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Elephant Notes and News

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ELEPHANT NOTES AND NEWS

compiled by Sandra and Hezy Shoshani

Contents:

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Captive elephants in Michigan under record low temperatures

In January 1984 many areas of North America recorded extreme low temperatures. As we in Detroit experienced a record cold for the century (Metropolitan Airport on January 21: -21°F (-29.5 C°), we thought of the captive elephants which reside in Michigan year-round and pondered their wellbeing. Your editors contacted the institutions and private owners of seven elephants known to be housed in the state. Below are the basic statistics for each, followed by general comments:

1. Detroit Zoological Park, Royal Oak. Person contacted: Kathy Latinen (Curator of Mammals).
   "Kita", Asian female, 25 years old, 23 years at the Zoo
   "Ruth", Asian female, 35 years old, 33 years at the Zoo
   Country of origin: Kita was born in Burma, Ruth's origin is unknown.

2. Private owner (Bobby Moore), Washington. Trainer contacted: Richard "Army" Maguire. Record cold in Washington occurred on January 21, 1984: -19°F (-28.3°C)
   "Mauikea", African female, 5 years old, 1½ years in midwest
   "Jack", African male, 4 years old, 1½ years in midwest
   Possible origins: Zimbabwe.

3. Potter Park Zoo, Lansing. Keeper contacted: Earl Austin. Record cold in Lansing occurred on January 15, 1984: -25°F (-31.6°C). "Tombi", African female, 7 years old, 4 years in Zoo, origin unknown.

4. Jackson Wild Animal Kingdom, Jackson. Owner contacted: Richard Sanger. Record cold in Jackson occurred on January 21, 1984: -18°F (-27.7°C).
   Name unknown, African female, 5 years old, 4 years here
   Name unknown, African female, 5 years old, 4 years here
   Possible origins: Republic of South Africa.

In all four cases the elephants were kept in heated buildings (70°F, 21°C) built specially for them. Only one elephant is taken outside between September and May; at Potter Park Zoo "Tombi" takes 15-20 minute walks at 35°F (1.7°C) as she wishes. Dick Sanger in Jackson pointed out that the wind is as much of a concern as the temperatures. At 35°F (1.7°C) a wind speed of 10 mph (16 km/h), has the effect on mammals of a temperature of 20°F (-9°C), whereas at -20°F (-29°C) the same wind speed has the effect of -46°F (-40°C). At this level there is increasing danger from freezing of exposed flesh. This relationship between wind speed and temperature is termed wind chill.

At the Detroit Zoo keepers have indicated that ice and frozen ground can be treacherous for adult elephants; thus, their policy has been to keep the elephants inside even on mild winter days.

In response to our question as to how the elephants were doing on January 21, each person contacted indicated that there were no problems.

Editors' notes: Elephants, both Asian and African, are known to survive in

extreme temperatures. Sikes (1971:117-118. The natural history of the African elephant. Weidenfeld and Nicolson, London, 397 pp.) related her own encounters with elephants "below freezing point on Kinangop Mountain in Kenya" and noted "fresh evidence of elephant herds at over 10,000 ft on Mount Kilimanjaro in Tanzania." Sikes also included the observations of Stockley (1953) who sighted elephants "at over 15,000 ft in Kenya - i.e. above the snow line." and of Schloett (1905) who recorded observations on an elephant that was taken to Stroem, Sweden, latitude 64° North, where the temperature, during the stay, ranged from -12°C to -20°C. "The trainer (of Schloett's elephant) provided the elephant with a coat of reindeer skins and some sort of shoes. It is stated that the elephant returned from this trip with only a slight freezing of the external genitalia and recovered its complete health." The Mentor, June 1924, Volume 12, Number 5 (page 15) features a photograph of an elephant with the following caption:

> EAR MUFFS OVERCOAT, AND OVERSHOES: In Canada, Horatius finds himself far from the tropical heat of his native India. He does not object to a morning stroll through the icy streets provided he can wear the comfortable winter outfit which his owners have furnished."

The editor also observed elephant footprints and dung at an elevation of 10,200 feet on the Kenyan side of Mount Elgon (see "Field observations of elephants in Kenya, Uganda and Zimbabwe" by J. Shoshani and R. Geron earlier in this issue). The most famous case in recorded history of elephants exposed to cold temperatures is that of Hannibal's elephants in his crossing of the Alps in 218 B.C. A pertinent paragraph from Sikes (1971:118) reads as follows: "It is recorded in history that Hannibal's African elephants suffered severely from exposure to cold. Closer reading of historical records, however, suggests that they may at times have been kept standing still, either chained or in harness, for prolonged periods on abnormally low rations. Moreover, they may not have received adequate care after heavy haulage operations as no mention is made of blanketing them or rubbing them down with any instrument akin to a sweat scraper as used in some parts of Asia. In conditions of this type, captive elephants are known to be prone to contract pneumonia and tuberculosis. These diseases, however, do not characteristically occur in wild elephants living in cold climates."

Data on record low temperatures for each city were obtained from: National Weather Service in Detroit, Michigan (Metropolitan Airport); National Weather Service in Lansing, Michigan; FAA Flight Service at Jackson Airport, Jackson, Michigan; and Romeo Observer (newspaper) in Romeo, Michigan, for Washington Township. We thank Marie-Louise and Robert O'Connell for obtaining these data and the personnel and private owners for their help.

Detroit Zoo elephants get a new lease on life

> (Sources: Detroit Zoological Society Newsletter, Numbers 102, 112 and 115, April 1984 and April and August 1985; Detroit Zoological Society Bulletin, Spring 1985, pages 8 and 9; and personal communication.)

The first major change for "Ruth", 38, and "Kita", 28, Asian female elephants at the Detroit Zoo, Royal Oak, Michigan, was the addition of logs and mounds of earth for them to manipulate in their yard. Then on April 2 1984, they were hobbled and lead out of the exhibit area for a ten-minute walk in the park before the public opening. Ruth had not been out of the area for 33 years and Kita not for 23 years. These daily walks seem to be benefitting the animals and will be continued. The elephants have also been fitted for custom-made harnesses so that they can be trained to pull heavy objects like logs during summer demonstrations which were commenced in 1985.

In March 1985 through the services of the Michigan State Police, Ruth and Kita were weighed using truck scales. Ruth weighed in at 8,300 pounds and Kita at 7,400 pounds. Plans are to weigh them at least twice a year to assess their condition.

During the intervening year, Nadine Richter, senior Veterinarian, completed a study of progesterone content in weekly blood samples taken from the two females. Richter found that both elephants were cycling regularly. Training for artificial insemination is now underway.

In 1986 plans for renovation of the Elephant House were announced. The original architecture will be retained but the roof will be replaced and the interior will be modified. Fundraising is underway; interested donors should contact Steve Graham, Director, Detroit Zoo, 8450 West 10 Mile Road, Royal Oak, Michigan 48068 USA.

African Elephant Nutrition Study

The Toledo Zoo has been conducting a nutrition study on their two 6 year old female African elephants. Hopefully, the results will substantiate observations that the present diet is adequate. The study has been designed by Joanne Terry, Veterinary Technician, and Dave Ross, Elephant Keeper.

The study has been divided into a number of steps including sending out surveys to other zoos, compiling and evaluating literature reviews, setting up practice runs to work out problems, and actual data collection at Toledo Zoo. The basic outline for the study consists of:

1. Practice runs prior to actual data collection
2. Feeding hay only
   a. Weigh hay before feeding
   b. Weigh leftover hay
   c. Freeze a representative sample for dry weight calculation
   d. Collect feces and weigh
   e. Freeze representative sample for dry weight calculation
3. Acclimating elephants from hay to monogastric pellets
4. Feeding pellets only
   a. Weigh before feeding
   b. Weigh leftover pellets
   c. Sample for dry weight calculation
   d. Collect feces and weigh
   e. Sample for dry weight calculation

Note: Actual data collection was done in July and January due to peak seasonal differences.

By comparing results from the surveys and information from literature reviews with results of the inhouse study, Terry and Ross hope to develop a basic and cost efficient diet for captive African elephants.

Ban-the-ivory Campaign IV

This section is a continuation of our efforts to keep Elephant's readers updated on the situation of the ivory trade and subsequently the plight of the elephant. Ban-the-ivory Campaigns I, II, and III were published in Elephant, 1(2):10-13, 1(4):134-157, and 2(1):159-163, respectively.

I. Legislation and related activities

The following sections include updates on legislation related to elephants in the USA and additional Parties to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

A. Elephant Protection Act of 1983.

The Elephant Protection Act of 1983 was introduced in the House of Representatives on 24 May by Representative Anthony Beilenson (D-Los Angeles). The bill was identical to the one the House passed unanimously in 1979 but which failed to be passed by the Senate in 1980. It would have restricted ivory imports from nations that do not control the poaching of their elephants. The bill did not leave committee hearings and no new legislation has been introduced since 1983.

B. Additional contracting states for the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

In 1985 at the Fifth Meeting of the Parties a resolution was unanimously adopted to establish an African ivory export quota system and improved trade controls. Key factors in the resolution are: all African countries with elephants will set themselves annual export quotas for raw ivory, in numbers of tusks, and inform the CITES Secretariat by 1 December of the previous year (a zero quota applies until the Secretariat is notified otherwise); the Secretariat will establish an ivory unit to help implement quotas and to maintain a data base on trade in raw ivory; no trade is permitted in improperly marked raw ivory or with non-Party states not fully complying with this resolution; and all Parties are to notify the Secretariat what stocks of raw ivory are being held and these must be appropriately marked before export/re-export.

(Sources: The Animal Welfare Institute Quarterly, 34(2):1 and 7; BBC Wildlife, 3(7):348-349.)

A total of 91 countries had ratified CITES, as of March 1986. Those listed here are in addition to the original 53 given in Elephant, 1(4):151, and 16 countries ratified plus 15 pending in Elephant, 2(1)161. In chronological order the additional ones are:

82. Algeria
83. Luxembourg
84. Republic of Trinidad
85. Tobago
86. Benin
87. Spain
88. Honduras
89. Hungary
90. Afghanistan
91. Somalia

This list was compiled from issues of Oryx (the publication of Fauna & Flora Preservation Society, Zoological Society of London, England).

II. Update on poaching in Africa.

A. Coupled with the severe drought in southern and eastern Africa, poaching has continued to deal a hard blow to elephant populations. At the IUCN Species Survival Commission conference on elephant and rhino held in August 1981 in Zimbabwe, the specialists agreed that the minimum estimate for the total would be 1,100,000 elephants in Africa and the maximum would be more than 1,600,000 (Elephant, 2(1):161.) From trade statistics, the IUCN estimated in 1983 that at least 194,000 elephants ("close to 20% of Africa's total population") were killed between 1979 and 1983 (The Animal Welfare Institute Quarterly, 32(3):10). Subtracting 194,000 from the estimate of 1,340,000 elephants by I. Douglas-Hamilton in 1979 (Elephant, 1(4):51) yields an estimate of 1,154,000 elephants in Africa as of 1983.

B. From a press release by World Wildlife Fund International on 28 November 1983:

"On January 1, export of unworked ivory will be banned by the Sudan, closing yet another door to the illegal ivory traffickers. The entry of Belgium as a CITES party will go a long way to blocking the major loophole in Europe, unless Sabena's activities are allowed to stand in glaring contrast to worldwide determination to halt the unsavory trade. WWF-Belgium estimates that over the past ten years Sabena has carried at least 300 tons of ivory from Burundi to Belgium. This represents the death of some 25,000 elephants. Although it is well known that only one elephant exists in Burundi, most of this ivory was exported with customs documents certifying Burundian origin. It is also well known that the true origin of the tusks was Zaire and Tanzania, entering Burundi in violation of the laws of these CITES-member nations. Hong Kong, the world's major buyer of legal ivory, does not accept tusks of "Burundian" origin, recognizing them as undoubtedly contraband. Such ivory is "laundered" in bonded warehouses in Belgium and passed on to buyers with spurious certificates of legal origin or mixed in with legal shipments."

Clearly the modern poachers have reached a level of sophistication equal to the bureaucratic paperwork of modern societies.

C. Two personal accounts of poaching in the Central African Republic have been sent to us by EIG members for anonymous publication. We present these cases as examples.

In 1982 one of our members was informed by the Minister of Waters and Forests of the Central African Republic (CAR) that 14,000 elephants had been killed over the previous three years and he would do everything within his power to protect the elephants. From the second EIG member came this information meanwhile:

"Customs' records show that 21,000 pairs of tusks over 10 kg each were exported in 1982-83. The average tusk weight for 1982 was 15 kg, and for 1983 it was 11 kg. For January and February 1984 the average tusk weight was 7 kg (quantity not stated). This does not take into account the large amount of tusks under 10 kg which are exported illegally."

Happily, in 1985 the CAR announced a ban on elephant hunting as the culmination of a two-year clampdown on ivory smuggling; the CAR has been a major ivory exporter for Sudan and Zaire as well as its own ivory (BBC Wildlife, 3(3):148).

D. Outstanding bull killed in Ethiopia

(Source: Safari, Official Journal of Safari Club International, July/August 1986, Volume 12, Number 4, page 6 and The Hunting Report, July 1982, pages 1-3.)

On March 10, 1986, Roberto De Cesare from Switzerland killed a bull elephant while hunting in Ethiopia's Akabo Valley. Its tusks weighed 145 and 143 pounds. The size of its tusks indicates that this animal was 40 years old or more. It was probably one of the top 20 biggest elephants killed in this century (Anonymous EIG member). For the purposes of comparison, we remind our readers that Ahmed (our logo) had tusks weighing 148 pounds each when he died naturally at about 55 years of age. It is a pity that a bull of such magnitude has been removed from the genetic pool by man. How much more beneficial it would be to radio-collar such an animal for photographic safaris or for protection purposes.

Hunting elephants in Ethiopia has more than doubled in the past 2 years. A strict quota system has been established allowing up to 50 elephants to be taken a year, based on a population number of 9,000 (Abdu Mahamued, Head of the Wildlife Utilization and Antipoaching Division, Ethiopia, in The Hunting Report, July 1986, page 2.) Nonetheless, according to Iain Douglas-Hamilton's survey conducted in 1979 (Elephant, 1(4):151), there were 900 elephants in Ethiopia. Even if this area has become a refuge for elephants and the influx accounts for a higher population than earlier given, serious consideration should be given to protection of large tuskers for the future of these groups. It is estimated by the professional hunter who served as guide for De Cesare that 200 elephants reside in an area ten miles square. Both publications which mentioned this kill were promoting hunting in the region, and with upwards of 70 elephant hunters a year and a 50% success rate described by Mahamued, in several years serious damage to such a group could be done.

III. Ivory trade in Japan

In Traffic Bulletin, 11 October 1985, Tom Milliken of TRAFFIC (Japan) wrote about progress in tightening up Japan's ivory trade. These comments have been excerpted.

"In the wake of international condemnation of Japan's failure to implement CITES, late in 1984, a series of government and industry initiatives were forthcoming to rectify the situation. In December 1984, Japan's major ivory importers became organized into a single unit for the first time. The Ivory Importers' Group of the Japan General Merchandise Importers' Association falls under the administrative auspices of the Ministry of International Trade and Industry (MITI), Japan's CITES Management Authority. Government intervention through Administrative Guidance directives is therefore possible. It is estimated that collectively the dealers in the new Group account for about eighty-five per cent of the ivory imported into Japan.

New regulations, effective from 1 April 1985, eliminated the use of country-of-origin certificates for imports, previously the major loophole allowing the trade in illicit ivory. Now, only proper CITES export permits or equivalent documentation from non-Parties may be used. Re-export of ivory also requires the presentation of proper documents to verify that its import had been in compliance with CITES regulations.

The ivory traders have indicated that they are willing to co-operate with the recent moves to regulate the trade. The Ivory Importers' Group has pledged to provide sixty per cent of the annual budget for the new Ivory Co-ordination Unit at the CITES Secretariat and, in another gesture, seventy-five dealers pledged to refrain from re-exporting ivory to Hong Kong for one year....

It is expected that the new Ivory Co-ordination Unit of the CITES Secretariat will reduce the successful use of the paper ploys of the last two years. It would appear, however, that the present situation in Japan remains serious and continues to reflect the inability to control elephant poaching in many regions of Africa."

An update on "Tommy" ("The world's largest performing male elephant")

In 1980 (see Elephant, 1(4):234-235) we published a short account on Tommy the Asian elephant (Elephas maximus), mostly on his shoulder height. In this account, we provide his shoulder height after six years and other data. The 1986 data were collected on March 29, at the Coliseum, Michigan State Fair Grounds in Detroit (performance with the Shrine Circus).

- Tommy's age: 41 years
- Tommy's weight: 10,500 lbs (4,765 kgs; in November of 1985).

The shoulder height in both cases was measured by holding a stick level on the shoulder of the elephant and measuring the distance from the stick to the ground. The 1986 measurements were taken with a tool similar to that depicted in Benedict, F. G. (1936:97; The physiology of the elephant. Carnegie Institute of Washington, Washington, D.C., 302 pp.). A total of six measurements was taken, four of which proved to be too low (due to shift in weight of the elephant in different directions). The two heights which we feel comfortable with are 2.73 and 2.78 meters (8.95 - 9.12 feet), with an average of 2.75 meters (9.04 feet). Comparing this shoulder height to his

height six years earlier (2.70 meters or 8.86 feet), we note that Tommy grew 5 cm or about 2 inches in that time span. For our readers' interest, to our knowledge, the largest recorded height for an Asian elephant is that of a skeleton which measures 3.35 m (11 ft 3 in) (Pillai, N.G. 1941. On the height and age of an elephant. J. Bombay Nat. Hist. Soc., 42(4):927-928.)

We also measured the circumference of the left forefoot with and without weight on it and found it to be 150.5 cm and 152.0 cm, respectively. Note that the circumference measurements were taken with a tape-measure held against the "toe-nails" not on the ground. Circumference measurements of Tommy's feet were also taken by Joe Engelhard (see The Circus Report, June 9, 1986, Number 22-23, page 12). See also Elephant, 1(4):235 for calculating shoulder height from foot circumference.

Other body measurements on Tommy were taken on May 3, 1986 (while performing for the Zenobia Shrine Circus in Toledo, Ohio) by Joe Engelhard, Tom Henricks, Betsy Moore, and Don Redfox. These measurements include (T. Henricks, pers. comm.):

"Overall Length (eyes to base of tail) approx. 12 ft."
"Height (center of back to floor) approx. 10 ft."
"Width of head (area beyond eyes in line with ears to other side of head and same area) approx. 3 ft."
"Body Circumference or girth (measured at center of back) approx. 16 ft."
"Leg Circumference (measured about a foot above his knees) approx. 4 ft."

Tusk measurements taken by us (March 29, in Detroit) include:

Left tusk:	Length along outside curvature	- 145 cm
	Length along upper curvature	- 114 cm
	Diameter at base	- 14.1 cm
	Diameter at midline	- 11.5 cm
Right tusk:	Length along outside curvature	- 157 cm
	Length along upper curvature	- 138 cmm
	Diameter at base	- 14.1 cm
	Diameter at midline	- 13.2 cm

Penile measurements taken include:

Length of penis, fully extended, after urination - 89 cm
Diameter of penis close to base - 15.4 cm

Urine analysis was conducted on a sample collected from the concrete floor of the Coliseum immediately after urinating. The urine was turbid, cloudy, yellowish in color, and had slight odor (similar to that of fecal material). We thank Matt Jalkanen (of Hutzel Hospital in Detroit) for providing us with the following urinalysis data:

Specific gravity	- 1.028	WBC/HPF	- 0
pH	- 9.0	RBC/HPF	- 0
Protein	- trace	Epithelium	- 0
Sugar	- none	Bacteria	- 40-50
Ketones	- none	Mucus	- 0
Bilirubin	- none	Crystals	- +3 amorphous

Hemoglobin	- none	Cast/LPF	- 0
Esterase	- negative	Misc.	- A few vegetable fibers
Nitrite	- negative		
Urobilinogen	- normal		

Note: On the whole, the tests show that Tommy's urine was normal; the few vegetable fibers and the bacteria count of 40-50 were probably picked up from the concrete floor. For comparative purposes, the reader may wish to refer to Benedict (1936:197-228; citation was given under the Shoulder height).

Teeth measurements taken for upper molars (as best as we could) include:

on Left side:	Molar V	about 8.5 cm long
	Molar VI	visible behind
on Right side:	Molar V	about 8.5 cm long
	Molar VI	visible behind

The 13 hairs that were collected from the right chin vary in length, thickness, color and shape:

Length:	shortest - 47 mm (appears to be incomplete)
	longest - 175 mm (appears to be complete)
Thickness:	thinnest - 0.1 mm, thickest - 0.4 mm
Color:	dark brown to black, reddish brown, to light yellow almost transparent; most hairs have more than one color often segmented, that is, dark followed by light color and so on.
Shape:	five hairs are straight or with slight kinkiness in them, three are bent, two have slight waves in them, and three are wavey to kinky.

Foremost, we are indebted to Lee and Jeanette Keener for their help and cooperation in data collection on Tommy the elephant, owned by Tony Diano at that time. In 1987, Tommy will appear with the Ringling Brothers and Barnum & Bailey Circus (Circus Report, August 11, 1986, Number 32, Page 14, and personal communication from Bobby Gibbs). Note that Tommy the Asian elephant appeared as "Jumbo" the African elephant in the television program entitled "Barnum" (CBS, November 30th, 1986; see also under "Jumbo Trivia" in the Jumbo article in this issue). Data collecting at the Shrine Circus in Detroit was done by Sandra and Hezy Shoshani and Linda and Gordon Wyllie. Other acknowledgement was given before, e.g. under "Other body measurements".

Elephantine teeth and eye operations

As a follow up to the piece "Elephantine teeth extraction" (see Elephant, 2(1):158), we thought that our readership might be interested to learn of two cases involving tooth filling and cataract extraction in elephants. The tooth filling was performed on "Sahib", a 7,000-lb (3,182 kgs) male Asian elephant, owned by Martin and Downs Tent Circus. The cataract extraction operation was conducted on "Ronnie", a 9,000-lb (4,091 kgs) female Asian elephant owned by the Ringling Brothers and Barnum & Bailey Circus.

Necropsy report: "Arusha"

Dear Hezy:

Enclosed are some health records from the Pittsburgh Zoo. Since I work with elephants at the Pittsburgh (Zoo) and subscribe to the ELEPHANT INTEREST GROUP, I thought these records might help document some of the problems found with captive elephants.

Sincerely,
Thomas P. Hayes
934 Millerdale St.
Pittsburgh, Pa. 15201

Name: Arusha
Sex: Female
Species: Loxodonta africana
Age: approx. 38, Expired: Spring 1982

Clinical history: chronic orthopedic disease involving first the left leg carpus), stiffness. Intermittant lameness of undefined time periods and duration, associated with varying degrees of depression, lethargy along with an increase in weight loss accompanied by anorexia. These signs were most pronounced in the animal's last year in life.
Post Mortem Examination: (incomplete)
Gross findings (joints): Severe degenerative joint disease/osteoarthritis of ight carpus with large multifocal coalescing areas of cartilaginous erosions. Left elbow joint was not accessible.
Conclusion: Death was probably due to the general debilitating effects of egenerative joint disease, despite treatment with antibiotics and anti-inflammatory drugs.

Arusha was being treated for rheumatoid arthritis but there was not enough evidence to positively diagnose rheumatoid arthritis.

Elephant diet successful

After two years of being "laid off" the performing elephant "Bertha" of the Nugget Show in Las Vegas, Nevada, had put on excess weight from fresh baked goods. Her new trainer, Don Bloomer, put her on a strict diet and regular exercise. As of October 10, 1985, Don reported that she had lost 2,000 pounds and was back on a normal diet.

Elephant Potpourri

Following are several related and unrelated elephant items, many of which were excerpted (or taken in full) from "The Circus Report" (C.R.), a publication of Don Marcks, 525 Oak Street, El Cerrito, California 94530-3699.

Packy Foundation (C.R. October 3, 1983, Number 30:22; and C.R., November 28, 1983, Number 38:30-31):

"Murray Hill has announced the establishment of an animal refuge facility, a shelter for unwanted exotic animals, especially elephants. The facility is called "Packy Foundation" and has already been approved by the Federal Government. It will provide a home for unwanted animals from all sources, so that it will no longer be necessary to put an animal to sleep to dispose of it. All animals are welcome and contributions are being accepted for use towards bills that are incurred."

For additional information and contributions write to: The Packy Foundation, Inc., Rte. 1, Box 248-A, Fordland, MO 65652.

Who's liable (C.R., December 12, 1983, Number 40:6):

"A girl and her father went to the circus and as they passed the elephants one animal swung its trunk knocking the little girl to the ground. She suffered a concussion and a broken arm." Can the owner of the elephants, who has done everything possible to ensure the safety of his customers, still be liable if an injury does occur? The answer is yes. This is because the animal in question is one of the category called "wild" animals, which includes: "lions, tigers, elephants, monkeys, bears, wolves, etc." "See: Isaac vs. Powell, District Court of Appeals, Fla. 267 So. 2nd 864 (1972)."

Zoo Activity (C.R. December 5, 1983, Number 39:25)

"Elephants in Seattle's Woodland Zoo are said to be so bored they've taken to throwing pachyderm power at people standing at the bus stop outside their fenced enclosure. A local politican referred to the missiles as elephant apples."

"Meanwhile at the Bronx NY Zoo they've found another way to raise funds. With the cooperation of its inhabitants the zoo is supplying a manufacturer with the necessary ingredients to produce ZooDoo. It is described as a clean, odorless compost created from herbivorous animal droppings. It is being sold at the city's botanical gardens and proceeds will help fund community gardening programs."

The elephant toll (C.R. January 23, 1984, Number 4:25 and April 16, 1984, Number 16:12):

"In fact, an unusual group of animals passed through the Lincoln Tunnel on May 17, 1971 - 19 elephants, a pony, a zebra and a llama. They were being taken to the circus at Madison Square Garden during a train strike. The toll was $9.50 for the elephants, their companions were free.

Effective Jan. 1st., the elephants will now cost $19.00 due to an increase in Port Authority of New York and New Jersey Tolls.

(From the New York Times, Jan. 1, 1984)."

"March 3 - New York City - Animal handler Thomas Henry, of the Ringling Blue Unit, was kicked in the chest by a camel as the circus animals were being led thru the Queens Midtown Tunnel on the way to Madison Square Garden."

Elephant training school (C.R., February 13, 1984, Number 7:16):
"SMOKEY JONES started his school on elephant training in Southern California on Feb. 1st. The class runs thru the end of the month. He has two baby African elephants at his place there."

Hotline (C.R., February 13, 1984, Number 7:22):
"Jan. 23 - Miami, Fla. - The Hoxie Bros. Great American Circus elephant 'Hoxie' walked off from the show's quarters into local woods and was gone for approximately nine hours." He returned that evening on his own.

They eat elephants (C.R., August 1, 1983, Number 21:5):
"Poor people in eastern India have begun to eat elephant meat, threatening the animal's existence, a news report from New Delhi states. The economic crunch because of repeated crop failures, lack of employment and various other reasons have led the people in Orissa state's Chandka area to eat elephant meat, the Hindustan Times reports. In Orissa it is an unheard of thing. It is a sign of an ominous trend, says Udayanath Sarangi, Orissa's chief of wildlife warden. Sarangi discovered people eating elephant meat only six miles from Bhubaneswar, capital of Orissa, 750 miles southeast of New Delhi. When an elephant died in the area, residents of far-off villages came carrying axes, meat cleavers and large hoes to chop off chunks of meat, an official said. They prepared elephant meat the same way as lamb, he added. One villager said it tasted like lamb, but was a bit coarse. But we are poor people and any meat is good for us, he said."

Elephant's death (C.R., October 24, 1982, Numbers 39-40:24) Report by Art "Doc" Miller
"Exactly 64 years ago this month, Mary, a performing elephant, was hanged by the neck in the Clinchfield railroad yards in Erwin, Tenn. While a good performer, she was never trusted, having killed several people on other shows. Each previous circus owner had followed the rule to file a notch on her tusk each time she committed a murder."

Elephant trunk line (C.R., March 12, 1984, Number 11:8):
"First there was the telegram. Then there were the bellygram and strip-a-gram messages delivered by belly dancers and strippers, respectively. And now there is the elegram. The elegram is the brainchild of KCBQ-Country 105 disc jockey Sonny West, who saw a small promotion idea grow to well, elephantine proportions. In conjunction with Circus Vargas, the radio station conducted a contest in which the winner would be allowed to send an 'elegram' - a telegram attached to the side of an elephant - to the person of his choice in San Diego County. For two weeks, listeners called in their favorite elephant jokes during West's 6 a.m. to 10 a.m. program. Sadly, many of the best offerings are, in West's words, "outrageously filthy" jokes that could not be repeated over the air. Others sound like they were culled from the pages of My Weekly Reader. An example: Why are elephants big, gray and wrinkled? Because if they were small, white and round they would be aspirins. On Friday the contest winner, selected by random drawing will send the telegram - elegram. West said that spouses, boyfriends, girlfriends and bosses head the list of possible recipients. It would be perfect to send to your boss and say, 'I'm tired of working for peanuts,' West quipped".
(Reprinted from the Los Angeles Times)

Hungry elephant ends up at bakery's back door
(Source: The Detroit News, July 24, 1985.)

A hungry elephant that escaped from a circus in West Germany, knocked at a Hamburg bakery door with its trunk at dawn and was given fresh rolls, police said. After the baker overcame his shock at seeing the 3-ton Asian elephant, he contacted police.

Who stole the doo-doo?
(Source: The Macomb Daily, Michigan, July 25, 1986.)

In Presque Ile, Maine, two tons of elephant manure from a weekend circus disappeared out of a trash dumpster overnight.

Male elephant falls fleeing 7 females
(Source: The Detroit News, July 22, 1986.)

At a Danish nature park, a 16 year old male elephant named Frederick fell on his side in a lake after fleeing seven female elephants. He had to be set on his feet with a crane after the females were unsuccessful in uprighting him with their heads and trunks.

A few days later Frederick died from a broken neck.

Rehabilitating an elephant ("Misty")
(Source: The Detroit Free Press, July 25, 1983.)

LAGUNA HILLS, Calif. - A three-ton elephant (named "Misty") broke loose from its chains Sunday at Lion Country Safari, killed the park's game warden and charged toward the San Diego Freeway before being subdued by tranquilizer darts and recaptured. Game warden Lee Keaton, 34, of Lake Elsinore, was trampled and died of head injuries, a coroner said. No one else was injured, police and fire officials said. The elephant, restrained by one chain, became agitated, authorities said, and Keaton was killed trying to secure the animal with a second chain.

(Source: The Circus Report, Number 23, August 15, 1983.)

"July 27 - Misty, the elephant that trampled a Lion Country Safari zoologist, killing him on July 24th, has been moved to a new home at the Wildlife Waystation in Southern California. The Waystation agreed to take the elephant and said it is their policy not to turn down any animal that is in need.

(Source: MONITOR, Federal Register Notices, 26 September 1983.)

"EMERGENCY EXEMPTION On September 13, 1983, a letter waiving the 30-day public comment period was issued to Hawthorn Corp., Grayslake, Ill., authorizing emergency action to enhance the survival of one female Asian elephant. This waiver was granted to allow the interstate commerce of one

Asian elephant from Gentle Jungle, Inc., Burbank, CA. (being held at Animal Wayside Station, Riverside, CA) to Hawthorn Corp. U.S. Fish and Wildlife Service determined that an emergency does exist, that the health and life of the elephant is threatened and that no reasonable alternative to the proposed action is available to the applicant." Local authorities in California had ordered the destruction of "Misty" unless she was removed from the state prior to September 15, 1983.

Clarification needed

To clarify an accidental death in Refidis, Wisconsin, "Buckles" Woodcock gave us this commentary. In Fall 1982 after an evening performance with the elephant "Anna Mae", Ben Williams went into the front area of his elephant truck. A few moments later a young woman followed him into the front area where Anna Mae was chained for the night. Perhaps being startled in the dark by unknown footsteps, Anna Mae pushed the woman into the front wall of the truck, killing her instantly. There was much confusion in subsequent reports as to the actual events and reasons. An Israeli newspaper, Yedoit Aharonot, ran an article entitled "The envious elephant killed the lady who kissed her trainer." Therefore, we felt some clarification was necessary.

Report on an injury to a keeper by an elephant at Kansas City Zoo

(Information forwarded to us by Ernest Hagler, Director, Kansas City Zoological Gardens)

The incident took place on March 13, 1982, in which a keeper was injured by the male African elephant named Casey. Following are general comments excerpted from the Elephant Management Committee Report (read and approved 26 May, 1982 by: Ernest Hagler, Mike Blakely, Ernie Galbraith, Willie Theison, Brian McCampbell, Bob Thornton, and Mark Kabak):

GENERAL COMMENTS

A. Training was inadequate in terms of trainers' response to these type situations and procedures were inadequate as far as handling incidents such as this.

B. The existing procedure of having the back-up person within "earshot" distance of the primary elephant person is inadequate.

C. Certification is inadequate. Training was particularly inadequate in terms of the outside routine and management. This resulted in the lack of knowledge of unique behaviors and significance of procedures no matter 1) how minor they may have appeared and 2) how a trainer might react in a wide variety of 'test' situations. While the 10 week training program is adequate for teaching a person the inside tub routine, cleaning routine and feeding routine, it is far from adequate when referring to a person as being "certified". The present certification system does not encompass the outside tub routine and unique elephant behavioral problems while they are outside.

D. The Elephant Management Committee should undertake a more comprehensive review of the Elephant Management Program and make recommendations for improvements.

E. Lack of adequate number of elephant trainer positions results in forcing short cuts and inability to have an effective back-up because other husbandry chores must be accomplished.

F. Of particular significance, the turnover in elephant trainers is excessive which 1) necessitates a shorter training period that is inadequate and 2) results in lack of continuity - continuity is a key to effective elephant management because elephants are highly routinized and habituate to individual trainers. Excessive turnover is a result of extremely low salaries and minimum requirements for the position being inadequate.

Swimming Marathon

The following letter was received in the EIG office, and its description of elephants swimming in an African lake as compared to other known swims is noteworthy. We have obtained a copy of the article mentioned (see Reference No. 2181) for the Elephant Library. Readers interested in this topic should also see Reference No. 1436 in Elephant, 2(1):203, and Reference No. 2156 in this issue.

August 25, 1982

Dear Hezy:

I would like to call to the attention of EIG readers an article titled "Elephants in record swim across Lake Kariba, "published in the March-April (1982) issue of Africa Calls, from Zimbabwe* (pp. 8-11). The article is based upon the observations of Graham Hall (Department of National Parks and Wildlife Management, Zimbabwe) and officers of the Lake Kariba Fisheries Research Institute. In the account, two bull elephants that were estimated to be about 18 years old spent some 30 hours in the lake swimming from Matusadonna National Park on the south of the lake to Kariba Township on the north side. They were estimated to have swum a minimum of 35 km. Three elephants began the trip, but one apparently turned back. During the long distance swim the beasts were observed to be assisting one another to the extent that "...the elephant in front was seen to be inflating its lungs for buoyancy while the other placed his front feet on the leader's back and paddled. Every hour or forty-five minutes the exhausted animals would change places." This reciprocity was described as being "...almost uncanny." Upon hauling out of the water, the legs and trunks of the exhausted beasts were observed to be white from the long immersion.

In terms of distance covered and time spent in the water, this marathon swimming event is, to my knowledge, the longest on record that was corroborated by reliable witnesses. (In the 1850's an elephant that went

overboard from a ship estimated to be 30 miles at sea off Charleston, South Carolina, swam ashore.)

Very sincerely,

Donald L. Johnson, Associate Professor
University of Illinois at Urbana-Champaign
607 South Mathews Avenue
Urbana, Illinois 61801-3671

*The official magazine of the Zimbabwe Tourist Board, published by the proprietors, Africa Calls Publishers (Pvt.) Ltd., P.O. Box 8045, Causeway, Salisbury, Zimbabwe.

Elephant taxonomy

Colin Groves and Peter Grubb are attempting a taxonomic revision of living elephants, using mainly characters of the skull. We would like to hear from anyone who has measured even parts of an elephant skull of KNOWN LOCALITY (and, preferably, known sex and known age (dental eruption stage)). The measurements we take are given below, and illustrated in the figures provided (Fig. 1); these figures also indicate the position in which each measurement is, in our experience, most conveniently taken.

So far, we have between us measured all skulls in all the major collections of Europe and the United States (and in many minor collections too). The results are of course not analysed yet; but some very preliminary observations are:

1) Among African elephants, Loxodonta africana cyclotis is very distinct indeed from ordinary L. a. africana. Among the differences are the shorter, broader rostrum, the lesser degree of mastoid inflation, the longer mandibular symphysis, the smaller teeth, and the fact that measurements (3) and (4) are usually identical (whereas number (3) is always greater, by several centimeters, in ordinary L. a. africana). We have, however, indications from a few skulls in the Brussels Museum that interbreeding occurs in the Virunga National Park, Zaire; and we would like to hear from anybody who has evidence that the two interbreed anywhere else, or conversely approach each other without apparently interbreeding. - Are they distinct species?

2) Among Asian elephants, there seem to be two basic divisions: a "mainland" group (also in Sri Lanka), and a smaller "insular" group (also Malaya). The degree and amount of depigmentation also seems to differentiate these two groups. Within the first group, it seems to us impossible so far to distinguish a Sri Lanka race, unless at the same time the big Mahavili elephants (Elephas maximus vilaliya) are distinguished from the smaller mountain forest or general Sri Lankan form. Within the second group, the elephants of Borneo do seem distinguishable from those of Sumatra and Malaya: we incline to think they are indigenous, not introduced.

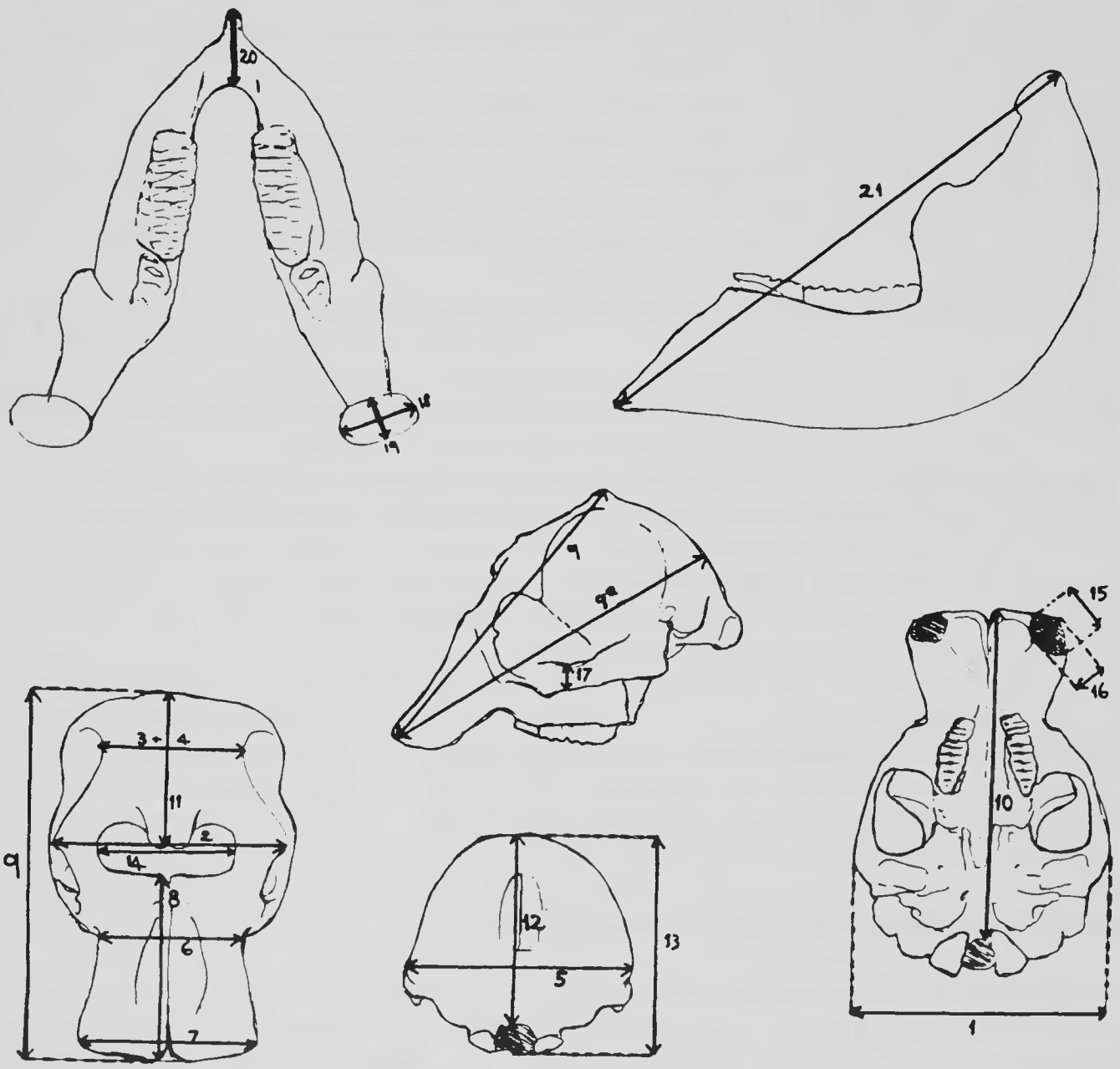

Figure 1. Elephant skull showing locations for measurements. (See accompained list).

ELEPHANT SKULL MEASUREMENTS

1) Bizygomatic breadth
2) Width across postorbital processes
3) Width across postorbital constriction (least)
4) Width between temporal lines (least): this may be the same as (3), or it may be somewhat less
5) Greatest breadth of occiput
6) Least width of rostrum
7) Greatest width of rostrum
8) Length of rostrum
9) Greatest skull length, in midline
9a) Greatest skull length, if occipital inflation is great enough to make a measurement taken from occipital surface exceed (9)
10) Basal length
11) Occipitonasal length
12) Occipital height, from opisthion

13) Occipital height, from basion
14) Width of external naris, taken between the ridges bounding it laterally
15) Width of incisor alveolus: mesiodistal
16) Width of incisor alveolus: buccolingual
17) Least depth of zygomatic arch
18) Greatest diameter of mandibular condyle
19) Diameter of condyle at right angles to (18)
20) Length of mandibular symphysis
21) Greatest mandibular length: condyle to chin

AND:

Breadths of all teeth present, and state of eruption
Lengths of all teeth present - if erupting, then length that is in wear; if being shed, then length that still remains
Number of lamellae (a) visible and (b) in wear on each tooth
State of following sutures: (a) internasal, (b) bordering naris, (3) maxillo-premaxillary
Length of humerus; radius; femur; tibia
Numbers of vertebrae in each spinal segment
Any external measurements available

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Copies of the editor's Ph.D. dissertation

Interested individuals who wish to obtain a copy of the editor's Ph.D. dissertation (in press, entitled "On the phylogenetic relationships among Panungulata and within Elephantidae as demonstrated by molecular and osteological evidence") may write to: Evolutionary Monographs, 915 East 57th Street, Chicago, Illinois 60637 USA.

Four newly formed organizations

NOTE: There are four newly formed organizations related to elephant conservation. One of these (African Elephant and Rhino Specialist Group) is described earlier in this issue by David Western. The others are explained below.

ASIAN ELEPHANT SURVIVAL FOUNDATION (AESF)

Project Ganesh is an international effort by the Asian Elephant Survival Foundation to save the Asian elephant from extinction. Begun in 1984 as a project approved by the King Mahendra Conservation Trust of Nepal, Project Ganesh is a multifaceted, integrated approach to preserving the elephant. For the Asian Elephant Sanctuary, Nepal has designated Parsa Wildlife Reserve in the southern Terai forest. There will be a center for research on the behavior and ecological requirements of wild and tame elephants.

Along with longterm studies of the biology, behavior and habitat requirements of elephants, Project Ganesh includes research in the cultural traditions of mahouts, who have lived closely with the elephants for millenia, and the development of realistic management plans to preserve wildlife and nature. A popular color journal about nature and humanity in Asia, Tusker, will be published. Authors of articles include: Michael W. Fox, D.V.M., Efale McFarland, President of the Asian Elephant Survival Foundation, and Randall L. Eaton, Editor, Tusker.

The address for AESF is: Sierra Nevada College, 800 College Drive, Incline Village, Nevada 89450-4269 USA.

ELEPHANT RESEARCH AND PRESERVATION CENTER

The purposes of this center in North America are the maintenance and propagation of both species of Elephantidae in an atmosphere that simulates a natural environment as much as possible, the establishment of a forum for elephant education among professionals and the establishment of a public relations agent for the elephant. The Center's goals are:

1. to compile data considering the physiology and ecology of the elephant, natural and artificial, gather data on the elephant's anatomy, histology and pathology, and to publish research in an organized, simple style;
2. to develop active breeding elephant populations, monitoring genetic diversity with computer stud book and semen banks, and establishing research breeding loans;
3. to publicize the earth's dwindling elephant population and the importance of this sensational animal to people;
4. to be an elephant library that zoos, universities, and professional organizations can use;
5. to be a research facility for capable individuals of sincere interest to observe, study and participate in research projects; and
6. to gain support from and be a supporter of such organizations and institutions as: American Association of Zoological Parks and Aquariums, The Elephant Interest Group, The Species Survival Plan, natural history museums, and universities.

Patty Stowbridge-Gough is the moving force behind this organization. The address is: P.O. Box 3312, Abilene, Texas 79604 USA.

HASTI

"Hasti is an organization that seeks to protect and preserve the highly evolved but endangered elephant, thereby adding to the dignity and economic well-being of humanity."

The Hasti Newsletter is published quarterly. The first one was printed in the Autumn of 1986 and was four pages long. It was edited by Cheryl Meeker, Myron Hinrichs and Patricia Harris. The address is P.O. Box 477, Petaluma, California 94953 USA.

Washington Park Zoo's Elephant Museum (Portland, Oregon)

The Washington Park Zoo is developing a Museum on the Zoo grounds that is dedicated to the education, research and conservation of elephants.

A major section of the Elephant Museum will develop the theme of man and elephants from the hunting and use of mastodons and mammoths to the present day use of elephants in religious processions and as working animals in Southeast Asia. The Zoo is seeking cultural, religious and historical artifacts that will help tell this story and would welcome gifts, suggestions or information on such items.

Another section will feature stamps, coins, circus and political memorabilia relating to elephants; we would welcome tax-deductible donations of such items. Last but not least, the Zoo wishes to have a major section on natural history specimens about elephants as well as material relating to the real goal of the museum which is the conservation of these extraordinary animals.

Project Director: Jack Delaini

Historical elephant exhibitions, Toledo, Ohio

From February to May 1985 two elephant exhibitions ran simultaneously in Toledo, Ohio, USA. The following comments have been excerpted from two articles written by Tom Henricks of Toledo for The Circus Report (Number 11, April 15, 1985, pages 4 and 30-31) and a feature article by Marsha Miro in the Detroit Free Press (March 15, 1985, pages 1B and 4B).

The display at the Toledo Zoo called "Elephants, Elephants, Elephants" was located at the Toledo Museum of Natural History on the zoo grounds. On view were many photos, posters, drawings, paintings, books, equipment and decorative items dealing with elephants. Elephants were represented in all areas, including those of the jungle, the circus and zoos.

A history and photo section of all Toledo Zoo elephants was especially done for the exhibit. Highlighting this were many photos of the elephants "Toots" and "Amber", both well known there for many years. The main feature or focal point of the entire exhibit was the life-size photo of "Babe", a huge Asian male elephant and the second owned by the Toledo Zoo. Pictured with his handler, Lou Scherer, Babe (known as "York" previously) was shown pushing a railroad box car on the old Wabash Valley Line not far from the Zoo. Following the death of Tusko on the Al G. Barnes Circus, Babe became the largest male Asian elephant in the United States. Babe died in 1943; at one time he was weighed at 5 tons and measured at 10 feet 6 inches tall.

Additional points in the zoo exhibit included a three-dimensional display of an elephant diet, with hay, grain, fruit and vegetables equivalent to a day's feeding. A children's activity area offered examples of elephant ears, both Asian and African, along with souvenir paper foot prints for school children to take home. Paintings done by the two 6 year old female

African elephants at the zoo were part of this area also. "Tembo" and "Mbili" were taught to paint pictures holding a brush in their trunks. Unlike other elephants who paint on the floor, the Toledo elephants paint on a regulation, professional artist's easel. This new routine was originally introduced to them by Don Redfox, head keeper in the zoo's elephant department. The paintings were eventually auctioned off for fundraising for the zoo.

At the Toledo Museum of Art the 50th Birthday of Jean de Brunhoff's world famous elephant "Babar" was being celebrated. Yellow baby elephant prints traced from the feet of one of the zoo's elephants led the way through the lower entrance up the stairs decorated with a chain of elephants to a red carpet and into a palm-tree-dotted corridor in front of a life-sized plush version of Babar on a purple-curtained throne. Over 214 watercolor paintings from 17 books by Jean de Brunhoff and his son Laurent were displayed. A corner in the exhibition area had copies of the Babar books and big cushions for children to lounge on while reading. Of course, the theme was carried through by the Museum Cafe which served African Peanut Soup, Flora's Favorite Food (peanut butter and jelly sandwiches), Babar's Footprint (small pizzas), Elephant Tusk Salad, and Elephant Ears (a midwestern cookie).

The Shelton Mastodon Excavation Site

For the last four years (1983-1986) during the summer months (mostly July and August) interested individuals from the Detroit area have been excavating in a Pleistocene site (end of the Ice Age, about 10,000 - 12,000 years ago based on six radiocarbon dates). This site is located in Brandon Township, Oakland County, Southeast Michigan, about one hour drive north of Detroit. The bones on this site were accidentally discovered in November of 1977 when the owner of the property K. Harold Shelton was dredging for a pond along an existing creek. Every summer there has been approximately 70 participants, students and volunteers, from the three sponsoring institutions: Cranbrook Institute of Science (CIS), Oakland Community College, Highland Lakes Campus (OCC), and Wayne State University (WSU).

The vast majority of the bones that we found were in a sandy layer (neutral to basic pH) among stones and wood on top of a clay. The area where the bones are discovered appears to be the margins of lake layers that were deposited adjacent to a forested glacial-originated highland. Our finds include vertebrates, invertebrates and plant material. Vertebrates include: American mastodon (Mammut americanum, extinct), giant Scott's moose (Cervalces scotti, extinct), muskrat (Ondatra zibethicus), and meadow vole (Microtus pennsylvanicus), several fish vertebrae and opercula, a scapula of a frog (probably Rana pipiens), and several bird bone fragments. The invertebrates include at least 11 species of molluscans, one of which is an unionid. Diatoms (microscopic algae, one of the first in a lake food chain) were also identified. Analyses of plant material (gross observations and pollen analysis) revealed eight tree species (cones of 7 coniferous and bark of 2 deciduous). Abundant confierous needles (in clumps) were also found. Several wood samples clearly show gnaw marks of a beaver, Castor canadensis. Based on the evidence found, we conclude that this ancient watering and

feeding site was a body of water bordered by grasses, shrubs, and mixed tree types (mostly coniferous). Although no carnivore material was recovered, a number of possible tooth marks were observed on several Mammut and Cervalces ones. All the mastodon bone fragments from long bones show "green breaks" and one has smooth edges.

Microscopic studies show that the mastodon died in the spring season and was 12-16 years old at time of death. It is an unusual specimen in that only the right tusk developed [the alveolous (socket) for the left tusk is filled with osseous (bony) material]. After death, the mastodon probably laid on its left side and was subject to some scavenging and weathering prior to burial. The molars and premolars of the Cervalces scotti are the first such find in Michigan.

A small piece of unusual bony tissue (5.3 X 3.4 X 1.1 cm) was found at the bone-bearing layer during this last summer and is being currently examined and compared to bones and other tissues of mastodon and other species. Tests include histological, biochemical, immunological and elements composition.

In addition, an almost complete projectile point was found at an upper layer, close to the surface and about 80 cm above the bone-bearing layer. This point is made from a stone called chert and was identified as a side-notched bi-facial projectile point (used for hunting and/or processing the hunt), circa 4,000 - 6,000 years before present. Note that there is no connection between this point and the 10,000 year old bones found on this site. The presence of this projectile point and other discoveries mentioned qualified this site to be a Michigan State Archaeological Site (File No. 20K394).

As of today, the excavated area covers approximately 25 X 13 meters, and the farthest distances between bones are 25 meters along the north-south axis and 20 meters along the east-west axis. Continued stratigraphic analyses of the paleontology, taphonomy, sedimentology, and palynology of this site are underway and are providing some of the most detailed knowledge of the final Late Wisconsin (probably "Twocreekan" substage) deglaciation and paleoecology in southern Michigan.

Unlike many sites, we have continued access and time in which to operate. We plan to return for a fifth (and probably the last) field season in the summer of 1987 under the same arrangements with the sponsoring institutions. The present excavation at the Shelton Property developed out of interest of students at OCC where a previously excavated skeleton of a mastodon ("Elmer") was assembled for exhibit (see Elephant, 2(1):165). We made three postcards and videotapes of Elmer and the Shelton Site; interested individuals please write to us. Both mastodon projects have been directed by Hezy Shoshani of WSU.

The excavation at the Shelton Mastodon site would be impossible without the magnanimous help and cooperation of the owner K. Harold Shelton; we are indebted to Shelton for his insightfulness on the scientific value of this site, for providing many people the opportunity "to get their hands dirty",

and for his generosity in time and otherwise. Many volunteers have spent a lot of hours not only at actual digging but also behind the scenes; we thank them all. We also acknowledge the sponsoring institutions: CIS, OCC, and WSU, and thank the following individuals for helping us with various aspects of the excavation: W.S. Benninghoff, D. Boger, W.R. Farrand, D.C. Fisher, R. Graham, G.L. Grosscup, J.A. Holman, R.O. Kapp, P.L. Koch, D.J. Lowrie, J.M. Lowenstein, J.L. Pierce, A.R. Pilling, S.L. Shoshani, W.U. Spitz, D. Stanford, S.J. Thurlow, D.A. Walz, and J.M. Zawiskie.

Making a cast of a mastodon skeleton

Staff at the Illinois State Museum, under the direction of Russell W. Graham, is currently making a cast of a skeleton of an American mastodon (Mammut americanum). The intention is to make copies available to interested parties. For further information write to: Russell W. Graham, Quaternary Studies Center, Illinois State Museum, Springfield, Illinois 62701, USA; Telephone (217) 785-4844.

What happened to the parts of "Iki" the elephant?

"Iki" was the female Asian elephant (Elephas m. maximus), that belonged to the Ringling Brothers and Barnum & Bailey Circus; she died in 1980 in Haines City, Florida, and was brought to Detroit, Michigan, where she was dissected by the members and friends of the Elephant Interest Group (see Elephant, 2(1):3-93). Many soft tissue samples and organs were preserved; these and the skeleton are at the Museum of Natural History, Wayne State University (WSU). Following is a brief account of the whereabouts of those parts missing from WSU and/or studies conducted on her parts (list begins with soft tissues of the head):

Trunk - Presently at Duke University, North Carolina. Lisa Croner (with the help of Steve Wainwright) has just completed an anatomical and physiological study on the trunk musculature.

[Note: While in Paris in 1984 the editor examined the original specimen (No. 1923-2490) studied by R. Anthony and F. Coupin in 1925 (see Elephant, 2(1):50) for the intercommunicating canal between the nasal passages and the associated fibrous arches and was unable to confirm nor to dispute the presence of these structures (the piece of the trunk was cut in such a way that it was difficult to determine). The editor thanks J. Anthony of the Comparee Anatomie Department and Pascal Tassy for their help.]

Skin - A few samples were sent to G. Alexander Ruebel of Zurich, Switzerland.

Heart - Presently at the University of Nebraska Medical Center, Omaha, Nebraska. Iki's heart was sent along with the hearts of Shirley, Tulsa (both Elephas), Ole Diamond, and Hazel (both

Loxodonta) to be studied, anatomically and pathologically by Paul Day and Bruce McManus.

Muscles - Samples were given to Hiroshi Mizukami and David Bartnicki of WSU, Detroit, Michigan (for their use and also for colleagues in California and Georgia, USA), and to Joel Friedman of AT&T Laboratory, Murray Hill, New Jersey, for biochemical studies. Iki's muscles were also used in many experiments including published results (e.g., Paleobiology, 11(4):429-437, 1985) and in the editor's Ph.D. dissertation.

Blood - Blood samples (collected by D.C. Laughlin while Iki was alive and soon after death) have been used in many experiments and results published including the editor's dissertation.

Skeleton - Many bones have been used in floating experiments (test to see if they float in pond water and for how long) at the Shelton Mastodon site (see more under Elephant Notes and News in this issue). Data on the skeleton of Iki were also incorporated in the analyses of the editor's dissertation. In addition, bone fragments are being examined histologically, and a tooth fragment was used by Dan Cring (see his article in this issue). Iki's teeth have also been entered in the study of Roth and Shoshani on the categorization of teeth in Elephas maximus.

We will be happy to share any parts of Iki (or of any other elephants' parts which we have) for research; please write to us. We would like to keep the brain for awhile and conduct a detailed comparative study (especially compare it to that of "Tulsa" since we found a growth on the underside of her brain). Table I in Elephant, 2(1):24-35 under Notes provides an idea of some of the tissues we kept.

What happened to Blair's elephant?

Blair's elephant was a female Asian (Elephas maximus) that died near Dundee, Scotland, in 1706 and was thoroughly dissected and described by Patrick Blair in 1710. Her mounted skin and skeleton were on display in the Repository of Rarities in Dundee (see Elephant, 2(1):41 and 86-93). In 1982, while in the United Kingdom, the editor contacted the Repository in Dundee in order to visit the skin and skeleton of Blair's elephant and found out "...that someone had heard that some proverbially thrifty townsman had had the bones ground down to make a top dressing for some of the fields in Strathmore (a village not far from Dundee), and so the 'poor beast' of Blair's narrative got back to earth again." (pages 265-266 from the Transactions of the Botanical Society of Edinburgh, April 1907, as sent to the editor on 23rd of February 1983 by Richard K. Brinklow, Keeper of Natural History, Museums and Art Galleries, Dundee). The skin was not found either. The editor thanks Kim Bryan of the British Museum (Natural History), London, England, for her help in locating the Repository, in Dundee, Scotland.

What happened to "Jap" (Benedict's elephant)?

"Jap" was a female Asian elephant (Elephas maximus) that was studied extensively by Francis G. Benedict in his physiological studies which were published in 1936 (Benedict, F.G. 1936. The physiology of the elephant. Carnegie Institute of Washington, Washington, D.C., 302 pp.). The work of Benedict on the physiology of the elephant is perhaps one of the best (if not the best) such studies conducted on elephants ever. Because Jap played a major role in Benedict's research (64 other elephants, all Asians, were also studied) we are very interested to trace her whereabouts after the study was completed. Unless Jap is "retired" somewhere, she is in all likelihood dead by now, because she would have been 91 years old in 1986.

A brief account on Jap and her life history is given in Benedict 1936:19-21. Readers who can help us locate Jap, alive or dead, and/or the whereabouts of her skeleton (especially the skull), skin or any soft tissues kindly contact us. Historians and natural historians would appreciate these efforts one day - we hope, especially after they read about the "Unusual pain (that) were taken to trace the life history of Jap..." as described by Benedict, 1936:20-21.

Elephant stamps from Sri Lanka

Philatelists will be interested to learn that the Government of Sri Lanka issued a set of postal stamps featuring the Sri Lankan elephant (most likely Elephas maximus maximus and not E. m. ceylonensis as written on the stamps) in various postures in its natural habitat. The logo of World Wildlife Fund appears on each stamp also. This set consists of four stamps (5.00 rupees each) and was issued on August 5, 1986, and was produced by the Crown Agents Stamp Ltd., Old Inn House, 2 Carshalton Road, Sutton, Surrey SM1 4RN, England. Source: Oryx Volume XX (October):258-259.

Elephant Slides Mini-series

The American Society of Mammalogists (ASM) and the Elephant Interest Group (EIG) are compiling sets of slides on the biology of elephants to be used for educational purposes. The Mammal Slide Library (MSL) committee of the ASM and your editor are the driving forces behind this project which started five years ago but was "on hold" due to many problems. Efforts are currently being made to have the slide series ready in 1987.

Our plans are to prepare three sets of slides consisting of about 20 each as follows: 1) a popular general set, especially for high school students and 7-8th graders; 2) a technical set, covering classification and evolution, inter- and intra-specific variations, anatomy, dentition, and behavior; and 3) a technical set covering conservation, ecology and reproduction. Each set can stand by itself and the three will complement each other.

In 1981, a letter was sent from the EIG office requesting members and

friends to contribute slides to this project. That letter was answered positively and we now have almost all the slides that we need. There are several slides that are missing and/or that need to be replaced; please contact us for details. Readers who possess slides on the biology of elephants and who wish to participate in this project, kindly send the slides to the editor (see address on inside of backcover) as soon as you can. Please send original slides of superior quality along with explanations (subject matter, location including country, and date when photograph was taken, if known). Any slides that are not used will be returned. There will be no monetary reimbursement; credits will be given, however, to individuals and/or institutions contributing the specific slides.

After the slides are chosen, they will be duplicated and sold by the MSL of the ASM, along with explanation for each slide, to schools, universities, museums, nature centers, and other education organizations. All proceeds from the sales of these slides will go to the MSL of the ASM; the EIG will not receive any royalties. For additional information on the MSL please write to: James A. Lackey, Chairman, Mammal Slide Library of the ASM, Department of the Zoology, State University of New York, Oswego, New York, 13126 USA (please DO NOT send slides to J.A. Lackey).

Wholehearted thanks to everyone who helped in this educational endeavor; we are anxious to see the results and hope that the long wait was well worth it.

"Salt-Mining" Elephants and Mountain Gorillas lecture tour

Ian M. Redmond, a biologist, conservationist, and reporter who worked with the late Dian Fossey on the mountain gorillas at Karisoke Research Center in Rwanda and subsequently studied the "salt-mining" elephants on Mount Elgon in Kenya, will be on a lecture series tour in the United States from the beginning of March to May 1987. Following is an outline of Ian's schedule. As of the beginning of April, plans are to include some tours in the east or northeast (including Detroit).

March:	5th	7:30 p.m., Boston Museum of Science (BMS), on gorilla
	6th	3:30 p.m., BMS, on gorillas, all other programs on elephants
	11th	8:00 p.m., Worcester Science Center
	15th	2:00 p.m., Baltimore Zoo
	16th	6:00 and 8:30 p.m., Smithsonian, Washington, D.C.
	17th	7:30 p.m., Philadelphia Academy of Natural Sciences
	18th	7:30 p.m., American Museum of Natural History, New York
	20th	8:00 p.m., Cleveland Museum of Natural History
	21th	7:30 p.m., Columbus Zoo
	25th	7:30 p.m., Cincinnati Zoo
	26th	7:30 p.m., Louisville Zoo
April:	8th	8:00 p.m., San Franscisco Zoo

For further details, please write to Thomas E. Gause, Coordinator, Audubon Naturalist Society, P.O. Box 304, Annandale, Virginia 22003 USA.

Elephantillages

The Musee en Herbe in collaboration with the Museum National d'Histoire Naturelle (Paris) is organizing an exhibit, "Elephantilages", on the evolution of the Proboscidea and the history of the association of elephant and man. The Elephantillages will be geared mostly towards young audiences and will be housed at the Musee en Herbe, Jardin d'Acclimation, Paris, France. The exhibit will be displayed in Paris for about one year (April 1987 - April 1988), before it will travel to various parts of France.

EIG represented at meetings

Since 1982 the Elephant Interest Group has been represented at a number of important international and continental meetings. At each of these affairs EIG materials have been displayed or sold and funds have been raised, as well as information about our organization distributed. We have made an effort to be part of the proceedings of these meetings by giving papers and/or showing slides, films or videotapes. Following is a list of the meetings at which EIG has been represented, our representatives' names and our contributions to the meetings on behalf of EIG:

August 16-20, 1982: Third International Theriological Congress, University of Helsinki, Helsinki, Finland; Sandra S. Lash and Jeheskel Shoshani; Film "King Elephant" shown and Informal meeting of people interested in elephants held.

June 19-23, 1983: 63rd Annual Meeting of the American Society of Mammalogists, University of Florida, Gainesville, Florida USA; Judith K. Berg, Joseph G. Engelhard, Randall Moore, Sandra S. Lash and Jeheskel Shoshani; Exhibit Table and Slide Presentation on Ugandan Wildlife.

October 14-16, 1983: Fourth Annual Elephant Workshop, Kansas City Missouri, USA; Sandra S. Lash; Exhibit Table and Paper given on the Elephant Interest Group.

June 24 - 28, 1984: 64th Annual Meeting of the American Society of Mammalogists, Humboldt State University, Arcata, California; Judith K. Berg; Exhibit Table.

November 29-December 1, 1984: Fifth Annual Elephant Workshop, New Orleans, Louisiana USA; Sandra S. Lash; Exhibit Table.

August 13-20, 1985: Fourth International Theriological Congress, Edmonton, Alberta, Canada; Jeheskel and Sandra Shoshani; Exhibit Table and Videotape "Salt-mining elephants of Kitum".

October 6-8, 1985: Sixth Annual Elephant Workshop, Fort Worth, Texas, USA; Sandra Lash Shoshani; Exhibit Table.

June 15-19, 1986: 66th Annual Meeting of the American Society of Mammalogists, University of Wisconsin-Madison, Madison, Wisconsin, USA;

Jeheskel and Sandra Shoshani; Exhibit Table and Videotape "Salt-mining elephants of Kitum".

September 24-28, 1986: Seventh Annual Elephant Workshop, Calgary, Alberta, Canada; Jeheskel and Sandra Shoshani; Exhibit Table and Paper given on research on elephant research and reproduction.

We especially wish to thank those people who have assisted in making arrangements for our participation in these affairs and in enabling us to overcome the obstacles of travel, audiovisual equipment and handling of sales materials. A few of these kind souls have been: Bruce R. Mate, Ken Kawata and Larry Agenbroad.

We plan to continue our participation in such meetings, as they serve well to bring our interests to the attention of people in many areas of research, conservation and education. We hope also that our members will look for us at such events and introduce themselves since we do not always know you by sight. It has brought us pleasure to associate a face (and voice) with a name after many years.

Problems with EIG orders

In the past two years the Elephant Interest Group has operated with a minimum of personnel in the office at Wayne State University. We have been fortunate to receive assistance from the University in the form of a parttime work study secretary for most of these periods. We are aware that there have been problems of consistency in fulfilling orders on a timely basis. We apologize for any inconvenience which this situation has created for our members or other individuals. We would hope that you would feel free to remind us when we are remiss. We will certainly do our utmost to keep our "promises", particularly in the case where we are out of stock on an item for several months. It is very difficult for us to keep a large inventory of sales materials (other than the publication) in our limited room and within our budget. Therefore, we do try to order in large numbers once or twice a year. We will notify purchasers immediately if we do not have an item in stock and substitute another if it is requested. Meanwhile a gentle note or phone call to check on an order would be appreciated until we can achieve a better system.

Fundraising letter from Wayne State University

A number of our members, both in the United States and abroad, has brought to our attention a letter which they received this year from the Executive Director of University Development, Wayne State University. This letter is directed towards contributors to the normal university development functions (scholarships, tuition loans, funding for student programs.) Since the Development Office is part of Wayne State Fund which handles our financial accounts (see Note at end of Financial Report and Acknowledgments in this issue), all of our contributors/members's addresses have been included on a university-wide mailing list for fundraising.

It is our strong feeling that our mailing list should not be used for purposes of general fundraising by the University. We have expressed this opinion and explained the unusual circumstances to the Development Office and we have been assured that such letters will not be mailed to our addressees unless they are alumni or staff of Wayne State University. We apologize for the misunderstandings and inconvenience.

EIG buttons

If you meet a person wearing a button with our logo (Ahmed, the African elephant) and the words "Elephant" and "E.I.G.", then you are probably talking to a member of Circus Fans of America (CFA). In 1984 Manuel and Dorothea Phelps created packages entitled "The AHMED Story" which they circulated at a CFA convention in California. Each package contained a General Information Sheet from the Elephant Interest Group, a Membership Order Form and a specially made button. There were nearly 200 of these packages distributed by the Phelpses. We extend our heartiest thanks to them for this inventive approach to spreading the world about EIG.

"Lost" members

Correspondence to the following individuals has been returned to us via "Return to Sender"; listed alphabetically with the places of their last addresses, their names are:

Greg Busacker, University of Minnesota
David L. Hayes, Tampa, Florida
Mike Jay, Santa Barbara, California
P.M. Jones, Chester, England
George M. McKay, New South Wales, Australia
Vincent J. Maglio, Kirkwood, Missouri
Robert C.D. Olivier, Sri Lanka
Chris Palmer, Dog Patch, Arkansas
Ronald R. Post, Dundee, Illinois
Richard N. Racine, Clarke University, Massachusetts
H. Alan Stanley, Knoxville, Tennessee
Arthur Wien, North Hollywood, California

Should you know the present addresses of any of the above persons, please write to our office. Thank you.

ERRATA

These ERRATA are in addition to the ERRATA SHEET for Volume 1, Number 2; to those published in Volume 1, Number 2 page 35, Number 3 page 5 and Number 4 page 232; to those for Number 4 already included in the EIG letter of May 11, 1981; and to those published in Volume 2, Number 1 page 167. We are grateful to all readers who have noted corrections which were needed. Kindly write us about any errors which you may encounter while reading Elephant or in using the references. See listing on the following page.

ERRATA (continued)

Elephant Volume 1, Number 2:

Page 43. First name: "Maglio, Vincent S." should be "Maglio, Vincent J." Note that this error also appeared in Vol. 1 (3):56, and Vol 1(4):241.

Elephant Volume 1, Number 3:

Page 83. Reference No. 676: "Loxodonta africana" should be "Loxodonta a. africana".

Elephant Volume 1, Number 4:

Page 233. Last word: "Hauseman" should be "Houseman".

Elephant Volume 2, Number 1:

Page 2. Fourth paragraph, eighth line: "form" should be "from".
Page 50. Third paragraph, second line from bottom: "Michael" should be "Michel".
Page 51. Second paragraph, first line: "Flordia" should be "Florida".
Page 60. Third line: "coant" should be "constant".
Page 68. The Division of Laboratory Animal Resources (D.L.A.R.) was inadvertently omitted from the ACKNOWLEDGMENTS.
Page 159. Under "Elephant takes to the trees" - program title is Quirks and Quarks".
Page 170. Seventh paragraph, third line: "24" should be "29".
Page 171. In some copies of Elephant this page was not printed.
Page 188. "Lehnhardt, John R.": should be "Lehner, John" of Wisconsin USA. John Lehnhardt lives in Calgary, Alberta, Canada.
Page 203. Reference No. 1433: "30(4)" should be "30(1)".

Page 222. Reference No. 1710 should be 1702; it is out of alphabetical order.
Page 225. Reference No. 1743: 1 line before the end, "E. m. maximus" should be "E. m. indicus".