ST. LOUIS REINTRODUCES THREE INFANTS

It is generally well recognized that hand-reared infants are afforded the best opportunity to become socially and sexually well adjusted adults if they are reintegrated into an adult group at as early an age as possible. However, determining the best method to achieve this goal is still open to much discussion. Furthermore, it is reasonable to assume that in dealing with an animal as complex, intelligent and individually different as the gorilla, that different methods and procedures may be necessary for different individuals and circumstances. This report summarizes our most recent work to reintroduce hand-reared infants at the St. Louis Zoo. A detailed description of our procedures and the behavior of the infants and adults will be presented at the upcoming Gorilla Workshop.

The St. Louis Zoo has three hand-reared infants. Two males, Mshindi, 29 months, and Juma Adika, 19 months, were born here and had to be hand-raised when their mother refused to let them nurse. The third infant, a female, Nne Kizazi, 25 months, came on loan from the Cincinnati Zoo for the purpose of peer socialization.

Our hand-rearing program initially provided the infants with considerable human attention in order to meet their psychological needs and thereby develop their self confidence and independence. At an early age, all the infants were taken to the Ape House to be exposed to adults. The loan of Nne and the subsequent birth of Juma provided important peer socialization and an opportunity to wean the infants from their human caretakers.

From the onset, our goal was to reintroduce the infants to our adult social group. Our unsuccessful attempts to reintegrate Mshindi with his mother, Kivu, and then with our second female, Matadi, were described in the April, 1989 edition of the Gorilla Gazette. Following that failure we reexamined our situation and decided upon our next course of action.

Unfortunately, the social dynamics of our gorilla group did not proceed in the manner we had planned and hoped would facilitate another introductory attempt. In contrast, tension in the group became apparent as our two males, Fred, 29, and his son JoJo, 10, competed more aggressively over the right to mate with Kivu.

In December we felt we had to move JoJo from the breeding group to prevent serious conflict. With the resulting change in the group's behavior we felt the circumstances were right to begin to integrate the three infants into the group now composed of Fred, Kivu and Matadi.

We decided to first introduce the infants to Fred, largely because of his reputation at the Lincoln Park Zoo of being gentle and patient with infants. We reasoned that if Fred was calm with and protective of the infants, he could be the key factor in facilitating appropriate behavior in the females.
The introduction was a resounding success. Although obviously interested in the infants, Fred did not force them to interact with him. He sat or laid down quietly and allowed the infants to come to him. He remained motionless when the infants tentatively touched him and quickly moved away. Occasionally he slowly reached out a hand to gently touch an infant. Juma, the youngest was also the least nervous around Fred, but with time Mshindi and Nne also began to relax. After 2 weeks of having the infants with Fred during the day and separating them at night, we left them together full time. On day 22 we saw the first instance of prolonged contact between Fred and an infant, Juma. Fred tickled, groomed and cuddled his son, a very moving experience to observe.

To encourage solidification of the social bonds between Fred and the infants we waited another 8 days before attempting our next introduction. We chose Matadi, and to our surprise all 3 youngsters were immediately receptive to her. They smiled and touched her and allowed her to do the same. Play ensued. At first gentle, Matadi became increasingly rough with Mshindi in particular.

Two interesting reactions occurred. If either Mshindi or Nne became overly frightened, they joined together and chased, screamed at attempted to hit or bite Matadi. Matadi reacted by running away. Secondly, the infant's screams sometimes caused Fred to intervene by simply approaching or charging and hitting Matadi. Although during 3 days of introductions, Matadi never hurt the infants, and indeed cuddled and carried Juma, we were not ready to leave them all together. We also decided we wanted to observe Kivu's inter-

actions with Fred and the infants unhindered by Matadi's presence.

Upon opening the shift door, Nne, with uplifted arms, walked directly up to Kivu. Mshindi followed right behind Nne and Juma soon joined them. With 3 infants vying for her attention, Kivu was initially overwhelmed. She investigated the three; however, when they all crowded around her, she pushed them away forcefully but not aggressively. Fred made his presence known by charging and slapping Kivu several times. As time passed everyone settled down and Kivu interacted gently and positively with each of the infants. She was most attracted to Juma and was soon carrying him ventrally and on her back. After only two days we decided to keep Kivu in the group overnight.

The following week we took the final step and placed Matadi back in the group. Both Fred and Kivu intervened when Matadi got too rough with the infants. However, Matadi has also shown an ability to play gently with the infants.

It may be too early to declare this introduction a complete success. But if all continues in this manner we feel we will have accomplished the goal we set when Mshindi was born: to integrate hand-reared infants into an adult group so they can learn how to behave and function in gorilla society.

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GORILLA HISTORY AT UTAH'S HOGLE ZOO

Gorillas have been represented at Hogle Zoo since the arrival of "Dan" and "Elaine", both less than 1 year old, on June 17, 1967. They were sent to us straight from the Cameroon Mountains of Africa.

The "old" Ape House, which was built for the gorillas, orangs and chimps, was up to date for that period of time - though archaic by today's standards.

The displays were elevated concrete floors with a trough in the back slanted toward the drain, which was located under a wall (just a joy to keep clean!), and 3 sides of tile-like building block, with an opaque skylight for light. The front of the exhibit was barred with a keepers' walk in front. There was a glass wall between the display and the public. The display was approximately 12' X 20' X 10' with no furniture
The 3 of us grew up together in that building - they learning about me and each other and me learning more about them every second, so that by the end of the year I was pretty knowledgeable about gorillas. By the end of the second year, I realized maybe I wasn’t as knowledgeable as I had thought earlier. Now, as I'm starting my 23rd year with them, I realize I really don't know much at all.

Through the years we did make some progress. More logs, rope, tire swings, telephone books, burlap bags and lots and lots of interaction between the keeper and the kept were added.

On December 27, 1975 a little girl named "Danielle" was delivered by "Elaine" but not without problems. During her third trimester "Elaine" lost "Dan" to renal failure.* She also suffered periodic attacks of epistaxis, with profuse hemorrhaging requiring transfusions. Another male was brought in for "Elaine" right away. However, she chose to dislike him right from the start and still does to this day.

"Danielle" was born with Hydrocephalus and only lived 11 months.

In 1984 we constructed a new Ape House. This building has inside glass-fronted "winter displays" which are large (about 60' X 20') with furniture - ropes, logs, Boomer Balls, sacks and more important, with no drains in the display, we are able to use substrate materials through the winter. This building is projected to the public as winter quarters, with public admission.

*She and "Dan" were inseparable and this was a great loss to both of us.

The summer viewing areas are large outside enclosures, with trees, rocks, logs, grass and sometimes - though not as often as it can be avoided - children's shoes, moms' purses, sunglasses, lens caps - you get the idea. The paddock area is designed so the low winter sun strikes a glass wall that is covered and enclosed on 2 sides and opens to the south. There are also radiant heaters in the overhead planter box. So our gorillas are able to go "out" on all but the most inclement days (which they willingly do).

In this building we have at present the following animals:

1. "Elaine" - studbook #300 - our original 23-yr.-old female.
2. "Dan II" - studbook #346 - 21½-yr.-old male - great display animal - virile - does not get along with "Elaine".
3. "Tino" - studbook #606 - 15-yr.-old male - "Elaine's very good friend but sterile (on breeding loan from Milwaukee Co. Zoo - Thanks, Sam!)
4. "Gorgeous" - studbook #015 - 41-yr.-old female - (donation from Cheyenne Mtn. Zoo, Col.) - gets along okay with "Elaine", not with males - one great little lady, especially considering her age.

So any and all of you who wander through the "Land of Zion" in your travels, stop in and say Hello. It's lonesome out here.

See you in Columbus.

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TRANSLOCATIONS:

Bronx Zoo: 0.1 Holoki, age 23, (wild-born, 2 offspring: 1.0 Relek and 0.1 Riki) on breeding loan to National Zoo (on loan from Philadelphia, introduced to Nikumba 2/5/90).
APPENHEUL'S THIRTEENTH GORILLA BIRTH:  
A Tragedy with a Happy Ending

When we arrived in the morning of the 5th of October, we found Mandji, a 15-year-old female, clutching a baby in her arms. N'datwa, as we named her, was her third offspring. Because it was to be our 12th gorilla birth we had decided before to make this our first group born. Of course we had planned to be present at the time of birth, but as N'datwa was born two weeks earlier than expected, all of us were relieved to find the group healthy and relaxed. This was the fourth successful birth within a four-month span, three in Kibabu's group (which now consists of 4-4) and one in Bongo's group. Bongo's group now consists of 3-9 with one female left pregnant. Lobo had given birth twice before and her third baby was due in the second week of February. Of course this birth had to take place within the group, but this time we wanted to record it on film. Contact was made with Peter de Vos, a producer/camera-man who already had filmed a gorilla birth at Apenheul. He was very excited about the idea and a few weeks before the expected date of birth extra spotlights were installed above the cages. Peter de Vos also helped us to feed the gorillas and filmed during the day in order to let the animals get used to him and the camera. At 5:00 A.M. on the tenth of February (a full moon! - by coincidence, maybe?) the first signs of labour were noticed. Everybody who had to be or wanted to be present arrived within the next 15 minutes and the camera started rolling. Neither Lobo or any other member of the group acted aggressively against the camera so we kept on filming; should any disturbance occur, of course we would have called the whole thing off (except the birth!). Only the people with business there were near the cages, everybody else could watch it "live" on a monitor.

At 6:35 A.M. Lobo gave birth to her third son, who weighed in at 5 pounds, without any complication. Of course all members of the group were very interested in their own way Bongo watched it all from a short distance and some of the females were already allowed to touch the baby carefully. One female Kim, was constantly close to the mother and her newborn and she seemed to have a special interest. Kim is our oldest female and the only one who never gave birth so far, but she is a favourite playmate for all the younger members of the group.

One hour after the birth Kim was still in close range of Lobo and her baby. But then (in what seemed to be sudden fit of insanity) she dashed forward, attacked and hit the baby on his left hand. All group members rushed towards Lobo to support her, but the damage had been done: two fingers were almost torn off. Lobo had to be anaesthetised to allow us to pull the baby and let the vet clean and suture the wound. An operation room was quickly improvised and within one-hour-and-a-half the vet had put the fingers back on, something which hardly seemed possible. Unfortunately, the tendons were severed, so the baby would never be able to use the two fingers again.

At about 1:00 P.M., when both mother and baby were completely recovered from their anaesthesia, I took the baby in my arms and sat down in the cage. Half a minute later Lobo was able to join me. With the baby in my hands I stretched my arms towards Lobo. Without any hesitation she accepted my "gift" as she should.

Kim was kept apart from the group for a few weeks, but at the time of writing all gorillas have been left together without any further problems.

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GORILLA KEEPING AT THE PHILADELPHIA ZOO

Undoubtedly, the future of gorillas is in the hands of man. Today, hunting of these majestic apes is illegal but the greatest threat to gorillas is the destruction of their natural habitat. Scientists who have studied these great apes agree that they should be protected and that zoos must come together with their knowledge on improving the gorillas' environment and enriching their lives while in captivity.

The World of Primates exhibit building at the Philadelphia Zoo has a beautifully planted gorilla island surrounded by moats filled with water. The edges near the water are planted with many types of plants such as cattails and lotus. Trees have been planted on the gorilla island such as northern red oaks and ash. Large ropes have been connected between the trees to give our gorillas an opportunity to climb, swing and play on them. This helps to eliminate boredom.

The indoor quarters for the gorillas are designed for both comfort and durability. Climbing structures and ropes are present in each room. These rooms have a 12 1/2 foot ceiling. Walls are constructed of special glazed concrete block (filled solid with concrete). Stainless steel and aluminum are the metals used in the rooms. Gorilla beds are made of vinyl-coated chain link material. The glass separating the gorillas from the visitors is 1 1/2 inches thick and has three layers. Installed are skylights to allow natural light to enter and the rooms are wired for the future introduction of video cameras. The gorilla complex is air-conditioned and has an air exchange unit.

Several bales of hay are used as a substrate on the floors of each room which the gorillas play with and build nests. No water bowls are found in the gorilla rooms. Installed are little metal levers called licits which the gorillas push to the sides at will to get their water. When the gorillas release the lever, the water shuts off.

Plastic drums, burlap, cardboard boxes, plastic balls, plastic milk crates and browse are placed in the enclosures to keep the gorillas occupied, which is very important with these highly intelligent animals. We keep a very close relationship with our gorillas. Keepers take time to talk and play with the gorillas daily.

We feel it is very important to establish a trust relationship with our gorillas because of close contact needed when a medical problem arises. This relationship also helps us to separate and shift them to other areas. Most important, the gorillas become less aggressive to the keepers because of the trust established between the keepers and the gorillas.

Taking care of the gorillas involves heavy and hard work, but the enjoyment and satisfaction that comes with working with the gorillas outweigh this. Our daily work generally starts at 8 A.M. and ends at 5 P.M. The day starts with a complete check of the complex. This includes checking for medical and maintenance problems.

The first morning feeding consists of zoo cake which the gorilla group must eat first, because of its nutritional value, before they receive any of their other food items. After cleaning the enclosures we feed the gorillas their kale, escarole and carrots. At midday, the gorillas receive popcorn, browse and raisins scattered through the hay to promote foraging. The late afternoon feeding must be considered the most cautious time when feeding our gorillas because of the fruits that are fed to the gorillas which they crave the most. We separate the gorillas at this time to avoid aggression associated with feeding these food items. The fruits that are fed at this time include grapefruits, apples, bananas, grapes and oranges; also celery. We also feed a mixture called nursing cake, which is a supplemental feeding for our lactating mother and infant gorilla. After their feeding the group is reunited.

During the day we collect important information such as estrous cycles, reproduction, injuries, behavioral actions, feeding habits and any other pertinent information.

We have one of the finest western lowland gorilla groups in the world. The most impressive of the group is John, our 22-year-old male, who with his stocky, massive body and great strength seems to give a fero-
A SUCCESSFUL INTRODUCTION AT DENVER

There are four gorillas housed at the Denver Zoological Gardens, three in the main group, plus a new juvenile who is being introduced into the group. The main group consists of a silverback male named Kabako (nicknamed Joe) and two adult females, Bibi and Maguba. Joe is 26 years old and has been at the Denver Zoo since 1986. He was wild caught and was hand-raised at the Birmingham Zoo. Bibi and Maguba were also wild caught. Bibi is 21\(\frac{1}{2}\) years old and has been at the Denver Zoo since January 1971, except when she was on breeding loan to the Cincinnati Zoo from 1981 to 1984. Maguba is 19 and arrived at the Denver Zoo when she was six months old. She was hand-raised at the zoo.

Ernie, the new juvenile male, is 7 years old and mother-reared in a family group at the Oklahoma City Zoo. Since he arrived at the Denver Zoo, he has been housed in three adjoining holding cages which afford him visual and auditory contact with other gorillas. One of these cages is across the service aisle from the back of the main gorilla exhibit, and the other two connected cages extend farther down the aisle away from the main exhibit.

I am conducting a behavioral enrichment study with these gorillas, and my formal research has been temporarily and happily interrupted by Ernie's introduction process, which began on January 4, 1990. At that time, Bibi was moved into one of Ernie's adjoining cages. Bibi is the subordinate animal in the group. Also, due to health problems, she had been separated from Joe and Maguba for a period of time just prior to being moved next to Ernie, and this had made her very unhappy. So
both she and Ernie were eager for gorilla company.

Bibi and Ernie could not really see one another, but they peeked at each other under the door and were able to touch fingers around the door. They both tried to open the door frequently, and Ernie displayed and hit the door that separated them. As soon as Bibi was moved next to Ernie, she began to exhibit a behavior which I had not observed previously -- she stood on her head several times a day.

On January 8, a small howdy window was installed in the connecting door. From across the aisle, Joe and Maguba watched with great interest and excitement as Bibi and Ernie had their first exposure to each other through the window. There was some simultaneous displaying by Maguba and Ernie, and by Maguba and Bibi. Ernie was very excited to be able to see Bibi, and spent a great deal of time looking at her, and displaying. She initially displayed a few times, but quickly appeared to lose interest. Her attention seemed to be focused on Joe and Maguba. She could see them through the howdy window also, so it was not possible to determine whether she was looking at Ernie or trying to see Joe and Maguba. Nevertheless, it was evident that Ernie's interest was much greater. Periodic observations during the month following the installation of the howdy window indicated that Ernie looked through the window an average of 32 times per hour, whereas Bibi only looked approximately 8 times per hour. Ernie spent long periods of time at the window, but Bibi only looked through it briefly.

Because the three holding cages are small and were only furnished with shelves, it was decided to install ropes in two of the cages and a cargo net in the third to increase the space and provide escape routes if needed. This process was begun on January 20 and completed on January 29. Bibi immediately began to utilize the ropes quite frequently, but Ernie was afraid of the new furnishings initially. Although he soon became accustomed to them, he wasn't observed in contact with them until January 31, when he was seen up on the ropes. On February 1, he got into the net for the first time. He spent the remainder of that afternoon playing in the net while clapping his hands loudly, beating his chest, and chuckling.

The big day was February 8. Bob Hamill, the gorilla keeper, did a great job preparing the cages and supplying various displacement items. Each cage had deep hay and lots of adding machine paper. There were seeds, nuts, and other food in the hay. The middle cage also had two cardboard boxes, and Bob arranged adding machine paper so that it hung down from the shelf like a curtain.

Bibi and Ernie were in the end cages, and both doors into the middle cage were opened simultaneously. Ernie bounded in and began to look for food, but Bibi was more cautious. He repeatedly tried to make contact with her, but she was very wary and retreated up onto the ropes or shelves. He eventually approached her when she was up on one of the shelves. He stood bipedally and Bibi repeatedly touched his face, head, upper back, and arms with her hands. They were even nose to nose for a short time.

At first Bibi only expressed mild threats when Ernie approached, opening her mouth silently or barking softly. But about 50 minutes he became too aggressive. They slapped at each other, and she began to scream, then continued to bark loudly until Ernie settled down. Joe, who up until then had only been expressing interest or excitement, became extremely agitated until the tension eased between Bibi and Ernie. A while later, Bibi became slightly entangled in the cargo net as she tried to evade Ernie, and Joe barked loudly. Maguba and Joe both threat barked loudly when they saw Bibi and Ernie chasing or boxing, and they remained excited throughout most of the day. Maguba beat her chest frequently, and Joe beat his chest and roared several times. Twice Joe filled his mouth with water and spit it in the direction of Ernie and Bibi.

The connecting doors were not locked open, in case they needed to be closed quickly to separate Bibi and Ernie. After about 1 1/2 hours, Bibi discovered she could pull one of the doors closed. She periodically moved into the end cage and closed the door behind her. Ernie promptly opened it, and they continued to repeat this throughout the day.

As time passed, it was obvious that the dynamics between Ernie and Bibi were changing. Whereas Bibi initially was the one who was
moving away from Ernie and escaping up, eventually Ernie was being displaced by her. After about two hours, it became apparent that Bibi was establishing herself as the dominant gorilla.

They were separated that first night, but have been together ever since. On the second day there was a lot of touching and sexual exploration, initiated mostly by Ernie. By the third day, they were both initiating rousing play sessions. They quickly became best pals, and the sexual exploring and playing have continued. They wrestle and play bite and laugh out loud, and I have even seen them groom each other. Bibi is extremely tolerant and patient with Ernie, who follows her constantly and is always anxious to play. At first she gently avoided his attempts to "mount" her, but recently she has been presenting to him.

She also appears to be teaching him the social ropes. They had their first fight on the sixth day when Ernie tried to prevent Bibi from sharing his food. For a few days there was some tension surrounding food, but Bibi has now learned to get out of Bibi's way, often carrying great armloads of food with him. From the beginning, it was obvious that Ernie recognized Bibi's social signals and responded appropriately, and he has become more respectful of her in general.

Ernie is obviously thrilled to be with Bibi, and she is much more contented now. She still likes to watch and vocalize at Joe and Maguba, but Ernie keeps her occupied most of the time. Joe and Maguba generally don't pay much attention to Bibi and Ernie, except when they hear chasing or disagreements. Then they watch intently. As Bob pointed out, it is interesting that all of the affiliative contact sessions between Bibi and Ernie initially took place in the far cage, virtually out of sight of Joe and Maguba. It wasn't until the thirteenth day that they began to play in the middle cage where Joe and Maguba can see them.

So the initial phase of Ernie's introduction has been a resounding success. It has been such a pleasure to observe so many positive, affiliative behaviors, and to see such happy gorillas. Because of his background and his extremely good-natured and playful temperament, it is expected that Ernie will make a very positive contribution to this group. I feel fortunate and grateful to be able to observe the process.

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INTRODUCING KILLA-KILLA

Let me first dispel the idea that our new Gorilla is called Killer-Killer, the correct pronunciation of her name is Keela-Keela. She was born at Howletts Zoo on 5th December 1978 into a group of approximately 10 members. Her father was Kisoro who was owned by Lincoln Park Zoo, USA and had sired eight offspring prior to Killa-Killa. Her mother is Mouila and Killa was her second infant.

Killa had given birth to four infants prior to her arrival at Edinburgh. However, she had failed to rear any of them. Initially she would start to care for them, but after several weeks she would start to put them down and leave them, returning to them when she felt like it. Unfortunately this gave the younger members of the group an opportunity to play with the infants, with possible disastrous consequences. So they were taken for hand-rearing.

Introducing Killa to our trio, Sam-Sam, Yinka and Naomi, had to be calculated, and all possibilities of initial combinations were discussed. One thing was certain, she would be introduced quickly, but not directly, into the group. We must firstly allow the females to become acquainted and to form a friendship bond prior to Killa's introduction to Sam-Sam.

Killa was given the first day to herself to explore her new surroundings on the north wing of the Gorilla facility. She was visible to the other members of our group via the internal enclosure windows. Sam-Sam appeared particularly interested.
On day two, Killa was confined to her sleeping quarters so that phase two of the introduction could be initiated. We had chosen Yinka to be the first introduction to Killa because of her quiet nature and her more "gorilla-like" behaviour. She was separated from Sam-Sam and Naomi, and then allowed into the north wing, next to, but not in with Killa. They had visual, vocal and limited tactile contact through the mesh slide separating them, and that was how it remained for the rest of the day and night. Both gorillas showed interest in each other.

Phase three was to allow them together, which we duly did the following morning. They observed each other cautiously for some time. Killa then began to attempt friendly contact but Yinka kept her distance. It was late in the day before Yinka made physical contact, and then that was when Killa was resting. The rest of the day had been spent following each other around and sniffing the straw where each other had lain. The day passed off without incident. Late in the afternoon Killa was again confined to the sleeping quarters and Yinka was changed for Naomi. These two spent the night next to each other as had Yinka and Killa the previous night.

The following morning, phase four, we were expecting a completely different introduction, knowing that Naomi was more boisterous, impudent and displays less gorilla etiquette than does Yinka. We released the two from the sleeping quarters. As Killa came out, Naomi swiftly jumped on her back and thumped her. She then stood in her aggressive posture, tight-lipped and glancing occasionally at Killa. There was no reaction from Killa to this disorderly behaviour. She had seen it all before, many times with the adolescents in the group at Howletts. Naomi strutted around for some time waiting for an opportunity to make another devious attack. After 30 minutes we decided there was to be no real aggression and Yinka joined the pair. There were many strutting displays from Naomi throughout the morning, but only once did it lead to any aggressive contact, Naomi coming out second best.

For the next seven days the females had free access to each other throughout the day but were separated at night. They were becoming acquainted and forming a bond, which was and still is closest between Killa and Yinka.

Killa has a range of vocalisations that none of us had heard before, and she encouraged new vocalisations from Sam-Sam. The two became interested in each other, calling frequently, and sitting either side of a doorway that separated them. Killa spent many hours sitting in a nest box at the top of a pole in the west pad-dock just waiting to see Sam-Sam. He would climb up onto a platform where they could see each other. They would then call to each other, and Sam would chest beat and stamp. These frequent communications were positive and encouraging.

Phase five was the one we had been looking forward to -- the introduction of Sam-Sam to Killa-Killa. All doorways were opened simultaneously and it wasn't long before Sam-Sam and Killa realised they had access to each other. Sam's first reaction was rather nonchalant but he strutted towards the females and they kept their distance. Killa was curious but wary.

Most of the close encounters occurred in the indoor quarters with Sam vocalising, chest beating and then rushing across the floor, scattering the females. Killa was still curious, cautious but not frightened.

The first real contact occurred about two hours into the introduction. Sam charged across the floor catching Killa with a glancing blow. She turned to face him and screamed a threat. Then the reaction we had hoped for occurred. Yinka and Naomi backed up Killa, with Yinka joining Killa in threatening vocalisations. Sam backed off, fending the females off as he did so. Not once did he show any aggression. The situation calmed for a time then Sam started his displays again, this time bowling Naomi off her feet. The situation remained tense for several hours, culminating in another attack on Sam-Sam instigated once again by Killa with the same result. This time Killa and Naomi returned from the fracas with some of Sam-Sam's hair which they inspected by tasting it. This was the final skirmish and the group began to settle down.

Killa instigated further contact with Sam-Sam, approaching him cautiously and reach-
ing out to touch him and then sniffing her fingers. On one occasion she lay down in front of him and rested her head on his stomach. She then got up and sat next to him and groomed his arm for a short time before he moved away.

The group are very settled now and tend to move around together, Kiila is settling in well and tends to lead the group. Hopefully she will conceive in the not-too-distant future and, who knows, perhaps in a new environment she may rear an infant herself, failing that she may at least show Yinka and Naomi the initial process should either of them become pregnant.

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TOPEKA ZOO’S GORILLAS: An Introduction

Greetings from Topeka! At the heartfelt pleading of a certain Columbus keeper, I have agreed to write a brief history of our gorillas. We currently house 2.2 Western Lowland gorillas. The star among our group is Max; best known by Topekans as being the first gorilla to arrive in Kansas. Max was born in Dallas in March 1969, and arrived in Topeka in September of that same year. He remained here until December of 1982 when he was sent to Denver on temporary loan. While he was gone, construction began on a spacious, new, outdoor exhibit. Max returned to Topeka in 1984 just a few short months before the grand opening of "Gorilla Encounter" in May of 1985.

Tiffany was purchased from the Kansas City Zoo and brought to Topeka in October of 1969 to be a companion for Max. She was eight months older and larger than Max and bullied him for several years. Gradually however as Max grew he began to assert his dominance and he and Tiffany settled into a life of mutual toleration. Shortly after Max went to Denver, Tiffany was sent to Buffalo on breeding loan. She returned to Topeka in 1987.

Our other pair, Oscar and M'wasi, were both wild caught. Oscar was imported by the zoo in Wassenaar, Netherlands in 1975 when he was around nine years old. While there he fathered one stillborn and one live offspring. In 1980 he was sent to Poland and in 1983 arrived in Omaha, Nebraska. He joined our Topeka clan in 1984.

When M'wasi arrived at the Bronx Zoo in 1965 she was approximately two years old. While there she delivered by Caesarian one stillborn offspring. Since that time she has bred many times, and apparently does cycle but has failed to conceive. In 1979 M'wasi was sent to the National Zoo and then arrived in Topeka in 1985.

Oscar and M'wasi are together 24 hours a day and are normally separated only for feeding. Both animals are presently overweight and dietary changes are being made to address the problem. When separated for some other reason, they will each sit by the clear connecting door between their units; and if visually separated will often call to one another. When together they often sit facing one another touching, holding hands, and playing. They do however have their occasional disagreements, and while it is true that Oscar is "the man of the house", M'wasi is sometimes clearly in charge.

Shortly after Tiffany returned to Topeka, we decided to introduce her to Oscar and M'wasi. The first step was to put M'wasi and Tiffany together. Though they never interacted much, they tolerated one another and no serious fights ever occurred. After being together 24 hours a day for several weeks, the next step was to introduce the two to Oscar. We hoped this would not only stimulate breeding but also provide a more active group for public display. The first day appeared to be going well initially. There was much chest beating, charging, and vocalizing, but no real fights. Then Oscar caught Tiffany. Unfortunately M'wasi instead of helping Tiffany, helped Oscar by holding Tiffany down. The fight
was quickly broken up by keepers armed with water hoses, and no serious injuries occurred. After that however Tiffany avoided all contact with both Oscar and M'wasi. When the three were on exhibit, Tiffany was very nervous, pacing around the exhibit and constantly watching the other gorillas. After a few weeks it was decided that since the situation was not improving, Tiffany would be pulled from the group and paired back up with Max. Max and Tiffany presently are exhibited together but are separated when in their holding areas. Though they do interact some, they tend mostly to tolerate each other. Both are very people oriented and spend much time interacting with the public through the glass.

Although in the past our Zoo has concentrated more on orangutan propagation, I hope that in the future we will have equal success with our gorillas. The possibility of a natural pregnancy appears slim but I have dreams of a Max and Tiffany baby via artificial insemination. And after all, a dream is the first step to reality.

CATHY HARRISON
LEAD KEEPER
TOPEKA ZOO
635 Gage Blvd.
Topeka, KS 66606

PROFILE: NIKUMBA

We believe Nikumba is the oldest living male gorilla in North America, having been in captivity since 1954. (Of course, the longevity record is held by Philadelphia's "Massa"). Nik was trapped by native hunters in that year, and was brought to Brazzaville at about 10 months of age. There he was housed with a young female "Moka", who had been taken by a French mining firm the previous year in the same Likouala-Mossaka region of the Moyen Congo, French Equatorial Africa. In Brazzaville, they were seen by Russell Arundel and his son Arthur (Nick) and secured for the National Zoo. They arrived in good condition, weighing 17 and 20 pounds, having been cared for along the way by the directors of the Leopoldville and Antwerp Zoos.

Their early years were uneventful; both got along very well with their keepers, who came to regret having taught Nik to play tackle-style football. As he grew more massive, the risk of injury became too great, and the keeper-gorilla interaction had to be restricted to "through the bars only".

In September 1961, Nikumba had the distinction of becoming the sire of Tomoka, the second gorilla born in North America (Columbus' Colo being the first), and the fourth in the world (Basle's Goma and Jambo were second and third). He was first reported copulating with Moka in December 1958, at an estimated 5 years of age, and would have been about 6 at the time Tomoka was conceived, if age estimates were correct.

In 1963, Nikumba developed a mysterious lower limb paralysis. Sybil Hamlet, a longtime Zoo employee, reported that on June 8 when keeper Bernie Gallagher entered the area shared by Nikumba and his mate, Moka,
he saw that the 325-pound gorilla had fallen. His legs had suddenly lost their strength and he could only roll around the cage like a baby. After making as thorough an examination as possible, Dr. Henry Peffer, an orthopedic physician, and Dr. Hugo Rizzoli, a prominent neurosurgeon, both having practices in Washington, were called in for consultation. Nikumba was put on prescribed dosages of medication. Nine weeks later Nikumba started walking again and he had regained his original weight. Eight months after the onset of paralysis, Nikumba's toes were straight and he was walking flat on his feet.

He was able to stand erect, take eight or nine steps, beat his chest, and go through the series of motions and activities common to a gorilla. The Washington Star cheered in its headline, "Gorilla Beats Paralysis - Zoo Favorite Walks Again". The remarkable thing was that all through his paralyzed days, it seemed as though Nikumba never gave up the fight to walk again.

Nikumba's keeper of many years, Walter Tucker, told me of watching Nikumba develop and conduct his own "physical therapy" program. He would roll to the front of his cage, (the only barred wall), laboriously pull himself to his feet, and exercise his legs until he was exhausted. He repeated this several times a day, throughout his convalescent period, until he was fully recovered.

This illness did not affect Nikumba's fertility, or interest in breeding. In January 1964, his second son Leonard (named after then Secretary of the Smithsonian Leonard Carmichael) was born. Like Tomoka, Leonard was removed for hand-rearing at the home of the headkeeper, Bernie Gallagher. Leonard was later traded to the old Toronto Zoo (at Riverside), where he succumbed to an infection and died.

Nik's only daughter, and last offspring by Moka, was born April 8, 1968. Named Inaki, she was also raised in the headkeeper's home. Inaki was exchanged for a young female orangutan, the first born at the Yerkes Primate Center, and lived there for many years. She only recently has become a "zoo resident" again, having relocated to Busch Gardens-Tampa.

Although raised together from an early age, Nik and Moka did not seem to suffer from any "incest taboo", having produced three healthy offspring in seven years. Unfortunately, this breeding success ended with the death of Moka from a form of hepatitis in 1968.

Femelle, a young wild-caught female who had arrived at the zoo as a potential mate for one of Nik's sons, was paired with Nik after Moka's death. Tomoka seemed somewhat unsure about how to breed, and his father was a thrice-proven sire. This pairing, too, was fruitful, with a son, Mgeni-Mopaya, shortened to Mopie, being born in 1972.

Unfortunately, none of Nik's three surviving offspring have reproduced. Tomoka's fertility is questionable, Inaki seems socially inept and Mopie is currently housed alone in San Antonio, although he apparently is to be paired shortly with McDona from Kansas City.

Nik's fertility seems to have decreased with his age, and although Femelle had one apparent miscarriage after Mopie's birth, copulations ceased after a time. Over a period of several years, Nik was housed with two other females, M'wasi and Sylvia both individually, and in combination with Femelle. M'wasi was sent by her owner NYZS to Topeka, for pairing with their male, and Sylvia, who did not even solicit, went to Columbus to gain more social experience.

Since she was no longer copulating, it was decided to send Femelle to Milwaukee's fertile male Tanga, on breeding loan. In exchange, we took Brookfield's Kuja and Milwaukee's Mandara on exhibition loan, with the intention of forming a social group around Tomoka.**

Tomoka was chosen over Nikumba because of his unassuming personality; unfortunately, this left Nik alone. We searched for a lone female gorilla with no success. Finally, we decided to take three male colobus born in our breeding group, but rapidly maturing and at increasing risk of conflict with their sire, and attempted a mixed species exhibit. These animals had been unsuccessfully advertised on the AZA/PA surplus list, and we had no adequate holding space for them. Rob Shumaker will be presenting information on this subject at the Gorilla Workshop in June. Suffice it to say, it has been a resounding success, for keepers gorilla and colobus!!
An adult female gorilla, Holoki, was finally obtained from the Bronx Zoo (she is owned by Philadelphia) and arrived in Washington in December 1989. After a quarantine period, and a brief sojourn in adjoining cages, Nik and Holoki have been introduced to each other, and this month (March 1990) the colobus have rejoined the exhibit. Both Holoki and Nik seem to enjoy watching their antics, and the colobus are remarkably confident and comfortable with their great ape relations.

I would appreciate hearing from anyone who knows of an older, living male gorilla.

** Tomoka is now the "patriarch" of our zoo-made gorilla group. Other members include Mesou, originally from Detroit, by way of Brookfield and Milwaukee, the only wild-caught member, and senior of the group at about 35 years of age. Gus, born at the Bronx Zoo on 9 August 1981 to their Benda and Tunuka, was hand-raised until he was transferred to a group of youngsters at Stone Zoo. He came to National in September 1987. Mandara, a 7-year-old female, born at Lincoln Park to their Frank and Milwaukee's Terra, was returned to Milwaukee for hand-rearing. Kuja, a male is 14 months her junior, and was raised with her in Milwaukee after his mother. Beta, proved unable to care for him. Kuja was born in Memphis and sired by Carlos, now living in North Carolina, where he has produced another offspring by their female, Hope.

**MELANIE BOND**
**GREAT APE KEEPER**
**NATIONAL ZOO**
Washington, D.C. 20008

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**NEWS FROM THE ERIE ZOO**

On September 13, 1989, the Erie Zoo was pleased to have Joanne Tanner from the Gorilla Foundation visit our zoo. Our female gorilla had previously been observed by her keepers to be using some sign language. Joanne confirmed the keepers' observations, but it was unknown if Bouba was taught or was self-taught. Some of her signs include a modified "hungry" and "give me" as well as "eat" and "drink".

Due to the publicity in the California newspapers surrounding Joanne's visit to Erie, Bouba's teacher was found. Apparently, over 10 years ago, Albert (a male raised with Bouba), died leaving Bouba very depressed. Edalee Harwell, then a keeper at the San Diego Zoo, taught Bouba some basic sign language to alleviate boredom. Bouba arrived shortly thereafter to the Erie Zoo. It is truly amazing that after 10 years, Bouba has still retained this knowledge.

Keepers at the zoo recently completed a Basic Sign Language Course to continue Bouba's education. The zoo would like to express a special thanks to Joanne Tanner and the Gorilla Foundation for all of their help and support.

**LISA KASCHAK**
**GORILLA KEEPER**
**ERIE ZOOLOGICAL GARDENS**
P.O. Box 3268
Erie, PA 16508

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**OFFERING MEAT vs ALTERNATE SOURCES OF PROTEIN**

Ever since the Columbus Zoo first began exhibiting gorillas in 1951, diets for these animals has been a major concern. Like other zoos, we fed the standard fare of various fruits and vegetables. It seems the one exception the Columbus Zoo provided was a daily, 8 oz. portion of boiled beef for each animal, later changed to lesser amounts of broiled horsemeat. The philosophy was that, although gorillas are vegetarians, they are not in the strictest sense in that they occasionally eat worms or grubs or other insects in the wild. Therefore, meat was given as a protein supplement.
In 1956, with the birth of Colo, zoos from around the world not only sent their congratulations but requested information on housing, husbandry, and diets. Many zoos then added meat to their diets, believing that the protein and B 12 vitamins in the meat enhanced the breeding and successful birth of gorillas.

Over a period of years, our diets have been reviewed and revised as we learned more about the nutritional needs of these great apes. A larger variety of greens was added for fiber, the number of bananas was cut back to lower caloric intake, and due to the higher sugar levels in domestic oranges, lemons and limes were added to daily diets.

Instead of meat as a protein supplement, a protein drink was developed. Working with researched information and the assistance of a local health food store, a successful recipe resulted.

We have been using the basic recipe consistently for the last three years with what appears to be successful results. All gorillas like the drink and begin vocalizing when they hear the blender in action, knowing what is to come. Ingredients can be varied by individual animal needs. Medications can be added without the animals noticing their taste.

The great apes staff feels that the thick, shiny hair coats are a result of the drink. Fingernails no longer split, and dry skin on feet and hands, particularly in winter months, are virtually nonexistent.

Although this may appear to be a TV product testimonial, one can hardly ignore the complimentary comments of the zoo visitors when the gorillas make their spring debut into their outside quarters.

Columbus Zoo Protein Drink

In a 2 quart blender add:

8 oz. yogurt
1 banana (or any fruit)
2 heaping T protein powder
2 heaping T bone meal
1/2 C blackstrap molasses
1/2 C liquid lecithin
2 heaping T powdered brewer's yeast
1 heaping T peanut butter
.2 heaping T Theradin vitamin/mineral powder
5 400 IU vitamin E caps
1 C cranberry juice
2 heaping T wheat germ

Gradually add water and blend until liquid (until the blender is filled). Pour 8 oz. of mixture into a 16-oz. glass and add an additional 8 oz. water per adult. Juveniles receive half portions, 4 oz. of mix with 4 oz. water or milk. Serve 3X per week.

Special thanks to Beechwood Health Foods and Woody and Carol Patterson.

DIANNA J. FRISCH
HEAD KEEPER, GREAT APES
COLUMBUS ZOO
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EXCERPTS FROM THE IPPL FEBRUARY 11, 1990 NEWSLETTER

Reprinted at the request of Shirley McGreal

"Walter Sensen, trafficker in gorillas, chimpanzees, and other animals, has just been jailed in Nuremberg, West Germany, where he remains in jail pending his trial. Prosecutors fear he will flee the country if released on bail."

"Sensen's arrest culminates a long battle by the International Primate Protection League and others to get action taken to end his dirty dealings. It also shows how important the role of non-governmental organizations is in controlling illegal wildlife trafficking."

"We realize that many complicated legal procedures may follow starting with the trial scheduled for May 1990. However, we feel reasonably optimistic for a strict sentence."

THE INTERNATIONAL PRIMATE PROTECTION LEAGUE
P.O. Drawer 766
Summerville, SC 29484
AND THE WINNER IS......

Seventy-four people registered for the GORILLA WORKSHOP before March 1 and were eligible to win a free registration. Ken Gold from Zoo Atlanta was the lucky winner! Congratulations, Ken.

IMPORTANT: DEADLINES FOR GORILLA WORKSHOP!

GORILLA DIETS

Please send your zoo's "gorilla diets" to us by May 25. If possible, also, include "extra" items not fed daily and foods used to administer medication. We will reproduce and compile your typed copies and distribute them during the Workshop. It should be interesting not only to compare but also to learn from this exchange of information. Please send to:

THE GORILLA WORKSHOP
Attn: Great Apes Staff
Columbus Zoo
P.O. Box 400
Powell, OH 43065

GORILLA SLIDES

We are planning a slide presentation that will be shown during the Workshop, but your help is needed to make it a success. It is vital that we have slides from your facility for this project. Please send ten of your favorite horizontal slides of gorillas, exhibits, etc. We request that the slides are marked with the name of your zoo and be mailed by May 25 to:

Nancy Staley
Media Coordinator
Columbus Zoo
P.O. Box 400
Powell, OH 43065

By forwarding your gorilla diets and slides, you are already participating in this interactive Workshop! We really appreciate your help. Thank you!

UPDATE ON THE WORKSHOP

Preparations for the Workshop are keeping all of us in Columbus busy. Ian Redmond has agreed to be our fourth guest speaker. In addition, Ruth Keesling of the Morris Animal Foundation (The Digit Fund) will be speaking the night of our Icebreaker. As of April 4th we have delegates coming from 30 U.S. states, Canada, Australia, Great Britain, Belgium and Holland. It looks likely that we will reach our goal of 200 delegates.  

Due to the overwhelming response to our call for papers, we will be running concurrent sessions on Monday, June 25th both in the morning and the afternoon. We will have a media room set aside during the entire conference in order to show slides and video from various institutions. If you are interested in showing slides or video, please let us know in advance so we can schedule your time. Our committee overseeing all the social events continue to amaze us with their innovative enthusiasm, so be prepared to have a great time!

APE HOUSE STAFF
COLUMBUS ZOO

DEADLINE * DEADLINE * DEADLINE

The deadline for articles for the next issue of "GORILLA GAZETTE" is June 30, 1990. You can write about gorillas, exhibits, diets, or one particular animal or event. Articles can range from several paragraphs to several pages. Mail your article, FAX it - (614) 645-3465, or hand deliver it at the GORILLA WORKSHOP! Remember if we don't hear from you, you will hear from us. THANK YOU.

GORILLA GAZETTE EDITORIAL BOARD

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DON'T FORGET

Gorilla Workshop
Registration

Deadline: May 15

COLUMBUS ZOO
BOX 400
POWELL, OHIO 43065-0400