred Woodmansee.

(Crane Workshop cont'd from page 1)

New Delhi on arrival day, and greeting numerous old friends and colleagues from many parts of the world and a dozen past journeys, all gathered together as if for a mini-judgement day. Other great moments were of a professional nature, such as the extraordinary session when all the Asian delegates met together—Indian, Chinese, Russian, Bhutanese, Korean, Iranian, and Japanese—and a spirited and positive dialogue ensued on the future course of crane studies on the world's largest continent.

It is fair, however, to ask what we accomplished by shipping scores of scientists and tons of luggage around the world to talk about cranes. Dr. Salim Ali, who brought his special brand of humor and wisdom to our workshop for two days, rhetorically asked me whether the cost and disruption to research that these gatherings entailed made them worth the effort. For ICF, there is no question that saving these great birds demands the cooperation of many nations of disparate cultures and ideologies. And despite technologies that beam messages and pictures across the globe in milliseconds, the value of chatting fact to face with an Iranian or Chinese scientist over the fate of Siberian Cranes while sharing a cup of hot Indian chi is still unbeatable by the best of our communications engineers—or political strategists.

We'd like to express our sincere thanks to the organizations that helped sponsor the conference, including the Government of India's Department of the Environment, the Forest Department of the State of Rajasthan, and the U.S. Fish & Wildlife Service. Anne Wright, who headed the organizing committee, deserves special credit, as does our co-host the International Council for Bird Preservation. The World Wildlife Fund-U.S., World Wildlife Fund-Canada, Massachusetts Audubon Society, National Audubon Society, and Vogelpark Walsrode all provided funding for the expenses of key delegates.