

RHINO EXPRESS

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CONTENTS

Foreword	
Preface	
Wards of Umfolozi	1
The Biyala Affair	13
Ten Rhino at Palumbo	23
Dash for Kyle	38
Epilogue	49

FIRST EDITION

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PREFACE

THE SAGA OF the white rhino and the people involved with its resurrection from the brink of extinction is a tale of hope for those who are prone to despair at the grim prospects for wildlife survival.

I would like to impress upon the reader at this point that it is my purpose to present the story of Operation Rhino mixed with my own personal observations and experiences as told to my wife and partner, Josephine.

I do not want to infer that I alone was responsible for the salvation of the white rhino; I was a grateful participant in an unbelievable program devoted to that end. One cannot be involved in such a program as Operation Rhino and not come away a different person. I for one am glad that I was able to see the white rhino in their glory, and be changed.

Joel D. Wallach, D.V.M.
Former Director
Overton Park Zoo & Aquarium

Is it really so stupid to work for the zebras, lions, and men who will walk the earth fifty years from now, and for a hundred or two hundred years time?

—Bernard Grzimek
Frankfurt Zoo

RHINO EXPRESS

WARDS OF UMFOLOZI



Dr. Joel D. Wallach and his horse, Warlock, on patrol.

BETWEEN 1812 AND 1896 the southern race of the white rhino was still recorded as far north as the Zambesi River. The Voertrekkers recorded its presence on the grassveld of the Orange Free State, the Transvaal, and Matabeleland. The incessant northward spread of agriculture from the Cape greatly reduced the suitable grasslands available to the white rhino, a specialized grazing animal. The grass cover of the veld was burned and replaced with crops and orchards.

The white rhino is an example of an overspecialized animal that wasn't flexible enough to adjust to a new set of rules. He was physically limited to eating those short grassy forages within a few inches of the ground. Sadly enough, there was a lot of land left unoccupied by man, but it invariably had a dense cover of acacia or other bush. In contrast, the smaller black rhino was a more seclusive species and was fitted by nature with a physique that would allow it to browse. It had even learned to break down trees that were too tall to reach conveniently. Because of this versatility, the black rhino fared much better than the white rhino until the open veld was planted in crops and man began to clear the bush.

As late as 1890, small armies of armed Zulu poachers were commissioned to collect rhino horn; they relentlessly hunted the scattered individuals of a once grand population of white rhino.

By 1896 the white rhino was officially thought to be extinct until a small herd was located in a minute triangle of land framed by the White and Black Umfolozi rivers in Zululand near the east coast of Natal, the lush mideastern province of the Republic of South Africa. An official count uncovered only twenty individual rhino in the area near the junction of the two rivers. This unexpected discovery in 1897 led to the establishment of crown land to protect the animals.

Mr. Vaughn Kirby and Captain H. B. Potter, the original game conservators, led a small squad of loyal Zulu game scouts in patrolling the newly proclaimed game sanctuaries. Their immediate duties were to fend off the poachers that were intent on taking the last of the rhino for their horns, a commodity much in demand in the Orient.

Potentially as dangerous to the white rhino as poachers were the attempts of politically powerful, land-hungry individuals to get the sanctuaries put up for public auction. In January of 1930 the Umfolozi sanctuary was formally designated a game reserve and its permanence was no longer contested.

During the 1930s an interested American biologist, Dr. Herbert Lang, with lectures and reports waged an almost singlehanded battle against those trying to claim the remaining veld for human expansion.

Dr. Lang was the originator of the idea to capture a portion of the tiny Umfolozi herd and translocate it to the larger Kruger National Park in the Transvaal. He feared that a natural or man-made disaster would wipe out the few remaining white rhino.

In 1939 the crown land northeast of Umfolozi was formally declared the Hluhluwe Game Reserve. The remaining bridge crown land between the two game reserves became known locally as "the corridor."

An estimated 350 white rhino were counted in the Umfolozi Reserve during a game census in 1947. Fortunately, sympathetic legislators were able to increase the acreage in

the Umfolozi Reserve (south of the White Umfolozi River) from its original pittance of 72,000 acres to 118,000. The increase in area was welcome, but far short of the 8,400 square miles of the Kruger Park. The rapid increase in numbers had resulted from undisturbed breeding and a gravitation to the protection of the Umfolozi by the uncounted individual stragglers from all over central and southern Africa. Continued protection by the Natal Parks Board saw the white rhino numbers swell to a respectable 500 head by 1960.

The visible effects of the rhino overpopulation were obvious even to a casual observer in 1961—the irony of total protection. Unfortunately, the white rhino has no natural predators remaining in the area, and to complicate matters, the "corridor" connecting the Umfolozi and the Hluhluwe reserves was coming under serious political discussion to be turned over to the Native Trust and distributed for subsistence farms. If, in fact, the "corridor" were lost, the natural migration route to the Hluhluwe Reserve would be totally disrupted. This spectre of a repeat of the past sins against the white rhino glared at those who had nurtured the herds so long and so well. There were two alternatives: 1) carry out Dr. Lang's seemingly impossible dream to translocate breeding stock to other reserves, or 2) begin a systematic cropping of the Umfolozi herds by shooting.

Halfway across the world, in Douglasville, Georgia, Harold "Red" Palmer, an American naturalist, developed a revolutionary new tool—the tranquilizer gun. Prior to the invention of the tranquilizer gun in 1957, field biologists were limited in their work to shooting animals for blood specimens and eliminating overpopulations of animals by "cropping" with the .303 Enfield. By the end of 1958 the Georgia Wildlife Department had effectively utilized the tranquilizer gun to repopulate the depleted deer herds on the Georgia mainland from pockets of overpopulation on the coastal islands.

In 1959 Ian Player, Chief Conservator of Zululand, wrote to Palmer's company in Georgia to inquire about the marking darts for the identification of individual rhino with dye markers. In the answer to Player, a casual note was made that although dye material was not available that would withstand the rhino's wallowing habits, the equipment could be used to medicate or tranquilize the animals.

It was not until Palmer himself visited South Africa in 1960 and 1961 to personally introduce the tranquilizer equipment and train game rangers in its use that the project Operation Rhino had life breathed into it. It was during Palmer's visits that he picked up the campaign begun by Dr. Lang. Lengthy discussions developed with Mr. W. K. Kettlitz, Director of Nature Conservation of the Transvaal. Palmer outlined the tranquilizer gun's use and the part it could play in moving white rhino from Zululand to the Kruger National Park. Palmer, by now more convinced than ever that the project could work, donated the original equipment and sufficient money to get the rhino-catching experiments started.

Palmer immobilized the first black rhino in East Africa but had to return home to tend to a blossoming business. Additional expertise was needed in South Africa to push Operation Rhino forward.

The Natal Parks Board called on Dr. Anthony Harthoorn, a physiologist from Uganda, as a consultant. Dr. Harthoorn had been working with drug combinations of morphine for the capture of antelope and zebra in cooperation with Red Palmer. Working under the direction of Ian Player, a team of rangers including John Clark, Nick Steele, and Owen Letle, eagerly carried out the fledgling experiments. The original experiments on the white rhino were fifty percent successful in catching the rhino alive. Although the results were exciting, everyone was convinced that the survival percentage could be better. A fifty percent mortality rate was thought to be too high a price to pay, since a technique for moving the great rhino once they had been captured hadn't been developed yet!

Dr. Harthoorn returned to the Umfolozi early in 1962 with safer drug combinations but they were still far from ideal. The most powerful drugs available required such great volumes of fluid to provide an effective dose that the projectile syringe or dart used to inject the drug was limited in its accurate flight to approximately ten yards. This necessitated the use of a vehicle to chase the rhino until the cumbersome ten-inch-long dart could be fired at the frantic beast from a few yards away.

The rhino chases in the Land Rover were spectacular but unjustifiable because of the panic created in the animals and the damage inflicted on the already worn veld. The disturbances created by the vehicle chases soon elicited a response from the rhino. For several days following a chase and catch in an area, one was hard pressed to see a rhino. As soon as the rhino heard a vehicle approaching, they faded into the bush; unfortunately, they did not discern between the vehicles of the rangers and those of park visitors! Many tourists left the park wondering if the white rhino were, in fact, a myth.

By June of 1962, twelve white rhino had been immobilized—a fantastic accomplishment that brought Operation Rhino a step closer to reality. Final refinement of the drug combinations and the actual techniques for moving the rhino were required before the last few pieces were fit into the puzzle.

In 1964 a new experimental drug, designated M-99, was developed by Ricketts & Son, a British pharmaceutical firm. The drug itself was an opium derivative that was 10,000 times more potent than morphine. The dart length could now be reduced from ten to two inches because smaller volumes of the potent M-99 would be used. This advent allowed the development of a new technique for the capture team. The rhino hunters were now free to stalk on foot and could accurately dart the unaware rhino from a respectable distance of thirty yards on the open veld.

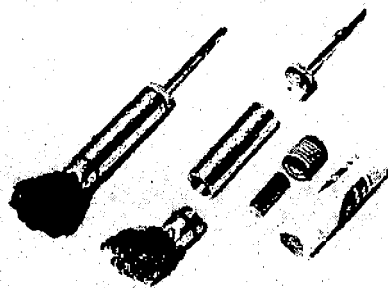
Because M-99 was still in the early stages of development, its availability was limited. The meager supply of the

now invaluable drug was extended by adding a tranquilizer.

The capture gun itself was a modified version of the standard carbon-dioxide-powered rifle with an expanded barrel that would accommodate the 20-gauge dart. The dart body consisted of an aluminum tube with internal threads on either end. The longer the tube, the more volume the dart could carry. The drugs were in liquid form and placed in the front end of the tubular dart body.

The drug solutions were injected into the animal by a forward movement of a rubber plunger. The force to move the plunger forward was provided by carbon dioxide gas generated with calcium carbonate tablets and vinegar. The forward section was fitted with a threaded plug to hold in the drugs. A heavy hypodermic needle armed with a barb was affixed to the forward plug.

The dart was stabilized during its flight by a tufted tailpiece that was screwed into the rear of the tubular body. The brightly colored tailpiece contained a recess in its base



The projectile syringe or "dart" has been reduced in size to that of a pen-light battery. From left to right are: the completed dart; the needle, barrel, and tail piece; the rubber plunger, and percussion cap; a pen-light battery for size comparison. (photo by J. D. Wallach)

large enough to house a steel ball bearing; a calcium carbonate tablet was placed on top of the ball bearing and sealed off from the acid vinegar in the tube by a wax-paper membrane. The entire rear assembly was waterproofed with clear fingernail polish. At this point the construction of each dart was an art rather than a science, one had an intimate knowledge of each projectile. Surely a similar feeling of pride at each finished product was felt by the arrow makers.

When the dart struck its target, inertia carried the ball bearing forward through the waxed paper seal, plunging the calcium tablet into the vinegar. The carbon dioxide generated would drive the plunger forward. Many careful hours of stalking had often ended in frustration when the darts prematurely discharged in midflight or failed to go off at all after striking the animal.

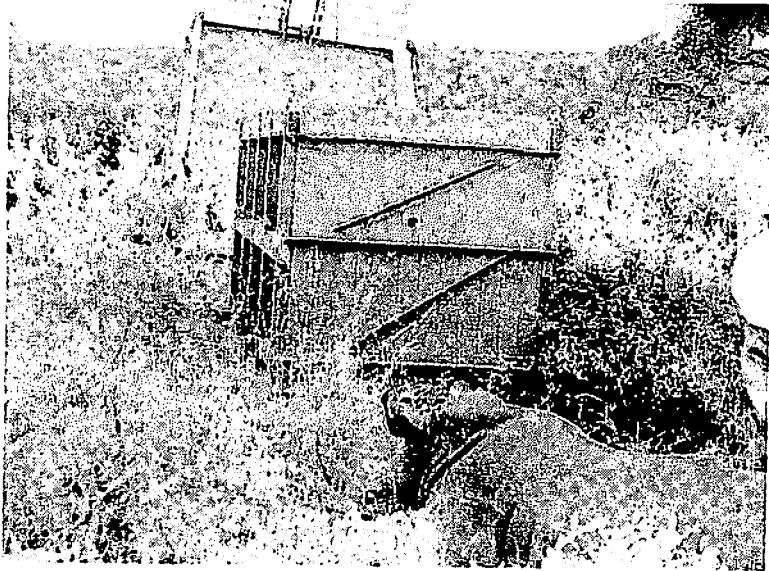
Perfection of the delivery equipment finally came when Palmer developed a small percussion cap that would consistently discharge on impact. The small brass cap was placed in the base of the rubber plunger so that when it exploded the crude gases it produced would rapidly drive the plunger forward.

Once a rhino was darted, a team of mounted Zulu game scouts followed the disappearing rhino, keeping visual contact. The scouts were protected from injury during the chase by crash helmets and heavy leather gauntlets, and the horses were protected from the ripping thorn by a heavy canvas apron and padded coronet guards. Once the downed rhino's position was fixed, the horsemen would relay the message to the waiting lorry crew with a walkie-talkie.

The lorry would be backed up to the nose of the tranquilized rhino and the 2000-pound transport crate dumped on the ground in front of it. The massive crates, made from imported fir, had a hinged door on either end to facilitate loading and unloading. Once in place, the door toward the rhino opened and a two-inch-thick manila line was lashed around the animal's head behind the posterior horn and



Zulu horsemen wearing protective crash helmet and gauntlets. Once a rhino is darted it is up to these men to keep visual contact with the animal. (photo by J. D. Wallach)



Moses unloads the catching crate in front of a young bull. (photo by J. D. Wallach)



Dr. Joel D. Wallach taking the field measurements of a young bull. (photo by K. Rochort)



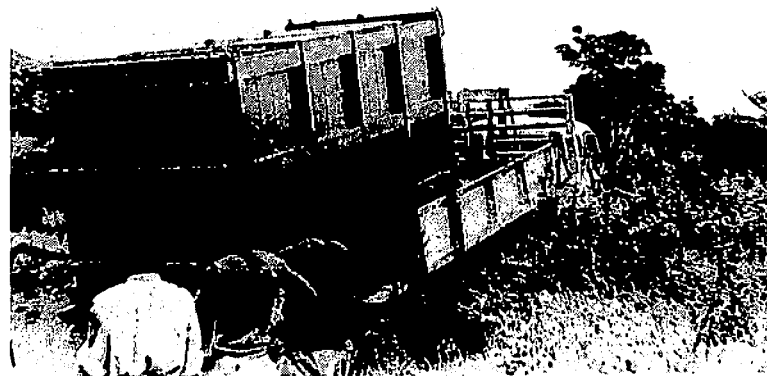
Dr. Joel D. Wallach administering the antidote into an ear vein. The head rope is pulled through the crate to guide the animal once it is awake. (photo by Mrs. J. Tinley)



Thirty seconds after giving the antidote the bull rises and is guided into the waiting crate. (photo by Mrs. J. Tinley)



Moses' crew setting up one of two rollers used to facilitate loading of rhino and crate onto the lorry. (photo by J. D. Wallach)



The loaded crate being winched onto the bed of the Bedford lorry. (photo by J. D. Wallach)

then passed forward through the crate and out a three-inch hole in the opposite door. When the rhino recovered from the drug's effects and stood up, it was pushed and guided into the crate.

The new M-99 had another advantage over the earlier chemicals in addition to being more potent. Instead of having to wait an unknown period of time until the drug's effects wore off, M-99 had an antagonist, an antidote if you will, that could be injected intravenously to get the animal up whenever the crate was in position. If the dosage of each drug in the combination was calculated correctly, it would only take a few moments to get the rhino crated.

Once the groggy rhino lurched to its feet, a crew of eight or ten men would haul on the line attached to its head to guide the dazed animal into the box. The loaded crate was then winched up a set of steel rollers hooked onto the bed of the lorry. The captured rhino could be released in other parts of the park or taken to the bomas, where it would be trained to tolerate being locked in the crate for long oceanic voyages or overland trips.

Between 1963 and 1965, a hundred white rhino were captured and successfully transported the 450 miles to the Kruger National Park. The enormous cost of the operation was partially financed by the occasional sale of pairs of white rhino to American and European zoos.

Prior to 1943 the only white rhino in captivity was a lone female that was captured at the age of one day and bottle-raised at the Pretoria Zoo. By early 1965 a total of 266 white rhino had been captured under the direction of Ian Player and moved to other reserves in Natal and the Transvaal, other nations in Africa, and several western nations of Europe and the United States. These events, to say the least, were remarkable; an unbelievable task had been dreamed up and carried out. This massive exodus of white rhino had no parallel in the annals of modern conservation—it was rivaled only by Noah's biblical achievements.

Because the new capture drug later came under the restrictions of the South African Dangerous Drugs Act, the Natal Parks Board soon found their catching operations limited to weekends when government or private veterinarians were available to handle the drugs. This reduced the potential catching time to a maximum of only eight days out of each month. The urgency of the white rhino's population crisis wouldn't allow for such an unbearable shackle. The new position of Veterinary Research Officer was conceived to place the rhino operation on a full-time schedule again.

When I arrived at the Umfolozi Reserve in August of 1965, the original capture team was still there but many men had been promoted to higher stations. Ian Player, the leader of the original group, was now the Chief Conservator of Zululand, and Nick Steele, the perpetrator of the idea to use horses for following the darted rhino, had been promoted to senior ranger of the Umfolozi Reserve. John Clark, the driver of the chase vehicle during the early operations, was now in charge of the day-to-day catching and the boma training of the rhino.

THE BIYALA AFFAIR

ONE INVARIABLY SAW more small animal life while stalking rhino than when taking a casual stroll through the grass. On many occasions, while concentrating on the approach to a rhino, a family of warthogs would be flushed from their dust baths. Their thunderous exit can make one think he has stumbled on a buffalo and break out into a nervous sweat followed by a deep sign of relief.

The general principles for stalking rhino are the same as for stalking other animals. Sudden encounters are to be expected, but on many occasions I couldn't avoid being rattled a bit. Still early in my training period, John Clark and I were stalking a rhino on the open veld when I flushed a cobra! We were on our bellies in rather short dry grass about fifty yards behind a lone bull rhino when I heard a faint rustle in the grass to my right. Moving just my eyes, I saw the flared hood of a ringhal cobra not ten inches away.

The shiny black snake had been caught unawares by our silent approach. Alarmed, it had reared up with its hood flared in typical cobra fashion. John was only two feet away from me but was so intent on stalking the rhino that he was unaware of my predicament.

Fortunately, the ringhal is not an aggressive snake, and when it realized that I was not a source of immediate danger it lowered the front portion of its body into the grass and moved off. Unlike most species of cobra, the ringhal, which literally means "ring-necked" in Afrikaans,

gives birth to live young. These interesting snakes prefer to feign death when approached by turning over on their backs; however, if handled or accidentally trod upon they will bite vigorously or eject a fine venom spray at their tormentor's face.

Following the snake's departure, I rolled onto my back and sweated profusely for a few minutes before John realized something had happened. We shared a chuckle and then went on and caught our rhino. I had been lucky that day, for if I had been bitten it would have meant an hour's ride to the camp and the refrigerator that held the lifesaving antivenom. It was impossible to keep antivenom in the Land Rover because the temperature in the vehicle climbed above 80 degrees at midday during the winter and over 100 degrees in the summer.

For me, the thirst to use a new skill is insatiable and I was anxious to get as much experience as I possibly could before John left for his extended holiday. We were out driving in the hilly southwestern portion of the reserve near the Madhlozi River when we caught sight of a young cow that met our requirements. She saw us get out of our vehicle and walk casually toward her. The wind was in our favor, but when we came within fifty yards of her she turned and trotted off.

Sometimes a bold approach on the part of the hunter is less disconcerting to the rhino than a sneaky approach in open country. The animal has difficulty in recognizing vertical objects, and as long as the hunter approaches from the perpendicular to the rhino's gaze they are usually dazzled and hold their ground. We had failed on our first approach, but we stubbornly trotted upwind after our shy cow. Following, we first went up one hill then down again. We followed up the side of one more hill before deciding it was useless. As a last desperate effort, I used "Kentucky windage" and aimed the capture gun about four feet above the cow's shoulder and lobbed the dart downhill over a distance of sixty yards. I saw the dart disappear in the grass at the

cow's feet and thought the day's catch was officially a flop.

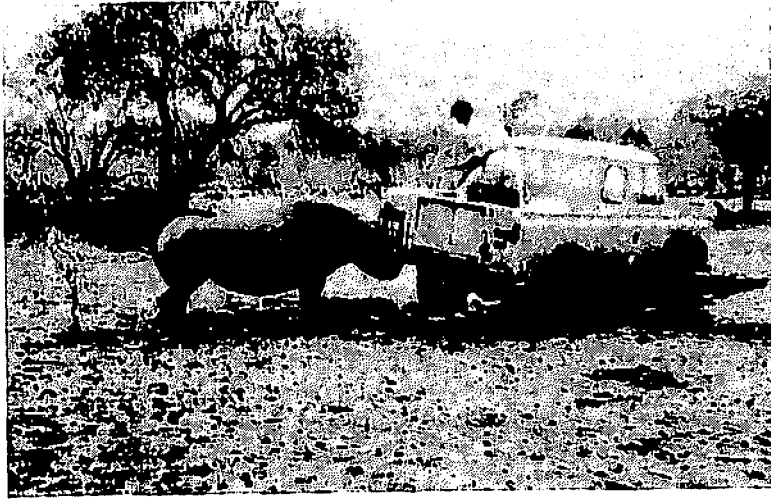
As the cow retreated up the succeeding hill, I noticed that she was showing an unusually springy gait. Watching for a few additional moments I realized that she must have gotten the drug somehow. We dashed back to the Land Rover and circled around to the hill's ridge where the cow was now quite comfortably asleep in the shade. At a glance we could see that the dart had, in fact, struck her in the foot, needle first, and held fast. In more than fifty rhino catches this was to be my longest and luckiest shot.

John Clark's holiday finally came, and I was temporarily placed in charge of the bomas and the daily catching operations. I was able to catch several more rhino and keep the bomas filled and meet my other obligations as a veterinarian in the reserve. If one could ever call rhino-catching operations routine, most of these catches fell into that category.

The more catches one made, however, the more confidence one built up. Every now and then an incident occurred that reminded us that rhino are wild animals and that becoming blasé about them could be dangerous.

We were looking for a young bull to fill the only empty pen in the boma. The day was far from perfect for catching operations because of a twenty-five mile an hour wind that was occasionally gusting up to sixty. Most wildlife had sought cover from the driving wind and the chafing sound of the sand being whipped up from the veld. After an entire morning of searching we had caught only a brief glimpse of three black rhino as they covered the open veld with their tails held high in the air and their rumps to the fierce wind.

A troupe of about fifteen Chacma baboons occupied our attention for a few moments as they began quarreling over some delectable scorpions at the edge of a pan. While we watched we took a short rest to eat sandwiches and cookies and then continued our drive east along a little-used vehicle track. Before long we came upon a bachelor herd of five



John Clark braces himself while a "punjaan" takes her anger out on a Landrover in Ndumu Game reserve after she was unloaded. The veld is completely devoid of grass from overgrazing. (photo by J. D. Wallach)



The calf of a "punjaan" in the boma. Despite the bad temperament of the mother, this calf was trained to eat from a man's hand in three days after capture. (photo by J. D. Wallach)

young bulls taking shelter from the wind in a shallow pan. Making a stalk on these animals was fairly easy because they were battened down in the mud with the roaring of the wind in their ears and the constant blast of windblown sand on their skins. I was able to get within fifteen feet, thus reducing the wind's deflecting effect on the dart. After picking out the most likely-looking bull, I darted him in the shoulder just above the waterline. The rhino herd caught completely unaware, thundered from the pan with mud and water flashing.

The game scouts that we normally used for horsemen were on another assignment, so we tagged after the rhino ourselves. We were trotting steadily about twenty yards apart, keeping our eyes to the ground so as not to lose the rapidly fading tracks in the windblown ground. Suddenly, I realized there was a large mass on the path in front of me. I came to a slow motion stop and saw an old cow rhino with an unusually straight horn staring intently at me. Behind her was a 2000-pound bull calf turning first to the left, then to the right in blind confusion. I whistled to let the old girl know I was a human, hoping she would turn and trot off. Only then did I realize I was on her windward side—it was too late! She ran straight into the wind toward me. I was stumped for a moment, since I hadn't been in this predicament before, but when she came within ten feet and continued to disregard my shouting I pulled myself up into a handy acacia tree just as the bull calf whacked the tree with a certain degree of devilish gusto.

Moses, our driver, drove up with the lorry shortly, a broad grin flashing on his face. After I broke down and smiled back at him, he let out a hearty laugh, for I had been truly initiated into the catching team at last. We picked up the drugged bull with anticlimactic ease and deposited our catch at the boma. A message was waiting for me to contact the senior ranger, Nick Steele, as soon as it was convenient.

When I arrived at his office, Steele was a tense and tight-lipped man. After inviting me to sit down he related a

chilling story. A woman had been killed by a white rhino in the Biyala native location while returning to her kraal with a load of firewood. The tragedy had been witnessed by her eight-year-old daughter who ran back to the kraal for help. To complicate matters, the poor woman had an infant strapped to her back in traditional Zulu fashion; her would-be rescuers found the infant miraculously unharmed, silent, and wide-eyed! This story took the humor out of the day's earlier events.

The dead mother and her children had met a lone rhino on the path to the kraal on many similar occasions, and the normally docile white rhino had simply left the path at the appearance of the villagers. This time, for some unknown reason, the rhino chose to hold its ground and flared its nostrils and let out great chuffing and snorting sounds. The woman was still unafraid so she picked up clots of dirt and threw them at the determined rhino. The rhino had apparently been baffled by this action because it was allowed to go on for several moments without a reaction. Finally, the rhino decided it had had enough and came straight at the woman, who stood her ground, shouting and waving her arms until the aggravated rhino struck. The animal's horn struck the woman in the groin and passed through her body to reappear between her shoulder blades, narrowly missing the child on her back. Only then did the older child, until then frozen with fear, run weeping back to the kraal.

Steele related that we were now only waiting for official permission from the Native Trust to enter the location and capture the offending rhino. He explained to me that the Biyala were justifiably upset but seemed to think that the Parks Board was responsible for the animal's action. The headman of the kraal was very worried because most of the young men had armed themselves with their spears and a few handmade shotguns and disappeared into the bush. These proud people were not poachers but cattlemen. In the past, they had been fined for permitting their

cattle to graze in the game reserve and cause damage to the veld. To the Biyala, the parallel was simple—if they were responsible for the actions of their cattle, we were to be held responsible for the activity of all game animals! Steele felt that there was now a serious threat to the ninety-five rhino in the various native locations as well as to the rangers who hoped to rescue them.

Five days passed before we received permission from the Native Trust to enter the Biyala location; we were now officially sanctioned to take in a squad of SAP (South African Police). It took three more days to organize and coordinate the operation. When we left the main camp we were in full-dress Parks Board uniforms and fitted with side arms; our Land Rover was rigged with a field radio set on a frequency with the Mpila office and the SAP vehicles. This was the only time we were ever required to carry arms on rhino operations during my stay with the Parks Board. We drove to the Madlozi camp where we picked up John Tingley, the regional ranger, and his head tracker. John was the Parks Board's gentle giant—he was six-foot-seven, soft-spoken, and very likeable. He was also one of the Parks Board's best rifle shots; it was a good feeling to have John's rifle backing us up on this expedition.

Our small safari of two Land Rovers and two lorries reached the police outpost at midmorning. The Biyala headman was there and he was shaking his head woefully as he explained to the sergeant that the kraal's young men were still upset and apparently bent on seeking revenge. After a quick tea the safari left with the addition of three Land Rovers full of SAP. On the way to the area where the woman had been killed the headman explained to us that there were more than ten white rhino in the area and there was no way to identify the killer with any degree of certainty. When we arrived at the kraal, we found small groups of silent women and hushed children watching us with somber eyes. The only men in the camp were the headman and a half-dozen elders. It was readily apparent

that we not only had to be concerned for the rhinos' safety but also for our own.

A check of the bush immediately surrounding the kraal revealed the fresh signs of many white rhino. Steaming dung piles and sharp tracks in the dust let us know that there were several rhino of different ages in the area. The eight-day delay in getting to the scene had allowed the offending rhino's trail to grow cold. After a more thorough look around we radioed Mpila to ask just how many rhino we were supposed to catch and relocate to Umfolozi under the circumstances. The message came back to catch at least one. Failing to do this, we were to find an old bull and shoot it; hopefully, this would satisfy the villagers' hunger for revenge.

After loading up the dart gun we spread out and gingerly began a crisscross search through the dry bush. Suddenly a lone bull flushed from his hiding place in the dense thorn and nearly ran down Tinley's head tracker. Deftly stepping aside with the grace and confidence of a matador, the ever-alert scout allowed the bull to pass in its frenzy. Now we followed the tracker for nearly a mile before he pointed to the bull's ears sticking over some low bush about a hundred yards away. We were downwind but the dry leaves on the ground prevented a silent stalk and placed the odds in the bull's favor. The bull was quite alert to our presence and kept a constant distance of forty yards away from us. On the open veld one could easily sink a shot at that distance, but in heavy bush it might as well be a hundred miles. A blade of grass could deflect the dart's flight sufficiently enough to cause a miss. I had to get closer!

As we reached the base of the slope where John had a vantage point he signaled violently to me to turn on the walkie-talkie. When I complied, John radioed that he had located a cow and calf from his viewpoint. He related how they had neatly avoided me by standing still in a heavy screen of cover, allowing us to pass within a few yards on my

way to the fields! We fanned out again and turned back with our dart gun cocked. I heard a snorting and crashing to my right as the cow appeared in a small clearing. Just in time to stop me from getting her, John shouted to me that he had darted the cow already. We waited a few minutes before trailing her, then we found her lying down in some open bush with her calf nudging her in effort to get her up and escape. The squealing calf was bewildered at his mother's sudden desire to sleep in the face of immediate danger.

I unloaded my dart gun and poured half of the M-99 dose out, since it was made up with the dosage for an adult rhino. It was then a simple matter for me to walk up and dart the calf from about ten yards. The young bull went down quickly right next to its mother. After anchoring the animals to trees with ropes I radioed to bring up the lorry and the police.

While the vehicles were grinding their way toward us over the rough terrain, ten old women and about twenty-five chattering children appeared in the area to see and touch the rhino the "uniforms" had "killed." Big John kept the women and children entertained with jokes and stories until the lorry arrived. The SAP stayed near the rhino and probably prevented any attack from the kraal's young men.

The crate was put in place in front of the cow. The Biyala children closed around us with intense curiosity as the rope was placed on the rhino's head. Their curiosity was brought to a greater peak when I put the needle containing the antidote into the cow's ear vein. John described in fluent Zulu that we were wizards and we were going to wake up the "dead" rhino and take them home. When the cow stirred to get up, a huge sigh of awe was released from the crowd. As she was guided nimbly into the crate, torrents of approving laughter could be heard from the children.

The calf was able to get up without the antidote and was ushered into the second box. We had plenty of help

with the massive rollers that afternoon; the older children volunteered to help lift them into position on the tailgate. The crates were loaded onto the lorries and we happily left the Biyala location just as darkness fell. The squad of SAP left us at the boundary fence to the Umfolozi; we were thankful that it hadn't been necessary for them to come to blows with the Biyala, for they were normally good neighbors.

While we drove straight through the Umfolozi on the main tourist road, Mpila radioed and Steele was informed of the successful events in the Biyala location. He could now relax the alerted scouts and rangers. We crossed the Black Umfolozi River and continued north through the corridor to Hluhluwe. The cow and calf were released to the safety of the reserve in the darkness. They trotted off, uncertain in their new surroundings and unaware of the drama that had taken place in behalf of their kind.

The Parks Board was determined to remain good neighbors with the surrounding Zulus in the various locations, and to show our thanks to the Biyala for being so patient with us, we shot six wildebeeste and sent the meat to their kraals.

TEN RHINO AT PALUMBO

THE WHITE RHINOS' seasonal migration to the south was anticipated with some aversion by the Umfolozi field rangers. These annual marches left ruptured border fences and sparked some rather colorful complaints from the subsistence farmers in the Palumbo native location. The continuity of the Umfolozi and the Palumbo location was broken only by a four-strand, 5/8 -inch cable fence. This single barrier was erected in hopes of discouraging the rhino from gravitating south back into the location. To date, the fence has only effectively acted as a boundary marker. The rhinos' determination to reach the low veld was so urgent that it took an animal only a few days of pushing on the cable barrier to break through. As if drawn by some beacon known only to them, large numbers of rhino would find the break and pour through. Constant fence patrols by the game scouts of the Ogome Ranger's Station were necessary to guarantee the integrity of this barrier. Large depots of fence posts and steel cable were placed at strategic points where rhino had broken through in the past.

Once an uprooted pole or broken cable was reported, it was up to the station ranger to get his fence crew organized and repair the damage. When not repairing a fence line, these crews were kept busy clearing brush, to enable the dormant grass seed lying in the shaded soil to germinate, or building stone weirs in heavily eroded areas to catch the silt and fill the ever growing dongas.

At the request of the Palumbo district headman, John Clark and I were organizing a three-day rhino cack to remove many *Mkhombe* (white rhino) from mealie fields belonging to several kraals.

The mealies are the Zulus' principal food crop, providing their major energy source. This is eaten as a porridge called mealie-pop; when the water is allowed to boil completely off, the firmed-up mass called putu is eaten as we would eat bread or potatoes.

Mahao beer is also made from the mealies. It is quite acrid and takes getting used to, but after several hours of wandering through the heat of the veld it is a welcome refreshment. The beer is made by fermenting a thin gruel in woven-grass pots. The evaporation of fluid through the pot keeps the beverage pleasantly cool.

Apparently several white rhino had decided to use the fields as a shortcut to reach water from their grazing areas and favorite resting sites. The rhino ate the sprouting mealies and damaged a considerable number of mature stalks in their passage, and their presence kept the women from going out into the fields.

Some years ago a similar situation arose and a headman had killed a white rhino to save the life of one of the villagers. He was so overwrought at killing royal game that he immediately turned the gun on himself and took his own life. The magistrate no doubt would have found the animal's shooting justifiable.

By actual air count, we knew that some forty-two head of white rhino were presently taking up residence in the Palumbo district!

When possible we preferred to put rhino that were caught outside the reserve in the bomas or directly on a truck bound for another nearby reserve. Tagging experiments had shown that a considerable percentage of the animals that were returned to the reserve wandered out again. It was unfortunate that our bomas were full because we then had no alternative but to release the rhino we

hoped to catch back into the already burgeoning Umfolozi Reserve.

We arrived at the Ogome Ranger Station at about 10:00 A.M. and had tea while the game scouts unloaded our gear. The station consisted of a five-room "temporary house" that had become permanent, an office, a radio shack, and a series of sheds for the horses and their tack. John Daniels, the resident ranger, was at present on leave in Durban, but his houseboy extended his hospitality and took our duffles inside and set up our cots on the screened-in veranda.

Moses and the heavy Bedford lorry eventually arrived with an empty rhino crate and a complement of six boma laborers. We climbed in the vehicle and headed south, through the southernmost extension of the Umfolozi Reserve. It was a rugged, boulder-strewn area with heavy bush that provided a perfect habitat for nyala, greater kudu, and waterbuck.

After passing out of the reserve through our gate, we slowly ground a road through the low bush with the Land Rover and lorry several miles into the location to the Palumbo general store. There we met our game scouts and horsemen. When we arrived, they were already surrounded by a score of chattering Zulu children, fascinated by the safety equipment and fine horses. We took time out to discuss our mission with the children and show them the cavernous gray box into which we would hopefully put the great *mkhombe*.

The headman stoically stepped forward. He wore the impeccable uniform of a British First World War cavalry officer. He was a most remarkable man who could speak six languages fluently. He introduced himself in French and when we acknowledged his lingual superiority, he smiled and proceeded to try me at German, Portuguese, and Afrikaans, before resorting to English with a disappointed sigh.

He told us of at least eight white rhino that were trampling the kraals' mealies in their daily excursions.

While we talked, I made up two darts and filled them with enough drugs to immobilize adult rhino. The watchful village children followed each step with interest. Several asked to touch the "little arrows." One little girl tried the resiliency of the rubber plunger by chewing it vigorously. Once our preparations were completed and the equipment checked, we followed the scouts out across several freshly plowed fields.

We were led to a small patch of veld between two sprouted mealie fields where two small herds of rhino were having a late morning siesta. They were resting on the bare earth created by the shade of a lone acacia. The dusty, well-worn loafing area was surrounded by grass and a slight wind was angling from us to the sleeping rhino. John Clark and I circled to get downwind and stalked to within twenty yards of the larger group.

The rhino were grunting and blowing in a relaxed fashion, unaware of our presence. We sat for a moment catching our breath and surveying the situation. This group consisted of four animals. A large bull lying broadside to the left and three animals sleeping in a line facing us just off to the right by about ten yards.

By finger drawings in the dust, we agreed that John would dart the bull on the left and I would take the largest of the three on the right. I counted to three in a whisper, and we fired our darts simultaneously—Clark's dart struck the bull in the left shoulder and my dart hit its mark in the junction of the neck and shoulder of the second animal.

The assaulted rhino jumped up and were off into the wind immediately. The horsemen followed close behind, but John and I were momentarily cut off from following as the upper herd cut back diagonally down the hill with the wind. We skirted the approaching rhino and came up on the original group at a tree line. We found the two darted animals lying down less than thirty yards apart in a small clearing. We chased off the two smaller rhino and instructed the horsemen to keep tabs on them for later attention.

John went for the lorry while the headman and I remained and talked about rhino. A large group of Zulu women and children had stepped cautiously out of the trees and were babbling in amazement; they were continuously asking if the beasts were dead.

It was well after 1:00 when the lorry returned to pick up the second animal for release in the Umfolozi Reserve. While it was being loaded, I made up two more darts and followed the horse's tracks into a wide thicket of low acacia bush. By now the heat of the day was at its worst, and a shattering beat was coming from the "Christmas bees." The insects were not actually bees but summer cicadas. Each summer the male insects produce a tireless shrilling from their vibrating tymbals, trying to attract receptive females. The tymbals are modified membranes which they can vibrate. The sound produced is amplified to screaming proportions by other membranes in the cicadas' abdomen. Combined with the heat waves rising off the bush veld, the noise gave an eerie background to rhino stalking through dense thorn on hands and knees.

After an hour's tracking, we spotted four animals fifteen yards ahead resting in the sparse shade afforded by several twisted acacia. In whispers, we made our plans. I was to remain while Clark circled to the right and downwind of the herd. After he signalled that he was in position, I was to dart an animal and he would dart another as the herd passed him downwind in their attempt to escape.

At John's whistle, the quizzical rhino stood up and unexpectedly moved a few steps into the bush. The cheek of a large cow presented me with my only clear shot. I could barely make her head out through a small opening in the bush about ten inches in diameter. I aimed the dart at her taut cheek and pulled the trigger; it hit with a *schlup*, and I feared at first that the dart had hit her ear and the drug had been ejected harmlessly into the external canal.

The darted cow reversed her direction and led the other rhino in the opposite direction from Clark, who stood

up and took a chance shot that hit a tree limb.

The darted cow went down peacefully on the edge of a donga in about ten minutes. Her 900-pound calf stayed close by, so I quickly prepared a dart for it and another for an adult animal. While I worked, two bulls noiselessly made their way toward the donga.

John darted the calf and I darted one of the two half-grown bulls that had stepped out of the bush in response to the calf's frantic calls. The bull, stung by the dart, brushed the irritating object out of his hide as he made his way back through the bush. Upon examining it, I found that the percussion cap had failed to go off. In the meantime, the calf had followed the two retreating bulls back into the open veld, where it went down hard on its side, throwing up a cloud of dust. The two curious bulls turned back and hung around to see why the calf had gone to sleep so early and so suddenly.

I rammed the misfired dart back into the gun and stepped out from the cover of the bush and darted the nearest bull as he started to trot off. At the missile's impact, the astounded rhino stopped, whirled around to face me and stared. After a ten-minute wait, it was apparent that the percussion cap was faulty and it hadn't gone off for the second time.

I moved around downwind and went to the Land Rover that Moses had thoughtfully brought up and quickly prepared another target. On returning, the rhino caught my scent and turned defiantly in my direction. This again necessitated a wide semicircle before I could come into range without scaring the two bulls off. I crawled back into the cover of the bush where John was waiting, and loaded the capture gun.

I moved forward under the bush so I could get a clear shot at his shoulder. At sixteen yards, all I could see of the six-foot animal from under the bush was its feet. When I got to my knees to shoot, the bulls turned and ran toward me. I fired the dart into the leading animal's shoulder.

The dart hung there just momentarily before being flipped out by the violence of the bull's mock charge. The old question of "did the animal get the drug or didn't he?" came up again, and this was no doubt our last crack at him that day, since it was rapidly getting dark.

John and I waited under the bush for a long five minutes. Still the animal stood and stared in our direction. Then he awkwardly took two goose-steps forward, and we sighed in relief. He walked toward our bush in exaggerated steps, passing within a few yards of us while his companion galloped in wide circles, bellowing and tossing his head. We reluctantly watched the horsemen chase him off, but as it was, we would do well to get three sleeping rhino out of the bush that night without a mishap, using only the lights of the Land Rover.

When our lone lorry returned and Moses saw the three animals down, he shook his head and volunteered a pessimistic "Whoa, whoa—this is the day we die," meaning that John and I were going to work him and his crew to death. We loaded the bull first and put an anchor rope on the cow and calf. John took a turn at guard duty while I went with Moses and the lorry to supervise the bull's release on a riverbank so we would not have to waste precious time completely off-loading and reloading the crate.

When Moses and I returned to the downed rhino, it was pitch dark. Since we had been without food or water for nearly fourteen hours, John, to kill time, had been exploring the dry stream bed for water. I found him on his knees digging in some likely-looking wet sand. At a depth of one foot, black water began slowly filling the cone-shaped depression. The water was cool and slightly salty, but it was a very refreshing treat, although we were only able to get a few ounces each.

John took the cow for release while I stayed back with the calf. When he returned at 8:30, the bull's companion had appeared again looking for his chum, and the calf was beginning to come around and cry out in a plea for help.

We had to sit on her to keep her down while the crate was being unloaded. She was hustled quickly into the oversized crate, the procedure being aided by her alert state. We were soon heading back with our small caravan of lorry, Rover, and horsemen, all tired but jubilant because we had set a record of five rhino caught and moved in one day, and with only one lorry!

We arrived at Ogome at about 10:00 P.M. We took turns having a muddy but welcome bath; we raided the Daniels' icebox and had a cool beer, then flopped into our cots, where sleep came quickly.

We were awakened at sunrise by the braying arrival of the donkey-drawn water tank coming up the hill from the White Umfolozi River. Each morning 300 gallons of the brown river water were collected and hauled to the top of the hill for the outpost. In addition to meeting the needs of the residents of the station, the horses, donkeys, and flowers all required their ration. Daniel's wife, Pat, kept herself busy by keeping a rock garden that contained most of the local flowering succulents. While enjoying the pleasant jingling of the donkey harness, I shaved. I dressed and then cleaned the used darts and put them to boiling while we ate a hearty breakfast of warthog, eggs, and potatoes.

Once again we headed south for the Palumbo. On arriving at the store, our scouts informed us that a small group of three animals was resting up in a dense patch of bush only a quarter of a mile away. The headman waved his arms about while relating the great deeds of yesterday to the now eager audience. I assembled two darts with green flights for adult rhino, and two with white flights for yearlings, since the trackers' descriptions did not include the animals' size or age.

We walked in single file down a dusty village path. At a nod from the head tracker, we crept into the tangle of acacia thorn with dry twigs and fallen leaves crackling loudly underfoot. As the sun rose higher, the "Christmas bees" added their shrieking to our noise. The combination

of throbbing background noise and the distortion of the heat waves began playing on our now tired nerves, and we came around the screen of each bush expecting a rhino.

Finally we found the three rhino dozing—a large bull standing and a cow and calf lying down. The animals were ahead and to our left, and so far were unaware that they had been discovered. John was in a good position to dart the bull, so without hesitation he took his shot. The unexpected slap of the dart caused the bull to back into the cow. She stood up with a start, agitated at the bull's apparent clumsiness and bad manners. Clark then darted her in the shoulder with the calf's dose in hopes of slowing her down. As soon as I saw his dart hit the cow, I stepped forward and tried to dart her with the second calf's dart, but it hit at a bad angle and glanced off her rump and just added speed to her exit.

We cast about, looking for the bull's tracks for a few moments, but gave up in the maze of gravel and dry leaves. We returned to the vehicles, where I made up another dart for a calf. I gave Clark the adult dart I had previously made and I loaded up with the calf's dart, and we again set off into the bush. After walking a mile to the north, one of our horsemen clattered up loudly, telling us the bull was down. We told him to go back and guard it lest local horn hunters took the opportunity to chop up the unprotected rhino with cane knives in its now helpless state.

The second horseman appeared just as the first man left and breathlessly told us that the cow had stopped against a tree about two miles away. When we arrived, we found the cow down on her brisket but not completely out, so we attached a rope to her rear leg and anchored her to a nearby tree. It was a simple matter to dart the calf as it stayed near its prone mother.

By chance, a lone bull emerged from the bush, which John handily darted. By one o'clock in the afternoon, we had four animals down.

The lorry crew had to hack roads through the tangled

thorn so that the vehicle might be backed up to the bull John had originally darted. After administering the antagonist, it took an unusually long hour to get him into the crate.

While the lorry was off to drop the first animal inside the fence, the cow stood up, swaying at the end of her tether, so I gave her an additional dose of drugs with a hand syringe. The horsemen were lazily watching the cow go down and had momentarily taken their eyes off of the calf as I turned to pull the dart out. As I did, she jumped up and caught the distracted scouts flat-footed, the horses alertly jerking them out of the way just in time. I gave the calf an additional injection, too, after which it settled down.

While waiting for the lorry to return, the local tribesmen had turned out in force to see the show. One of the grateful headmen brought John and me a pot of tea with goat's milk and coarse sugar. We were served the welcome refreshment in an ancient set of china given to one of the chiefs by an English queen. They all sat around us laughing and clapping while we rather unceremoniously bolted our steaming brew.

The lorry returned and we loaded the cow into the crate and levered the sweating calf onto the back of the Land Rover, where it was lashed down to the bed of the vehicle with heavy ropes. We off-loaded the cow and calf in the reserve and left them grazing aimlessly together in a euphoric state.

When we returned for the last bull, we found it impossible to locate any suitable place for a road to be cut because of a heavy rock outcropping and several large trees. We voted unanimously for walking the animal down a dry riverbed that was handy, a half mile to the nearest road where we could have the crate ready.

While Moses left with the lorry to get the crate in position on the road, Clark and I took a long thirty-foot 3/8-inch hemp rope and a fifty-foot 1/2-inch nylon rope and headed back toward the rhino. We put a loop in the nylon

rope and placed it over the bull's head and just behind his posterior horn. The hemp rope was looped around his left rear leg as a drag line.

We were able to bring the blinking animal to its feet without any antidote, since he had been down for five hours and the drugs were by now wearing off. With hearty shouts and vigorous slaps behind the ears, we drove him the fifteen yards to the riverbed. We had to use long limbs to leverage him down a three-foot embankment into the loose sand of the riverbed. He crumpled into the river in a heap. After recovering his feet, he initially headed in the wrong direction so we had to redirect him by pulling his tail and leg rope.

With six men pulling in front and three behind acting as anchor men or prodders as the situation required, we moved him down the river the one half mile to the road in an hour. The roughest part was yet to come—the old gentleman was now quickly regaining his faculties and more actively resisting our guidance, and we had yet to get him back up the riverbank and into the narrow opening of the crate.

We hauled the lead rope through the crate and out the front center hole and anchored it to the axle of the lorry. On signal, we prodded and worried the bull with words until he lumbered up the bank under his own power and into the sanctuary of the crate to escape his tormentors.

Before we could react quickly enough to latch the rear door behind him, and before the lorry was able to collect the slack in the rope, he backed up, snapping the nylon lead at the axle as though it were a fishing line. He quickly retreated, pulling the six straining Zulu laborers holding the rope up against the front of the crate like so many seeds pulled along a grass stem. After a brief moment of pandemonium, we finally collected ourselves and pushed the bellowing animal into the crate.

After two hard, record-breaking days, the lorry crew was now thoroughly exhausted. They fell dangerously si-

lent, so I had Moses strike up a singsong chant to start the sullen men into making noise. After a few well-laid jokes about their mothers-in-law, they were soon laughing again. John and I pitched in and picked up the heavy ends of the loading rollers, which no doubt helped to boost their fading spirits.

We happily let the bull loose in the reserve and made it to the Ogome Station just after full darkness. After unloading our gear, we found that Daniels and his wife, Pat, had returned from Durban with her sister. We traded stories and had a glorious dinner of stuffed wildebeeste heart, mealie porridge, and beer. We talked into the morning giving Daniels the details of our two successful days of rhino catching in the Palumbo location and the areas of his section into which we had released our animals.

Daniels' sister-in-law wanted to go along in the morning, and we agreed to take her only after she promised to bring along water, oranges, and cold sodas. On a comfortably full stomach, I crawled into bed and oblivion.

While Pat cooked breakfast, I cleaned the hard-used dart guns. We had gotten up late and it had taken several hours to gather up Daniels' sister-in-law and the tired laborers, so we arrived at the Palumbo store only after 11:30.

The headman was patiently waiting for us as usual on the veranda of the store. He said his trackers had spotted three rhino lying up where we had darted our first rhino two days earlier. After one hour of unproductive creeping about in the bush with the infernal "Christmas bees" screeching in our ears, we learned from one game scout that the local teenagers had thought rhino catching looked like such fun that they had tried their skills and had chased the rhino with their dogs.

Frustrated, we climbed into our vehicles and started to drive to the opposite end of the Palumbo location, hoping to head them off. After a short drive we came upon a lone bull standing in the shade of a small thorn bush just off the track about three hundred yards ahead. We stopped the

Rover and signaled for Moses to shut off the lorry. Clark and I both loaded and cocked our capture guns and stalked to within twenty-five yards of the bull before he sensed our presence.

There was a large clump of scrub between the bull and us. We flipped a coin and decided that if the bull chose to go to the right I should take the shot; and if he went to the left, Clark would take it. After a two-minute appraisal of us, the bull trotted off to the right. I let go my dart, hitting him just behind the shoulder.

The bull continued on his way at a rapid pace. It was obvious we wouldn't be able to keep up with him on foot, so we waited at the vehicles while our horsemen did their job. After an hour, the first horsemen returned on his sweating horse, saying that he found the bull grazing in a clearing, but the dart had fallen out and the bull was showing no signs of the effects of the drug.

We were discouraged and I was about to set up again and go after another animal when the second horseman came up at a hard gallop, saying he had the rhino sighted about four miles away with the dart still in it. The first rider had apparently stumbled onto yet another animal. The horseman related to us that the bull was still standing and when he had dismounted and had tried to put an anchor rope around a rear leg, it had given him a halfhearted charge.

We jumped into our vehicles and, since we now knew the rhino's location, took a shortcut. We found that the bull had made two right angle turns when he had successfully lost one rider earlier in the day.

After arriving at the scene, there was some loud confusion about which thicket the bull had been in. We finally had to resort to backtracking the horse in order to find the rhino. We came upon the bull lying down in a patch of sparse bush. He did not look like a typically drugged animal, since he was alertly moving his ears about to chase flies and catch danger signals.

After I loaded another dart, we approached the bull.

When we got within arm's reach I slapped the animal on the rump. The response was immediate and loud. The startled rhino, the original dart still in its shoulder, clambered to its feet, roaring; for a moment he was confused as to which way to run, turning first left, then right. I held off darting him, since at that short range the dart would have exploded on impact and the rhino would surely recognize the direction of his antagonist!

One game scout wanted to put Daniels' sister-in-law to safety up a dead tree with low limbs easy for climbing, but she chose another and it was well she did—as the rhino bolted off, he bowled over the dead tree she had been instructed to climb, reducing it to a heap of dust and splinters. As he reached the other side of the clearing, I aimed for the center of his disappearing rear so I would hit him if he zigged or zagged.

The bull chose to go straight so the dart struck him directly in the base of the tail. The animal stopped in the far thicket and turned to look back into the clearing. In about five minutes, he started goose-stepping and wandered back into the open. We leaned against a tree and waited for him to go down. After he crossed the clearing, we realized it would be faster loading if he were headed into the clearing instead of the bush, so with a bit of tail-pulling and grunting, we were able to turn him just as he crashed heavily to the ground.

As he hit the ground, his personal swarm of flies left him and tried a sample of human blood before taking off again in search of the more favorable environment of another rhino.

I pulled out the original dart for examination to find that it had had a faulty detonator in it that had failed to go off! The horseman had tried to put a rope around the leg of an exhausted and indignantly surprised rhino, and it was considered fortunate for him to leave unscathed. If the animal had been a black rhino, the odds were greater that the game scout would have been injured. We were con-

tinually impressed with the mild nature of the white rhino.

We had set two records in three days. Five rhino had been caught and transported in one day, and ten rhino had been caught in but three days. Our team had now reached a high level of efficiency and we could expect to comply with any order for animals. It was a sad fact, however, that there were more than 900 animals in the Umfolozi Reserve and surrounding locations. Moving rhino from the locations into the Umfolozi kept the neighbors happy but didn't relieve the population pressure that threatened the very survival of the entire sanctuary.

DASH FOR KYLE

THE RESULTS OF the annual census for the white rhino population in the Umfolozi-Hluhluwe complex dealt us a numbing blow: despite the removal of nearly three hundred white rhino over a three-year period, the population had swelled to an unprecedented total of 912 animals. Either the excess numbers of rhino had to be caught and relocated or a cropping scheme was necessary to rapidly reduce the rhinos' feeding pressure on the veldt before the next dry season.

The rainless days of the dry season promised to take their toll of those animals that could not find water. Large populations of short grass grazing animals would stir up the shallow top soil, exposing the moist roots of the grass to the drying winds. The roots of the grass, burnt beyond salvage, would spell doom to the grassy areas of the veldt when the rains finally came again. We had only three months before this weather would begin again, so there was little time to make detailed plans or gather equipment not already in supply.

Early hunters had reported the presence of large numbers of white rhino in Rhodesia, but extensive hunting for the meat, horn, and for sport, along with land clearing during the pioneer years had caused them to disappear. In 1962 five young boma-trained rhino had been trucked to Kyle Dam Game Reserve in Rhodesia, nearly a thousand miles to the north of Umfolozi. If the rhino transport had

been successful and the animals were adapting to their new homeland, then we would begin to move more of the crowded rhino to Kyle. We eagerly called the Rhodesian Wildlife Service to learn of the experiment's outcome and were greatly relieved that all five animals had remained within the confines of the park.

The one-thousand-mile spread between Umfolozi and Kyle Dam precluded the use of the quick-catch-and-release method we had employed to return stray rhino from the Palumbo native location to the confines of the Umfolozi. On the other hand, it would take too long to boma-train one hundred rhino for the two-day drive to Kyle Dam, as experience had taught us that six to eight weeks would be required for each animal. By the time the hundred head of rhino were boma trained and shipped out, irreversible damage would have been done to the Umfolozi veldt. The situation obviously called for a departure from the standard procedures if any efforts were to be of value.

We decided to gamble with one animal to try out what had been considered a rash plan only a few months earlier. I felt that enough technology had been accumulated to catch the rhino in the bush and transport it directly to Kyle. Such a move would require around-the-clock driving in order to keep crate time to a minimum. Even at that, the trip was calculated at twenty-four hours, necessitating the tranquilization of the newly captured rhino during the entire trip.

I awakened early in anticipation of the experimental translocation of the white rhino and to my dismay found a heavy cloud cover and steady drizzle. Joseus, my cook, heard me rattling and grumbling about the weather in the dark and built a wood fire in the stove so that I could have a hot-water shave and tea. By 6:30 A.M. I had breakfasted on some cold mealie-pop and boiled warthog prepared the night before. After I shaved and packed a bag with several changes of clothes, my passport, South African driver's license, and health papers, I made up a fresh bottle of

M-99, since we had recently been plagued with a sudden precipitation of the drug only a few days after reconstitution.

We had previously decided on using a young bull in the 3500-pound range as the initial experiment animal. I could not risk experimenting on a breeding female with the possibility that the animal might perish during the operation. I was therefore able to prepare two darts in advance, hoping to save some time and confusion in the field.

I was met by Steele, John Tinley, and Ken Rochort and a South African state veterinarian at the Mpila office. We left in the Land Rover while Moses followed with the empty gray rhino crate chained on the Bedford lorry. We passed by the Madlozi ranger station and roused two men from their sleep to act as horsemen.

We were still checking the dampened savannah at 9:30 A.M. for a suitable experimental animal. Many bulls were spotted, all too old and plenty of cows with suckling calves at their gray sides. It appeared for a time that we were all out of 3,500-pound males.

It was still drizzling at 10:30 A.M. when the proper-sized animal was sighted as a part of a small herd of ten rhino. The animal was in six-foot tall grass, so it was necessary to dart it high on the hip. Because of the shape of the rhino's hip, the dart bounced away in a cloud of spray. It could not be discerned immediately if the spray was rainwater from the rhino's skin or the M-99 uselessly spraying from the needle after a brief contact with the animal. The rhino briskly galloped off into the wind, with the horsemen in a lathering pursuit. I followed slowly, keeping the Land Rover within sight of the horses so as not to drive the rhino further than necessary. When we reached him twelve minutes later, we were sure all was lost on finding the animal down on its back, its feet in the air like a capsized destroyer with its propeller still running. This position puts unnatural stresses on the circulatory system and respiratory system if maintained for any length of time. We quickly

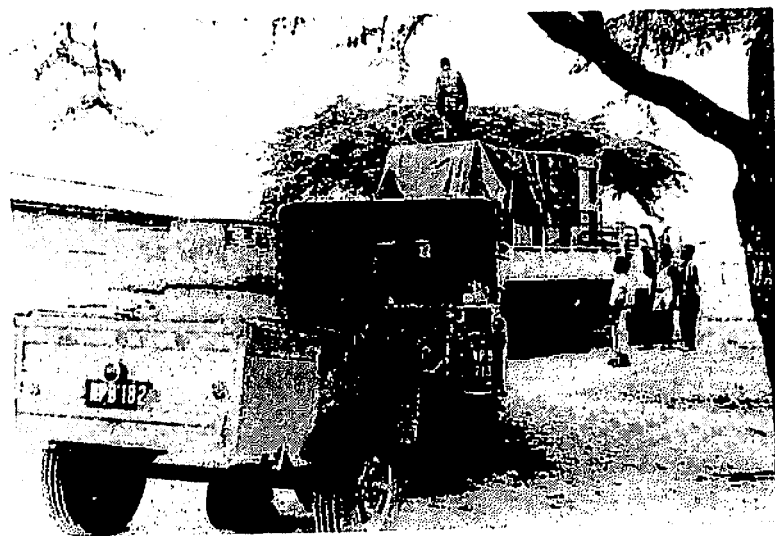
rolled the animal onto his chest, a more natural state.

The routine inspection of vital signs indicated the bull was a healthy animal and was breathing normally. The state veterinarian began his inspection while Moses maneuvered the lorry in for the loading. The loading proved to be an unusually long one, as the animal was in a rather inaccessible donga with a brush-covered bank, so that a path had to be cleared. The state veterinarian then wouldn't issue a health paper or release for the animal to be loaded for shipment to Rhodesia unless it was covered with antitick grease.

By noon the animal was finally in the crate and on the lorry. The young bull probably hadn't received a full drug dose from the glancing dart and was able to stand in the crate, indicating that he would need an additional long-lasting tranquilizer. The next step was to get to the Masinda Ranger Station to fill the lorry up with gasoline and pick up our trailer loaded with supplies. At Masinda we hitched a trailer to Rochort's Land Rover so that we might load on five fifty-gallon drums of gasoline. In the back of the Land Rover we put our suitcases, spare parts for the lorry, tools, and ten five-gallon cans of gasoline totaling 294 gallons, including what was in the drums and vehicle tanks. We had to take our own supply of gas since we would be traveling at night and there would be no opportunity to buy it.

The loading at Masinda was painfully slow. Finally, at two o'clock in the afternoon, we headed out of the reserve for the public road—Moses and John Tinley in the lorry, and Ken Rochort and myself in the rover. It had started raining again and the public road was ten miles of a twenty-to thirty-degree incline with a quagmire caused by the constant passing of heavy equipment.

Both vehicles were churning through the mud sideways in four-wheel drive at a snail's pace of five miles per hour. Thirty minutes later we reached the Hlabisa hospital settlement on the summit. We waved the rhino lorry on



Moses, on top of the rhino crate, makes a final inspection of sail covering rhino crate just prior to a departure from Masinda. Because of the British economic blockade of Rhodesia, we had to bring our own supply of petrol. (photo by J. D. Wallach)

while we stopped at the native store to buy a case of soft drinks to go with the food packed for us by the women at the camp. None of us drank coffee, and we depended upon the caffeine in the soft drink to keep us awake during the night.

We were soon off to catch up with the lorry, taking each muddy hill at a slow four-wheeled grind. Suddenly I realized we were going up a hill without having to downshift, so we stopped and looked at the back of the Land Rover to find that the gasoline-laden trailer had left us! In a panic we wheeled around and charged back over the peak to see the overturned trailer and the strewn gasoline drums in the depression between the last two hills. The disrupted trailer had come loose on the downgrade and plowed a two-foot-deep furrow in the muddy road for 100

yards until it had struck a rock and flipped over, scattering the drums. We felt it was miraculous that none of the drums had ruptured and spilled the precious contents.

Rochort and I levered the trailer to an upright position and began rolling the gasoline drums through the mud toward the trailer. We rolled the first drum against the tailgate to use as a fulcrum and then pried the remaining drums over it onto the trailer.

By this time we were drenched in sweat from our labors. The humidity made the air around us like a transparent sea. When we had finished loading and started off again, it was three o'clock, and time was becoming our enemy. We had gone only fifty miles since the rhino capture, and rhino had previously only been kept tranquilized for to six hours in the historic translocation to Kruger.

Five miles down the road a rear tire went flat on the rover—another ten-minute delay! While we changed the tire, we silently reviewed our time schedule. We came across the lorry at the Pongola River and pulled off the road, out of petrol. We filled our tank from the five-gallon cans to save time, and continued our journey. We were now driving through the Pongola Valley where I had worked ten months earlier as a state veterinarian. The land was scarred with irrigation ditches, forming geometric patterns of sugar cane fields and citrus fields. The change of scenery was truly a pleasure after nine months in the bush. By the time we crossed into the Transvaal, the northernmost province in the Republic, the sun was down and the evening winds were beginning to build up.

We drove north through the Transvaal, and by some stroke of luck became lost only once. We lost the right road for thirty minutes in the heavily forested central Transvaal. We soon found our way and continued north, grinding up the steep grades and then freewheeling down winding mountain roads to save gas, during nights that were overcast and pitch-black.

A little past midnight we had to stop for gas. By now

we were pumping it from the drums into the vehicle with a hand pump.

At Loskop Dam National Park we needed to make a ninety-degree turn but we were going too fast on a downhill grade and needed to carry on for a few miles to find a safe turnaround. Reaching the high plateau, I found the landscape to be similar to that of the Big Thompson Canyon in Colorado, with winding mountain roads bisecting stark verticle landscape on one side and a precipitous drop on the other. On a level section of road we stopped again to refuel and checked the dozing rhino.

Again at 2:30 A.M. near Grobersdal the grades began costing a considerable amount of fuel. The rhino was lying down and resting peacefully.

At 5:15 in the gray morning a rooster tail of orange sparks suddenly burst up from behind the petrol-laden Land Rover. The trailer had come loose again and the tongue was showering us with sparks as it ground along the pavement. We slowed the Rover gradually, using it as a buffer for the carecning trailer. We decided to pump the vehicle's tank full again and transfer petrol from the drums to the five-gallon cans. We then had two and a half petrol drums left which we loaded into the back of the Land Rover. While we worked feverishly with the petrol, the rhino became impatient in the motionless crate.

The belligerent animal soon had the top boards coming loose and was removing great pieces of the two-inch lumber away from the inside of the front door with its horn. I administered an additional dose of tranquilizer and we put the trailer near a tree with its empty gasoline drums hidden by some bush. We arranged for a mechanic at a gas station in Potgietergrust to pick it up and weld on chains so it would not come loose on the return trip. The exhausted rhino became rapidly depressed after the last dose of tranquilizer and two hours later was in a deep stupor. After a quick conference we agreed to give the animal some cortisone to help relieve the stress it had been through and carry on.

At Potgietergrust we picked up a main highway and quickly passed through Pietersburg and Louis Trichardt; the light from the rising sun now made driving easier. Thirty minutes later the rhino began moving again and we all felt relieved that we hadn't come this far only to lose an animal. We passed through Wylies Port, where we stopped to refresh ourselves. After a cold-water shave we were all awake and running about laughing like schoolboys, just realizing we had passed the critical test.

We reached the Rhodesian border at high noon. The sky was clear and the sun hot, so we parked the rhino lorry about a half mile away. Above us a British propeller-driven spotter plane was checking all of the lorries passing through Biet Bridge in order to estimate the amount of gasoline leaving South Africa for Rhodesia. Parking the lorry under the trees created a great curiosity for the pilots, who began buzzing our little stand of bush in order to get a better look.

We left Moses with the vehicles and took his papers along to the customs office, where we were greeted by Jeremy Anderson, a ranger from the Rhodesian Park Department. He had formerly been a ranger in the Natal Parks Board, so the reunion at this desolate border station was a boisterous one.

My American passport raised many eyebrows, since the United States was backing Britian's economic sanctions against Rhodesia at this time. I was given a short-term visa to cover an estimated sojourn that would find me out of Rhodesia within seventy-two hours and I gave them a detailed account of my anticipated route. Aside from the official political questioning, the Rhodesians were quite civil and friendly. All were interested in our unique cargo and expedited our rapid passage through customs.

We pulled through the border gates at 12:30 and crossed the Limpopo River to begin our final dash across the desolate Rhodesian bushveld during the heat of the day. Seventy miles north of the border we stopped in some



Bruce Austin, Warden of Rhodesia's Southern Game District, entertains rangers "Big John" Tinley, Ken Rochort, and Dr. Joel D. Wallach following a successful trip to Kyle. (photo by Mrs. B. Austin)



The second rhino to reach Kyle Dam without boma training lost her horn during the trip. Her rapid exit from the crate shows she is otherwise unharmed. The horn will grow back within two years. (photo by J. D. Wallach)



Dazed rhino peers out of boma at Kyle Dam. This was the first white rhino to be transported the 1,000 miles without first being boma trained. (photo by J. D. Wallach)

shade to check the sweating rhino and took the opportunity to stretch a bit. The temperature was well over 100 degrees and the heat caused the remaining bottles of soft drinks to explode.

We continued the long trek up the great north road, passing the grotesque baobab trees and signs saying Yield—Elephant Crossing.

This tarmac strip had been built during the Second World War to carry materials from southern Africa to the North African theater. Elephants had pushed large succulent baobab trees over on the side of the road in order to reach the twigs and chewy pulp.

As late as 1893 there were wars at "Fort Victoria" between the Rhodesians, who were trying to stop the strong Matabele tribesmen from capturing the weaker Mashona

tribesmen and selling them to the Arabs for slaves.

We were met in Fort Vic by a Land Rover full of jubilant Rhodesian rangers, including Warden Bruce Austin, Tommy Orfitt, and "Tinky" Haslam who were going to care for the rhino after the unloading.

In another half hour, twenty-eight hours after leaving Umfolozi, we arrived at Lake Kyle with an exhausted but live rhino!

The rangers at Kyle had several log bomas prepared so the new arrivals could be watched for any adverse effect of the trip. The rhino crates were hauled off of the lorry by means of a chain come-along with round poles placed under the crate for rollers as it was pulled slowly along. The bomas contained hay and fresh-cut grass plus a concrete water trough. After we opened the crate, the hesitant rhino walked out and around the pen a few times. It drank heavily, then lay down with a deep sigh. The animal appeared to be as relieved as we were to have completed the journey.

We went to Tommy Orfitt's house for a beer on the veranda and had the operator ring the telegraph office to signal a "success" telegram. It was an extremely beautiful evening as we happily watched the sun go down on Lake Kyle, our journey at an end.

EPILOGUE

THE HEAD OFFICE was quite elated at our success and, to prove it was no accident, immediately ordered us to prepare to take a female rhino up the same route to pair up with the bull. On the next trip, the rhino, the weather, and the trailer were more cooperative and we were able to cut four hours off the previous time. She bolted from the crate and began eating as if the Kyle boma were her old home. After the two expeditionary operations, forty-eight other rhino were translocated to Rhodesia, dramatically reducing the Umfolozi population prior to the dry season. It was also satisfying to learn, two years hence, that calves were being born to the transplanted rhino in Rhodesia.

The beauty and genius of a work of art may be reconceived though its first material expression be destroyed; a vanished harmony may yet again inspire the composer; but when the last individual of a race of living things breathes no more, another heaven and another earth must pass before such a one can be again.

—William Beebe
Bronx Zoo