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LAMBDA ALPHA
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(1992)

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The Evolution of the Nation of Islam
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The change from Elijah Poole to Elijah Muhammad began a long and intricate development of a socioeconomic and religious movement that proved to fully transform radical Black Nationalism from a mere aggregate of para-militarists to an internationally recognized organization of liberation. By observing the four main leaders of the Nation of Islam: Elijah Muhammad; Malcolm X; Wallace Muhammad; and Louis Farrakhan, it can be seen that a definite agenda is put forward by each leader's particular 'revelation'. From the four leaders arise two distinct groups of ideals, as exhibited in their messages and programs, with Louis on the right hand of Elijah, and Wallace beside Malcolm. From theology and political philosophy to basic economic and social policies, the movements of Elijah and Farrakhan greatly differ from those of Malcolm and Wallace. These differences are attributable to sociological realities of the congregants, as well as the social and religious milieu from which the leaders speak.

The early message of the Nation of Islam, under the direct rule of Elijah Muhammad, illustrates some of the fundamental problems of legitimacy and opposition faced by Elijah and his following as a new socio-religious countercultural movement. To illustrate the point, a comparison can be made between the early revelations of the Prophet Muhammad of 'classical' Islam with the revelations of Elijah Muhammad. The messages of both prophets consist mainly of oaths of the

millennium and warnings for the unbeliever. The Prophet Elijah Muhammad exhorts to those who listen, "the judgement of the world has arrived and the gathering of the people is going on," (Lincoln 1961 :70). For Elijah, this judgement is a racial judgement, where the oppressed black race will be lifted up by Allah while the white race, which by nature is the embodiment of the devil, will be destroyed and sent to the farthest reaches of hell. In this case Elijah is calling out to the Believers who can only be Black, or more accurately non-white, in much the same manner as the Arab prophet, Muhammad, first calls out to his collection of Believers. In the Our'an the Prophet relates that "only those who disbelieve will argue about God's signs; ...they [will become] inmates of the fire, (Surah 40: 1)."

With Elijah's message of the millennium there was an offer of salvation to a membership that consisted primarily of poor, illiterate Black males. "We are living in the Days of Allah...In these days of Allah, the righteous will gain power over the wicked and will soon rule the earth..., (Muhammad 1965:23)" says the Prophet Elijah to his dejected following. Elijah's message was empowering to a following that suffered in a system which offered nothing to them except poverty and personal indignity. For young Black males dwelling in the urban squalor of the day, Elijah Muhammad's message offered a final hope in a seeming hopeless situation. With his message of hope, Elijah Muhammad built a strong and dedicated following who lived the truth of Elijah's message, and prayed for the salvation that was offered by the Prophet.

In comparison, it can be seen that the Arab prophet faced a similar following, since many of his early revelations addressed the issue of current indigence and God's coming Justice. Although it is not evident that the great body of early Muslims lived in such abject poverty as had the early members of the Nation of Islam, it can be asserted that the early Muslims consisted primarily of young males, who by their age were of low status, of which many tended to be of low status families within the Meccan family power system (Watt 1961 :34). In this sense the early Muslims of Mecca, like the early Muslims of Detroit, were marginal to the power structure, and the message of the Prophet proved to be liberating. Much like the United States, the merchant city of Mecca "displayed extremes of wealth and poverty... [which] was one of the deep inner causes of [Muhammad's] unsettlement (Gibb 1953:17; 66)." Reminiscent of the assurance offered by Elijah, the Prophet Muhammad says, "Just as [the disbelievers] before them were firmer than You are in strengths, and possessed more wealth and children...their actions will miscarry in this world and Hereafter; those will be the losers (Surah 9:69)1" Thus, an obvious comparison can be made between the messages of the two prophets who preached to marginal, low status males that sought refuge from the 'darker side' of the confining society (Gibb 1953:17).

Having realized an important similarity between the crucial messages and the followers of the prophet of the Hijaz and the prophet of Detroit, it is necessary to consider the large amount of opposition to the two prophets and their revelatory response. Starting in Arabia there need not be too great a discussion about the well-

known, intense opposition to the Prophet Muhammad during the early Meccan history of Islam. Plagued by the oppression of Abu Talib and other powerful Meccan merchants, along with the Hypocrites who falsely avowed Islam and returned to Meccan traditions only to cause difficulty for the Muslims, Muhammad needed a force of legitimacy as well as reassurance (Surah 2:7). At this point of great opposition Muhammad received revelations emphasizing Muhammad as "God's messenger and the Seal of the Prophets, [whose message should be taken seriously and respected] (Surah 33:40)." Encouragement for the Prophet and the Muslims in their struggle also is exhibited with verses such as, "O Prophet, struggle with disbelievers and hypocrites; deal harshly with them, their lodging will be Hell, and how awful is such a destination (Surah 9:73)." Given the changing inner and outer challenges imposed upon the Prophet's movement, the message of the Prophet changed in response.

Such a shaping of the message from general millenarian and liberation statements to direct consideration of opposition also is evident in the growth of the Nation of Islam. The interesting thing to note in this case is that on this issue, the comparison between classical Islam and the Nation of Islam is most significant. Not only does Elijah make legitimate his 'position in response to opposition by asserting "the Apostle is considered one in Allah and Allah is one in the Apostle. So, when you look at one, you see both; when you hear one speak, you hear both...,(Muhammad 1965:253)" but he also reveals a conscious attempt to adopt the persona of the Arab prophet for the furtherance of his movement. Elijah preaches himself to be the 'Seal of the Prophet' and the one prophesied in past books, including the Our'an, (Lomax

1963:96; Muhammad 1965:253). Interestingly enough, Elijah rarely if ever discusses the Arab prophet, and when the issue is addressed Elijah dismisses Muhammad as lacking relevance for the current day situation (Muhammad 1965:287).

It should be emphasized that Elijah was not ignorant of the Qur'an and the doings of the Arab prophet. Although traditional Muslim critics wish to disregard Elijah as ignorant, this does not seem to be the case. Elijah was fully aware of the life of Muhammad as is made clear in such statements as "I am no more to suffer the evil and slanderous talk of the disbelievers as did the Messenger before me (Muhammad 1965:269)." Given this conscious comparison between his situation and the situation of Muhammad, it appears that Elijah downplayed the importance of the Prophet Muhammad so that Elijah could in turn adopt the metaphorical persona of Muhammad as a source of empowerment and legendary resonance. It should be remembered that upon conversion, Elijah was not first given the name Muhammad by Master Fard, the believed incarnation of God on Earth. Not until Elijah was assured positions of leadership, and the inevitable leadership of the whole Nation of Islam, did Elijah adopt the name of Muhammad. With the adoption of the name, Elijah also adopted the whole persona of Muhammad, the Prophet and Messenger of God and the ultimate leader of Islam, Muhammad.

Perhaps Elijah saw the similarities between his movement and that of Muhammad. It is plausible that Elijah saw in the Muslim story of liberation from Mecca what James Cone offers the Black community from the story of the Israelite exodus; liberation. The great parallels cannot be ignored as mere coincidence since

it appears that Elijah did indeed act upon the parallels by adopting the full persona of Muhammad. Given such a scenario, I would be willing to grant the first usage of the concept of Black Liberation Theology to Elijah, except from the Muslim rather than Christian perspective.

The death of Elijah in 1975 brought a great shift in the entire movement's goals and message. Wallace Muhammad, the seventh son of Elijah, assumed the position of leadership for the Nation, and with his newly found power began to adjust the Nation of Islam based on the changing needs of the changing membership. Many have accused Wallace of watering down the extreme message of the movement to suit an economic purpose. Typically the opposition to Wallace claims that he "leads the community only by virtue of his father's name...[motivated by] pure business enterprise (Moses 1982:108)." However, on inspection of the shift in the movement, it seems that such critiques are not accurate. Rather than accusing Wallace of sacrificing the movement's original message of Black Nationalism for business interests, it is more accurate to say that Wallace realigned the movement spiritually and economically away from radicalism in response to the needs of the followers of his movement.

Up until the moment of Elijah's death, the Nation of Islam existed primarily as a Black Nationalist movement for the religious and spiritual development, as well as the economic and social uplift, of Black people for, for more than forty years. Given such time, the religious devotion and the autocratic leadership of Elijah towards the success of his movement eventually made a strong impact. Ironically, Elijah's

successful program of uplift essentially undermined itself by its very success. Great changes in the spiritual and socio-economic needs of the followers had to be met in order for the movement to continue into the future. Wallace Muhammad represents not only a member of the new Muslims, he also represents the necessary leadership of the new Muslims.

Before approaching the task of considering the spiritual shift in the Nation of Islam it is necessary to address the issue of the much maligned socioeconomic shift. Among some of the fundamental changes that Wallace instituted were the criticisms of strict Black Nationalism and separatism, and the association between white people and the devil. Membership became opened to whites and the idea of white people as the devil became changed to a notion that "there is no devil just limited to white flesh. Any man can be a devil...(Marsh 1981 :174)" given diabolical intentions. Similarly, Wallace called for Blacks to embrace the United States and the power to vote, since a separate Black nation no longer could be a relevant issue. The movement shifted from exclusionary nationalism to inclusive internationalism, with all people able to become a part of the new movement, the World Community of Islam in the West.

The crucial factor in this shift in policy is the drastic change within the changing membership. As Elijah's membership grew in number, it also grew in gross wealth and level of education. By the time Wallace achieved power, 80% of the movement fell into the category of middle class Blacks with a college degree (Marsh 1981 :209). Given this, it is evident that Elijah's "appeal to all members to sacrifice at least five cents from each day's pay to create an 'Economic Savings Plan' (Muhammad

1965:192)" proved highly successful. However, the interpersonal relationships of many Blacks on racially mixed college campuses had to include members of the dominant white population; such interpersonal relationships inevitably had to lead to some friendships, or at least contact, and a humanization of Whites, in contrast to the previous concept of the white devil. Many college- educated Black Muslims even faced the dilemma of interracial marriage, which would have meant permanent expulsion from the Nation of Islam as run by Elijah (Marsh 1981). Elijah's original message of Black separatism could not be maintained as the unavoidable interracial discourse from various interpersonal relations grew more 'common on college campuses across the nation.

A similar condition can be seen in terms of the role of women within Wallace's movement. As women in the movement grew more educated, they refused to be subjugated to work solely in the kitchen. Eventually, with more women educated about the feminist critique, the Black Muslim woman inevitably had to be 'encouraged as a woman to fulfill her mental capabilities' so that it was not unheard of for a man to have a female boss within the World Community of Islam (Marsh 1981). With higher education came higher possibilities for the social status of women, and thus the movement had to be adapted to meet these possibilities.

As a final consideration of the social and economic changes that Wallace imposed, it is necessary to address the Nation of Islam from the perspective of theoretical sociology. As described by Marsh, a successful movement, such as that of Elijah Muhammad, which attains an economic and social base will develop a general

accommodation to the larger society (Marsh 1981:210). This is witnessed in the new movement of Wallace Muhammad where the economic base became integrated within the larger society. In order for the World Community of Islam in the West to maintain its economic base, the movement had to engage in the national and international business world, which included not only monies from the Arab world for the funding of mosques, but also business deals in agriculture and real estate with Japanese and American corporations (Marsh 1981:184). Such a growth in operation obviously could not have been maintained with a nationalist and separatist framework, yet the movement, with its great economic base from better educated and wealthier members, had outgrown its original, comparatively smaller business ventures. By changing the radical message, Wallace accommodated to the changes brought on by the success of the original movement.

In terms of religion, Elijah's movement also was too successful with regards to the religious fervor and commitment that was attained by the Muslims. The commitment of the Nation of Islam to give up Christianity and learn the practice of Islam, as instilled by Elijah, eventually led the followers to realize the persona that Elijah assumed. The success of Elijah's religious teaching led to his eventual denunciation, as is seen with his own son, Wallace, who represents this iconoclastic realization. In particular, Wallace's experience and education in Cairo granted the realization that his father's religion was a "homemade brand of Islam (Marsh 1981:155)."

To a congregation of marginal, urban dwellers that have neither heard of the Prophet Muhammad nor understand the tenets of classical Islam, the preaching of Elijah Muhammad seems unique and the embodiment of prophethood. As was discussed previously, Elijah definitely fostered this vision of prophethood by using the life of Muhammad as a model for a prophetic persona to lead the Nation of Islam. However, with magazines such as "Muhammad Speaks," a weekly radio broadcast, and an observed litany of "Mr. Muhammad teaches us," greatly resembling the traditional Muslim Hadith, it appears that Elijah made a great attempt at keeping the Nation of Islam away from the teachings of that other Muhammad so as to continue his image as the true Prophet of God (Lincoln 1961:159). Although Muhammad welcomed the invitations of Muslim countries for ambassadors from the Nation of Islam to visit the Arab world, Muhammad had no intention to incorporate the teachings of traditional Islam within the body of the Nation of Islam. It was not until after Elijah came under fire from traditional Muslims that Elijah addressed the differences between the two brands of Islam by asserting "the orthodox Muslims will have to bow to the choice of Allah...a new Islam (Muhammad 1965:50)." Elijah's power as the Prophet of God based in Chicago depended on the ignorance of the people about traditional Islam and the nature of the Arab prophet.

As with the economic and social changes, the spirituality of the Nation of Islam had to change with the increasing education of the membership. Wallace, and the rest of the new generation of Black Muslims, in their devoted studies of Islam could only see the gross contradictions between the Nation of Islam and traditional Islam.

Elijah could not keep these middle class, college-educated Muslims from learning the truth about both prophets. With travels to the Arab world, Wallace and others saw that the Prophet of Islam can only be the Prophet of the Hijaz, and similarly God could not be embodied in Master Fard, but instead "Allah is a supernatural being (Marsh 1981:174)."

Elijah certainly realized the threat that Wallace and the growing number of Muslims that studied classical Islam posed to the position of Elijah as Prophet. After Wallace's studies in Cairo and his denunciation of Master Fard's role as God, Elijah suspended Wallace from the movement, since there was no room in Elijah's movement for traditional Islam. It was not until the death of Elijah, the almighty Prophet, that Wallace could make any spiritual changes towards traditional Islam. Thus, despite Elijah's attempts at keeping his followers unaware of the message of traditional Islam, the religious zeal along with the opportunity for education allowed the economic and social uplift offered by Elijah, brought a realization of Elijah's role to the new Nation. Elijah did indeed lead the Nation of Islam to traditional Islam, and in this sense is seen as being of great religious importance to the Black Muslims following Wallace Muhammad. However, this new generation of Muslim recognized the Arab prophet as the true Prophet of God, while Elijah merely filled the persona. These Muslims see Wallace's policy shifts as the "fulfillment of his father's work, (Marsh 1981:167)" which led the Muslims to the rightly guided path of true Islam.

At this point it is important to consider the very seed out of which the active shift in policy began; Malcolm X. Regardless of the rhetoric that permeates pop-

culture with regards to Malcolm, there is no denial that Malcolm, as a spokesperson of the Nation of Islam, was a different man from Malcolm separate from the Nation of Islam. By the last year of Malcolm's life, the disciple of Elijah Muhammad had grown from a separatist rhetoretician, accepting Elijah Muhammad as the Messenger of God, to an international liberator under the aegis of traditional Islam. Malcolm represents the influential beginning of the inevitable changes that took place after the death of Elijah. The tragic flaw in Malcolm was that he was years ahead of his time and could not accept the state of the Nation of Islam in hope of the eventual death of Elijah Muhammad, as was the case with Wallace. Malcolm was motivated by his religious and social cause, and was eventually killed because of it.

In approaching Malcolm's social calling, it is necessary to reiterate my previous conclusion that Elijah Muhammad's social and economic program proved to be too successful. The need for change was inevitable as the members of the movement gained greater social and economic status. This is particularly evident for Malcolm, who brought the movement from "little more than mysticism in the rhetoric of unity with Africans and Asians (Marsh 1981:213)" into the domestic and international political spheres. By appointing Malcolm as the travelling representative of the Nation of Islam, Elijah in essence forced Malcolm away from the original movement. Particularly during Malcolm's trips as an emissary of Elijah in search of political and monetary support from the Arab world, did Malcolm see a vision of "internationalizing the Nation of Islam (NOI) and the 'Civil Rights' movement into an international human rights struggle (Marsh 1981:145)."

The most influential point in Malcolm's career that serves as a marker of the definitive break from the ideals of the Nation of Islam was his performance on the hajj in the holy city of Mecca. Upon arrival to the Arab world, Malcolm was offered the warmest of welcomes by such important international politicians as Dr. Mahmoud Shawarbi of the Saudi Embassy, and even the royal family in Saudi Arabia. This welcome "by [men] who would be called in America 'white' [men, touched Malcolm so deeply that by the time of his pilgrimage in Mecca] Malcolm discovered that he was the only one who was color conscious [within the Holy City] (Clarke 1990:244; 75)." The realization that Islam accepts all colors of people left Malcolm to reject "the racial ideology which he had advocated as a Black Muslim (Cone 1991 :205)" for a more universal brand of struggle. In the words of Jamil al-Amin, formerly known as H. Rap Brown, "Black Nationalism could not be successful because Allah has said in the Our'an that he has created the races and divided men into nations and tribes that they might get to know each other, not that they would despise each other (speech at Emory University, 2 December, 1991)." The hajj brought Malcolm to see how the divided nations could come together in brotherhood, and as a result, much of his social philosophy changed.

After the announced break from the Nation of Islam, Malcolm soon grew to see himself as a warrior, travelling the globe fighting the capitalist and imperialist system that served to oppress people of color in the Third World (Clarke 1990:263). Through his work with groups such as the Organization of African Unity, Malcolm sought to put to work his international vision of "a society in which there could exist honest

white-black brotherhood" (Malcolm X 1965:381). Malcolm believed in the possibility of racial harmony and saw the need for inclusion of whites into the struggle, since "in many parts of the African continent [he] saw white students helping Black people (Clarke 1990:122)." The key for Malcolm was not racial separation, but something on a grander scale, the destruction of the capitalist and imperialist exploitative structure.

Moving on to consider Malcolm's spiritual break from the Nation of Islam, it can be seen that with Malcolm's religious devotion, he eventually saw through the mask of Elijah as the Messenger of God, and made an acceptance of the Arab prophet of traditional Islam. Once again, turning to Malcolm's tour through the Arab world, it is evident that ,Malcolm was influenced greatly by traditional Muslims. During his stay in Egypt, Malcolm was offered a copy of The Eternal Message of Muhammad, with the Muhammad discussed being the Meccan prophet and not the prophet in Chicago. This traditional influence culminated with the hajj, as Malcolm's wife, Betty Shabazz, recounted in her statement "[Malcolm] went to Mecca as a Black Muslim and there he became only a Muslim (Marsh 1981:156)."

Given the fundamental shifts that Malcolm went through, he held a great amount of influence upon the structural changes later imposed by Wallace Muhammad. In transforming from a separatist Black Muslim to a universal fighter for brotherhood as a mainstream Muslim, Malcolm started to share in much of his sociopolitical and religious studies with Wallace. During the expulsion of Wallace from the movement due to his refusal to accept Fard as God, "one of Wallace's most

confidential companions was Malcolm X (Marsh 1981:155}." From his studies in Egypt, Wallace offered to Malcolm a good deal of religious knowledge, including the fundamentals of Arabic. From his extensive travels throughout the world and his understanding of world-wide political liberation movements, Malcolm could offer to Wallace the framework of a new Nation of Islam that engaged in the world arena of economics and politics. Armed with a new religion and political and economic philosophy, Wallace and Malcolm would have been in a good position to usurp direct control from Elijah, except for the Fruit of Islam, the para-military organization that attempted to kill Malcolm numerous times before his eventual murder. After his expulsion and eventual re-admission to the Nation, Wallace was content to sit and wait for the eventual death of Elijah. Malcolm could not wait, his "intentness on brotherhood cost him his life (Clarke 1990:121)."

Regardless of Malcolm's significance as the spark for change within the Nation of Islam, Elijah's influence of the great majority of Malcolm's Muslim life should still be recognized. It was Elijah who gave Malcolm "the root lesson [of Islam while serving time in prison] (Clarke 1990:61)." Similarly, it was Elijah who offered Malcolm the career as the spokesperson of Islam throughout the world. Elijah pushed Malcolm into dissent by pursuing "the [Black] Muslim dream...[which was to be recognized and supported by Muslims throughout the world as an integral part of Islam (Lincoln 1961 :219)]." Had Elijah been content with leaving the group isolated from traditional Islam, and allowed Malcolm to pursue political goals solely in America, Malcolm would have been less likely to leave the movement for traditional Islam and

a universal liberation front. Elijah's vision of a large-scale economic, political movement that was at the same time religiously legitimate proved to be the undoing of his position of influence with Malcolm.

Serving as the Messenger of Allah for the marginal male Black youth, Elijah ran a movement that proved to be too successful. This success, which resulted in the economic, educational, social, and spiritual uplift of these marginal Black masses, in the end undermined Elijah's position as the needs of the new membership grew beyond the confines of the old Nation of Islam. Under the indirect leadership of Malcolm, and the direct leadership of Wallace, the movement grew to accommodate their actions to the society at large, while emphasizing mainstream Islam and racial harmony. Such accommodations were mandatory, given the greater economic and educational level attained by the membership, which granted the membership opportunities to engage in interracial dialogue and larger scale business ventures. Similarly, the tangible results of the religious zeal taught by Elijah, led to the dedicated study of Islam and revealed the Prophet Elijah as an imitation of the true Arab prophet. Wallace and Malcolm, having been raised within the early tradition of the Nation of Islam were the beneficiaries of Elijah's successful program. Ironically, these prodigal sons of the old movement represent the necessary new leadership who "foresaw the natural evolution [of this new generation of Black Muslims] (Marsh 1981 :203)."

To many, the main importance of historical interpretation *lies* in the fact that an understanding of the past can aid to an understanding of the present and future. In the case of the Nation of Islam, this is most certainly true. If we can understand

the change from the Nation of Islam to the World Community of Islam in the West as being the direct result of the changing socioeconomic status of the membership towards the middle class, we also can understand the resurgence of the traditional, Elijah Muhammad brand of the Nation of Islam within recent times. Although the World Community of Islam, now called the American Muslim Mission, has grown by 40% since the split, and has attained the position of the largest American educators of Islam and Arabic, as well as the sole American Muslim representative to the governments of Qatar, Saudi Arabia, Sharja, and Abu Dhabi, the Nation of Islam, as recreated and led by Minister Farrakhan, grows at an equally astonishing rate (Muhammad, R. 1982:128).

Minister Louis Farrakhan, previously Louis X, at one time supported the movement of Wallace, but later chose to return to the original message of Elijah Muhammad. A quotation, already used in the body of this work, which admits the vision of Malcolm and Wallace as being "the fulfillment of [Elijah Muhammad's] work," actually comes from the lips of Minister Farrakhan. However, with the truth of the new message of Wallace and Malcolm, the relevance of Elijah's old message was not destroyed, but merely made unimportant for the middle class Black Muslims. The growing number of hopeless and poverty-stricken Blacks fighting for their lives in urban slums can only prove the relevance of Elijah Muhammad's original message. Now, more than ever, as crack babies and gang violence become a natural part of everyday existence, the need for the promise of justice and deliverance, as well as the vent for anger and hatred, is of an exigent nature. Minister Farrakhan is the necessary

continuation of the message of the hope of redemption from the current hell experienced by much of the Black community.

Although, due to the almost non-existent documentation of Minister Farrakhan's movement, there is very little that can be concluded about the personal motivation behind Farrakhan's split from Wallace's movement, it is evident that Farrakhan serves an important purpose. As one member affirms, "What attracted me to Farrakhan was his deep concern for the despised of American society (Mamiya 1982:149)." Wallace's movement, in adapting to the needs of the middle class, does not speak to the socioeconomic and spiritual needs of the underprivileged, much in the same way the uplifting message no longer speaks to the middle class. With his scathing remarks about the inevitable downfall of the white oppressor and the rise of the Black children of God, Farrakhan speaks to those without hope or understanding of the current racist system in the United States.

The legacy of Elijah Muhammad continues to live on into the modern day and the coming future. However, this legacy must be accepted by those who followed Wallace Muhammad into mainstream Islam, as well as by those of the current nation of Islam led by Minister Farrakhan. Just as the Nation of Islam continues to show great respect for Mr. Muhammad's liberating message and program, so should the new, middle class Muslims acknowledge the realization of what Mr. Muhammad showed them could be achieved. Elijah Muhammad's movement, having split into two distinct groups, at the very least represents the possibilities that can be achieved, as well as how far is left to go.

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An Analysis of the Chimpanzees of the Sedgwick County Zoo
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Abstract

In recent decades, much attention has been devoted to the study of primates in the wild. There has, however, been little research done on primates in captivity. This study focuses on a captive chimpanzee troop in the Sedgwick County Zoo in Wichita, Kansas which was studied as part of a physical anthropology class project for the Wichita State University under the direction of Dr. Peer Moore-Jansen. A research method was developed in which four behaviors were observed for the entire troop simultaneously. Behaviors were chosen which may be indicators of social status and organization as they are for chimpanzees in the wild. The results of our study indicate that troop behavior in captivity may be quite different than in the wild.

Introduction

The study of chimpanzees is important because of the relationship between chimpanzees and humans. According to Wilson and Sarich (1971), chimpanzees are the most closely related animals to humans genetically. Using the serum albumin molecule from one type of animal and injecting it into another, they determined the genetic closeness of the animals. The amount of white blood cells the second animal produced could be measured, and the genetic distance determined (the more white blood cells the injected animal produced, the farther apart they were said to be). The genetic distance between chimpanzees and humans has been determined to be only 2 percent.

Chimpanzees are divided into two species Pan paniscus and Pan troglodytes and several other subspecies. The chimpanzees at the Sedgwick County Zoo all

belong to the species Pan troglodytes. Their natural habitat is the humid forests, deciduous woodland or mixed savannas of west and central Africa. They usually weigh between 66 and 198 pounds, and are 28 to 36 inches tall (Weiss and Mann 1990). Their gestation period is similar to that of humans (230-240 days) and they generally live to be about 45 years old. Their sensory abilities have also been shown to be similar to humans (Weiss and Mann 1990).

The behavior of Pan troglodytes is also significant. Many of the behaviors of the chimpanzees were thought to have been characteristic only of humans prior to the work of Jane Goodall in the Gombe Reserve. Her work has become the model for all the primate studies which have followed and has broken down many of the old misconceptions about the difference between humans and 'animals'. Some of the things which she discovered were that: chimpanzees manufacture and use tools, organize hunting parties, kill small monkeys' and will (under special circumstances) kill each other. Chimpanzees experience many of the emotions that humans do, such as grief, jealousy, affection, and anger. Chimpanzees live in a community and exhibit patterns of social structure (Goodall 1986:71).

Statement of Problem

The study of chimpanzees in captivity has now been undertaken by several zoos under the direction of the Jane Goodall Institute. The purpose of their study is to try to: 1) determine the differences between the behavior of the chimpanzees in captivity and those in the wild; 2) find ways in which an exhibit can become more

interesting to the chimpanzees; 3) find simple ways to enrich the exhibit which could be used by the experimental laboratories which keep chimpanzees in barren cages; 4) involve and inform the public about the 'wonder of chimps' (Goodall, et. al. 1990). This program however, was not directed toward the college student, but rather toward volunteers. Therefore, our group, consisting of one graduate student and two undergraduate students devised, our own research project.

The observation method used by Chimpanzoo is focal animal observation. This method of observation focuses on one animal (the focal animal). The animal is observed for a length of time, and set number of behaviors are observed. At intervals of equal spacing, the behavior of the animal is recorded (using a type of behavior coding system). All the animals in the observation group are observed at different times. The method of operation is based on the idea that if a behavior is significant, an animal will be doing that behavior a certain percentage of the time it is observed. When the data on all the animals is put together, the rate of occurrence of certain behaviors may be quantified statistically. Conclusions can then be drawn about the behaviors of certain animals in relation to others, and the behavior of the group in general.

Methods and Materials

We devised an observation method in which an individual observer recorded a limited number of behaviors done by the entire troop. We discussed how many behaviors could be observed by one person when observing all eight chimpanzees.

We agreed to observe the following four behaviors; grooming, inspection, vocalization, and display.

The troop at the Sedgwick County Zoo consists of eight individuals; four females and four males. Two of the males and one of the females are infants.

- Marbles a 20 year old male, was born in the wild, caught, and raised as a pet for two years. He was donated to the zoo in 1972. He was housed with Harriet and Audra (two of the females).
- Gomez was born at the Little Rock Zoo, Arkansas, and was originally acquired for breeding at the Sedgwick County Zoo. He has been legally owned since 1987 by the Sedgwick County Zoo. He was mother-raised and is the sire of all the infants that have been born at the Sedgwick County Zoo. He is 13 years old.
- Audra a 20 year old female, was wild born and is believed to have been exported from Sierra Leone. Audra gave birth to the first chimp born at the Sedgwick County Zoo, (Mwana). She was housed with Marbles and Harriet when an infant.
- Mwana was the first chimp infant born at the Sedgwick County Zoo, and has been mother-raised since his birth, October 28, 1984. He was sired by Gomez, and is owned by the Little Rock Zoo. He is, at the time of this study, 6 years old.
- Harriet was wild born and is believed to have been exported from Sierra Leone. She was housed with Audra and Marbles as an infant. She has given birth to two infants. Binti, a female, was hand-raised because Harriet did not take care of her. She is raising Bahati, a male, her second infant. Harriet is about 20 years old.
- Bahati is Harriet's second infant. He is about 4 years old, and is being mother-raised in the exhibit. Bahati is owned by Sedgwick County Zoo.
- Holly was wild born and is believed to have been exported from Gabon. She was acquired from the Denver Zoo on a breeding loan in 1982. Holly was hand-raised at the Denver Zoo, Colorado so her first contact with mother-rearing was when Audra had Mwana. Holly was 16 years old at that time. Holly had four pregnancies: the first was aborted when the fetus was 20-

30 days old; the second infant was born in the exhibit, but was killed by Audra when Holly did not pick her up; her third, Jiggs, a male, was hand-raised because Holly left him unattended; her fourth, Hazina, a female, is Holly's first mothering success.

Hazina a three year old female, is the third infant born to Holly. She is being mother-raised and was sired by Gomez. Hazina belongs to the Sedgwick County Zoo.

The Behaviors

The following descriptions/definitions of the behaviors we observed are taken directly from "The Chimpanzee Observers Guide", pages 23, 25, 32, 13-14, respectively.

Grooming: -

serves as a social function in chimp society as well as keeping the body free from dirt and debris. When grooming, a chimp may use both hands, pushing the hair back with the thumb or index finger of one hand and holding it back while picking at the exposed skin with the nail of the thumb or index finger of the other. The chimp can also use one hand parting the hair in the same way and holding it back with the lower lip. Flakes of dried skin and debris are scratched loose and then removed either with the lips or between thumb and finger. Sometimes two or more chimps groom each other (or groom mutually).

Captive chimps have been observed to pull the lower lip with one hand and peer down into it. Then they groom or pick inside the lower lip with the free hand.

Inspection (finger/probe/sniff):

A male or female chimpanzee sniffs or touches the vaginal opening of a female with its finger or with a probe such as a twig. The focal animal may then sniff its finger or the probe. This gesture is often seen during greeting. The anus of a male may be inspected in the same way. In addition, this investigative behavior may occur when a chimpanzee sniffs the area where another was sitting.

Vocalization:

Whimper - A soft whinny vocalization often associated with solicitation of reassurance.

Scream - A sustained loud shrill vocalization often associated with fear. It may be intense enough to lead to glottal cramps or choking.

Bark - A short duration vocalization which may occur singly or repeatedly as a 'woofy' sound associated with greeting or feeding.

Pant-Hoot - A sustained open vocalization, reiterated, rising in pitch and volume. often associated with aggressive displays.

Huu - A short, soft, single vocalization often associated with surprise.

For our study we concentrated on recording only the pant-hoot and the scream, which were part of an aggressive display.

Aggressive display:

The chimp may move in a slow rhythmic 'cantering gait', or run at a moderate- or very rapid speed. This behavior has sometimes been called a 'brusque rush'. Display patterns that accompany the aggressive display (referred to as a charging display when a great deal of movement is involved) include throwing, branch dragging, swaying, slapping, stamping, drumming, raking and flailing. The chimpanzee holds a branch, stick, or a handful of vegetation in one hand it brandishes at the other chimpanzees. During flailing, the chimp waves this 'weapon' at an opponent. Often the chimp stands or runs bipedally when flailing. The lips of the chimp may be compressed, the body hair erect, it may emit loud pant-hoots. Aggressive displays may be bipedal, quadrupedal, or tripodal. This is typically a male behavior, but females occasionally emit charging displays as well. A display may be nonvocal or vocal.

Captive chimpanzees often display toward the public. Usually an aggressive display begins with a slow side-to-side rock, escalates into a bipedal swagger, then becomes a lunging run toward the public. The chimp typically climaxes this display by throwing some projectile at the public. At the Sedgwick County Zoo, the displays often involve beating on the glass which separates the chimpanzees from the public. In captivity, females often display, alone or with the males, or they act as a 'cheering' section, pant-hooting, screaming, and urging the male on. These displays are very idiosyncratic, varying greatly from one individual to another. There are five kinds of behavior which may be a part of an aggressive display.

Charge - A chimp moves toward another at a run or a gallop.

Arousal - Hair erection and compressed lips are indicators of arousal. Hair erection is sometimes called *pi/o-erection* or *bristling*. The hair of the chimpanzee bristles when he is highly aggressive or socially excited, or when he sees or hears something strange or frightening. The chimpanzee may press it's lips tightly together (compressed lips) so that the upper lip is bunched up and protrude beyond the point where the lips meet.

In place movement - The chimpanzee makes slight or vigorous side to side or front or back movements of the body (rocking and swaying) when it is sitting. Almost imperceptible movements may gradually become increasingly obvious as momentum builds up. The chimpanzee is probably gazing intently at another chimpanzee or toward the public. Rocking in the wild usually occurs when a male is working up to a charging display. Males in captivity may rock prior to an aggressive display toward the public.

Exaggerated movement - The chimpanzee sweeps or rakes the ground with straight arm movements while hunched. Usually *this* proceeds to an aggressive display. It may also scrub by holding vegetation or an object and making semicircular movements on the ground.

Information gathered about each of the behaviors listed above and the individuals involved in these behaviors was to be used to make an assessment of the

social standing of the individuals and social behavior within the troop. We created an observation sheet on which we recorded the date, time, observer, and the beginning and ending time of the observation. The recording sheet was divided into four sections corresponding to the behaviors we were observing (see appendix A). We recorded the beginning and ending time of each behavior and which animals were involved and their roles in the behavior. We also recorded any behavior that was unusual, such as displacement, ie. one chimp moving to a platform where another chimp was, causing the first one to move. We also recorded the estrus levels of each of the females when the information was available. We observed the group of chimpanzees at one hour intervals and were able to gather twenty-one hours of data. These data, in conjunction with further data to be collected, may then be used to reevaluate the social hierarchy of the captive group at the Sedgwick County Zoo.

Observations

According to Goodall, grooming relationships are integral to the social hierarchy of chimpanzee society. An example she uses of this behavior corresponding to status involves a lower ranking male, Mike, who gained status quite abruptly by using gasoline cans in a display. After he had adequately frightened the other males into a submissive state, they approached him and began to groom him. Goodall calls this type of behavior submissive (1971 :112-115).

Taking grooming to be a submissive behavior, the number of instances a chimpanzee grooms another may be interpreted as a rough indication of status within

the group (removing the instances of mother-infant grooming). Therefore, the amount an individual is groomed in relationship to the number of times it grooms another could also be an indication of status. This is not a perfect relationship because Goodall (1986:245-246) says that grooming can also be form of reassurance in which the more dominant individual will, on some occasions, make a few brief grooming motions to the submissive animal, who is involved in a long term grooming activity focused on the higher ranking individual. Also according to Goodall, infants typically do not groom as much as older individuals since they spend most of their time with their mothers. As they grow older, however, they usually begin to groom each other more (Goodall 1986:245).

Results

Our results show that the female who was groomed the most and groomed others the least was Harriet. Indeed, she was groomed 27% of all grooming which was recorded in the study. In contrast, Harriets grooming of others amounted to only 12% of all grooming observed (Table 1). Hazina ranked second in terms of being groomed, accounting for 20% of the instances recorded. Holly, the third female, groomed a total of 18 times or 15%, and groomed others 35 times or 28% of all the grooming recorded. Bahati was groomed 11 % and groomed others 1% of the time. Marbles was groomed 8% of the instances recorded and groomed others 6%. Mwana was groomed 2% of the instances recorded and groomed others 2%. Gomez was groomed 2% of the instances recorded and groomed others 9%.

Table 1. Grooming results

	<u>Frequency</u>	<u>%</u>	<u>Frequency</u>	<u>%</u>
Hazina	4	3	25	20
Holly	35	28	18	15
Audra	48	39	19	15
Harriet	15	12	33	27
Gomez	11	9	2	2
Bahati	1	1	13	11
Mwana	2	2	3	2
Marbles	<u>7</u>	<u>6</u>	1Q	<u>8</u>
	123	100	123	100

If the instances of mother/infant grooming are removed, the hierarchy based on grooming relationships becomes clearer (Table 2). The individual who is groomed the most is Harriet (34%). Audra was groomed 19% of the time. Holly was groomed 18% followed by Hazina and Marbles who were groomed 11 % of the time. Bahati was groomed 5% of the time and Gomez was groomed 2% of the time.

Table 2. Grooming results, mother/infant grooming results removed: adjusted totals

	<u>Frequency</u>	<u>%</u>	<u>Frequency</u>	<u>%</u>
Hazina	3	3	10	11
Holly	20	21	17	18
Audra	45	48	18	19
Harriet	7	7	33	34
Gomez	11	12	2	2
Bahati	1	1	5	5
Mwana	1	1	0	0
Marbles	<u>7</u>	<u>7</u>	<u>10</u>	<u>11</u>
	95	100	95	100

Our results show that the individual adult who was inspected the most and inspected others the least was Harriet (Table 3). She was inspected a total of 32 times and inspected others 2 times. She was inspected 48% of all inspections recorded. She inspected others 3% of all the inspection that occurred. Gomez was not inspected, but inspected others 12 times or 18%. Audra inspected others 20 times, the highest number of inspections, for a total of 30%. She was inspected 7 times or 11%. Holly inspected 3 times or 5% and was inspected 22 times or 33%. Mwana inspected 14 times or 21% and was inspected 1 time or 1%. Bahati inspected 5 times or 7% and was inspected 4 times or 6%. Hazina inspected 7 times or 10% and was not inspected.

Table 3. Inspection

	<u>Frequency</u>	<u>%</u>	<u>Frequency</u>	<u>%</u>
Gomez	12	18	0	0
Harriet	2	3	32	48
Audra	20	30	7	11
Holly	3	5	22	33
Marbles	4	6	1	1
Mwana	14	21	1	1
Bahati	5	7	4	6
Hazina	<u>7</u>	<u>10</u>	0	<u>0</u>
	67	100	67	100

Table 4 shows that Marbles and Mwana each displayed 13 times for 21 %. Gomez displayed 12 times or 19%. Harriet displayed 8 times or 13%. Bahati displayed 6 times or 10%. Hazina displayed 6 times or 10%. Audra displayed 3 times or 5%. Holly displayed 1 time or 1%.

Table 4. Display

	<u>Frequency</u>	<u>%</u>
Marbles	13	21
Mwana	13	21
Gomez	12	19
Harriet	8	13
Bahati	6	10
Hazina	6	10
Audra	3	5
Holly	<u>1</u>	<u>1</u>
	62	100

Our results on the vocalization study showed Gomez to be the most vocal. He vocalized 19 times or 17% of the instances recorded (Table 5). Holly vocalized 5 times or 16%. Hazina vocalized 1 time or 1%. Bahati vocalized 2 times or 3%. Mwana vocalized 11 times or 16%. Marbles vocalized 9 times or 13%. Audra vocalized 12 times or 17%, and Harriet vocalized 10 times or 15% of the instances recorded.

Table 5. Vocalization

	<u>Frequency</u>	<u>%</u>
Harriet	10	15
Audra	12	17
Holly	5	7
Marbles	9	13
Gomez	19	28
Mwana	11	16
Hazina	1	1
Bahati	<u>2</u>	<u>3</u>
	69	1 00

We also recorded which individuals were grooming each other or being groomed by which individual (Table 6). These results may show some relationships between individuals pertaining to hierarchy or status.

Table 6. Grooming interactions

Groomer	Groomer Frequency	Groomer	Groomer Frequency
Holly		Hazina	
	Hazina 15		Holly 1
	Marbles 0		Marbles 1
	Gomez 0		Gomez 0
	Harriet 6		Harriet 1
	Audra 13		Audra 0
	Mwana 0		Mwana 1
	Bahati 2		Bahati 1
Audra		Harriet	
	Mwana 3		Bahati 8
	Holly 13		Audra 2
	Harriet 20		Holly 1
	Gomez 2		Hazina 1
	Bahati 1		Marbles 1
	Marbles 2		Mwana 0
	Hazina 0		Gomez 0
Gomez		Marbles	
	Harriet 1		Hazina 5
	Audra 3		Harriet 2
	Marbles 6		Holly 0
	Hazina 1		Audra 0
	Holly 0		Mwana 0
	Mwana 0		Bahati 0
	Bahati 0		Gomez 0
Mwana		Bahati	
	Audra 1		Harriet 0
	Harriet 1		Hazina 1
	Holly 0		Holly 0
	Marbles 0		Audra 0
	Gomez 0		Marbles 0
	Bahati 0		Gomez 0
	Hazina 0		Mwana 0

Discussion

The results of our study indicate certain hierarchial implications which do not seem to be in accordance with those which normally occur in the wild. The grooming studies show that the individual who was groomed the most was not one of the males, or the 'alpha' male, but rather, one of the females, Harriet. The chimp which groomed others the most was Audra. The relatively high occurrence of others grooming Audra could possibly be explained by the other chimpanzees giving her reassuring pats and short grooming actions during their grooming sessions which were mainly given by Audra. A more detailed account of these grooming sessions needs to be done to indicate whether this is actually the case.

The next grooming section in which the instances of mother-infant grooming (which we do not believe to be indicative of hierarchial status) were removed, Harriet was still groomed much more often than any other individual in the troop (34%). The male which is believed by many of the Chimpanzoo observers to be the alpha male (Marbles) was groomed only 11 % of the time, which was the same amount that Holly's daughter, Hazina, was groomed. This was less than Audra was groomed. Based on these grooming studies, we find that the females were significantly more involved in grooming activities than the males, and that among the females, Harriet is dominant.

The results of the inspection studies further support the conclusion that Harriet is a very high ranking individual. Although inspection frequency varies in accordance with the estrus cycle of the females (they are inspected more frequently when in full

estrus) our study spanned several months, and all of the females went into estrus several times during the study. Harriet, again, was inspected the most, and inspected others very few times. She was inspected 48% of the inspections recorded, and inspected others only 3% of the inspections recorded.

The display studies show that, as in the wild, males display more often than the females, and that Marbles displayed the most. Mwana displayed as much as Marbles, but we interpreted these displays as usually occurring shortly after Marbles' displays, and being adolescent imitations. For the females, Harriet had the most *aggressive* displays, 8, as opposed to Holly's 1 time, and Audra's 3 times.

The results of the vocalization studies show that, for the females, Audra was the most vocal, vocalizing 12 times. Harriet vocalized 10 times. Holly only vocalized 5 times. Gomez was the most vocal individual, vocalizing 19 times. The vocalization studies were the most difficult to record accurately because the glass separating the exhibit from the observers was very thick indeed and muffled the vocalizations which might have otherwise been recorded. Background noise was also a problem as on certain occasions zoo visitors were numerous and made noises.

Following a preliminary examination of the data, different conclusions pertaining to the social hierarchy of the group were apparent between our study and an unpublished study conducted several years ago using the focal animal observation procedure. We feel that the results of the present study are supported by a sound methodological approach because it can be used to show relationships between the subjects, though it may improved and should be expanded. We also feel that this

method is a useful teaching technique for students who want to learn a method of observation in one semester and who also want to gather some useful information. This method of study can also be adapted to the investigation of questions other than hierarchy, such as friendship relationships (looking at interactive play behavior) and mother-infant interactions. We feel that this type of study can be used in conjunction with the Chimpanzee studies.

More study on captive chimpanzees to be done in the future may shed light on the differences between the behaviors of captive and wild chimpanzees. The behaviors observed in captivity may or may not have the same implications as to the social structure and organization of captive chimpanzees as they do to the wild chimpanzees. The results of our study show that the social organization of the captive chimps is quite different than that of those in the wild, and that the behaviors of captive chimps are different than wild chimps and may or may not imply the same conclusions. Only further study in this area will answer this question.

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The Discourse of Gangs:
Angelville Graffiti
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The data used in this paper is that of Professor Cintron. Some he collected before I began my assistanship, and the rest was collected after January, 1991. Many of my observations in this paper have come from my year of working with Professor Cintron. Observations arose in conversation or sometimes in writing, but it is difficult to footnote the exact source. I highly recomend Dr. Cintron's writings for anyone who is intrigued by some of the ideas offered in this paper. In questions of conflict in citation to Dr. Cintron's work, I defer. Mostly I would like to thank Dr. Cintron for his unending support, and I hope this work does his data justice. I would also like to thank Dr. Laura Ghaham for her guidance as both my instructor and advisor.

"The nineties are going to be known as the gang decade," a police inspector in Angelville, Illinois told Dr. Ralph Cintron and me in a recent interview. For the past year, and to continue into the future, I have worked with Professor Ralph Cintron who for five years has kept a watchful eye on Angelville, a town approaching 100,000 in population according to recent census material. Dr. Cintron's main aim has been to study literacy within the Latino community of a predominantly white middle to upper class society. With all of the media hype and influx of entertainment centered on gangs, the inspector may be right on the mark; He would have a pretty good idea of any increase of gang activity as he it is his job to monitor it in this satellite city of Chicago. Most would not expect to see the drugs, the violence, and the colors in this town 40 miles west of Chicago. However, the new chief of police said that there will

be "zero tolerance" of gang activity in Angelville in response to the problem which claimed six lives and caused numerous injuries in 1991.

There are two confederations of gangs in Angelville, the 'Folks' and the 'People.' Just about all of the gangs are aligned with one of these two groups, with the noted exception being the Homeboys. This dichotomy certainly reaches as far as Chicago, and we have been told it affects Los Angeles gangs as well (when they eventually move into Chicago and Angelville). For now, in Angelville, the alliances among the major gangs are the following, Folks: Deuces, Spanish Disciples, Maniac Latin Disciples, and Peace Stones; and People: Latin Kings and Vice Lords. This was not always the case. At one time the Deuces were People and aligned with the Latin Kings. This is still the current make-up of the Chicago alliance. The story of the Latin King-Deuce break-up has become a part of Angelville gang lore.

A few years ago a woman was dating one of the leaders of the Latin Kings. He was sent to prison in a shooting, and she began dating a Deuce. This caused a major breach in the moral code of gang-life. Since then, the two gangs have been at war with each other. Until the summer of 1991, the Deuces seemed to have been striking the heavier blows. However, the Latin Kings struck back in the summer of 1991 despite many of their leaders being incarcerated. This feud does not sit well with the Kings nor Deuce chapters in Chicago. While they continually lend money and firearm support, they will not offer man-power to either group. Because of this breach with Chicago, many suggest the suburban gang-scene is one of wanna-be's. This is certainly not the case. These gangs are as authentic as those in major metropolitan

centers; they hold to the same laws, written down in sacred texts, as the rest, and they are involved in a similar drug trade. Before reading any further, I think one statement has to be made. These are not punk kids running around waving guns simply for the sake of doing so. The gangs are not some unorganized bunch of hoodlums arbitrarily breaking the law. They have a hierarchical structure with their own written constitution, organization, and nation, which feels victim to oppression. Their existence aims to impede this oppression. However, in the process, a war has broken out among themselves: a war which threatens their destruction by the hands of their own brothers.

One of the most intriguing aspects of the gang system is the rich sign system. These sign systems are related to the majority popular culture, but have taken on new meaning. For example, in the summer of 1991 many youths were wearing Chicago White Sox caps, jerseys, and jackets. In fact, I was in Iowa City watching a Sox telecast when the announcers mentioned the popularity of the merchandise. Their interpretation was that it was because of the slick black and silver design, but, also because of the team's appeal. Unfortunately, this is a half-truth. Black and silver are gang colors. Being a student at The University of Iowa, I have a rather large collection, like any student, of Hawkeye sportswear. When I was doing fieldwork in the summer of 1991 with Dr. Cintron, I decided to leave much of it behind for the reason that Iowa black and gold is also the colors of the Latin Kings.

These sign-systems extend beyond clothing and reach to hand-signs and even the side of the body which is favored. By that, I mean that the Latin Kings and the

rest of the People ratchet their caps to the left , hand-sign with their left, wear bandannas on their left leg, and even stand with their left leg forward. The Folks do precisely the opposite in each manner. Below is a table of the affiliations, their predominate side, and their major signs.

Confederation	People	Folk
Gang	Latin Kings	Deuces
Colors	Black/Gold	Black/Green
Dominant Side	Left	Right
Dominant Number	5	6
Icons	<i>crown, lion</i>	<i>spade</i>

(Table 1). *A comparison of the deuces and kings.*

In this paper I will not look at all of the various sign-systems at work in Angelville gangs. Instead, I will center on the graffiti which is put on the walls of homes, shopping malls, and fences. Graffiti litters the walls of Angelville in a disturbing manner to many of the residents. Each sign and word is an eyesore vandalizing a suburb searching for an identity in the economic upper crust. It is a cultural noise which the white leaders wish to drive from the city in the ongoing purification process to firmly establish Angelville in the economic elite. To accomplish such a feat would be to drive out the Latinos and other minorities who have a strong foothold in the history of Angelville. Latino, by many estimates, make up from 1/5 to 1/4 of the Angelville population and have been a fixture since the 1920s and 1930s. Most of the Latinos are of Mexican ancestry while others come from Puerto Rico, Central and South America. These minorities have met with blacks and lower

class whites (some immigrants from Romania and Germany, others from the Southern U.S. looking for work) in the Near East and West sides of Angelville surrounding the downtown area. The middle and upper class whites have stayed in the Far East and West sides leaving strips of land as a divider from the poverty of the inner city. The leaders of Angelville have created an "image task force" to clean-up the downtown area and bring the city up to the level of its surrounding cities. Angelville (40 minutes by highway west of Chicago) is in an area known as the Golden Corridor. Companies are setting up headquarters in this area, and much of the research taking place in 'corporate America' is moving to the western suburbs. Angelville wants a piece of that pie, but it has to be careful not to alienate the Latino population who make-up a much sought after labor force.

Graffiti is a part of the problem in Angelville image-building. The graffiti is without purpose, simply an eyesore for those ignorant of its purpose. What many people do not understand is that this 'cultural noise' is subject to a complex code created for purposes of signification and communication. Claire Taylor writes about visual noise: it is "commonly spoken about in a derogatory way" but "correctly understood and integrated into the visual expression can even cause communication (Taylor, 1984:276)." The graffiti of Angelville has been placed on the walls by gang members to at once signify their existence to passersby and also to communicate with other gangs. The signs in which the message is expressed, or coded, is a direct or metaphorical reflection of the sociopolitical, cultural, and aesthetic make-up of an audience (Taylor, 1984:278). These gangs are without an open forum, and therefore

have taken to the walls. Graffitists are people who do not have any other outlet for their thoughts (Reisner, 1974:vi). Much like prehistoric man outlining his hand on a cave wall, possibly the first form of graffiti, the gangs proclaim on the walls "I exist."

Harvey, Professor Cintron's informant, gives a variety of reasons for graffiti. He says it is to mark territory. A gang member is in need of this information in order to know where he is safe or unsafe and how to act within the territory. Being in a specific area, a gang member may have to 'throw' different hand signals or he may have to wear his clothes differently (turn his cap on an angle). All of these actions utilize the graffiti-sign to signify the territory. Also, gang-members like to communicate their existence and power and can do so by painting one of its signs on a wall. It is a scream of affirmation. As Harvey said, the gangs like to be noticed, and graffiti is one way of achieving notoriety in Angelville. Therefore the graffiti serves as an index of a) territory, b) intra-gang communication, and c) the gang system as a whole. Peirce defines the 'index' as a representation "which refers to its object not so much because of any similarity or analogy with it, not because it is associated with general characters which that object happens to possess, as because it is in dynamical (including spatial) connection both with the individual object, on the one hand, and with the senses of memory of the person for whom it serves as a sign, on the other hand.... (Innis, 1985:13)," A /*crow*/ (representamen) indexes the Latin Kings (the object) just as the spraying of the word /*DEUCES*/ (representamen) indexes the Deuces (again, the object). The connection is made in the mind of the interpreter who is aware of the sign system.

The aim of this paper is to understand how graffiti functions. What are its rules? I suggest it functions in an indexical mode pointing to gangs and their territory as well as making statements against other gangs. In many ways it is like a language, but in fact I will argue it is not a language. It is a code which needs language to mediate the signs since the graffiti signs cannot operate on a meta-, self-referential, level. The graffiti signs do have meaning because of a cultural link rooted in their iconicity which allows them to be understood. This link is manifested in icons appropriated from other codes such as religion, popular culture, and mainly from the English language code. However, since these codes are appropriated in some fashion, they can be partially understood by anyone literate in the appropriated code. The signs will be seen as tokens of a cultural type instead of as new gang- types (a new type by virtue of the added indexical function). Therefore, there are a variety of interpretations existent within the community, and the threat of misinterpretation cannot be overlooked. Finally, I will ask, what does graffiti say about Angelville gangs?

First, it might be important to look for a moment at the sign producers. The graffitiists go out under the cover of the night to perform their task. They search out places which are dark: unlit streets or the backs of malls. Once there, the graffitiists use whatever spray-paint they were able to muster to put their signs on the wall. In some instances, they respond to other signs. This contributes to the dialogic nature of the graffiti. One gang can come along and paint their sign over another sign; a practice called 'cracking' by users of the graffiti-code. There are examples of this within the data. 'Cracking' is iconic with the scratching out of words in writing and

continues to show the practicality of the graffiti code. It makes perfect sense to simply 'write' over a sign in a form of negation to that sign.

More often than not, the graffitist does not leave a personal identity. 'Tagging' is a gang term used for gang member-graffitists putting up a personal sign to take credit for the graffiti. These signs do not have the decipherable quality of the other gangs signs to the community as they are intended for only a few intimates to understand. A Deuce writing graffiti against the Latin Kings does not want the Kings to be able to trace it to him, but he would also like a bit of credit. Concealing his personal identity functions to not only protect him but is also a show of unity for the entire gang. In a recent interview, Rico said that he felt many graffitists were wasting their talents. Judging by some of the very elaborate graffiti in Angelville, this may be true. If they are doing so, however, it is for the good of the gang.

I would like to show some examples of Angelville graffiti with their interpretations by a gang member, in this case, Harvey a peripheral member of the Deuces. The first four examples are from a shopping mall, while the next two are from the streets of Angelville.

Example 1: The inverted *Ispadel* and *121* both mean 'Deuce Killer' which is also spelled out. The figure is 'throwing' hand signs (a method of demonstrating gang affiliation); the left is a 'five' for the People while the right is a 'fork' pointing down to show 'Gangster Killer.' The *Icrescent moon and starl* indexes the Vice Lords. *ISDKI* stands for Spanish Disciple Killers. The *Iforkl* inverted means 'Gangster Killer.' Also, the hat turned at an angle is iconic of a style of wearing a cap to show an affiliation. The yellow streak is a 'crack' in the **IDEUCE KILLERI** which is an attempt to cover-up the sign. It was probably put up by a Deuce.

Example 2: In silver are *IBPSNI* and *IBKI* which means 'Black Peace Stone Nation' and 'Deuce Killer.' Also in silver is a *Ipyramid and starl* which means Peace Stone. In black are *IBOS*/(Brothers of Soul) which is painted over, cracks, a silver

/ALLAH/, /pyramid with star/ and /STONE WORLD/. /MGDN/ indexes the 'Maniac Gangster Disciple Nation.' and the /six-pointed star/ indexes 'Gangsters' or 'Folks.' The /cross/ points to the 'Home-Boys.'

Example 3: This is the same area as in *Example 2* but it shows the diachronic nature of graffiti. A /K/ is added to the /BOS/ for it now to mean 'Brothers of Soul Killers.' The /six-pointed star/ has been cracked by gold (probably the same that cracked the /DEUCE/ in *Example 1*. /UK/ and /KINGS LOVE/ have been added which both mean 'Latin Kings.'

Example 4: /GDN/ means 'Gangster Disciple Nation,' and /PEOPLE KILLER/ refers to 'Folks.' The gangs are split into two warring confederations; People and Folks/Gangsters. The /six-pointed star/ over the /GDN/ refers to 'Folks.' There is also a black crack across three gold Latin King signs. /crown/, inverted /fork/ (the Latin Kings are 'Gangster killers'), and /LKN/ ('Latin King Nation').

Example 5: There is an iconic representation of a fist with a ring which says "Joker." The /\$, 1'89/, as well as /H.F./ are all tags as well. The /H.B.! means 'Home-Boys,' and /SDK/ is 'Spanish Disciple Killers' which are the Home-Boys. The /gravestone/ has a name on it and means that person is either dead or is marked to be killed (probably the latter).

Example 6: The inverted /crown/ and /K.K.! mean 'King Killer,' and by the /H.B.! ('Home-Boys') we can deduce that the Home-Boys put up the 'King Killer' signs.

The last two examples are in close geographic proximity to each other. Interestingly enough, Joker was a Latin King who was killed a few years ago, quite possibly in 1989. The /gravestone/ has initials on it which are somewhat unintelligible, however, they may be the initials of Joker. If this is true, then this piece of graffiti is very important to the overall understanding of the graffiti-system. The graffiti reflects the local climate and in a way reports on the happenings. At the very least, we can tell which gangs are warring. However, these two examples show that the graffiti may depict something more. Perhaps something like a murder. There

are problems with this interpretation. The graffiti cannot be dated, so common color does not mean it was produced by the same person.

The above is a simple understanding of the semantics of the graffiti signs as gang members understand them. The Question still remains as to the structure of graffiti and how it comes to have meaning.

When I first encountered the graffiti sign system, I wanted to classify it as a language of sorts. It would have fit into the framework of Claude Levi-Strauss who suggested all cultural phenomena are in fact languages, and there is a "universal language (Eco, 1976A:229)." However, graffiti really cannot be understood as a language. If we hold graffiti against Sauserrean syntagm and paradigm, calling graffiti a language is not valid. Each sign, or graffito, needs to be interpreted in itself. A string of graffiti holds no meaning aside from the individual signs. On a wall, /*crown*/. /*DEUCES*/, and /*MGDN*/ do not have any meaning as a sentence; syntagmatic roles are not filled. If the syntagm "is a combination of signs, which has space as its support," then "two signs cannot be spoken at the same time (Barthes, 1990:58)." However, in the case of graffiti that is not the case. One, two, or ten signs can fill a wall with no relation to each, aside from that brought to it by the interpretant in the form of pragmatics. The paradigm-column, if we call to memory Sauserre's model, exists in only one slot or syntagm, and there is only one syntactic unit.

There is also a distinctive feature to graffiti which does not exist in language. Language is enhanced by indexicality. In his article, "Indexicality" in *The American Journal of Semiotics*, Sebeok writes that the productiveness of language is within the

framework of the index, and quotes Barwise and Perry as stating the index is "extremely important to the information-carrying capacity of language (Sebeok, 1990:23)," Language, then, can be thought of as indexical-optional, and many theorists have attempted to find a language which is free of the index (Sebeok, 1990:24). As far as graffiti is concerned, such a separation of index and symbol (language) can not happen in its current form. Graffiti is an index.

Languages also exist on the symbolic level. There is a degree of arbitrariness in the words, whereas arbitrariness occurs "when signs are founded not by convention, but by unilateral decision (Barthes, 1990:51)." The word 'man' and a man have no physical resemblance or real contiguity, but yet by the traditions which precede us, 'man' means precisely that. The graffiti signs are not so arbitrary, but instead have been chosen for a specific reason. The */crown/* has come to mean the Latin Kings for societal reasons which are truly evident. With the use of language signs, such as */DEUCES/* to mean the Deuces, it seems that language and symbolism is being employed. However, I suggest the names of the gangs are not arbitrary and the use of the written expression of the name is not symbolic, but instead, iconic of the written representations of the names. The actual names are multifunctionally indexical as well as the signs. The signs point to the gang but also index characteristics of the gang. The Latin Kings use 'Latin' to demonstrate their ethnicity just like the 'Spanish Disciples.' In fact, the names are a rich subject which I will not discuss here for practical reason except when directly pertinent to the graffiti. What then, is graffiti?

Graffiti is a code. In the simplest terms, a code is a sign system. However, graffiti is quite a bit more.

By code we mean a convention which establishes the modality of correlation between the present elements of another system (or systems better correlated to the first) taken as a level of content, which also establishes the rules of combination between the elements of the expressive system so that they are capable of corresponding to the combination of content. Furthermore, the correlated elements (and the systems in which they are inscribed) must be mutually independent and in principle usable for other correlations, and the content elements must be later expressible even in the most analytic form through other expressions, called the interpretants of the first expressions.

(Eco, 1976:51)

In terms of graffiti, this means that it allows for signification and communication to occur between two gangs. The graffiti is meaningless without a language interpretation by a gang member. However, it is impossible for gangs to communicate within normal English on the walls of Angelville. So a graffiti code is established to mediate between gangs.

In order for the graffiti code to have meaning it must thoroughly represent its object-gang. A sign system is the meeting of the expression plane with the content plane, and, in the case of the graffiti code, the sign must be successful in expressing (indexing) the given content (object). The sender of the message is placed in the precarious position as he must "transcribe a *plaintext* (in principle a conceptual context, in practice a linguistic sequence already preconceived and expressed in some natural language) through a series of substitutions such that through them an addressee who knows the rule of substitution should be able to get the original message again (Eco, 1977:28)." The sender, I would

argue, is *also* faced with certain contextual guidelines. In terms of graffiti, these guidelines are the field, rival gangs, and the lawlessness of the act. The first is the walls, doors, dumpsters, etc., which are the 'canvas' for the graffiti text. Both rival gangs, building owners, and police are forces which will try to stop the completion of the graffiti act. Hence, the sender must create a sign which in a curt fashion will adequately express the content. These expressions must still be decipherable in its spray-painted medium for receivers (which include other gangs, peripheral gang members, and residents of the same community). Therefore, the linguistic statement "This territory belongs to the Latin Kings" is transcribed as *lcrownl* or one of its equivalents such as *IKINGSI* or *15/*. When a single sign denotes a longer phrase or sentence structure, it is called a cloak (Eco, 1977:29). Graffiti, in the case of Angelville, cloaks the linguistic phrases which would be exchanged in a conversation between rival gangs. A cloak functions by way of semantic equivalences (Eco, 1977:29). such as *lcrescent moon and five pointed starl* means the Vice Lords.

The graffitist must create a sign which is subject to the graffiti code, but how would such an act be done? Codes provide the rules which generate signs as concrete occurrences in communicative intercourse (Eco 19768:44). The graffitist accomplishes the communicative intercourse by appropriating signs from other discourse and iconically representing them within the framework of graffiti. Code meaning is established through the inception of correlational meanings, and the graffiti achieves correlation through the above method. These correlations come from outside the gang code in most cases and include religious codes, the codes of the English language, and other societal codes all of which could be called 'cultural links' (a term used in similar fashion by Eco). Using an

iconic depiction instead of developing a symbolic system makes more sense in the fact that icons are easier to decipher without formal convention.

If we determine that the signs represent on a correlational level, the correlations must be studied in hand with the signs. "If one examines the mode of production of signs one must not only analyze the mode of production of the signal in itself but also its mode of correlation to its content, the corollary operation being part of its production (Eco, 1976A:191)." In the following I will juggle the notions of representation and function in an attempt to better define the graffiti code (within the aforementioned examples). Paramount to understanding will be the dualism of representation (icon and index), the notion of interpretant, and of appropriation (from culture to subculture).

When Harvey saw a */crown/* he immediately stated its meaning as Latin Kings; the sign indexed the Latin Kings. Why is this so? Why can a crown bearing no resemblance to a king be used to index one? Does the 'graffiti code' allow for this indexation?

A king often wears a crown to denote his royalty and connote his power. It is an indexical match rooted in history (the Kings of England, France, and Spain) and artistic representations (the king in a painting often is depicted with a crown upon his head (I especially think of the portrait of King George III in every student's American History textbook). With the connection of crown and king, the choice of an icon of a crown to represent the Latin Kings is an obvious one. The crown representation occurs in not only the graffiti code but also on the person of a Latin King to show his allegiance. For example, the middle finger of a Latin King has a */crown/* tattoo on it (this */crown/* invariably has three points instead of the five points). A graffiti */crown/* can have either three or five points).

Also, the members of the Latin Kings wear sportswear such as jackets, sweatshirts, and caps of the Los Angeles Kings National Hockey League franchise. The L.A. Kings, too, use a crown in their team logo. For those who fear some sort of gang affiliation in professional hockey, fear not as the L.A. Kings */crown/* and Latin King */crown/* are significantly different in structure and style. However, the differences in the */crown/* display another side of iconicity. An icon does not have to be an exact representation of the object, more importantly, the spirit of the icon has to be similar to the object.

"Icons are culturally coded," Sebeok said in his address on iconicity at the centennial of Johns Hopkins University. He also quoted Peirce who said an iconic representation "is largely conventional (Sebeok, 1976A:1435)." I interpret these statements as meaning that the iconic features are chosen for their importance to the culture. For the Latin Kings, the important features are the three or five points of the crown since they are People and 'almighty under the five.' Each of the points has a meaning which is held secret by the gang and written in The Book. This document is sacred to the gang, and only the leaders see it. In fact, within the text of it, the truest meanings of the colors and the King itself are kept.

The Latin Kings have other pictorial representations aside from the */crown/*. One of the most prevalent is that of the lion; chosen for its title as 'king of the jungle.' Certainly, the Latin Kings wish to be the reigning monarchs of Angelville. The lion could be depicted on walls in the form of graffiti, but usually the lion form is expressed in the form of jewelry. Rico, Professor Cintron's Latin King informant, wore a piece of lion jewelry during their meeting. Doc, the forty-one year-old leader of the Kings, too, publicly demonstrates his affiliation by wearing a gold crown.

Two very different gangs are, like the Latin Kings, often represented through icons which have no resemblance to the gang proper. Instead, the signs are iconic to characteristics of the gang such as the king and crown. The Vice Lords and Peace Stone Nation are often depicted by *Icrescent moon and a starl*. The Muslim religion uses the same sign to depict it (e.g. flags), and both of the above gangs follow some Muslim traditions such as praying to the sun and Allah and not eating pork. Thus, the icons are linked to the gangs by religion. The Home-Boys, too, use a religious sign, the cross, for representation.

However, the Vice Lords and Peace Stone Nation provide an interesting example because the two gang are warring. The latter belongs to the confederation of 'Folks,' while the former is a member of the 'People.' The fact that despite religious similarity the two gangs do not get along indexes the role of religion in the gang culture, it is dealt with on an individual basis, and gang members are allowed to chose a religion. When a gang takes a religion throughout its ranks, an oddity, the signs of the religion definitely makes sense. Functionally, it does not seem feasible for both gangs, as rivals, to use the same sign, but there is a distinction between the two signs. The Vice Lords use a five-point star, while a Peace Stone Nation sign is a six-point star; called by gang members a 'popcorn star'. The 'five' and 'six' points have some importance as they serve to index which of the two confederations the gangs belong. The 'People' and 'Folks' are known by 'five' and 'six', respectively, for reasons only members know. The subtle differences show how iconic representations are, as stated with the Latin king example, culturally linked.

The Vice Lords and Peace Stone Nation share another sign; the *Ipvramid and starl* which has Muslim significance, as well. Again, the difference with the *Istarl* differentiates the two gangs. Therefore with these identical signs it is necessary to dissect the icon into smaller icons in order to better understand it. For a gang member, this extra step makes a rather large difference -- something between safety and harm.

One of the simplest, and most obvious, ways in which the gangs represent themselves on Angelville walls is by posting their names. A Deuce can simply write 'D-E-U-C-E' to achieve the same indexical objective. The written graffito has the same iconic function as the pictorial representations but in a dissimilar manner. Whereas the pictorial representations such as the *Icrownl* and *Icrescent moon with starl* are iconic of tangible objects, *IDEUCEI* or *IKINGSI* are appropriated from the symbolic code of the English language. If the appropriated code is symbolic, how are these signs iconic? The iconicity is of the written representation of the words as they exist in the English language code. (Their iconicity is doubly important as pictorial representations since a hypothetical illiterate person with gang experience can decipher *IKINGSI* as being the 'Latin Kings' by its indexical connection and not the arbitrariness by which the words represent the object.)

These signs are also the most easily deciphered by the largest group of people. Anyone who is familiar with the English language code can understand what the words mean. However, the meaning of the signs as intended by the sign-creator can only be apprehended by a gang member or one fluent in the gang code (see later discussion of the interpretant).

The names of the gangs can be abbreviated by only the first letter within the graffiti code. For example, Deuces, Home-Boys, and Peace Stones can be shortened to *10/*, *IH.B./*, and *IP.S./*. These abbreviations serve the same purpose as the full word, indexing the gang, and also have a sort of iconicity with the English language code. Again, any passerby can understand the letters, but unless they are a member of the gang community or its peripheral community, the letters are meaningless.

The gang-graffitist utilizes the English language code in at least one other manner: the words *INATION/*, *ILOVE/*, and *IKILLER/*. When looking at Angelville graffiti these words often appear after the name of a gang to add emphasis. *INATIONI* adds more power to the sign *IKINGSI* because of the connotations associated with the word. Commonly, 'nation' refers to power and solidarity which are two important principles to the gangs. These social organizations are fighting wars which they feel are based on principle; a function reserved for nations. The hierarchy of the gangs resembles nations as we think of them, too. The Vice Lords are led by Generals and Ministers as well as Presidents and VP.s. Also, 'nation' often refers to an ethnic group which acts together like an Indian tribe (the 'Sioux Nation') and a gang can readily be perceived as such. The *ILOVEI* graffiti, too, is positive, and I suspect all pictorial signs in the positive are equivalent to this sign; i.e. *121 = IDEUCE LOVE/*. However, the data does not completely confirm this.

At the time of the Angelville graffiti used for this paper, the Latin Kings and Deuces were at war. Across the walls was the sign **IDEUCE KILLER/**. The sign indexed a gang who 'kills Deuces', and judging by the current climate in Angelville, the producers of this sign were the Latin Kings. However, Gangster, too, may have put up this sign since it

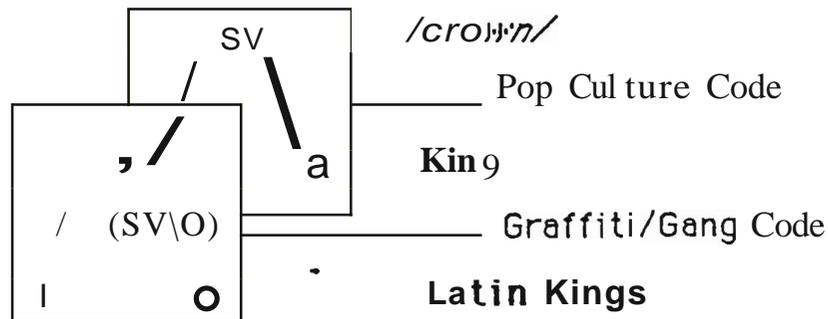
refers to any 'Deuce Killer'. Thus, to understand who placed the sign it must be taken in context with the other signs. If it is coupled with the sign ILATIN KINGSI then most likely they are the 'Deuce Killers'. If a *IforkI* is within proximity, then a gangster probably placed the sign in Question. Therefore to understand the IDEUCE KILLERI (as well as its counterpart, the inverted sign, i.e. the inverted *IcrownI* in *Example 1*) sign a certain pragmatic understanding is needed. Such a pragmatic understanding can interpret the deictic IDEUCE KILLERI in terms of who is the sign producer and is brought to the signing process by the interpretant.

I have been using the term appropriation to explain graffiti code-production without much of an explanation as to what I mean. Cultural appropriation, in the sense of graffiti, "is the taking of types from one code and applying it to another code. The resulting token has a different index and generates, through reproduction, a new type. Since codes mediate between two systems, this seems like a natural process. The result is, basically, an *overcode* to propose a new rule which governs a rarer application of the previous rule (Eco, 19768:155)." For example, a graffiti *IcrownI* still has qualities of a "real" crown, and it still indexes a king. There is still more to this indexical function as it truly indexes the Latin Kings in the graffiti context. The iconic features are then secondary to the more important indexical function; meaning comes from the index. The signs are relations; "they stand for something else, but the problem of their meaning does not concern the 'they' or the 'something,' but the function of standing for. If one studies this function, one has to forget the object to which the sign may sometimes refer (Eco 1975:7)." The icon's importance lies only in providing a cultural line, but, after the link is made, there is a movement from the iconic features to the index and the function of the signs.

Cultural appropriation, then, is using the link understood by mainstream culture and attaching to it another meaning. The wearing of an L.A. Kings jacket may index the hockey team in pop culture, but on the streets of Angelville the sign has been appropriated to index the Latin Kings.

The connection between sign *Ucrown/*, for example) and object (Latin Kings) is made in the interpretant. "A sign stands for something the idea which it produces, or modifies....That for which it stands is called its *object*; that which it conveys, its meaning; and the idea to which it gives rise, its *interpretant* (Peirce, 1.339)," As far as this indexical relationship in graffiti is concerned, and for semiosis in general, the interpretant is essential. The problem with appropriating codes is that more people have the ability to make a connection between the sign vehicle and an object, but the connection may not be the desired one. A */crown/* is easily recognized as being so, and the interpretant may even think of a king. The graffiti */KINGS/*, too, can be understood by anyone who is familiar with the English language code. However, these signs were placed to index the Latin Kings, and only a few may have the interpretant to make this connection. The ability to make this connection is called the 'ground'. The 'ground' of the graffiti-code requires a knowledge of Angelville gangs. Without this ground, the signs may be interpreted from the code from which they are appropriated. Thus, the code breaks down, and the graffiti melts to gibberish.

What is essential to the interpretant is that the ground upon which the sign is seen to be related to something else as signified, which signified in turn becomes a sign relative to other elements in the experience of the interpreter, "setting in motion the chain of interpretants on which semiosis as a process feeds (Deely, 1990:27)."



(Figure 1). *The semiosis of gang appropriation.*

This diagram shows the semiosis of the graffiti code. "Something is a sign only because it is interpreted by something by some interpreter ... Semiotic, then, is not concerned with the study of a particular kinds of objects in so far (and only in so far) as they participate in semiosis (Morris in Eco, 1975:6),ⁿ There is a connection between the first index of */crown/* to 'king' and */crown/* to 'Latin Kings'. The first interpretant makes the first connection (this is the connection the modal persona of Angelville would make), and the graffiti uses the first interpretant (and the new sign vehicle) to signify a gang (the new object). The problem arises when members of the community do not get to the second step of this abbreviated model of semiosis because they do not have experience with the gang system. Misinterpretation results; a threat which exists with any signing process (Ockerse, 1984).

Conclusion

Context is essential to understanding the graffiti code and is apprehended by the interpreter. The image forms part of a 'semiotic field'. "The image is produced and observed in a given spacio-temporal context and simultaneously generates its own semiotic field (Nadin, 1984:347)." In terms of graffiti, the context is the location of the signs as well as which sign it is grouped (It is important to note this is not a syntagmatic relationship). If *Icrownl* appears within the known territory of the Latin Kings. Then it is a statement to signify this as 'Latin King territory'. IOEUCE KILLERI near a *Icrownl* communicated the Latin Kings as Deuce killers. Again, the relationship between these sign is not syntagmatic because no roles for the syntagm exist. The connections are made by the interpreter because of logical assumptions and Peircean abduction. Note the uses of the two words signification and communication in the two different sentences. Context is essential to the notion of signification and communication within the graffiti code. "The latter semiotic field is understood as *unity* between the field of signification and communication (Nadin, 1984:347)." At once the gang sign points to the gang as 'owner' of the territory, but also indexes the linguistic coding proclaiming 'Latin Kings' and that for which the Kings stand.

Color is a part of the context, too, insofar as the graffiti is concerned. Gangs do have 'colors' which are used for signification such as the Latin Kings use of yellow and black (Kings often wear Iowa Hawkeye sportswear as well as National Football League Pittsburgh Steelers clothing as both have the colors yellow and black), but signs are often not painted in the gang colors. Again, the meaning of these colors is kept in The Book, the King Manifesto. Most times, Harvey said, the color of the sign depended on what's

available. Therefore, it is of more pragmatic use in determining who put up which signs based on similarity of color in a specific string of signs. For instance, *Example 3* has black paint and is pro-Latin Kings and anti-gangster. Both signs are in black and probably put up by the same person.

Once the code is deciphered, the rules extracted, what do we have? I suggest it is a cultural text in which information about the culture is encoded. Cultural texts are, following Lotman and others of the Moscow-Tartu School, viewed as all those messages comprised of signs that are organized by cultural codes (Winner, 1984). Professor Cintron debates between text and conversation, and graffiti proves to have characteristics of both a text and conversation. However, the reading of graffiti compares to reading a book since the sender is absent. However, reading the walls is always a tenuous task. Interpretations vary as to the semantic meanings of some of the signs. The gang-members do appreciate a graffitist with talent, as Rico attests, and at times this style gets to the heart of the gang beliefs. However, here we have something else highlighted -- the act of creating graffiti. After some understanding of the signs is found, where do we go? I think the answer is in the performance of graffiti.

Signs instigate action, or something to that effect, is the oft-quoted phrase by Victor Turner (1967). In graffiti this is certainly true. The graffiti is put on the wall, and the next day the reading of these signs instigates more action. Sometimes, it is more graffiti. Signs may be spray-painted which would be positive, or yet others, may be inverted. Still, the new graffiti could 'crack' the existing graffiti. In these performances much of the gang life can be uncovered. For example, the Latin King and Deuce feuding is certainly indexed by the graffiti which shows each throwing the other down (to throw

down, Harvey tells us, is to show disrespect). The killing of Joker, though is still not fully developed in the graffiti, is certainly depicted to a point in it. If anyone questions the importance of signs to cause action, one only has to look to a recent article in the Chicago Tribune on a shooting in Angelville. In it, two gangs started flashing each other hand signs. This 'repping', as the performance is called, led to a shooting spree. In the end, an innocent bystander was caught in the cross-fire and hurt. Graffiti is not the only sign-system in the gang-code. However, it is the one most public. The aim in this paper was to explain its inner-workings as well as some of its meanings. However, as that innocent by-stander knows, the end result is the action which occurs. That is the direction where any discussion on gang signs should head.

A note on conventions used in this document; all signs are enclosed with a slant(/). If a sign is italicized, it is a description of a pictorial sign, bold indicates a linguistic sign. This convention is taken from Eco (Eco, 1977).

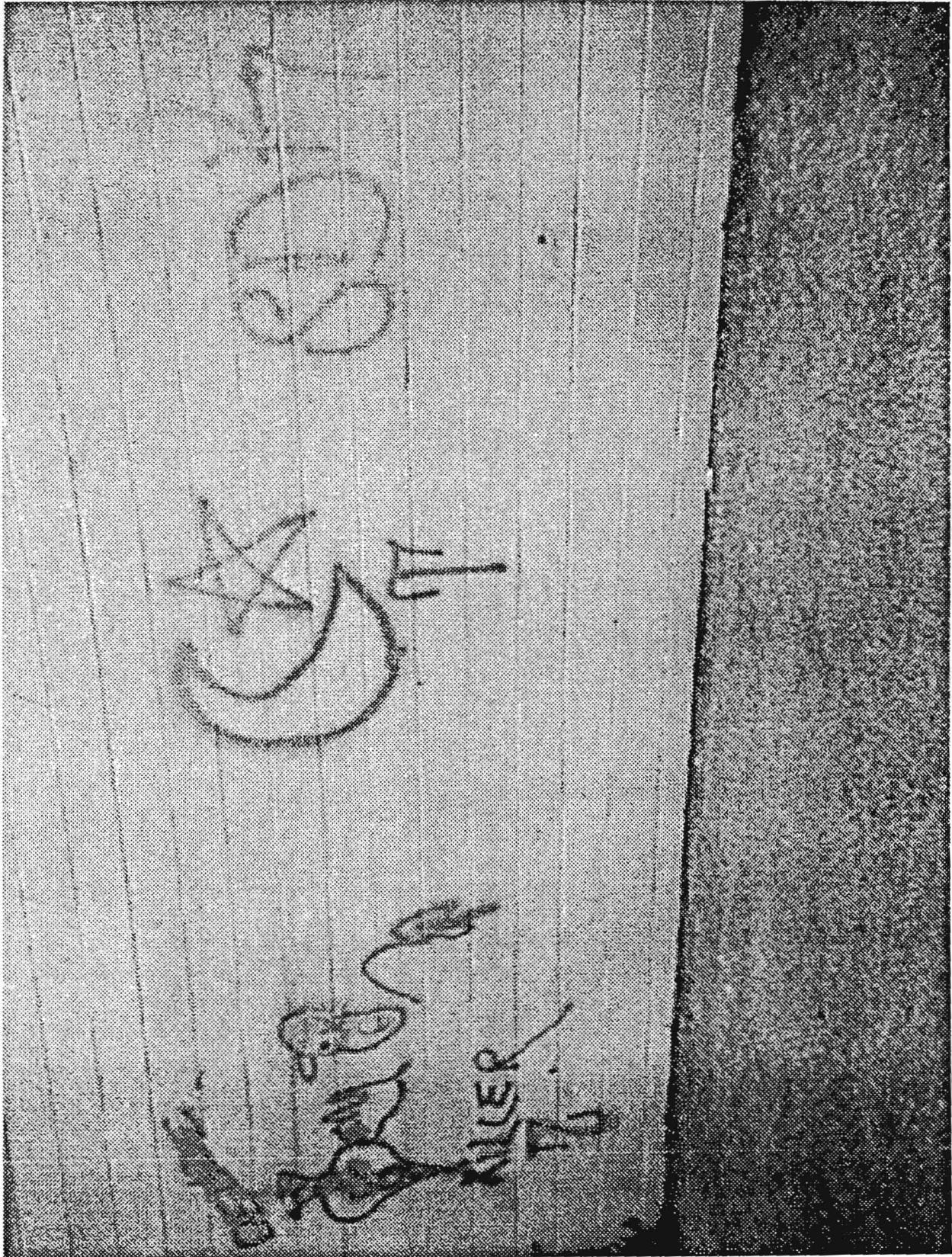
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Example of color



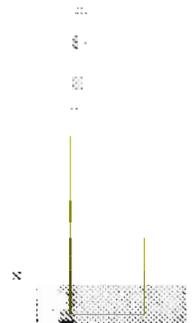
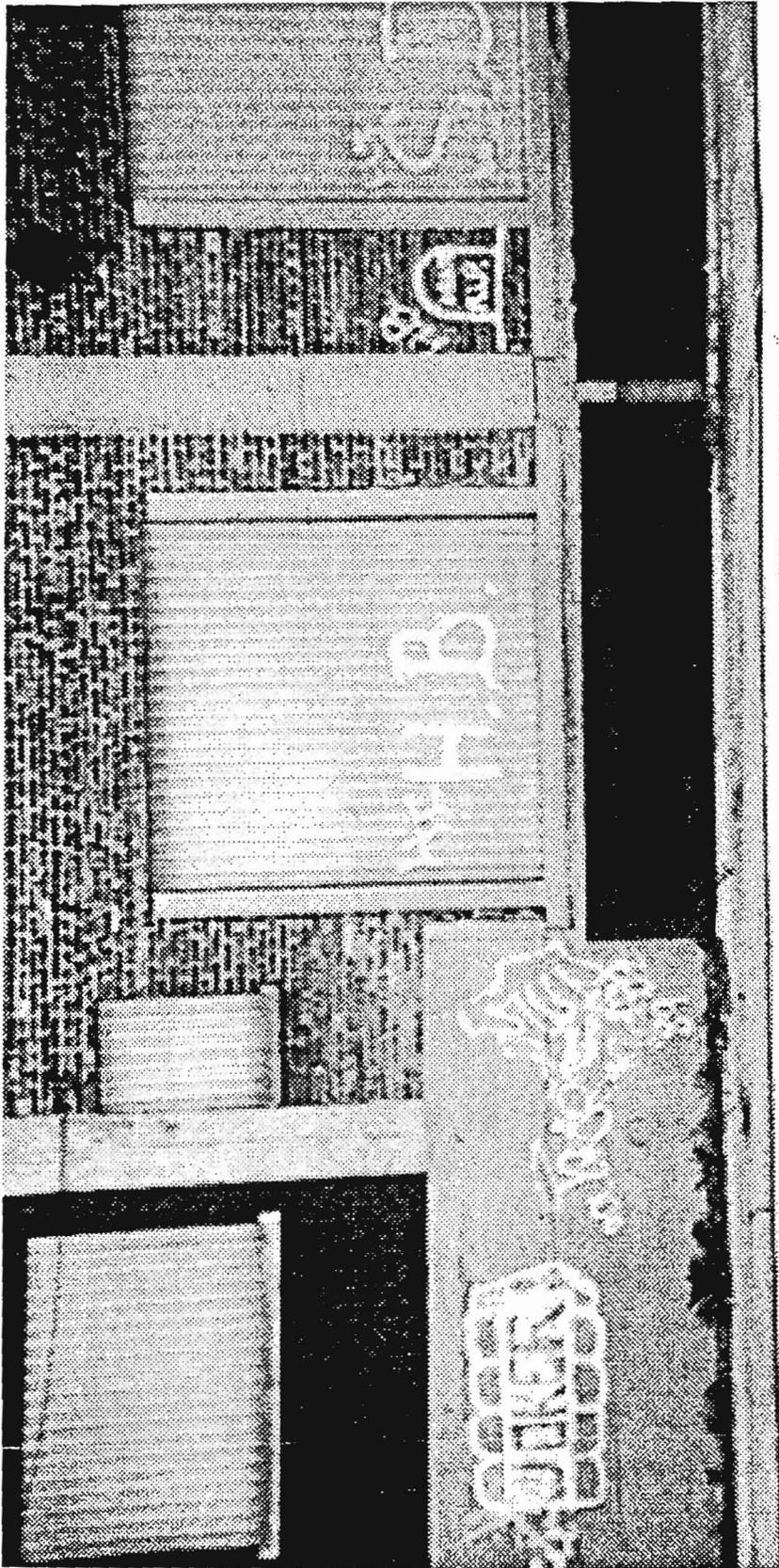
Example 2 (original in color)



Example 3 ar ca e ce ar



Example 4 (original in color)



Example 5: Original Color



Example 6 (original in color)

Evaluation of Frequency of Use by Orangutans of Structures and Locations within a Captive Environment

Linda McGuire-Rook

Abstract

An orangutan exhibit at the Sedgwick County Zoo is studied for the purpose of examining the social behavior of orangutans in a captive environment. Specific reference is made to the patterns of use of various movable and immovable structures and specific locations displayed by the occupants of the exhibit. Patterns of individual preferences and utilization of the exhibit are also discussed, illustrating the spatial and structural needs of individual orangutans. The results are hoped to further our understanding of the need for improved facilities for captive orangutans as social groups and as individuals.

Acknowledgements

I wish to thank Dr. Peer H. Moore-Jansen for his encouragement and confidence that my research would make an important contribution to captive orangutan knowledge. In addition, I wish to thank the Sedgwick County Zoo, Susan Orsbon, Laura King, Roger Blurton, Dr. William Bryant, Ron Blakeley, and Mark Reed for providing access and diagrams to make this research possible.

Background

Two essential characteristics of the orangutan include their primarily arboreal behavior, and a demonstrated capacity for the use of tools. Observed in the wild, both traits appear to reflect a general level of intelligence or cognitive structure (Jolly 1985). In captivity, the orangutans arboreality and their possession of individual levels of cognition, may be identified through studies of the selective use of structures or locations by individual orangutans. In **order to** address the mental and physical needs of the captive orangutan it is therefore imperative that patterns of group behavior and

individual preference for various structural components of an exhibit be considered in the design or redesign of captive orangutan facilities. Ideally, captive environments should provide arboreal space, represented by either natural or artificial arboreal structures, terrestrial space, and other vertical and horizontal structural components. In existing exhibits where such space is not available, a more natural environment may be achieved through redesign. However, to do so requires knowledge of individual orangutan habits and preferences regarding the structures and areas in the existing exhibit. Yet space is not the total answer to a viable ape exhibit. The exhibit must include structures which enhance the quality of the space (Wilson 1982).

Orangutan intelligence, the meaning, matter, and degree of which is relative and for the most part not well understood, is documented regarding tool use and nest-building (Lethmate, 1977 cited in Lethmate 1982; Galdikus 1982; Rijksen 1978; Maple 1980). Jolly (1985) refers to tool use as the means to measure cognitive structure or general intelligence. Tool use among orangutans suggests the presence of cognitive structures within the brain, similar to though less complex than observed among humans (Beck 1980). Galdikus (1982) suggests that orangutan nest-building may reflect inherent manipulative capabilities, supporting earlier hypotheses speculating that nest-building is learned and skills for nest-building are accumulated over time during critical periods in an orangutans' adolescence (Bernstein 1969 cited in Tuttle 1986). However, tool use and nest-building skills have not been observed in rehabilitated adolescents when released into the wild (Rikjsen 1978).

In the early part of the eighteenth century, Daniel Beeckman became one of the first westerners to purchase a live orangutan. Even though the captive orangutan remained alive for nearly seven months, it was never discerned whether it was capable of being trained (Harrison 1962). From Beeckman's 1880's purchase until the middle of the 20th century, orangutans were kept in captive environments more as novelties of nature and members of collections. During this period, orangutans were rarely housed in environments consistent with their needs as a species or as individuals (Maple 1980). Research into their natural behavior and more importantly their captive behavior was virtually non-existent until the middle of the 20th century. However, research in these areas is needed to better define the potential of the cognitive abilities of the orangutan.

Whenever a captive environment provides the opportunity, behavioral patterns of captive orangutans appear to correspond to general patterns of behavior of wild orangutans. Yet captive orangutans also show patterns of social behavior unobserved in the wild. Captive environments force orangutans to redirect their capacity for intelligence, otherwise measured through wild behavior such as tool use and nest-building. In the wild the great apes differ with regard to curiosity and emotions (Maple 1980) and they exhibit individualistic skills of tool use and nest-building (Rikjsen 1978; Galdikus 1982). In captivity, tool use, nest-building and use of structures continue to be individualistic. Accordingly, captive conditions should reflect the natural habitat of the orangutan, requiring designers of captive environments to

recognize a need for sufficient structures to provide the individual preferences observed in captive orangutans.

Materials & Methods

The subjects of study include five orangutans housed at the Sedgwick County Zoo, Wichita, Kansas. The group consists of one adult male, two adult females, a juvenile female and male (Table 1). The orangutans are maintained in a fully enclosed habitat within a climate controlled building and have full access to a day enclosure from approximately 8:30 in the morning until 4:30 in the afternoon. The orangutans spend the remainder of the time the in the night cages where they are fed twice daily.

Table 1. Orangutans at the Sedgwick County Zoo. _____

<u>Name</u>	<u>Group</u>	<u>Gender</u>	<u>Date of Birth</u>	<u>Origin</u>
Toeian	Sumatran	Male	Jan. 2, 1973	Captive
Tia	Sumatran	Female	Jan. 30, 1957	Wild
Blanda	Sumatran	Female	Jun. 26, 1964	Wild
Sayang	Sumatran	Female	Nov. 21, 1983	Captive
Sabah	Sumatran/ Bornean hybrid	Male	Mar. 6, 1985	Captive

The exhibit is a large indoor enclosure of approximately 1,455 square feet. One side of the exhibit is an observation wall partitioned into eight glass panes (Figure 1). Each pane consists of three inch thick safety glass. The opposite wall of the exhibit consists of wire mesh fencing separating the enclosure from an area of foliage and the

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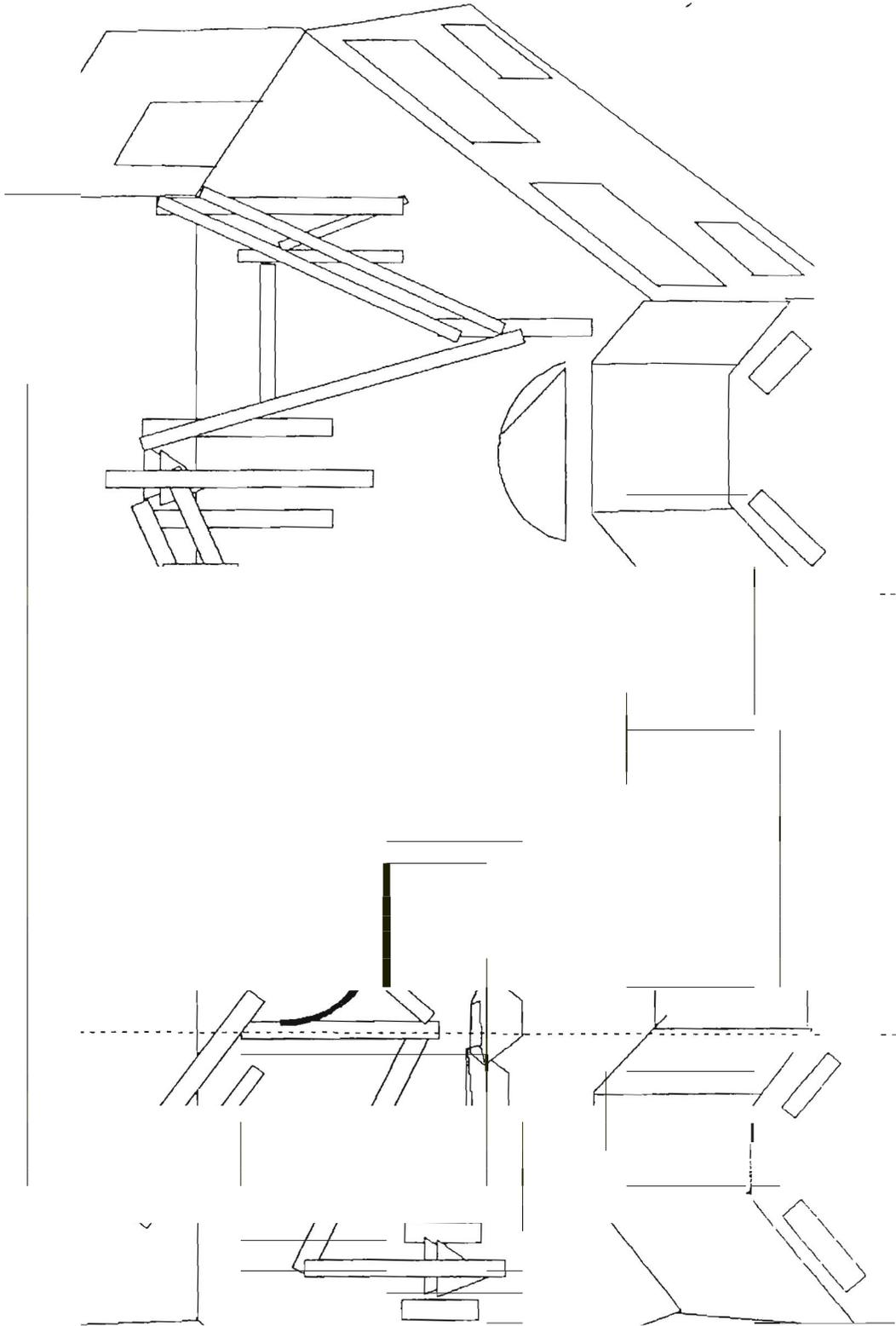


Figure 1 Floor plan of orangutan exhibit

outside of the building (Figure 1). The outside wall contains large windows that can be opened for ventilation. On one end the exhibit consists of a solid concrete wall, on the other end the exhibit is composed of enclosures which function as night cages. The night cages are separated from the day enclosure by sliding doors containing windows constructed of the same type of safety glass used on the observation wall (Figure 1). Two windows located on the outside wall above the night cages and six skylights in the ceiling are covered with wire mesh, and can be opened for ventilation (Figure 1). The day enclosure includes a climbing structure of log scaffolding comprising vertical and horizontal poles. The structure forms the support for 3 raised platforms of different heights. Also present is a stationary horizontal ladder, a drinking pool and two large piles of boulders. The only movable structure in this enclosure is a hammock-like swing made from fire hose (Fig. 1.).

Thirty-nine loci were defined for recording purposes and labeled on the floor plan including three platforms (A, B, and C), in addition to other structures and general areas of the exhibit (1 - 36). A detailed description of the individual structural components and areal of the exhibit locations defined in the present study is provided in table 2. Observations of the location of each orangutan, including the name and position of an individual was logged at **15** minute intervals on a floor plan of the exhibit. Observations were repeated at different times during the morning and afternoon. Time of day, outside weather condition, skylight and window status (open vs. closed), and number of visitors at the exhibit were recorded on each day of observation. A total of 33 hours and **15** minutes of observation, gathered during the

period from January 21, 1991 to March 5, 1991, represent the observational frame of reference for the present study.

Table 2. -Description of structures and area loci.

Code	Description	Code	Description
A	Highest platform in exhibit.	16	Skylight.
B	Lower platform.	17	Skylight.
C	Lower platform.	18	Skylight.
1	Floor area inside exhibit in front of entrance to day enclosure.	19	Skylight.
1a	Area above entrance to day enclosure.	20	Skylight.
2	Sliding door entrance to night cages	21	Wire grate in ceiling.
3	Sliding door entrance to night cages.	22	Hole dug in floor of enclosure.
4	Area above observation window.	23	Floor area between west-end of exhibit and log scaffolding.
5	Boulder Pile	24	Low locus on wire mesh fence.
5a	Floor area between boulder pile and platform B.	25	Low locus on wire mesh fence.
5b	Floor area underneath horizontal ladder.	26	Middle locus on wire mesh fence.
6	Boulder pile.	27	Floor area at bottom of vertical scaffolding pole.
7	Top of vertical scaffolding pole.	28	Floor area at bottom of platform A
8	Top of vertical scaffolding pole.	29	High locus on wire mesh fence.
9	Horizontal scaffolding	30	High locus on wire mesh fence
9a	Horizontal scaffolding.	31	High locus on wire mesh fence.
9b	Horizontal scaffolding.	32	Floor area at bottom of vertical scaffolding pole.
10	Top of vertical scaffolding	33	Floor area in corner of exhibit between entrance to day enclosure and sliding door.
10a	Horizontal ladder.	33a	Window to outside.
11	Horizontal ladder.	33b	Window to outside.
11a	Top of vertical scaffolding pole.	34	Floor area in corner of exhibit between entrance to day enclosure and wire mesh fence.
11b	Horizontal ladder.	35	Top of vertical scaffolding pole.
12	Water pool.	36	Floor area at bottom of platform.
12a	Floor area next to wire mesh fence.		
13	"Hammock" fire hose swing.		
13a	Floor area underneath "hammock". fire hose swing.		
14	Top of vertical scaffolding pole.		
15	Top of vertical scaffolding pole.		

Results

Patterns of use of structures and areas in the captive exhibit illustrates that the highest of the three platforms (A) is used more frequently than any other structure or location in the exhibit. Relatively high frequencies of use of two other arboreal locations (8 and 10) is also observed (Figure 2). In general, preference for the higher platform is shared evenly among four orangutans, while Blanda, the second oldest female of the group, shows considerably less preference for the highest platform (A)

(Figure 2). The two lower platforms see much less activity, but when in use, they are occupied primarily by Sabah, the young male, Sayang, the youngest female, and Blanda.

Floor areas are somewhat evenly occupied by all orangutans, although Toean, the adult male, favors the areas by the sliding door entrance to the night cages (area 3), beneath the higher platform (area 28), and to a lesser extent the boulder pile (area 6) (Figure 2). Blanda, the second oldest female shows preference for the area underneath the hammock-like fire hose swing (area 13a), while Tia, the older female, spreads herself among floor areas at the base of the vertical scaffolding pole (area 27), and the corner of the exhibit between the entrance to the exhibit and the sliding door to the night cages (area 33) (Figure 2). Sabah, the young male, and Sayang the youngest female, share an interest in the hole dug in the floor of the exhibit (area 22), the floor area between the west-end of the exhibit and the log scaffolding (area 23), and the area beneath the higher of the platforms (area 28) (Figure 2).

Activity on the wire mesh fence, especially on the lower part (areas 24 and 25), is relatively frequent for all members of the group (Figure 2). The orangutans were observed at these locations, particularly when there was activity by the zookeepers in the area between the wire mesh fencing and the outside wall of the exhibit. Sayang, the youngest female commonly positioned herself on the wall, immediately above the observation window (area 4), and atop the vertical scaffolding poles (areas 7 and 8) (Figure 2). Tia, the older female frequents the vertical scaffolding poles (area 10) (Figure 2). Sabah, the young male, is almost the sole user of the hammock-like

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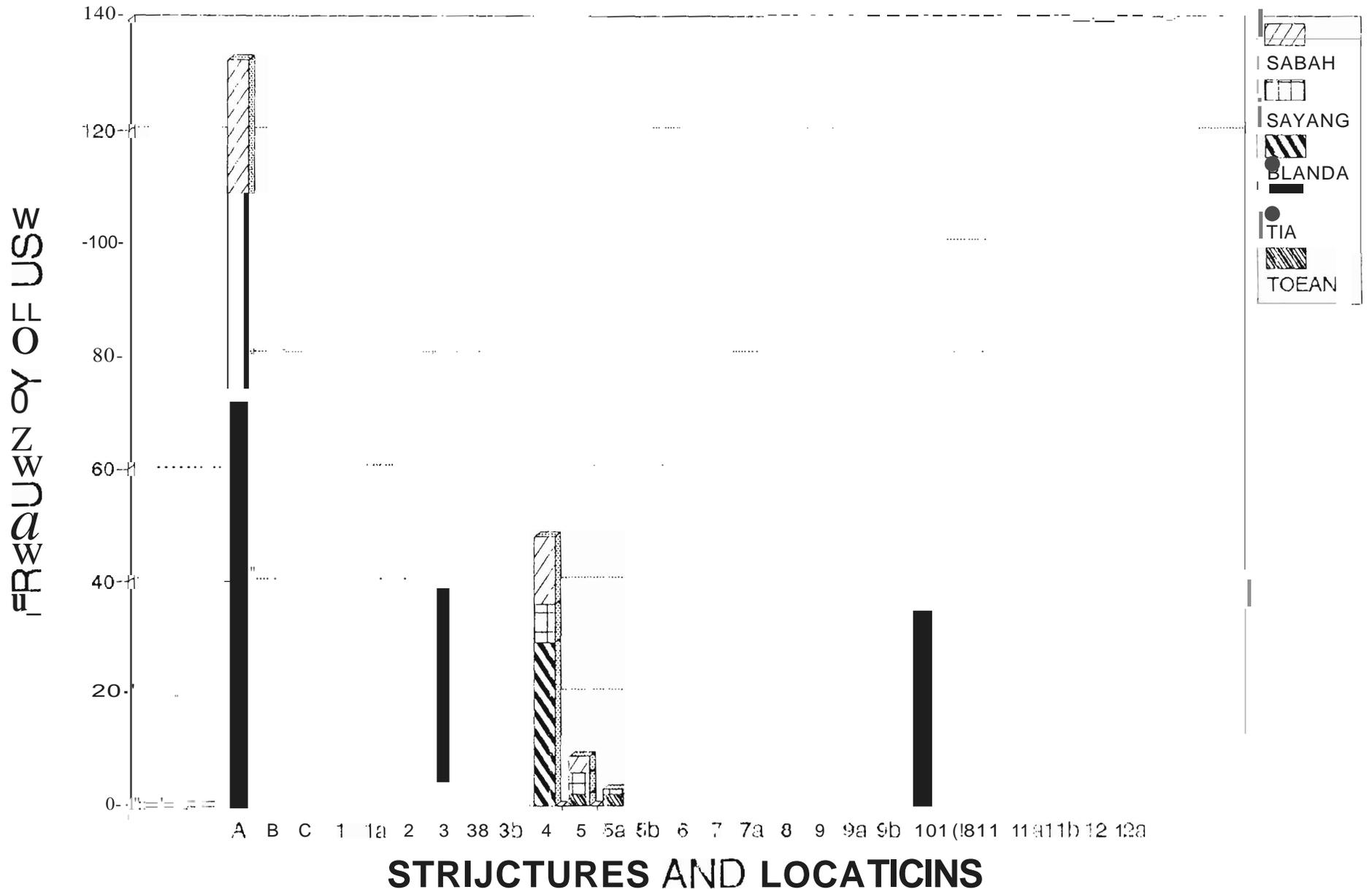


Figure 2. Patterns of use and activity - general exhibit

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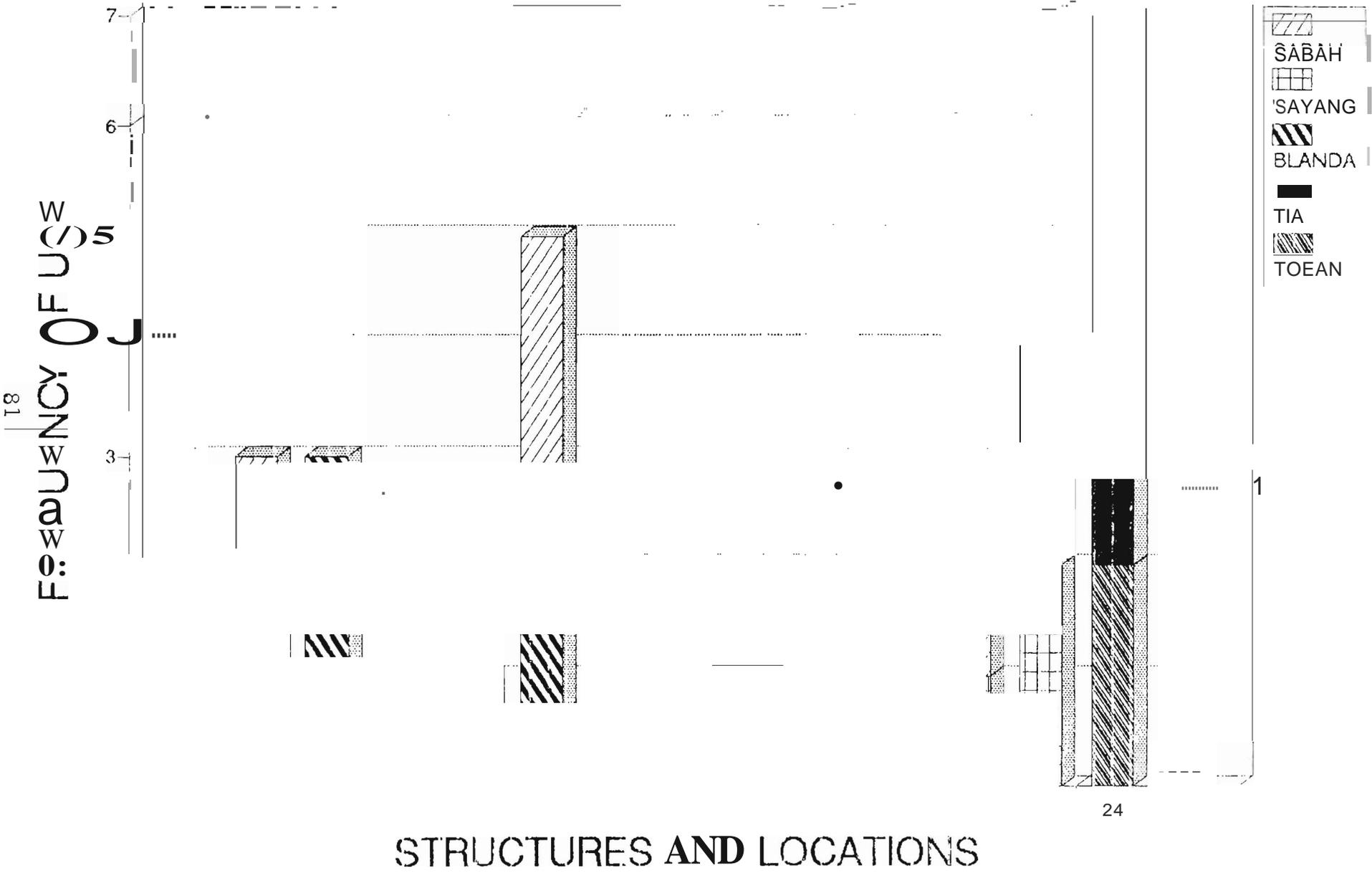


Figure 2. Continued

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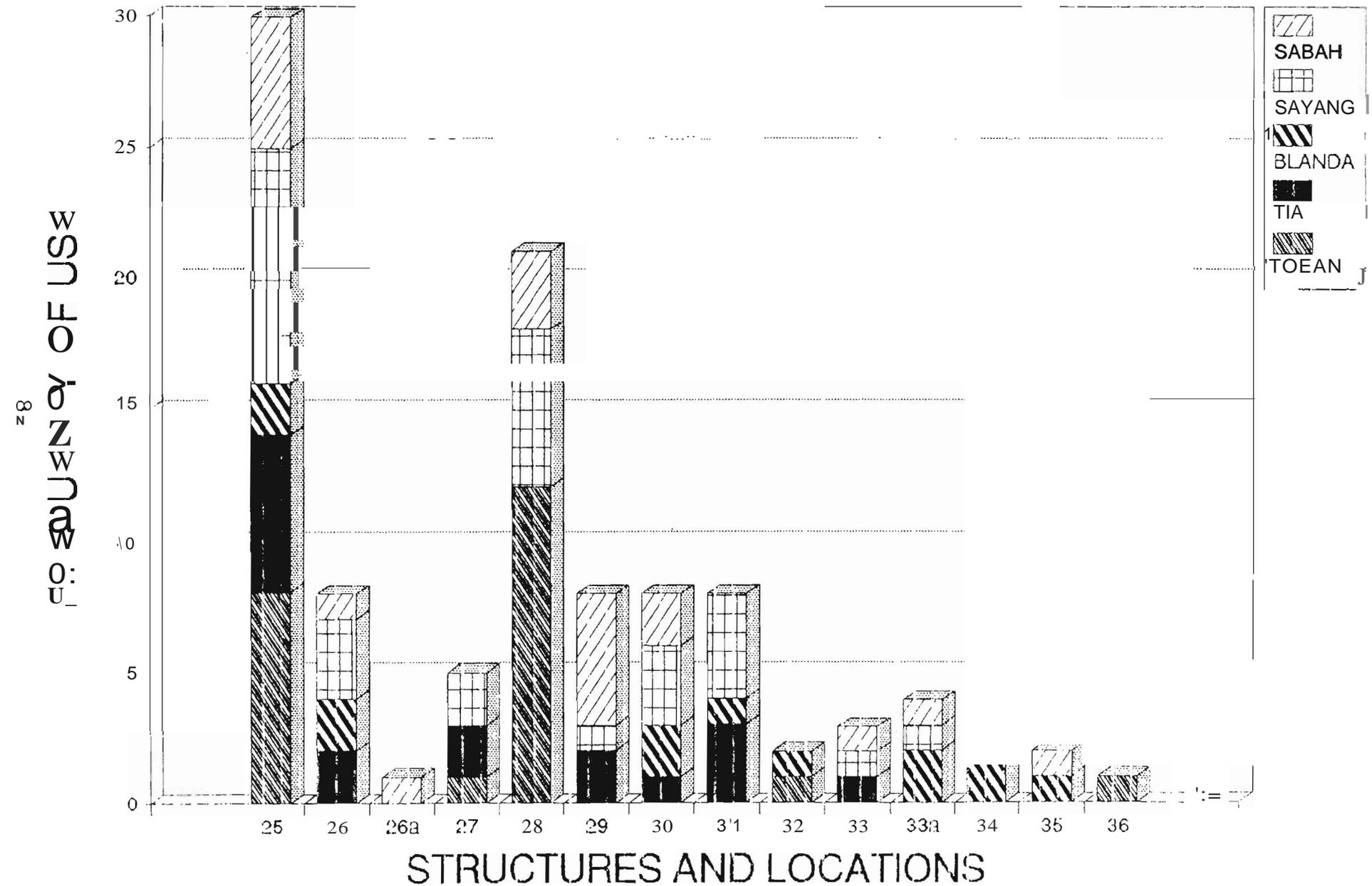


Figure 2. Continued.

fire hose swing (area 13), but shares with Sayang in the use of the skylights (area 10), from which they frequently hang (Figure 2).

A more detailed illustration of the activities of Toean, the adult male, and his use of the structures and locations in the exhibit is provided in figure 3. Except for his presence on the scaffolding (area 11a), or when brachiating along the horizontal ladder from the higher platform (A) to the boulder pile (area 6), Toean spent the remainder of his time on the ground foraging (Figure 3). His presence on the wire mesh fence was restricted to times when the zoo keepers were present. Toean's apparent preference for the sliding door leading to the night cages may be related to the window in the sliding door which allows him to look through to the night cages and beyond to the keepers' office area. From there, he usually watched the keepers clean the night cages as well as observe when food is served, signaling his access into the night cage. Unlike Blanda, whose preference for location 4 above the observation windows allows her to view any visitors, Toean seems totally uninterested in visitors. When he occasionally left his favorite spot at the sliding door location (area 3) to go to another area of the enclosure, he would raise his arm and drag it across the observation window.

At various times the adult male was joined on the higher platform (A) by the adult females, the juvenile female, and the juvenile male forming what could be perceived of as a social group (Figure 4). Sayang, the juvenile female, groomed Toean when she joined him on this platform. Tia, the oldest adult female was observed just sitting on the platform with Toean. Sabah, the juvenile male, used his association with Toean

FREQUENCY OF USE

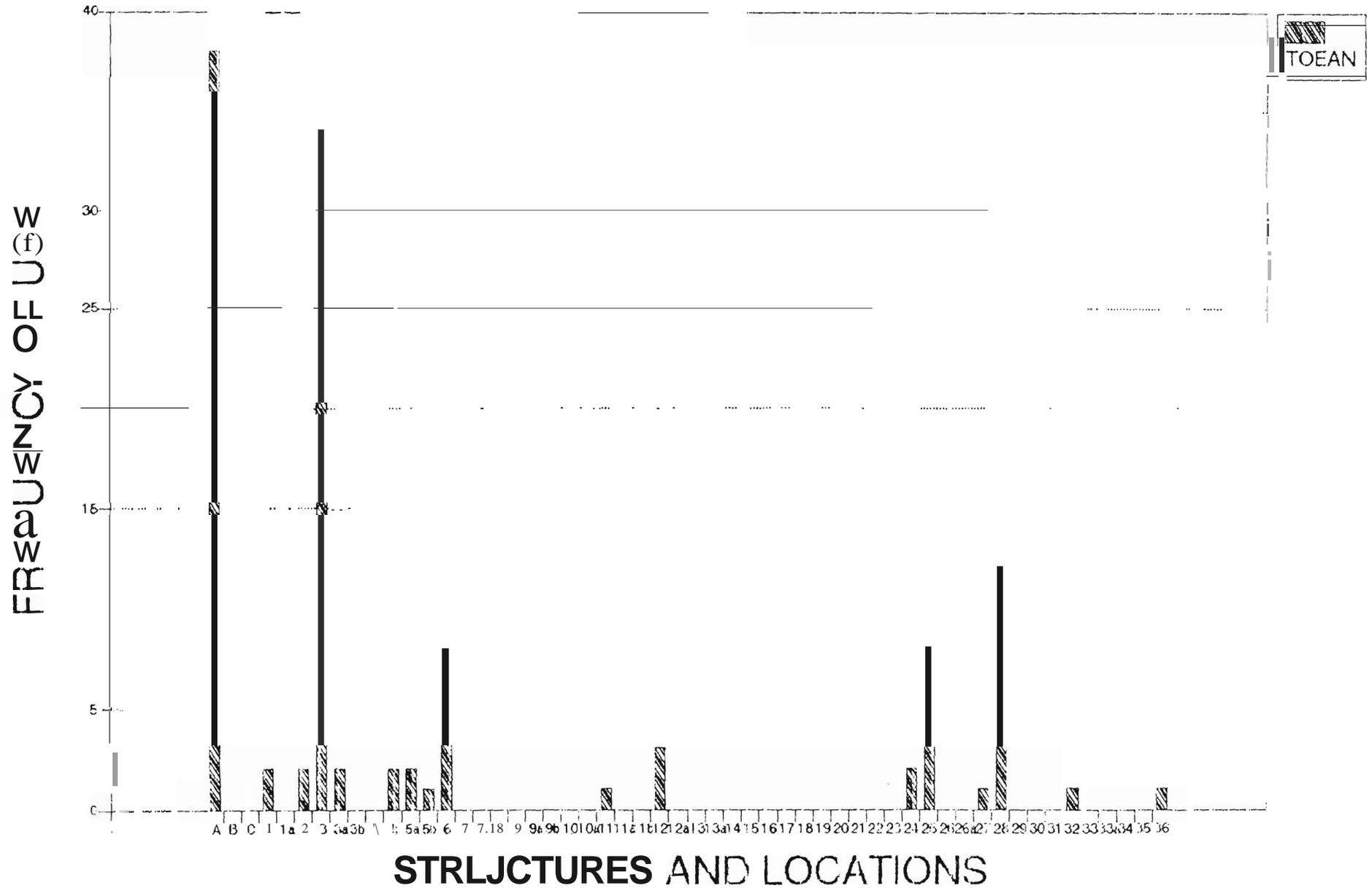


Figure 3. Use and activity by Toean, the older adult male.

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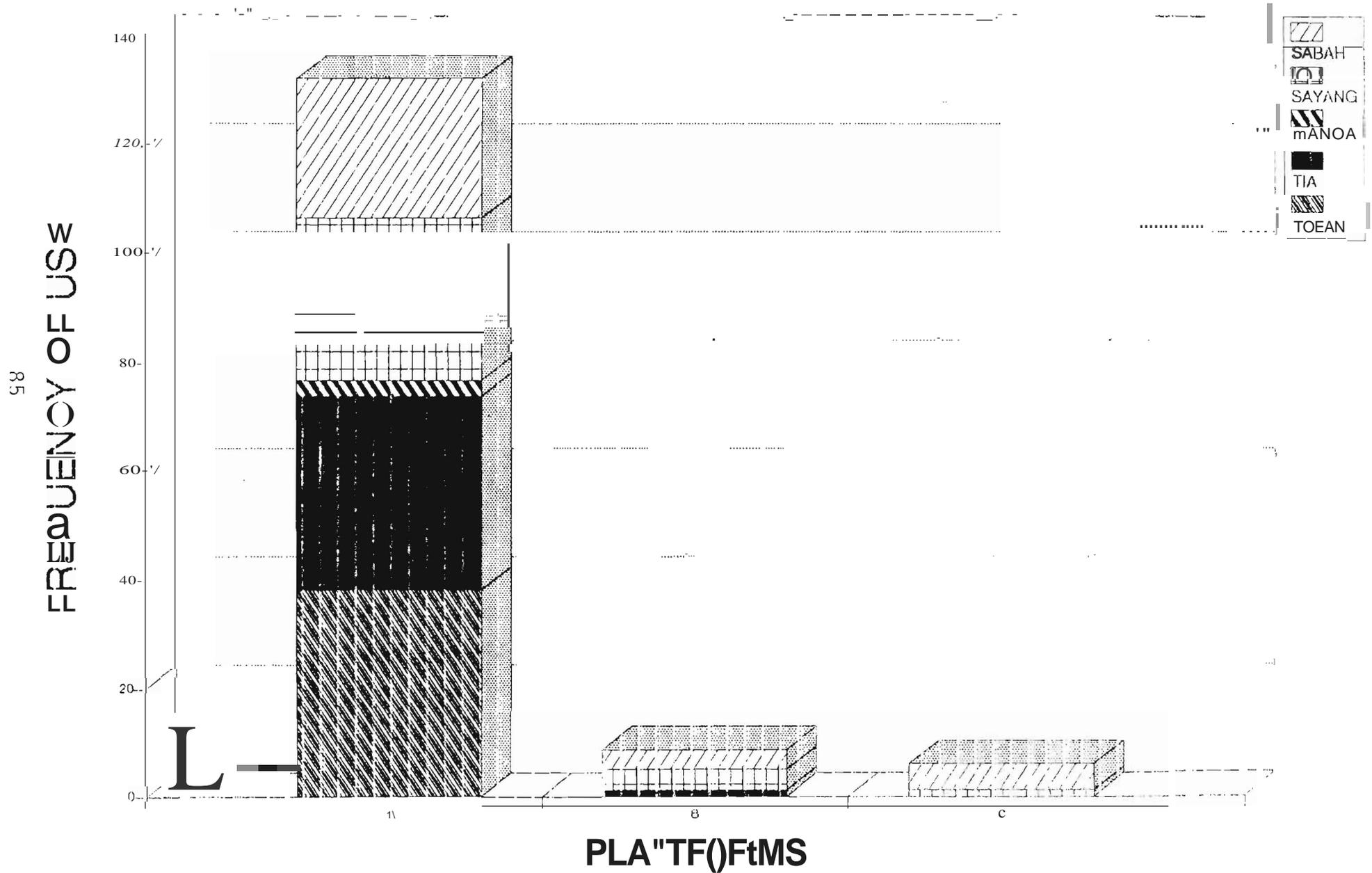


Figure 4. General platform use.

on the platform for various activities (Figure 4). His interaction with Toean was always one of action. Sabah was observed examining Toean's hands and mouth for content, sometimes pulling Toean's hair until the older male turned towards him so he could see. At times, Sabah acted as Toean's source for having a drink of water. While Toean remained sitting on the platform, Sabah would descend the platform, go to the water pool, fill his mouth with water, return to the platform and stand in front of Toean. The older male, in a sitting position, would lift his head and open his mouth. Sabah then opened his mouth and allowed the water in his mouth to run out and down into Toean's mouth.

The end of the log scaffolding above the higher platform (area 10), is a preferred location of Tia, the older female (Figure 5). She takes up position in this area each morning after leaving her night cage. Her usual activity at this location is sitting, facing the windows that form the outside of the building. Areas high on the scaffolding also provide Tia with the same type of sitting area as location 10. At these locations, Tia was observed sitting, holding or manipulating pieces of feed sacks or cardboard boxes. Her appearance on one of the lower platforms (B) occurred only when Sabah, her son was present on this platform (Figure 5). In one instance, she was observed lying on the platform, while Sabah sat on the platform manipulating straw and pieces of feed sack.

Directly below the wire mesh opposite the window, the orangutans have dug a large hole in the sand and dirt mixture of the enclosure floor where they forage for sunflower seeds and peanuts. Although she was never observed foraging around the

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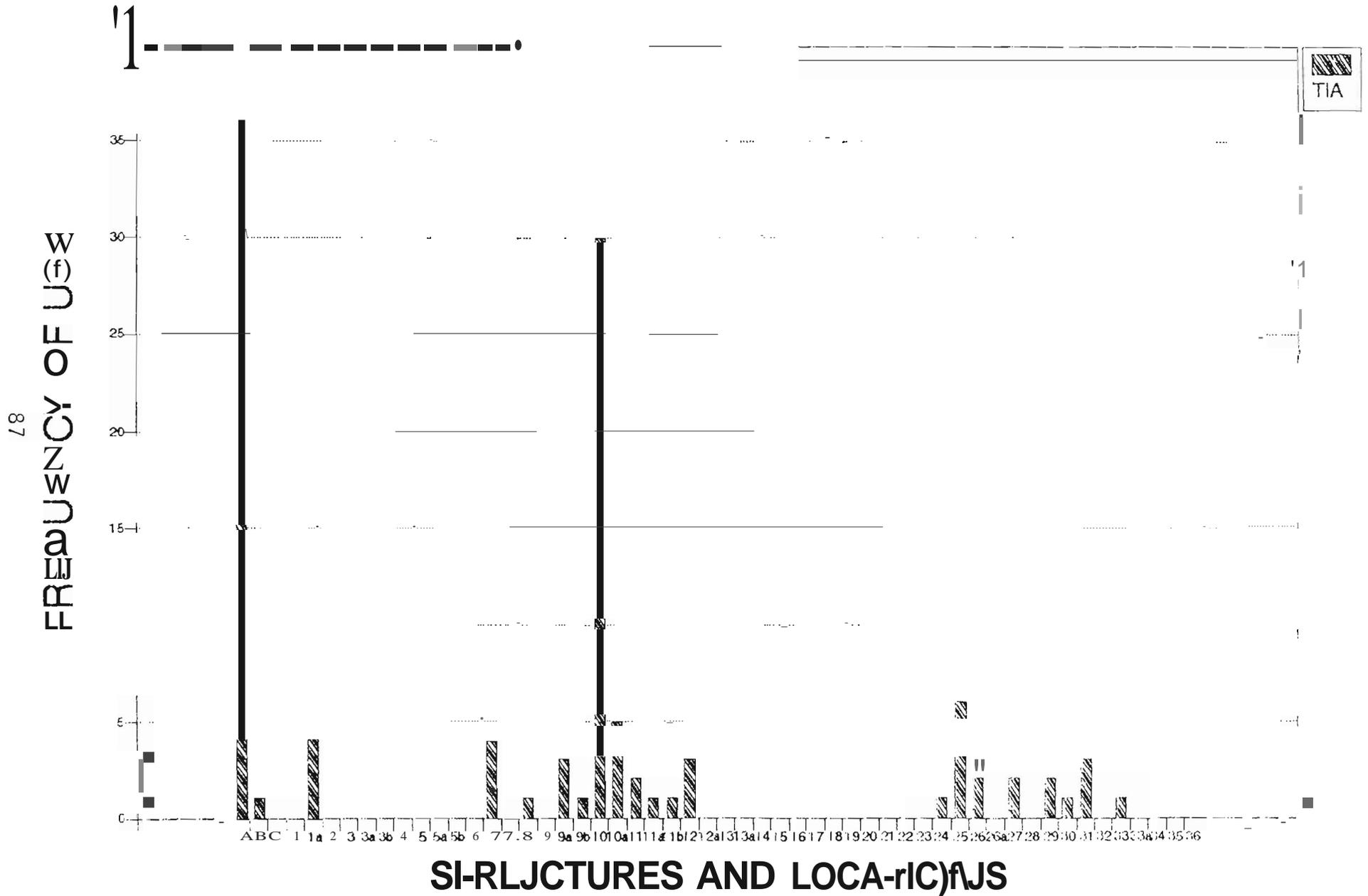


Figure 5. Use and activity by Tia, the older female.

hole, Tia would dangle on the fence above when other orangutans were foraging. Tia also occupied the wire mesh fence, when a keeper was nearby.

Blanda, the youngest adult female displayed notably less use of the higher platform (A) than observed among the other four orangutans in this group (Figure 6). She frequently assumed a dangling position over an area above the observation window (area 4) when zoo visitors appeared at the window and remained hanging upside down for long periods of time (Figure 6). Her appearances on the wire mesh fence at areas 25, 26, 30, 31, and 34, may be examples of her curiosity about any activity in and about the exhibit. On occasion, Blanda and the juvenile male, Sabah, engaged in mating activity above the observation window (area 4) (Figure 6). The mating activity began with observed hand to mouth contact (including biting) then mouth to mouth contact (including biting), followed by copulation. Blanda and her daughter Sayang were also observed sitting and sleeping together on the scaffolding at areas 8 and 9a on several occasions (Figure 6).

Sayang, the juvenile female, uses all the structures and areas of the day enclosure more regularly than the adult members of the group. Her observed activity on the higher platform (A) included repeated grooming of Toean, even in her mother's presence (Figure 7). Her presence at locations 3, 3a, 33b, and 4, are all areas close to area 3, an area preferred by Toean. She was observed in these areas when Toean was present at area 3. Area 2 opens into Sayang's night cage and she was frequently observed to sit in this area apparently looking through the window, as well as at

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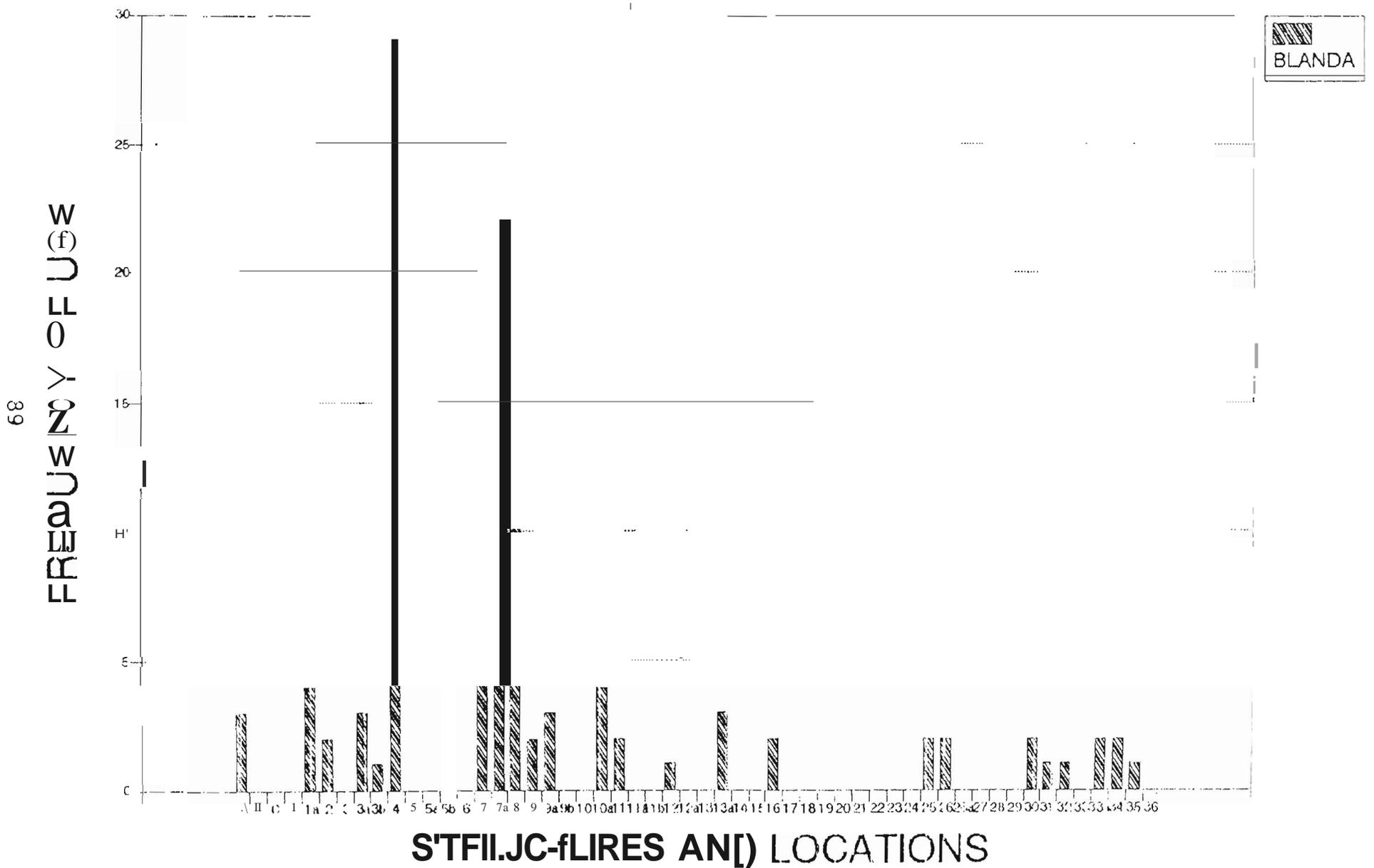


Figure G. Use and activity by Blanda, the second oldest female.

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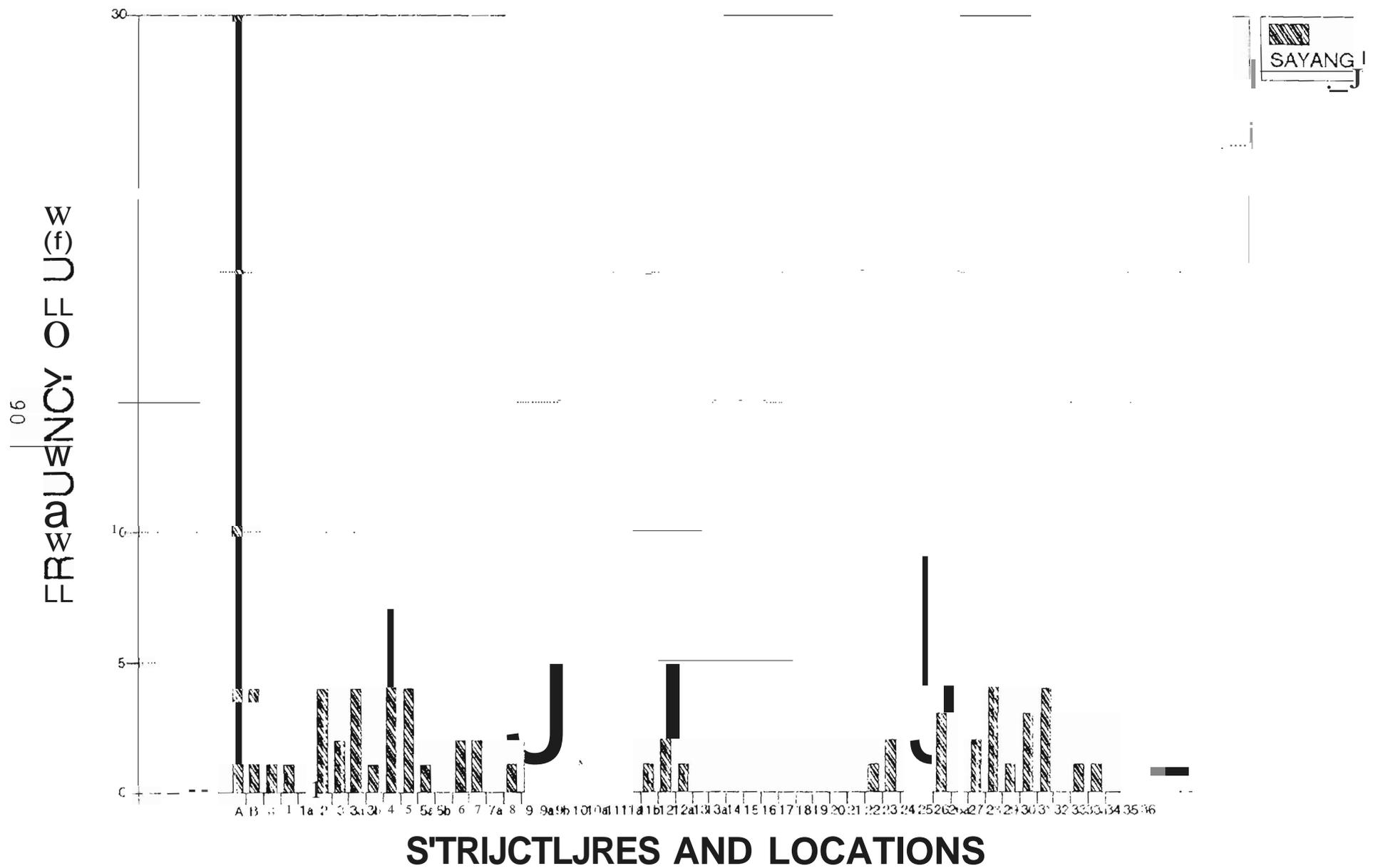


Figure 7. Use and activity by Sayang, the youngest female.

several higher loci (Area 9, 10a, and 11 b) where she would be covering her head with pieces of feed sacks, and cardboard boxes (Figure 7).

Together, Sayang and Sabah, the juvenile male, used the higher platform (A) as a base for playing (Figure 7). Play included wrestling and grabbing pieces of torn feed sacks and cardboard boxes from one another. However, Sayang's presence on the lower platforms (8) and (e) also involved attempts at nest-building, using hay, cardboard boxes, and paper feed sacks (Figure 7). Sayang was sometimes observed brachiating from the wire grates, even approaching the observation windows at various locations when small children were standing on the bench in front of the windows.

Except for the higher platform (A) and the location above the observation window (area 4), Sabah, the juvenile male, uses more structures and locations in the exhibit than any other orangutan in the group. Sabah was frequently observed interacting with Toean on the higher platform (A) seeking to get Toean to react to his presence (Figure 8). As Sabah approached or touched the platform during Sayang's presence, the young female immediately left the platform. As long as he remained on the platform with any of the other orangutans, she would not return. Only when the others left, would she return to the platform to join Sabah in play.

Sabah was observed sitting near Toean, directly between the older male and the sliding door to the night cages. Sometimes the young male would climb onto Toean's head or shoulders while the older male was facing the window in the sliding door (Figure 8). During this time, Sabah repeatedly sought to engage Toean in play.

FREQUENCY OF USE

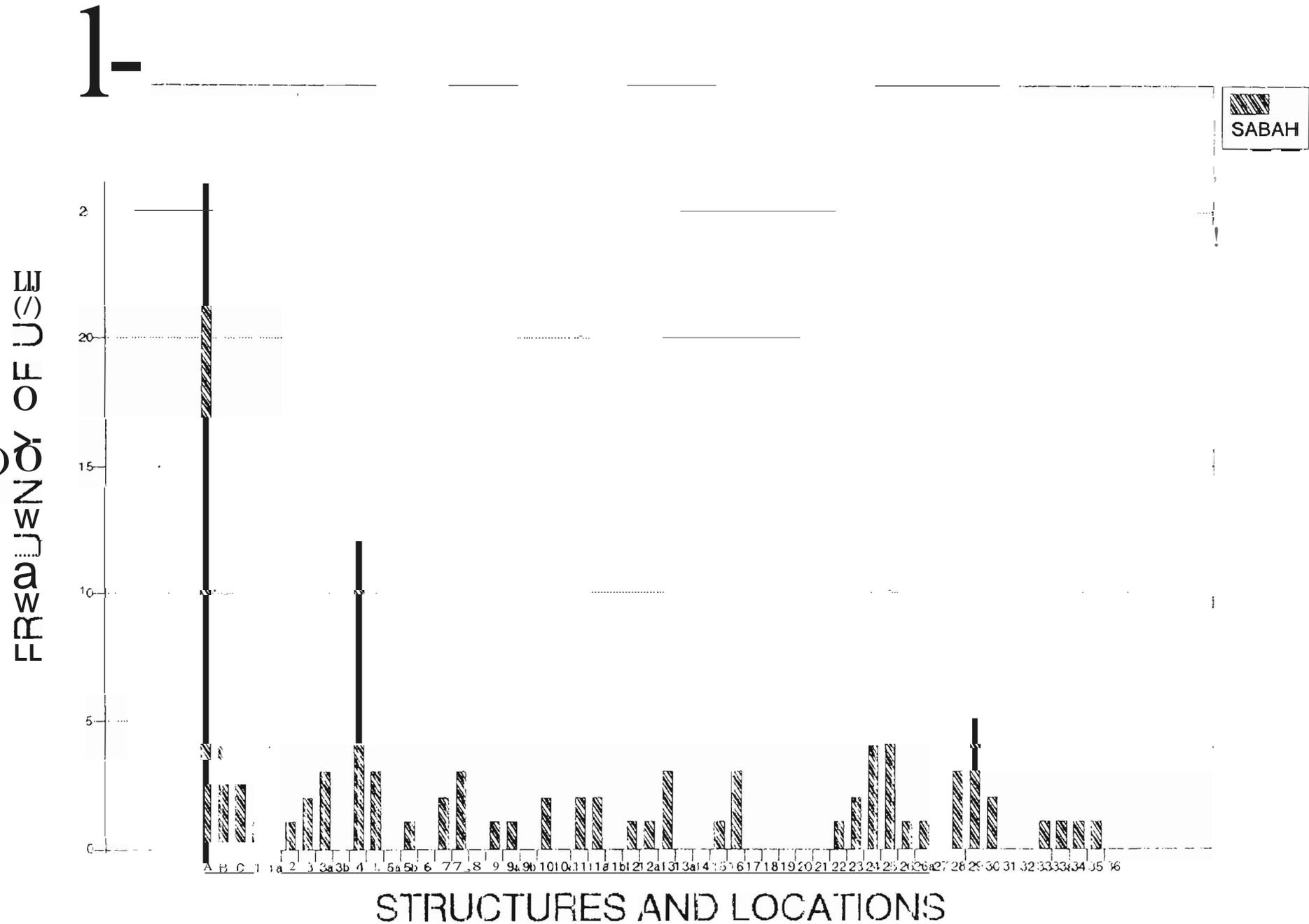


Figure 8. Use and activity by Sabah, the younger male.

Discussion

The findings of the present study of captive orangutan behavior pertaining to the use and occupation of structures and specific locations shows a distinct preference for those structures which most resemble the natural habitat of the wild orangutan. The frequent use of the higher platform (A) among the captive orangutans, reflects the primarily arboreal preferences of their counterparts in the wild. The adult male and females show individual preferences for specific structures and areas in the captive environment. Individual preference for specific structures and areas is less significant in juveniles. Greater use of structures and areas by individual orangutans may also correspond to the age of individual orangutans. The three adult orangutans all occupied fewer structures and areas less regularly than did the two juveniles.

Toean's preference for platform (A) is a restatement of the primarily arboreal quality of the life of orangutans in the wild. The artificial arboreal location presented by the captive environment serves as a stage for perceived social interactions between Toean and the other members of this group. The orangutans' grouping behaviors in this captive environment are undocumented in the natural wild environment. In the natural environment adult males exhibit solitary qualities (MacKinnon 1978; Jolly 1985; Maple 1980). The boulder pile (area 6) seems to provide the adult male with an area where he can conceal himself from the observation windows. He was observed sitting hunched down or lying behind these boulders peering out between the boulders in the direction of the observation windows. This is the only location in the day enclosure that enables Toean to be concealed. This

behavior may be linked to the observed solitary behavior of orangutans. In a natural environment he could conceal himself in dense foliage of the forests's upper canopy.

Tia, the older female could possibly be considered the dominant female of the group based on her frequent appearance on the higher platform (A). Considering orangutan matriarchy and lack of female bonding, Tia appears to be an important member of the apparent social group of orangutans frequenting this platform. Other important members of this group include the adult male, the juvenile female and male. Blanda's limited use of the platform seems to suggest that her role in the group is less easily defined. Tia's preference for the higher platform (A) serves as the base for her nest-building and sleeping activity. Nest building is carried out using cardboard boxes, hay, and large paper feed sacks, and may represent a continuation of observed wild behavior using tree leaves and branches for nest-building material. She was observed sitting on this platform with a large piece of feed sack or piece of cardboard box covering her head, a behavioral pattern which may correspond to observed behavior among wild orangutans where they attempt to cover themselves with large leaves to deflect rain. Her secondary use of other locations in the compound may be a reflection of her age and/or a lack of need or incentive to forage for food. In a wild environment, Tia's days would be filled with foraging and resting (Zucker et al. 1986).

Juvenile males in their natural environment play more actively, cover a wider territory, and use more natural variables than their female counterparts (Jolly 1985). Sabah, the juvenile male in this study, parallels this activity in the captive environment. His presence on the higher platform (A) may be considered as a juvenile

need to be near his mother, Tia, and as juvenile sociability in playing with Sayang. Both types of behavior are documented in the wild. Sabah's observed close association with the adult male represents an association undocumented in natural environments. In the natural environment, the adult male is perceived as solitary and juvenile males of Sabah's age have not been observed in this proximity to the adult male.

In the present study, weather conditions did not appear to have an effect on the use of specific structures or areas. When the skylights were open and outside air entered the enclosure, the open skylights were investigated by the orangutans on an individual basis. The skylights were not necessarily investigated every time they were open. The effect visitors have on this group of orangutans remain unanswered. The adult male's use of one boulder pile may relate to visitors presence just as the second oldest female's use of an area above an observation window may have increased when the public was present.

Everything on this planet matters and in agreement with Calvin Martin (1978) life on this planet must exist in reciprocity and in relationships of courtesy. Humans have long disregarded the cognitive capacity of orangutans, and without restraint, we have captured, and relocated apes such as the orangutan in captive environments with little or no regard to nature of their habitat needs. This study shows an unquestionably individualistic preference for specific structures and loci which reflects a combination of inherent wild behavior, sex, age, and social position within the captive group. With this in mind, our attitude toward orangutans in the wild must change before total

extinction occurs. Simultaneously, this relationship and attitude must change regarding captive environments. Captive orangutans differ from their wild counterparts most notably in the formation of social groups not dependent on diet and habitat. Social groups of this type are undocumented in the wild. This grouping behavior requires captive environment changes previously not considered.

An understanding of species preference for a specific habitat, such as the primarily arboreal environment of the orangutans, and the individual orangutan's preference for a specific location or area in within this environment, is paramount to the design or redesign of a captive orangutan exhibit. Change inevitably affects the individual, and as preferences for structural locations and areas may change and so may individual behavior. Orangutans require extensive space in natural and captive environments. When space is restricted and a natural environment has not been approximated, redesign of an exhibit necessitates an understanding of individual orangutan habits and preferences regarding the structures and areas to be placed in the exhibit. The present study identifies some areas of the the present exhibit as unused, and suggests that such unused structures or areas should perhaps be redesigned with reference to individual orangutan preference. The design and construction of an orangutan habitat sturdy enough to withstand the species' strength is a major challenge. Practical consideration including cost of material and labor can be aided or controlled if previous knowledge of effective and ineffective structures and areas are available. This knowledge must be applied to structure and area use regarding the species and well as the individual orangutan. **If** orangutans are to be continually preserved in captive

as the individual orangutan. If orangutans are to be continually preserved in captive artificial or pseudo-natural environments, then we must engender respect for them as individuals. The intelligence of orangutans can be affected by the nature of the environment (Maple 1980). If the intelligence of an orangutan can be affected by his present environment then an orangutan is intelligent enough to be affected by changes in his environment. As the conservation of orangutans continues, a more natural habitat must be provided and our knowledge of orangutans as individuals must continue.

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