ORNITHOLOGY

Whooping Crane Safe

Hunters are warned not to shoot at whooping cranes traveling from Canada to their southern refuge after a flight of nearly 2,500 miles—By Barbara Tufty

See Front Cover

➤ THE FIRST WHOOPING CRANE to make the long autumn flight this year from Canada has arrived safely at Ayres Island, a spot east of the Aransas National Wildlife Refuge in Texas where the rare, graceful birds spend the winters.

Each year about this time, the tiny band of nearly extinct birds start singly or in small groups from their summer refuge near Great Slave Lake in Canada.

They fly nearly 2,500 miles across the Alberta and Saskatchewan Provinces of Canada and down through the Dakotas, Nebraska, Kansas, Missouri, Arkansas, Oklahoma and into Texas.

Seen on this week's front cover are whooping cranes with wings outspread on their return to the Aransas National Wildlife Refuge, Texas.

Hunters along the route are warned not to shoot at the stately white birds, easily recognized by their black-tipped wings and red-crowned heads.

Last spring, 32 whooping cranes flew up the inland route and landed safely in their Canadian breeding grounds, a desolate, carefully protected land of tundra and forests.

No one yet knows whether this little flock has increased during the summer, but specialists hope that several eggs have hatched and that youngsters will soon be making the flight south.

A young wounded crane had been discovered earlier this summer in the Canadian refuge area and was transferred to the Monte Vista National Wildlife Refuge in Colorado, where officials report it is now recovering and "in pretty good condition."

The wounded bird, lifted from the ground by Canadian Wildlife officials in a helicopter, had apparently crashed into a spruce tree, for his chest was badly crushed and lanced by a tree splinter.

Scientists and laymen throughout the United States and Canada are deeply concerned over methods to increase the population of the endangered whooping cranes.

One proposal, made by the U.S. Department of Interior and the Canadian Wildlife Service of the Department of Northern Affairs and National Resources at Ottawa, calls for removing by helicopter a maximum of six eggs from the Canadian nesting sites during rainy summers. The eggs would then be carefully shipped to Monte Vista for hatching and rearing in captivity.

During the wet seasons, said a Fish and Wildlife official, the nests on the ground become badly soaked, and few birds are hatched. For the past six or seven years, however, there has been little danger of wetness, since that area has been in drought.

Canadian officials have wanted such a program for years, and U.S. officials feel this is a positive effort to save the flock.

Strong opposition to this proposal is taken by well-known ornithologists, naturalists and laymen.

The proposed human and mechanical disturbance could cause the rare cranes to abandon their remote Canadian area, stated Carl W. Buckheister, president of the National Audubon Society, New York. This area "is now the safest and most favorable breeding habitat available to them."

The handlers of the present captive stock of whooping cranes have not done a good job in propagating these birds, pointed out C. R. Gutermuth, vice president of the Wildlife Management Institute and honorary life member of the Whooping Crane Association. Only a few young have been raised over a period of years from a good breeding nucleus.

"Until we are positively certain that we can successfully raise whooping crane chicks," he said, "we should not go tampering around with the wild migrating population."

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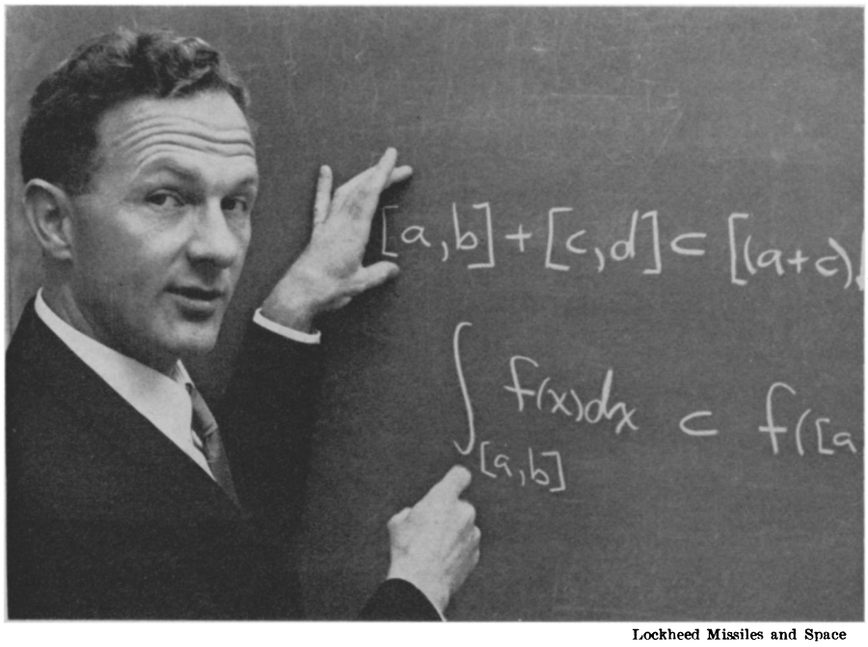

Lockheed Missiles and Space

NEW MATH—Dr. Ramon Moore, Lockheed Missiles and Space Company mathematician, points out one of the basic formulas for interval arithmetic.

NEUROLOGY

Brain Damage Caused By Blows in Boxing

➤ THIRTEEN of 16 former boxers were found to have damaged brains that apparently were caused by blows they took in the ring, a team of English brain specialists reported to the VII Symposium Neuradiologicum in New York City.

Nine had holes in the septum pellucidum membrane, a tissue wall that connects two chambers of the brain, said Drs. Ian Isherwood, C. Mawdsley, and F. R. Ferguson, all of Manchester, England.

The changes observed in this membrane of the boxers are a significant feature, they reported, and "the role of trauma in their production must be considered proven."

The researchers also found a relation between the degree and distribution of the damage shown in X-rays and the severity and type of brain disorder seen in clinical examinations.

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MATHEMATICS

Time-Saving Math Developed for Computers

➤ A NEW KIND of arithmetic will improve computer accuracy and save valuable operating time.

In the new system, the answer to a problem is represented by two numbers instead of one—a higher and lower limit. Ordinarily, complex programs must be run several times to check accuracy. The new math, called "interval arithmetic," enables an answer to be known definitely within a high and low limit. This approach can save time and money in situations where a rough answer will do, while permitting increased accuracy when needed by narrowing down the limits.

Developed at Lockheed Missiles and Space Company, Palo Alto, Calif., "interval arithmetic" should eventually save many thousands of hours of expensive computer time.

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