

down, stared long at the tiny face. Never had we imagined such a funny twisted-up little face. It was comical in its ugliness, with large ears, small, rather pursed lips, and skin incredibly wrinkled and bluish black rather than pink. His eyes were screwed tight shut against the fading light of the sun and he looked like some wizened gnome or hobgoblin. We christened him Goblin on the spot. Melissa gazed down at her son for fully two minutes before she placed one hand behind his back and set off to make her nest for the night.

Hugo and I followed, keeping well behind. Every fifteen steps or so Melissa stopped and sat for a few moments before moving on, still supporting the infant with one hand, the placenta still trailing. It was dusk when she reached a tall leafy tree and climbed up, and we could hardly see by the time she had finished making her bed. She made a very large one, using her feet and one hand, and it took her eight minutes instead of the usual three to five. Finally she lay down and all was quiet.

We left her and climbed back down the mountain to our forest home, rather silent as we thought of the young female, bewildered by the miracle of birth as so many other mothers have been throughout the centuries, animal and human alike. For the first time since leaving her own mother, Melissa was sharing her nest with another chimpanzee.

9

FLO AND HER FAMILY

OLD FLO LAY ON HER BACK in the early morning sunshine, her belly full of palm nuts, and suspended Flint above her, grasping one of his minute wrists with her large horny foot. As he dangled, gently waving his free arm and kicking with his legs, she reached up and tickled him in his groin and his neck until he opened his mouth in the play-face, or chimpanzee smile. Nearby Fifi sat staring at Flint, occasionally reaching out to touch her ten-week-old brother gently with one hand.

Faben and Figan, Flo's two elder sons, played with each other not far away. Since Flint's birth two and a half months earlier Faben had begun to move around with his family more frequently. Every so often, as their game became extra vigorous, I could hear the panting chuckles of chimpanzee laughter. All at once Faben, three or four years Figan's senior, began to play rather roughly, sitting down and kicking with the soles of his feet on Figan's bent head. After a few moments Figan had had enough. He left Faben, and, with his jaunty walk, approached Fifi and tried to play with her. At that moment Flo, gathering Flint to her breast, got up to move into the shade, and Fifi pulled away from Figan to follow her mother. Ever since Hugo and I had returned to the Gombe Stream when Flint was seven weeks old, Fifi had become increasingly fascinated by her new brother.

Flo sat down and began to tickle Flint's neck with small nibbling movements of her worn teeth, and Fifi once again sat close and reached out to make a few grooming movements on Flint's back. Flo ignored this. Earlier, though, when Flint was not yet two months old, Flo had usually pushed Fifi's hand away each time she tried to touch Flint, and often the only way in which the child had been able to momentarily touch the infant had been by solicitously grooming Flo, working ever closer and closer to those places where Flint's hands gripped his mother's hair. Intently Fifi had groomed around the hands, occasionally briefly fondling the minute fingers and then, with a glance at Flo, hastily returning to her grooming.

Now, however, Flint was older and for the most part Fifi was permitted to touch him. As I watched, Fifi began to play with Flint, taking one hand and nibbling the fingers. Flint gave a soft whimper — possibly Fifi had hurt him — and instantly Flo pushed her daughter's hand away and cuddled her infant close. Frustrated, Fifi rocked slightly to and fro, twisting her arms behind her head and staring at Flint, her lips slightly pouted. It was not long before she reached out, gently this time, to touch him again.

I have always thought that human children become increasingly fascinating as they grow out of the helpless baby stage and begin to respond to people and things. Certainly a chimpanzee baby becomes more attractive as it grows older, not only to its mother and siblings but also to the other members of the community — and to mere human observers. For Hugo and me the privilege of being able to watch Flint's progress that year remains one of the most delightful of our experiences — comparable only to the joy we were to know much later as we watched our own son growing up.

When Flint was three months old he was able to pull himself about on Flo's body, taking handfuls of her hair, pulling with his arms and pushing with his feet. And at this time he began to

respond when Fifi approached by reaching out toward her. Fifi became more and more preoccupied with him. She began to make repeated attempts to pull him away from his mother. At first Flo firmly prevented this, but even when Fifi persisted, continually pulling at her brother, Flo never punished her. Sometimes she pushed the child's hand away, sometimes she simply walked away, leaving Fifi rocking slightly, her limbs contorted. And sometimes, when Fifi was extra troublesome, Flo instead of repulsing her advances either groomed her or played with her quite vigorously. These activities usually served to distract Fifi's attention, at least temporarily, from her infant brother.

As the year wore on it seemed that Flo, perhaps as a result of playing so often with her two younger children, became even more playful. Often, as the weeks passed, we saw her playing with both Figan and twelve-year-old Faben, tickling them or chasing with them round and round a tree trunk with Flint hanging on for dear life. On one occasion, in the middle of a romp with Faben, this old female lowered her balding head to the ground, raised her bony rump in the air, and actually turned a somersault. And then, almost as though she felt slightly ridiculous, she moved away, sat down, and began to groom Flint very carefully.

When Flint was thirteen weeks old we saw Fifi succeed in pulling him away from his mother. Flo was grooming Figan when Fifi, with infinite caution and many quick glances toward her mother's face, began to pull at Flint's foot. Inch by inch she drew the infant toward her — and all at once he was in her arms. Fifi lay on her back and cuddled Flint to her tummy with her arms and legs. She lay very still.

To our surprise Flo for the first few moments appeared to take no notice at all. But when Flint, who had possibly never lost contact with his mother's body, reached around and held his arms toward her, pouting his lips and uttering a soft *hoo* of distress,

Flo instantly gathered him to her breast and bent to kiss his head with her lips. Flint eagerly sought the reassurance of his mother's breast, suckling for a few moments before turning to look at Fifi again. And Fifi, her hands clasped behind her head, her elbows in the air, stared at Flint. Ten minutes later Fifi was again permitted to hold Flint for a short while but, once more, the moment Flint gave his tiny distressed whimper Flo rescued him; and Flint, as before, suckled briefly when he regained the security of his mother's arms.

After this not a day passed without Fifi pulling her infant brother away from Flo. As time went on Flint became accustomed to the arms of his sibling, and so she was able to hold him for longer periods before he uttered the tiny sound that for the next nine months would bring Flo hastening to his rescue. Flo even permitted Fifi to carry Flint when the family wandered through the forests.

On those occasions when Flo and her family were part of a large group, however, Flo was more possessive of her infant. Then if Fifi moved away with Flint, Flo followed, uttering soft whimpers herself, until she caught up with the kidnaper and retrieved her infant. Even now Fifi was not punished; Flo simply reached forward, grabbed hold of her daughter's ankle, and then gathered Flint into her arms. Sometimes Fifi led her old mother a merry dance, around trees, under low vegetation, where Flo had to creep almost on her belly — even up into the trees. And sometimes, as if to prevent Flo from catching hold of her, she walked backward in front of her mother, grunting softly and bobbing up and down as though in submission, but not — until she was forced to — relinquishing Flint.

When Flint was very small his two elder brothers, although they sometimes stared at him, paid him little attention. Occasionally while he was grooming with his mother, Faben very gently patted the infant; Figan, though he was such an integral

part of the family, seemed afraid to touch Flint in the early days. If, when Figan and Flo were grooming, the infant accidentally touched Figan, as in baby fashion he waved his arms about, Figan, after a quick glance at Flo's face, seemed to avoid looking at Flint. For Figan, though he was a vigorous adolescent male, still showed great respect for his old mother.

One occasion is vivid in my memory. Fifi had taken Flint and was sitting grooming the infant some ten yards from Flo. When Figan approached and sat beside his sister, Flint turned toward him and, with his wide-eyed gaze fixed on Figan's face, reached out to grasp his brother's chest hair. Figan started, and after a quick glance in Flo's direction raised his hands up and away from the infant. Then he stayed motionless, staring down at Flint, his lips tense. The infant pulled closer and nuzzled at Figan's breast, then all at once seemed afraid of the unfamiliar. Usually his only contacts were Flo and Fifi, and if he reached toward either of them they always responded by holding him close. With a slight pout Flint turned back to Fifi, but then, as though confused, he again reached to Figan with a soft whimper. At this Flo came hurrying to his rescue, and as she approached Figan too gave low worried cries, and raised his hands even higher as in the age-old gesture of surrender. Flo gathered up her infant and Figan lowered his hands slowly, as though dazed.

One day, when Flint was just less than five months old, Flo got up to go and, instead of pressing Flint to her belly, took his arm in one hand and hoisted him over her shoulder onto her back. There he remained for a few yards before he slipped down and clung to her arm. For a short distance Flo continued, with Flint gripping around her elbow; then she pushed him back under her tummy. The next day when Flo arrived in camp, Flint was clinging precariously to her back, hanging on to her sparse hair with his hands and feet. When Flo left she again pushed her son up onto her back, and again he clung there awhile before sliding

down and dangling from one hand by her side. This time, after walking thirty yards or so, Flo pushed him once more onto her back. After this Flint nearly always rode on Flo's back or else dangled beside her while she walked the mountains. This was not surprising, since all infants after a certain age start riding their mothers rather than clinging on beneath; but we were astonished to see that Fifi, when next we saw her take Flint, also tried to push him onto her back. This was surely an example of learning by direct observation of her mother's behavior.

By the time Flint was five months old he had become an accomplished rider, and only occasionally slipped down to dangle beside Flo as she walked. If there was any sign of excitement among the group, or if Flo was about to move into thick undergrowth, then she always reached back and pushed Flint around so that he clung underneath as before. Soon he learned to wriggle under Flo of his own accord in response to the slightest touch.

About the same time Flint began to ride on Flo's back we first saw him take a step by himself. For some weeks previously he had been able to stand on the ground balanced on three limbs and clinging to Flo's hair with one hand; and occasionally he had taken a couple of steps in this manner. On this particular morning he suddenly let go of Flo and stood by himself, all four limbs on the ground. Then, very deliberately, he lifted one hand off the ground, moved it forward safely, and paused. He lifted a foot off the ground, lurched sideways, staggered, and fell on his nose with a whimper. Instantly Flo reached out and scooped him into her arms. But that was the beginning. Each day after this Flint walked one or two steps farther, although for months he was incredibly wobbly. Constantly he got his hands and feet muddled up and fell — and always Flo was quick to gather him up. Often she kept one hand under his tummy as he tottered along.

Just after he began to walk Flint attempted to climb. One day we saw him standing upright, holding on to a tiny sapling with

both hands and gripping it first with one foot and then the other. But he never managed to get both feet off the ground at once and after a few moments he fell backward onto the ground. Subsequently he repeated this performance several times and Flo, as she groomed Fifi, idly held one hand behind his back, preventing further tumbles. A week after his first attempt Flint was able to climb a short way quite easily. Like a human child, he found it much harder to get down by himself. Flo of course was very watchful — as indeed was Fifi — and one or other of his guardians reached to rescue him the moment he gave his soft whimper. Flo, in fact, often retrieved him when she noticed that the end of the branch on which he was swinging was beginning to bend and Flint was totally unaware of it. She was equally quick to seize him if she saw any sign of social excitement or aggression among other members of the group.

Gradually Flint learned to control his limbs slightly better when walking, although he still often relied on speed, rather than co-ordination, to get him from one place to another. He began to venture several yards away from Flo — and since any movement away from his mother was wildly exciting, and excitement set his hair on end, he tottered around like a fluffy black ball, his wide-eyed gaze fixed with concentration on some object or individual in front of him.

It was at this time that fascination for her small brother became almost an obsession of Fifi's. She spent nearly all her day playing with him, grooming him as he slept, or carrying him about with her. Flo, it seemed, was often far from displeased to shed from time to time part of her load of maternal responsibility. Provided that Fifi did not carry Flint out of sight, and provided there were no potentially aggressive males nearby, she no longer objected when Fifi kidnaped Flint. Nor did Flo seem to mind if other youngsters approached Flint to play gently with him. But Fifi did. If she suddenly noticed Gilka, or another of her erstwhile

playmates, close to Flint, Fifi instantly abandoned whatever she was doing, rushed over, and chased the youngster away, hair bristling, arms flailing, and feet stamping the ground. Even chimps much older than herself, provided they were subordinate to Flo, were threatened or even attacked by aggressive Fifi. Presumably she acted on the assumption that if anything went wrong old Flo would hurry to her assistance — and it was evident that the victims of her fury were fully aware of this fact also.

Fifi, however, could not chase Faben or Figan away from Flint, and as the infant grew up both of his elder brothers showed increasing interest in him. Often they would approach and play with him, tickling him or pushing him gently to and fro as he dangled, legs kicking, from a low branch. Sometimes when Figan was playing with Flint, we saw Fifi hurry to the scene and try to initiate a game with Figan; many times she was successful. Then, when the game was over, Fifi would hurry back to play with Flint herself. Was she, perhaps, practicing the same technique of distraction that Flo had used so often on her?

When Flint tottered up to one of the adult males, Fifi could scarcely interfere; she merely sat and stared as David, or Goliath, or Mike reached out and time and again patted Flint or gently embraced him. And as the weeks went by Flint, like a spoiled human child, wanted more and more attention. One day as he tottered up to Mr. McGregor the old male got up and moved away. It was not, I think, deliberate — it just happened that he was about to leave. Flint stopped dead, staring with widening eyes at the male's retreating rear, and then, stumbling along with frantic haste, repeatedly falling on his face, Flint followed. Continuously he uttered his soft whimper. Within moments Flo was rushing to retrieve him. That was only the start of it, and for the next few weeks Flint was always whimpering along after one or other of the adult males who had not deigned to stop and greet him, or who had walked away from the infant for any reason

whatever. Often the male concerned, uneasy perhaps at the little calls following in his wake, would stop or turn back to pat Flint.

When Flint was eight months old he sometimes spent fifteen minutes or so out of contact with Flo as he played or explored, but he was never far from her. He was somewhat steadier on his feet and he was able to join Fifi in some of her slightly rougher games, chasing around a grass tuft, or pulling himself on top of her as she lay on the ground and tickling her with his hands and mouth. It was at this time that the termiting season began.

One day when Flo was fishing for termites it became obvious that Figan and Fifi, who had been eating termites at the same heap, were becoming restless and wanted to leave. Old Flo, who had already fished for two hours and was herself only getting about two termites every five minutes, showed no signs of stopping. Being an old female, it was possible that she might continue for another hour at least. Several times Figan had set off resolutely along the track leading to the stream, but on each occasion, after repeatedly looking back at Flo, he had given up and returned to wait for his mother.

Flint, too young to mind where he was, potted about on the heap, occasionally dabbing at a termite. Suddenly Figan got up again and this time approached Flint. Adopting the posture of a mother who signals her infant to climb onto her back, Figan bent one leg and reached back his hand to Flint, uttering a soft, pleading whimper. Flint tottered up to him at once, and Figan, still whimpering, put his hand under Flint and gently pushed him onto his back. Once Flint was safely aboard, Figan, with another quick glance at Flo, set off rapidly along the track. A moment later Flo discarded her tool and followed.

Hugo and I were amazed at this further example of Figan's ingenuity in getting his own way. Had his behavior really been deliberate? We couldn't be sure. A few days later Fifi did exactly the same thing. A week later we watched Faben take Flint to his

breast after he too had tried several times to persuade his mother to follow him away from a termite heap. We had never seen Faben carrying Flint before.

As the termite season wore on there could be no doubt that Flo's older offspring were kidnaping Flint with the deliberate intent of getting their mother to stop, at least for the time being, her endless termiting. We saw all three of them taking Flint in this way on any number of occasions. They were not always successful. Often Flint dropped off and ran back to his mother of his own accord. And sometimes, if Flo's hole was still yielding a good supply of termites, she hurried to retrieve Flint and then returned to the heap followed by the unsuccessful kidnaper — who usually tried again later.

Flint, of course, was too young to show any interest in eating termites; he occasionally sampled a mouthful of fig or banana but still received virtually all his nourishment from his mother's milk, and would continue to do so for another year. Once in a while he did poke at a crawling termite with his finger, and he played with discarded grass tools when he was wandering about on a termite heap. Also, he began to "mop" everything. When termites are spilled onto the surface of the heap, older chimps mop them up with the backs of their wrists: the termites become entangled in the hairs and are picked off with the lips. It was soon after the termite season began that Flint started to mop things — the ground, his own legs, his mother's back as he rode along, anything but termites. Actually, though he sometimes gazed intently for a few moments as his mother or one of his siblings worked, he was not really interested in this activity which so absorbed his elders.

Fifi, on the other hand, was a keen termite fisher, and when Flint, wanting to play with his sister, jumped onto her and scattered the insects from her grass stem, she was obviously irritated. Over and over she pushed him away roughly. Fifi still played with Flint frequently herself when she was not termiting, but,

almost as though some spell had been broken, she never again showed quite the same fanatical preoccupation with him; she no longer protected him as consistently from social contact with other young chimps.

Flint then began to enlarge his circle of friends, since Fifi, particularly when she was working at a termite heap, often permitted Gilka or one of the other juveniles to approach and play with Flint. She no longer rushed up aggressively every time one or other of the adolescent females carried Flint around or groomed him or played with him. Flint, in fact, was growing up. Even when Fifi did devote all her attention to her little brother she could no longer treat him as her doll, for he had developed a mind of his own. If Fifi wanted to carry him in one direction and he wanted to go somewhere else, then he struggled away from her and went his way. Also, he was getting heavier. One day when Flint was sleeping in her lap and gripping tightly to her hair, it was obvious that he was hurting his sister. Fifi carefully detached first one hand and then the other, but as soon as they were loosened Flint, disturbed, gripped on again tightly. Finally, for the first time on record Fifi carried the infant back to Flo and pushed him in her mother's direction.

When Flint was one year old he was still wobbly on his legs but he was quick to bounce toward any game in progress, and eager to hurry over to greet any newcomer that joined his group. He was, in fact, beginning to take part in the social life of his community: a community which at that time was still unsettled as a result of the dramatic rise to overall dominance of Mike. Flint could scarcely have been aware of the battle of wills that had finally led to Goliath's defeat because it had started at the time of his birth. Flint grew up in a world where Mike undisputedly was supreme.

10

THE HIERARCHY

MIKE'S RISE TO THE NUMBER ONE or top-ranking position in the chimpanzee community was both interesting and spectacular. In 1963 Mike had ranked almost bottom in the adult male dominance hierarchy. He had been the last to gain access to bananas, and had been threatened and actually attacked by almost every other adult male. At one time he even had appeared almost bald from losing so many handfuls of hair during aggressive incidents with his fellow apes.

When Hugo and I had left the Gombe Stream at the end of that year preparatory to getting married, Mike's position had not changed; yet when we returned four months later we found a very different Mike. Kris and Dominic told us the beginning of his story — how he had started to use empty four-gallon kerosene cans more and more often during his charging displays. We did not have to wait many days before we witnessed Mike's techniques for ourselves.

There was one incident I remember particularly vividly. A group of five adult males, including top-ranking Goliath, David Graybeard, and the huge Rodolf, were grooming each other. The session had been going on for some twenty minutes. Mike was sitting about thirty yards apart from them, frequently staring toward the group, occasionally idly grooming himself.

All at once Mike calmly walked over to our tent and took hold of an empty kerosene can by the handle. Then he picked up a second can and, walking upright, returned to the place where he had been sitting. Armed with his two cans Mike continued to stare toward the other males. After a few minutes he began to rock from side to side. At first the movement was almost imperceptible, but Hugo and I were watching him closely. Gradually he rocked more vigorously, his hair slowly began to stand erect, and then, softly at first, he started a series of pant-hoots. As he called, Mike got to his feet and suddenly he was off, charging toward the group of males, hitting the two cans ahead of him. The cans, together with Mike's crescendo of hooting, made the most appalling racket: no wonder the erstwhile peaceful males rushed out of the way. Mike and his cans vanished down a track, and after a few moments there was silence. Some of the males reassembled and resumed their interrupted grooming session, but the others stood around somewhat apprehensively.

After a short interval that low-pitched hooting began again, followed almost immediately by the appearance of the two rackety cans with Mike close behind them. Straight for the other males he charged, and once more they fled. This time, even before the group could reassemble, Mike set off again; but he made straight for Goliath — and even he hastened out of his way like all the others. Then Mike stopped and sat, all his hair on end, breathing hard. His eyes glared ahead and his lower lip was hanging slightly down so that the pink inside showed brightly and gave him a wild appearance.

Rodolf was the first of the males to approach Mike, uttering soft pant-grunts of submission, crouching low and pressing his lips to Mike's thigh. Next he began to groom Mike, and two other males approached, pant-grunting, and also began to groom him. Finally David Graybeard went over to Mike, laid one hand on his groin, and joined in the grooming. Only Goliath kept away,

sitting alone and staring toward Mike. It was obvious that Mike constituted a serious threat to Goliath's hitherto unchallenged supremacy.

Mike's deliberate use of man-made objects was probably an indication of superior intelligence. Many of the adult males had at some time or another dragged a kerosene can to enhance their charging displays in place of the more normal branches or rocks; but only Mike apparently had been able to profit from the chance experience and learn to seek out the cans deliberately to his own advantage. The cans, of course, made several times more noise than a branch when dragged along the ground at speed, and eventually Mike was able to keep three cans ahead of him at once for about sixty yards as he ran flat-out across the camp clearing. No wonder that males previously his superiors rushed out of Mike's way.

Charging displays usually occur at a time of emotional excitement — when a chimpanzee arrives at a food source, joins up with another group, or when he is frustrated. But it seemed that Mike actually *planned* his charging displays; almost, one might say, in cold blood. Often when he got up to fetch his cans he showed no visible signs of frustration or excitement; that came afterward when, armed with his display props, he began to rock from side to side, raise his hair, and hoot.

Eventually Mike's use of kerosene cans became dangerous — he learned to hurl them ahead of him at the close of a charge. Once he got me on the back of my head, and once he hit Hugo's precious movie camera. We decided to remove all the cans, and went through a nightmare period while Mike tried to drag about all manner of other objects. Once he got hold of Hugo's tripod — luckily when the camera was not mounted — and once he managed to grab and pull down the large cupboard in which we kept a good deal of food and all our crockery and cutlery. The noise and the trail of destruction were unbelievable. Finally,

however, we managed to dig things into the ground or hide them away, and like his companions Mike had to resort to branches and rocks.

By that time, however, his top-ranking status was assured, although it was fully another year before Mike himself seemed to feel quite secure in his position. He continued to display very frequently and vigorously, and the lower-ranking chimps had increasing reason to fear him, since often he would attack a female or youngster viciously at the slightest provocation. In particular, as might be expected, a tense relation prevailed between Mike and the formerly dominant male, Goliath.

Goliath did not relinquish his position without a struggle. His displays also increased in frequency and vigor and he too became more aggressive. There was a time, toward the start of this battle for dominance, when Hugo and I feared for Goliath's sanity. After attacking a couple of youngsters and charging back and forth dragging huge branches, he would sit, with hair on end, his sides heaving from exertion, a froth of saliva glistening at his half-open mouth, and a glint in his eyes that to us looked not far from madness. We actually had a soldered-mesh iron cage built in Kigoma and, when this had been set up in camp, we retreated inside when Goliath's temper was at its worst.

One day when Mike was sitting in camp, a series of distinctive, rather melodious pant-hoots with characteristic quavers at the close announced the return of Goliath, who for two weeks had been somewhere down in the southern part of the reserve. Mike responded immediately, hooting in turn and charging across the clearing. Then he climbed a tree and sat staring over the valley, every hair on end.

A few minutes later Goliath appeared, and as he reached the outskirts of the camp clearing he commenced one of his spectacular displays. He must have seen Mike, because he headed straight for him, dragging a huge branch. He leaped into a tree near

Mike's and was motionless. For a moment Mike stared toward him and then he too began to display, swaying the branches of his tree, swinging to the ground, hurling a few rocks, and, finally, leaping up into Goliath's tree and swaying the branches there. When he stopped, Goliath immediately reciprocated, swinging about in the tree and rocking the branches. Presently, as one of his wild leaps took him quite close to Mike, Mike also displayed, and for a few unbelievable moments both of the splendid male chimpanzees were swaying branches within a few feet of each other until I thought the whole tree must crash to the ground. An instant later both chimps were on the ground displaying in the undergrowth. Eventually they both stopped and sat staring at each other. It was Goliath who moved next, standing upright as he rocked a sapling; when he paused Mike charged past him, hurling a rock and drumming with his feet on the trunk of a tree.

This went on for nearly half an hour: first one male and then the other displayed, and each performance seemed to be more vigorous, more spectacular than the one preceding it. Yet during all that time, apart from occasionally hitting one another with the ends of the branches they swayed, neither chimpanzee actually attacked the other. Unexpectedly, after an extra long pause, it looked as if Goliath's nerve had broken. He rushed up to Mike, crouched beside him with loud, nervous pant-grunts, and began to groom him with feverish intensity. For a few moments Mike ignored Goliath completely. Suddenly he turned and, with a vigor almost matching Goliath's, began to groom his vanquished rival. There they sat, grooming each other without pause for over an hour.

That was the last real duel between the two males. From then on it seemed that Goliath accepted Mike's superiority, and a strangely intense relationship grew up between the two. They often greeted one another with much display of emotion, embracing or patting one another, kissing each other in the neck;

afterward they usually started grooming each other. During these grooming sessions it appeared that the tension between them was eased, soothed by the close, friendly physical contact. Afterward they sometimes fed or rested quite close to each other, looking peaceful and relaxed as though the bitter rivalry of the past had never been.

It is one of the most striking aspects of chimpanzee society that creatures who can so quickly become roused to frenzies of excitement and aggression can for the most part maintain such relaxed and friendly relations with each other. One day I followed Mike from camp, over the stream and for some way into the thick forest of the opposite mountain slope. With Mike were the old male J.B. and Flo with Flint, Fifi, and Figan. Eventually they stopped under some trees in one of those places where chimps love to rest stretched out in the shade. I sat down nearby. Fifi climbed high up into the tree and made herself a little nest; Figan and J.B. snoozed on the ground; Flo, with Flint sleeping on her lap, sat grooming Mike. At last they too lay down to rest.

Presently Mike reached out toward Flo's hand and began almost imperceptibly to play with her fingers. Soon she responded, gently grasping his hand, twisting and pulling away — only to reach out and grasp it again. After a few minutes Mike sat up and leaned over Flo, tickling her neck and her ticklish groin until, protecting Flint with one hand and parrying Mike with the other, Flo started to shake with panting gasps of chimpanzee laughter. After a while she could stand it no longer and rolled away from him. But she was roused, this ancient female with her stumps of teeth, and soon she was tickling Mike in the ribs with her bony fingers. Then it was Mike's turn to laugh and reach to grab her hands and tickle her again himself.

After ten minutes Flo evidently could endure the tickling no longer and she moved away, leaving Mike stretched out with a benign expression on his face. And yet just two hours earlier this

same male had attacked Flo savagely, dropping a huge pile of his own bananas and pounding the old female unmercifully — just because she had presumed to take a few fruits for herself from a nearby box. How was it possible for her to enjoy such a relaxed interaction with Mike so soon? The secret perhaps lies in the fact that, although a male chimpanzee is quick to threaten or attack a subordinate, he is usually equally quick to calm his victim with a touch, a pat on the back, an embrace of reassurance. And Flo, after Mike's vicious attack, and even while her hand dripped blood where she had scraped it against a rock, had hurried after Mike, screaming in her hoarse voice until he had turned. As she approached him and crouched low in apprehension, he had patted her several times on her head and then, as she calmed, had given her a final reassurance by leaning forward to press his lips to her brow.

Would Mike have become the top-ranking male if my kerosene cans and I had not invaded the Gombe Stream? We shall never know, but I suspect he would have in the end. Mike has a strong "desire" for dominance, a characteristic very marked in some individuals and almost entirely lacking in others. Over and above this trait Mike has unquestionable intelligence — and amazing courage too. Soon after he had become the uneasy top-ranking male, when some of the high-ranking males turned on him, Mike had charged into camp, hurled a few rocks, and, in passing, briefly pounded on David Graybeard. David Graybeard in some ways was a coward, since he nearly always tried to avoid trouble, and, when he couldn't, he usually tried to hide behind a higher-ranking companion, such as Goliath. But when he became really roused to fury, he was a very dangerous chimpanzee.

On this occasion David, after running away from Mike screaming, turned and began to utter loud, fierce-sounding *waa* barks. He hurried over to Goliath and embraced him, then turned and again shouted toward Mike. By this time Hugo and I knew David

well, and it was obvious that he was furious. Abruptly David ran forward a short way toward Mike and immediately Goliath joined him, adding his own fierce call to his friend's. Mike began to display, charging across the clearing toward another group of males. They fled, screaming, but then, since David and Goliath were still calling, they joined in too. Now it was five strong adult males, including the once top-ranking Goliath, against one. Again Mike charged across the clearing, and all at once, with David in the lead, the others were after him. Mike, screaming now, rushed up a tree and the others followed. Hugo and I felt sure that this was the showdown: now Goliath would regain his lost position.

To our amazement, Mike turned — instead of leaping away into the next tree and running away, he turned. He was still screaming but he began to sway branches violently, and the next moment he took a leap toward the five. In a flurry of fright they rushed down the tree, almost falling over one another in their haste, and fled with Mike after them. When Mike sat, hair on end, eyes glaring, the others stayed away from him, cowed. Mike had won a spectacular victory by bluff.

When I refer to Mike as the dominant male, what I really mean is that he became top-ranking among those individuals that we know, individuals whose normal range includes our home valley. Once I had become really familiar with all the chimpanzees of our community, I quickly realized from visits to the north and south of the park that there are in fact two other communities. Females of those northern and southern communities sometimes appeared in the central valley, when in estrus. Then they were mated by our community males. Usually they vanished again when their swellings had subsided, but occasionally they transferred out of their own communities and into ours.

It seemed that there was a small group of chimpanzees that normally ranged to the south of my study community. Perhaps they had once been part of our group, and had begun to split off

for some reason. At any rate, individuals of these two groups did sometimes intermix. Again, it was mostly southern females that we saw, moving temporarily with our males.

One of the southern males, however, did start to visit our feeding station. He would come for a week or so at a time, presumably when he was in the vicinity, and then disappear back to his normal haunts. Just before he died he became quite a regular visitor to camp, but his relationships with the males of our group were always rather tense.

A chimpanzee community is an extremely complex social organization. Only when a large number of individuals began to visit the feeding area and I could make regular observations on their interactions one with another did I begin to appreciate just how complex it is. The members who compose the community move about in constantly changing associations, and yet, though the society seems to be organized in such a casual manner, each individual knows his place in the social structure — knows his status in relation to any other chimpanzee he may chance upon during the day. Small wonder there is such a wide range of greeting gestures, and that most chimpanzees do greet each other when they meet after a separation. Figan, going up to an older male with a submissive pant-grunt, is probably affirming that he remembers quite well the little aggressive incident of two days before when he was thumped soundly on the back. "I know you are dominant. I admit it; I remember" is probably the sort of communication inherent in his submissive gesturing. "I acknowledge your respect; I shall not attack you just now" is implicit in the gentle patting movement of Mike's hand as he greets a submissive female.

As Hugo and I became increasingly familiar with Mike's community we began to learn more and more about the variety of relationships which existed between different adult chimpanzees.

Some individuals only interacted when chance — such as a fruiting tree or a sexually attractive female — threw them together. Others moved about together frequently and showed an affectionate tolerance and regard for each other which we felt could best be described as friendship. As our study continued, we found that some friendships persisted over the years and others were of relatively short duration. We learned also to appreciate the different characteristics of male and female chimpanzees. And the more we learned, the more we were impressed by the obvious parallels between some chimpanzee and some human relationships.

Firm friendships, like that between Goliath and David Graybeard, seem to be particularly prevalent among male chimpanzees. Mike and the irascible, testy old J.B. traveled about in the same group very frequently. When I first knew them, J.B. was the higher-ranking of the two, but Mike's strategies with the kerosene cans served to subordinate J.B. along with all the other males. However, once things had settled down, with Mike secure in the top-ranking position, it became apparent that J.B. had also risen in the social ladder. When he was in a group with Mike, J.B. was able to dominate Goliath as well as other males who had held a higher rank than he before Mike's rise. These other males quickly accepted J.B. as second only to Mike, but Goliath asserted his old superiority over J.B. on many occasions when Mike was not part of the group. I well remember one day when Goliath threatened J.B., who had approached his box of bananas. J.B. at once moved away but began to scream loudly, looking across the valley in the direction that Mike had taken earlier. Mike must have been quite close, because within a few minutes he appeared, his hair on end, looking around to see what had upset his friend. Then J.B. ran toward the box where Goliath sat, and Goliath, with submissive pant-grunts, hastened to vacate his place — even though Mike took no further active part in the dispute.

There was another occasion when after eating about twenty bananas J.B. tried hard to break open another box. As he was a past master at breaking boxes, and they were hard to mend, Hugo and I tried to dissuade him from the idea by walking slowly to the box and sitting on it. J.B. did move away, but then he climbed a nearby tree and screamed, again staring in the direction taken by Mike when he had left earlier. That time, however (perhaps luckily for us), Mike must have been out of earshot, for he did not come back.

Leakey and Mr. Worzle were two other males who frequently traveled together. In temperament they were very different. Leakey, like his namesake, was robust, high-ranking, and usually good-natured. Mr. Worzle, on the other hand, was always nervous, both in his dealings with other chimps and with human beings. He was very low-ranking and, even before he became really decrepit previous to his death, was subordinate to all the other adult males — and some of the adolescent males also. Nevertheless, the two spent hours in each other's company, grooming one another, feeding, and moving from place to place together, building their nests in the same or neighboring trees. When Leakey was with him, Mr. Worzle always seemed far more relaxed and confident.

Friendships of this sort are beneficial not only to the lower-ranking of the pair. One day, during the period when Goliath was losing his top-ranking position, he arrived in camp alone. He was tense and obviously anxious about something; every so often he stood upright to stare back along the way from which he had come, and he jumped at every sudden sound.

All at once Hugo and I noticed three males, one of whom was the high-ranking Hugh, standing at the top of a slight rise looking toward Goliath. They all had their hair slightly on end, and as they began running down the slope they reminded us of a gang of thugs. Goliath did not wait to see what they would do.

With great speed and silence he ran in the opposite direction and vanished into the thick vegetation surrounding camp. The three rushed after him, and for the next five minutes they bustled about noisily in the undergrowth, obviously searching for Goliath. They were unsuccessful and ultimately emerged and began to eat bananas. Suddenly Hugo pointed. There, a short distance up the slope, I saw a head peeping cautiously from behind a tree trunk — Goliath's. Every time one of the three looked up Goliath bobbed back behind his tree, only to peer out after a few moments. Eventually we saw him moving off quietly up the slope.

The chimps slept near camp that night and very early, almost before dawn, we heard a sudden burst of pant-hooting from the direction of Goliath's nest. Hugh and the other two males were the first to arrive in camp, dark shapes in the gray light. While they were eating bananas we heard a burst of calling from the slope. A moment later Goliath charged down, dragging a huge branch and hurling it forward as he crossed the clearing. Without pausing he rushed at Hugh and began to attack him. It was a fierce battle, and Hugh came off very much the worst. Usually a male pounds his victim for a few seconds only, but this time the two combatants rolled over and over, grappling and hitting. Goliath then managed to leap onto Hugh, hanging on to his shoulder hair and stamping on his back with both feet.

It was just after the start of the fight that Hugo and I realized why Goliath was suddenly brave: we heard the deep, characteristic pant-hoots of David Graybeard and glimpsed him charging in his slow and magnificent fashion across the clearing and past the battling males. David must have joined his friend early that morning, and by his presence alone given Goliath the courage to face Hugh and his gang.

With the exception of David and Goliath, who bore no resemblance at all to each other, we have been able to detect similarities in either physical make-up or behavioral character-

istics — or both — in all of the pairs of male friends that we have known. This was particularly striking in the case of Leakey and Mr. Worzle. Mr. Worzle had extraordinary eyes, for the part around the iris was white instead of being heavily pigmented with brown as in other chimpanzees. His eyes therefore exactly resembled those of a man. Leakey also showed the same unusual lack of pigmentation, though to a much lesser extent than Mr. Worzle. We suspect, therefore, that pairs of male friends may often be siblings.

The only two adult females we know who enjoyed this sort of friendship were almost certainly sisters; not only did they look alike facially, but they had the same massive build, and both were prone to perform charging displays, stamping on the ground and swaggering in a manner more typical of males. They were the only two adult females I had seen playing with each other — rolling about on the ground, tickling one another and panting with laughter, each with her infant cradled in one arm.

The adult females of the chimpanzee community are almost always submissive to adult males, and to many of the older adolescent males. But they have their own dominance hierarchy, of which Flo for many years was supreme, respected and even feared by old and young females alike. Flo was exceptionally aggressive toward her own sex, and she would tolerate no insubordination from young adolescent males. Much of her confidence no doubt resulted from the fact that she was so often accompanied by her two eldest sons, and with the aggressive Fifi as well, the family was formidable indeed.

As mentioned earlier, Flo at one time often wandered about together with the mother Olly, but their relationship was very different from that between Mike and J.B. or David and Goliath. For one thing, Flo was frequently aggressive toward Olly, and for another, neither would go to the assistance of the other in times of trouble. The only time I did see them united was when

they ganged up on a young stranger female. This female had first appeared in camp boasting a pink swelling and surrounded by a retinue of males. She had come in every day for ten days and had become quite used to the strange place where bananas grew in boxes on the ground. Although she often had been in camp at the same time as Flo and Olly, the two older females had seemed to ignore her completely.

One day when a small group of chimps including Flo and Olly were grooming in camp, Hugo and I saw the young stranger female, her swelling quite gone, sitting in a tree at the edge of the clearing and looking nervously toward us. We were pleased, for at that time only a very few young females visited the feeding area. Just as we were getting some bananas ready for her we noticed Flo and Olly staring fixedly at the stranger, every hair on their bodies bristling.

It was Flo who took the first step forward, and Olly followed. They went quietly and slowly toward the tree, and their victim failed to notice them until they were quite close. Then, with pants and squeaks of fear, she climbed higher in the branches. Flo and Olly stood for a moment looking up before Flo shot up the tree, seized the branch to which the now screaming female was clinging, and, her lips bunched in fury, shook it violently with both hands. Soon the youngster, half shaken, half leaping, scrambled into a neighboring tree with Flo hot on her heels and Olly uttering loud *waa* barks on the ground below. The chase went on until Flo forced the female to the ground, caught up with her, slammed down on her with both fists, and then, stamping her feet and slapping the ground with her hands, chased her victim from the vicinity. Olly, still barking, ran along behind.

When the stranger had vanished along the forest track Flo stopped. Her face was spattered with liquid dung — product of the young female's terror — her hair was still bristling. Olly stood beside her, and the two old females listened as the sounds of

screaming gradually receded up the valley. Then Flo turned, wiped off the dung with a handful of leaves, and slowly returned to camp — where throughout this incident Fifi had been looking after the eight-month-old Flint.

This was not the only occasion when we witnessed sudden alliances between two or more adult females which resulted in driving young newcomers of the same sex away from the feeding area. We have not seen them gang up in this way on stranger adolescent males; nor have we seen adult males of our group driving away strangers of either sex from the feeding area. What, then, motivates the aggressive behavior of these females? Is it perhaps the fact that older females, who normally have a smaller range than males, are more territorial? Or could it be due to some more complex emotion — do old females, perhaps, resent the attention paid to young stranger females by “their” adult males? Are they, in other words, motivated by the emotion that in human beings we call jealousy? We cannot be sure — but sometimes it certainly seems like it.

One day when Flo was socially grooming with four adult males, a young pregnant female arrived; she had recently joined our group from the north. Pregnant females often continue to show monthly swellings, and this one had a very pink posterior. The males on this occasion did not mate her, but they were nevertheless interested. They left Flo, hastened over to the newcomer, inspected her bottom, and began to groom her vigorously. It was only a few minutes later that I noticed Flo. She had moved several yards toward the young female and was standing staring at her with every hair on end. Had she dared, without doubt she would have attacked the newcomer. As it was, she presently walked slowly over to the group and herself inspected the swelling carefully. Then she moved away and sat down to groom Flint.

We could scarcely believe it when the following day Flo showed the beginnings of a swelling. Flint was less than two

years old, and whereas young females may start swelling again when their infants are only fourteen months, old females like Flo do not normally become pink again for four or five years after giving birth. However, Flo's sex skin was swollen enough to arouse instant attention from Rodolf, who feverishly pushed her to her feet and intently inspected her bottom. So did two other males. Then they sat around grooming *her*. The next day that extraordinary swelling had gone — nor did Flo show any signs of swelling again for the next four years. I cannot believe that it was pure coincidence.

The female chimpanzee is indeed very different from the male, although, as in the case of humans, some females show masculine characteristics, and vice versa. When they are trying to get their own way with a social superior, adult females typically resort to pleading with many of the gestures and calls made by infants. Melissa when begging from a male reaches out her hand repeatedly, touches him ingratiatingly, and, if this behavior fails, may start to whimper or even scream like a child in a tantrum. Like other females, she can be very persistent in her begging, so that often she is eventually rewarded with a scrap of banana or cardboard or whatever it is she wants. Once when Mr. McGregor was grooming her, he turned to groom a higher-ranking male who had joined the group. Melissa stared at his back and then began rocking back and forth and whimpering. He ignored her. Her whimpers grew louder, and every so often she reached out and gave him a quick poke with her finger. Still Mr. McGregor continued to groom the other male. Finally, almost screaming in her frustration, Melissa reached out and gave him a hard shove with one foot — and at this the old male finally turned and began to groom the importunate female again.

It appears that females are more likely than males to harbor grudges. At one time Melissa, if she was threatened by a superior, nearly always hurried over to a higher-ranking individual, and

while reaching out to touch him directed loud screams toward her aggressor. Obviously she was trying to incite her chosen champion to retaliate on her behalf. The fact that the males she approached seldom responded, except perhaps to reassure the noisy female, in no way dampened her ardor; she did exactly the same the next time she was threatened. On a day when she was lightly cuffed by Rodolf, he happened to be the highest-ranking male in the group. To our astonishment, when Mike arrived some ten minutes later, Melissa rushed up to him, pressed her mouth to his neck, and then, with one hand on Mike's back, started screaming, all the while staring at Rodolf and making small flapping movements toward him with her other hand. As usual, her stratagem was ignored, but we saw her behaving in exactly the same way on other occasions.

Melissa was by no means the only female to nurse a grievance over a length of time. Pooch almost certainly lost her mother when she was between five and six years old, and she struck up a strange relationship with an old male, Huxley. For the most part they paid little attention to each other, although sometimes they sat grooming together; but whenever Huxley got up to leave, Pooch followed like a shadow. One day, when a large group of chimps had visited camp, Pooch, who was about six years old at the time, stayed behind with Evered, a year her senior, after the others had left. Neither had managed to get any bananas. As soon as the group was out of sight we gave them some fruit; a squabble broke out, and Evered cuffed Pooch, who screamed. Then she turned her rump, presenting submissively, he patted her, and they sat peacefully side by side feeding. We were astounded when Pooch, a few minutes later, suddenly dropped her bananas and attacked Evered, biting him and pulling at his hair. Evered was probably startled too, for it is unusual certainly for a female to attack a male older than herself.

Then we realized what had prompted Pooch's behavior. We

saw old Huxley, his hair on end, standing a short way along the track and staring toward us. His glance moved from Hugo and me to the youngsters. Probably he had associated Pooch's earlier scream with us and for that reason had hurried back to her rescue. A moment longer he stood before charging down toward the squabbling chimps. It looked as though he cuffed them both; then he turned and plodded away again. Evered screamed until he got cramps in his throat and sat doubled up as though in pain. Pooch immediately started after her protector, and as she passed Evered she glanced at him with an expression I have never seen before or since in a chimpanzee. It looked exactly like the smirk a young human girl might be expected to give under similar circumstances.

What Pooch did to Fifi, a couple of years her junior and a playmate of long standing, was completely against chimp etiquette. It happened when the two were romping together and Fifi, probably accidentally, hurt Pooch, who screamed and hit at Fifi. Fifi grinned in fear and then turned her rump submissively and presented to Pooch. Pooch should have reached out and touched Fifi's bottom; instead she leaned forward and, very deliberately and rather hard, bit Fifi's little pointed clitoris.

Fifi, with all her mother's staunchness of spirit, turned and flew at the larger female. The two rolled and grappled on the ground, pulling out handfuls of each other's hair until Flo finally arrived, her hair on end, and Pooch retreated, screaming. Fifi, her screeches cramping in her throat, presented again — this time to her mother, and Flo reassured her, patting her rump again and again until the child quieted. Her bottom swelled up and bled a good deal and obviously it was very painful. She made herself a soft leafy nest on the ground, where she reclined, gently dabbing at her wound with a handful of leaves.

There is a great deal in chimpanzee social relations to remind us of some of our own behavior; more, perhaps, than many of us

would care to admit. Only by carrying on our research for years to come and studying the social structure in a group where blood relationships between the different individuals are known shall we succeed in understanding the whole complex and intricate pattern.