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Animal Profile: Philly Polars Make Public Debut

Philly Polars Make Public Debut

the available human hardware with a great deal of success. Dr. Nunnamaker points out that his present work is a continuation of Dr. Jenny's, which developed the basic techniques for fixation in the horse. The present research is directed at the development of improved hardware for the horse and of a study of how to use this to the best advantage. To do this, the laboratory is equipped with machinery to manufacture the equipment. To investigate the suitability of various materials in treating fractures in the living animal would be very time-consuming, due to the limited availability of usable clinical material. To obviate this problem, Dr. Nunnamaker uses bone specimens obtained at autopsy. Bones are cut to simulate fractures, fixation materials are applied, and the specimen is then subjected to various numbers of cycles and degrees of stress. The instrument used for this procedure is an *Instron*, and operates under carefully controlled hydraulic pressure. The *Instron* is able to accept whole legs, and can deliver up to 1,000 cycles per second. With this approach, Dr. Nunnamaker is able to test the durability of various materials and to determine optimum locations for fixation devices.

Another promising area of research is the use of pressure-sensitive shoes for the diagnosis and treatment of lameness in horses. These shoes transmit, via radio, weight-bearing data to a recorder so the investigator can determine the areas of the foot that are bearing greater and lesser amounts of weight. Dr. Nunnamaker is quick to caution that, while this technique offers some fascinating possibilities, there is much to be done in perfecting materials and techniques.

Dr. Nunnamaker's work is an outstanding example of comparative research, an area in which the School of Veterinary Medicine is a recognized world leader. In fact, the accumulation of rooms in which the work is done is known as the Comparative Orthopedic Biomechanical Laboratory. The research is conducted in cooperation with a number of other facilities, including the Department of Orthopedics of the School of Medicine of the University of Pennsylvania, the Veterans Administration, and Harvard University. The present location of the laboratory, within the Kline Center, leaves much to be desired. For example, the computer and testing machinery are located in the same room, without adequate sound-deadening capabilities. Plans have been developed for a separate biomechanics laboratory, attached to the Kline Center, with a suitable functional arrangement of rooms, which will allow this important area of research to be developed to its fullest potential.

Dr. Nunnamaker occupies the prestigious Jacques Jenny Chair of Orthopedic Surgery. In addition to the publication of many papers, he is co-author (with Dr. G. E. Fackelman) of *Manual of Internal Fixation in the Horse*. At present, Dr. Nunnamaker is involved with his colleague, Dr. Charles D. Newton, Associate Professor of Orthopedic Surgery, in preparing the text for a new book on canine orthopedics.

This winter, as most Philadelphians fasten coats and turn collars up against the chill, two of the city's newer residents are naturally prepared to enjoy the bitter winds and tiny temperatures of the season.

Adamant opponents of the cold, in fact, might find positive inspiration for winter from a visit to the Philadelphia Zoo, where these two yearling polar bears are happily adapting to the season that most closely resembles their natural habitat.

The creamy white bears, both females, were donated to the Zoo by the Isaly Klondike Company, makers of Klondike Ice Cream Bars. At their public debut on October 25, one bear was named Klondike, in honor of her donor. The other will be named this month by the winner of a naming contest co-sponsored by the Zoo and the Philadelphia Daily News.

Both bears relocated to Philadelphia from New York homes: one arrived from the Bronx Zoo in New York City, the other from the Seneca Park Zoo in Rochester. But, like every polar bear, or *ursus maritimus*, the Philadelphia Zoo bears are descendents of Arctic bears of circumpolar regions.

According to Dr. Dietrich Schaaf, Mammals Curator at the Zoo, the physical characteristics of polar bears allow for their survival in moderate temperatures, but they are best suited for chillier conditions. Thick layers of fat and a dense coat provide polar bears with excellent protection against cold. In addition, fur pads on the bears' feet serve a dual purpose: they act as insulation and provide solid footing in icy environments.

Since their arrival in Philadelphia, the two-year-old bears have grown to weigh about 250 pounds each. Each consumes an unusual mixture of three pounds mackerel, one-half pound suet, two pounds zupreem (a commercial meat preparation), two pounds dogs food, two pounds carrots and apples, and four ounces peanut and vitamin A-D oil. Their meal, except for the mackerel, is mixed together and served up once daily, in the afternoon.

Klondike and her friend are residents of a special section of Bear Country, a support facility which opened in November 1977. All Bear Country inhabitants enjoy indoor shelters, a cubbing and denning area, access ramps to upper enclosures, filter and pumping areas, a food preparation area, and television equipment and controls.

The polar bears' residence also includes a specially constructed, 300,000-gallon capacity fresh-water pool, and is surrounded by rock formations reconstructed of grinite, a concrete

mixture sprayed under high pressure onto mesh forms reinforced with steel rods.

Like all polar bears, Schaaf cautioned, the two bears at the Philadelphia Zoo "look cuddly, but they're not." Actually, he warns, "they're predictably dangerous." As a result, the young bears are handled and fed by remote control. The doors to their habitat are opened and closed by outside pulleys, and they are fed indoors. "The indoor feeding," Schaaf explains, "is used as a control mechanism for the bears."

Although the pair at the Zoo may have mean dispositions, their personalities are masked by their beautiful, furry white appearance and playful behavior. Since their October arrival, Klondike and her friend have become one of the more popular attractions at the Zoo. And, as the temperature continues to drop, their natural affinity for the cold will insure that the playful Philly polars will grow increasingly comfortable in their new environment.



Photo courtesy of
New York Zoological Society.

Apologia

In the last issue of *Bellwether*, we inadvertently omitted crediting the Philadelphia Zoo for the biographical information and photo for the story: "Massa—The Big Boss."