Can a procedure that was hatched by poultry researchers, fledge and be applied to exotic species? There is a good case for this happening with artificial insemination (AI). This article is a review of some of the pioneering work that has made semen collection and insemination possible in many avian species.

In order to perform an artificial insemination, a clean semen sample of sufficient volume must be collected. One of the earliest methods of semen collection was to allow the birds to mate, kill the hen, and surgically remove the recently deposited semen from her oviduct. Of course, this method was a destructive one and did not hold a great deal of promise. The life of the hen was spared by the method developed by Dunn in 1927. He kept his hens and cocks separated and introduced one hen at a time into the breeding pen. As the birds started to mate, a warmed collection dish was inserted between the two birds and the ejaculated semen collected. As can be imagined, this took a great sense of timing and dexterity on the part of the bird...
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Artificial collection of semen was made easier by some devices designed in the 1930’s. Ishikawa (1930) covered a square rim of wire with an animal membrane and attached this apparatus to the hen. Using the same idea, Parker (1939) made a collection container out of a glass flask, wire, tape, and rubber bands. However, instead of attaching it to the hen, he anchored it to the cock. Both of these devices worked on the same principle. At the time of mating, the semen was deposited on a collection surface, instead of into the hen.

In 1935, Burrows and Quinn reported on an abdominal massage technique. They found that by massaging the abdomen of the cock, the ejaculatory response could be elicited. The same authors described an improved technique two years later. In addition to massaging the abdominal area, they suggested that the husbandryman could use his thumb and forefinger to apply pressure at the base of the copulatory organ and extract the semen. This procedure is referred to as “milking the male.” Burrows and Quinn were definitely the fathers of avian artificial insemination and their basic methods are still employed.

So far this discussion has been limited to the collection of semen. Despite the application of the term artificial insemination to the entire process, the collection of semen is probably the more difficult step. Even in a relatively docile domestic rooster, a period (may take only one or two practice sessions) of conditioning is required before the bird will respond to the husbandryman in the appropriate manner. By conditioning, it is meant that the bird is accustomed to being handled and when the abdominal massage is applied that the bird responds by ejaculating. Due to the anatomical proximity of the digestive and reproductive tracts in the birds, there is always the hazard of eliciting a defecation response. There is an increased likelihood of the bird defecating if it is frightened or handled roughly. For the sake of the bird, the handler should be as gentle as possible. Since a clean semen sample is essential, any type of trauma that will result in feces or blood in the sample should be avoided, since both factors cause sperm agglutination.

Once a clean semen sample has been obtained, the actual insemination can be performed. A common method involves a two person team, one member applying the proper pressure so the hen will evert her oviduct and the other member depositing the semen into the oviduct. The credit for this technique goes again to Quinn and Burrows (1936). If a hen is in egg production, it is relatively easy to induce her to evert her oviduct or "break." A plastic syringe or plastic inseminating straw can be used to insert the semen into the oviduct.

Artificial insemination is used almost exclusively in the turkey industry. As the turkey toms have been bred for larger and larger size, natural mating has become a physical impossibility. Artificial insemination is gaining popularity with producers of broiler breeders. The use of this technique has not been limited to commercial poultry. It has been used for years by the breeders of "fancy" or show chickens. In many of these breeds, elaborate feathering may act as an impediment to natural mating.

In recent years, artificial insemination has been used successfully with rare and endangered species. Sexton and Gee (1978) were able to utilize the technique in the reproduction in the Sandhill Crane, Grus canadensis pratensis. Recently, Dr. Greg Harrison of the Research Institute for Avian Medicine, Nutrition, and Reproduction in Lake Worth, Florida, reported success with artificial insemination in cockatois. He is believed to have produced the first psittacine using artificial insemination.

Artificial insemination would be a great boon to exotic bird breeders. As in other species, the handler must be able to obtain a clean semen sample. Since many exotics are hand raised and have strong attachments to their handlers, this bonding should aid in the ease of semen collection. It cannot be overemphasized that a kind and patient handler plus a good rapport between bird and handler is a strong basis for success. There may be difficulty in getting "collectable" amounts of semen from the small psittacines, however, in the larger breeds there is a good possibility of success.

Once semen can be obtained from these birds, the same benefits will be available to the exotic bird breeder as those that have been seized by both poultry producers and fanciers. Artificial insemination allows for matings between birds that differ greatly in body size. The breeders can undoubtedly add other advantages that would prove advantageous in his or her own operation. Certainly, the prospects are promising for breeders wishing to use this technique.
SHOYS & NOTICES

Sunshine State Cagc Bird Society
Annual Show
October 15, 1983
Howard Johnson Motor Lodge
8020 International Drive
Orlando, Florida
Contact: Gerri Daub, (305) 323-8076

Capitol City Bird Club
7th Annual Bird Exhibition
October 22, 23, 24, 1983
Rush Park Community Center
Citrus Heights, CA
Contact: Theresa Rooney
4248 Niblick Way
Fair Oaks, CA 95628

Baltimore Bird Fanciers, Inc.
44th Annual Open Bird Show
October 22, 1983
Esses Eks Hall, Essex, MD
Contact: Alvina Frey (301) 252-2376
12120 Boxwell Hill Road
Cockeysville, MD 21030

Suncoast Avian Society
8th Annual Bird Show
October 22 & 23, 1983
at Princess Martha Hotel
St. Petersburgh, FL
Regular show on Sat., 22nd
Pet Bird show on Sun., 23rd
Contact: Phyllis Martin (813) 839-4751
4483 Gandy Blvd. Tampa, FL 33611

Fresno Canary and Finch Club
20th Annual Young Bird Show
October 28, 29, 30, 1983
at Hacienda Inn.
Clinton Ave. & Hwy. 99
Fresno, CA
Contact: Mary Van (209) 686-5921
601 West Cross Avenue
Tulare, CA 93274

Gold Coast Exotic Bird Club, Inc.
8th Annual Open Bird Show
October 29, 1983
Holiday Inn Oceanside
Ft. Lauderdale, FL
Contact: P.O. Box 15056
Plantation, FL 33318
or Mrs. Mike Simmons (305) 772-2632

Greater Pittsburgh Cage Bird Society
Annual Show
October 29, 1983
Ramada Inn North
Gibsonia, PA
Contact: Vern Niever (714) 554-2215
or Candy Fletcher (714) 537-0408
Regency Hotel Denver, CO
Contact: Carter Atwood
13120 Baker Ave
Pleasant Hill, MO 64080

American Cockatiel Society
6th National Cage Bird Show
November 16, 17, 18, 19, 1983
to be held in conjunction with the
35th National Cage Bird Show
Regency Hotel Denver, CO
Contact: Mervin Leek
1111 Dover Place
St. Petersbu rgh, FL

American Canary Fanciers Association
39th Annual Canary Show
November 17, 18, 19, 1983
at Princess Martha Hotel
St. Petersburgh, FL
Regular show on Sat., 17th
Pet Bird show on Sun., 18th
Contact: Jimmy Martin (813) 839-4751
13120 Boxwell Hill Road
Cockeysville, MD 21030

Cleveland Canary & Cage Bird Society
Bird Show
November 17, 18, 19, 1983
Downtown Cleveland
7th Annual Bird Exhibition
November 16, 17, 18, 19, 1983
at Renaissance Hotel
St. Petersburgh, FL
Regular show on Sat., 16th
Pet Bird show on Sun., 17th
Contact: Kelvin Clegg (213) 476-0745

American Cockatiel Society
6th National Cage Bird Show
November 17, 18, 19, 1983
to be held in conjunction with the
35th National Cage Bird Show
Regency Hotel Denver, CO
Contact: Carter Atwood
13120 Baker Ave
Pleasant Hill, MO 64080

Great Western Budgerigar Society
29th Annual Exhibition
November 18, 19, 20, 1983
Rosemead Community
Recreation Center
3936 Muscatel Ave., Rosemead, CA
Contact: Sally Lawrence (213) 934-1383
141 S. Arden Blvd.
Los Angeles, CA 90004

35th National Cage Bird Show
November 18, 19, 20, 1983
Regency Hotel Denver, CO
Contact: Kevin Wintck (303) 623-5915
748 Santa Fe Drive
Denver, CO 80204

Maryland Cage-Bird Society
Roller Show
December 2, 3, 1983
Howard Johnson Motor Lodge
5701 Baltimore National Pike
Baltimore, MD 21229
Contact: John Klausmeyer
2956 Normandy Drive
Ellicott City, MD 21043