

COVER
NOT FINAL

Join an intrepid paleontologist
on her journey through the...

DINOSAUR

DESERT



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Nr. 124

Cena numeru: 25 gr.

KURIER

WARSZAWSKI

1 Septembre 1939

FROM ONE WAR TO ANOTHER

A NEW GERMAN CHANCELLOR

The year is 1933 and Adolf Hitler has risen to power in Germany. His speeches, his books, his films – all this propaganda has convinced Germans that they are the rightful rulers of Europe. And that they should 'take back' what they lost following World War I.

DEVASTATING LOSS: World War I (1914–1918) was one of the deadliest global wars in history. 40 million people died. It was fought between the Allies (France, the United Kingdom, Russia, the United States, Italy and Japan) and the Central Powers (Germany, Austria-Hungary, the Ottoman Empire and Bulgaria).



JOBS NEEDED: Germany and the Central Powers had been defeated in this brutal and devastating war. In 1919, the Treaty of Versailles made Germany pay for the war, disband its army and lose territory. Soon after, the Great Depression of the 1930s meant that millions were out of work and the country faced starvation and misery.

Many Germans quickly fell under the spell of the Nazi party. Hitler promised to bring Germany back to greatness by giving people jobs and ridding the country of anyone "who was not like them" – People of Colour, Roma and Sinti people, men who loved men, women who loved women, people from Slavic nations like Poland and Russia and, above all else, people of the Jewish faith.

This hatred was built on hundreds of years of anti-semitic lies, and Hitler used it to unite people to vote him into power. When they made him leader of Germany, he did everything he could to destroy the Jewish people...



HITLER INVADES POLAND

But ruling over Germany was not enough for Hitler, who wanted complete control over Europe. So, in 1939, the Nazis' invasion of Poland set in motion a chain-reaction that eventually pitted the United Kingdom, the United States of America, France, Belgium, Greece, and many other countries against the Nazis and their allies. Hitler's war destroyed families, crushed cities, and ended the lives of over 80 million people.

1933

- Hitler appointed Chancellor of Germany.
- Boycott of Jewish businesses and Jewish people no longer allowed jobs at universities.
- Public burning of books written by Jews.
- Concentration camps are built.

1935

- The Nuremberg Laws: Jewish people no longer considered German citizens; cannot marry non-Jewish people or fly the German flag.

1938

- Kristallnacht (Night of Broken Glass): 200 synagogues destroyed; 7,500 Jewish shops looted; 30,000 Jewish people sent to concentration camps.
- All Jewish pupils expelled from German schools.

1939

- Germans occupy Czechoslovakia and invade Poland. World War II begins.



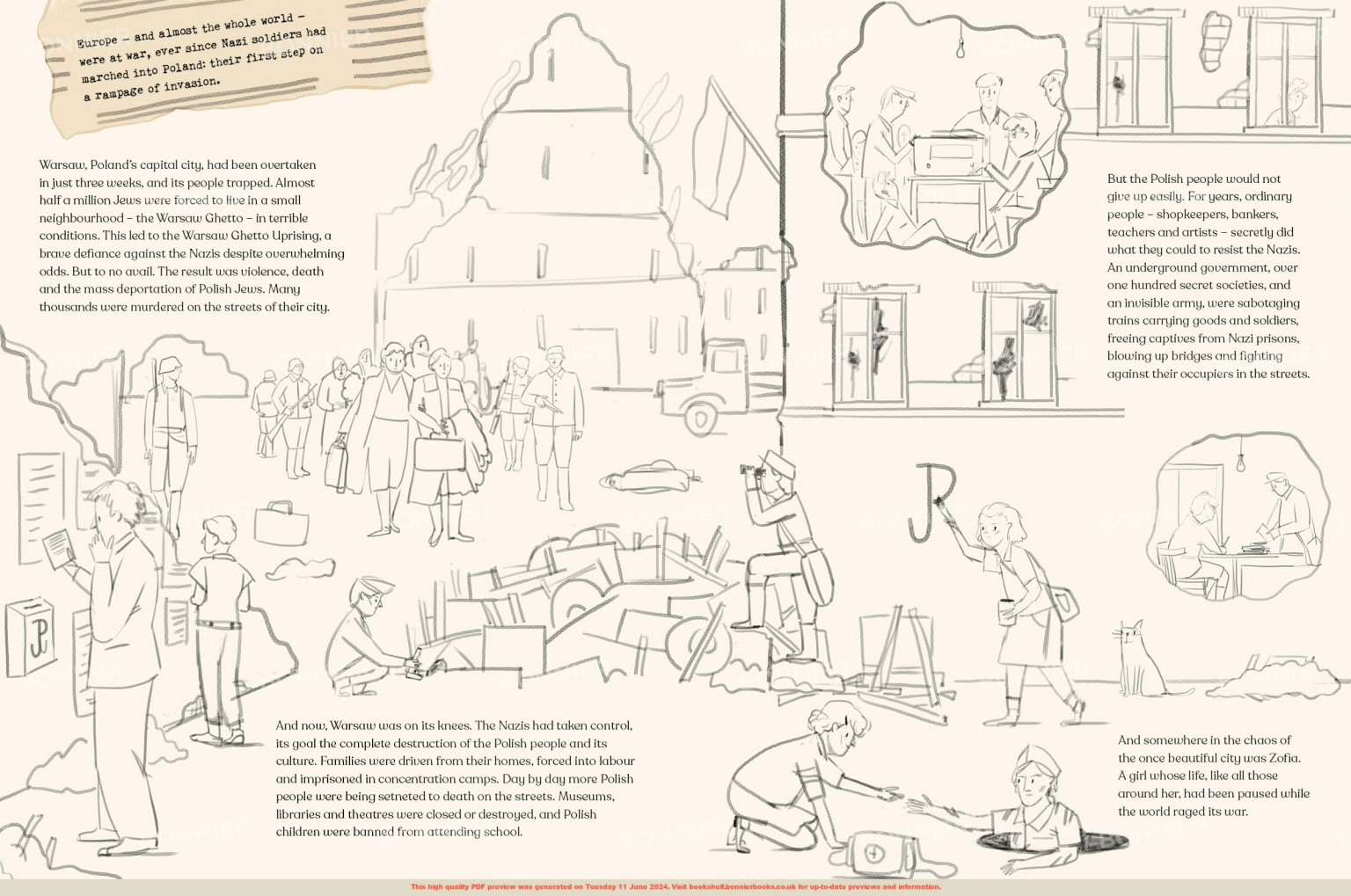
Europe – and almost the whole world – were at war, ever since Nazi soldiers had marched into Poland: their first step on a rampage of invasion.

Warsaw, Poland's capital city, had been overtaken in just three weeks, and its people trapped. Almost half a million Jews were forced to live in a small neighbourhood – the Warsaw Ghetto – in terrible conditions. This led to the Warsaw Ghetto Uprising, a brave defiance against the Nazis despite overwhelming odds. But to no avail. The result was violence, death and the mass deportation of Polish Jews. Many thousands were murdered on the streets of their city.

And now, Warsaw was on its knees. The Nazis had taken control, its goal the complete destruction of the Polish people and its culture. Families were driven from their homes, forced into labour and imprisoned in concentration camps. Day by day more Polish people were being sentenced to death on the streets. Museums, libraries and theatres were closed or destroyed, and Polish children were banned from attending school.

But the Polish people would not give up easily. For years, ordinary people – shopkeepers, bankers, teachers and artists – secretly did what they could to resist the Nazis. An underground government, over one hundred secret societies, and an invisible army, were sabotaging trains carrying goods and soldiers, freeing captives from Nazi prisons, blowing up bridges and fighting against their occupiers in the streets.

And somewhere in the chaos of the once beautiful city was Zofia. A girl whose life, like all those around her, had been paused while the world raged its war.



*My name is **Zofia**
Kiełan Jaworowska...*

*I was born in 1925 in Sokotów Podlaski.
These are my parents: Franciszek and
Maria, and my sister Krystyna.*



Move to Warsaw

*In 1939, my dad got a job in Warsaw so we all
moved to an area called Żoliborz. I loved to
read (sometimes even at parties) ... and often
fought with Krystyna!*



Fun at scout camp

*Krystyna and I spent our summer vacations
as part of the Polish Scouting Movement.
We loved spending time outdoors, camping,
and learning to start fires!*



Poland is invaded!

*When the Nazis stormed my
city in 1939, I was only 14. Life
changed forever.*



Polish Resistance

*I was proud to serve as a medic as part
of the Polish resistance. I was in the Grey
Ranks and Krystyna joined "Help to the
Soldiers." We were on the front line of
battle; being waged in our city.*



Secret Studies

*We tried to continue our studies secretly in
people's houses. If we had been discovered,
we would have been shot! In my secret classes,
reading my ancient biology textbook, I could
escape the bullets and soldiers. I forgot the danger
and the fear and travelled in my mind to worlds
before dictators, before nations, before wars.*

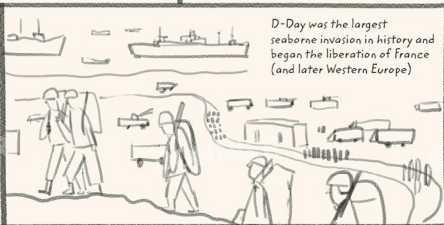
Jana joins the family

*In 1941, I was so happy because Jana Prot joined our
class and we became great friends. Jana was told she
couldn't stay in her apartment anymore and had to leave
her home. Could it be because she was the daughter of
a famous Jewish scientist from Pionki? There was no
question of what we should do; Jana came to live with
us. My parents were so scared because keeping her safe
was a crime in the eyes of the Nazis.*



WARSAW UPRISING AND ESCAPE

The war in Europe changed in 1944. Soldiers from all over the world, intent on stopping the Nazis, landed in France and began a mission to save the continent from oppression, sending a wave of hope across Europe.



D-Day was the largest seaborne invasion in history and began the liberation of France (and later Western Europe)



In Warsaw, the Polish people took up their weapons and began a final fight for their home. Zofia and Jana stopped studying, and working as a medic and ambulance driver, helped drive those that had been wounded through the shattered city to the hospital.

The rebels had hoped to fight for just a few days until the forces of the Soviet Russians came to help them. But the Polish people fought in the streets for two, brutal months.

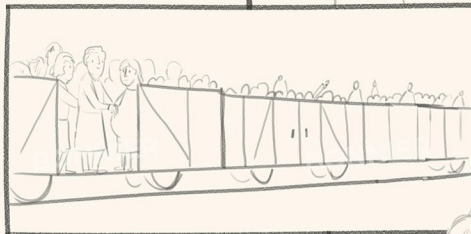


The Soviets never came and 200,000 people lost their lives.

The Warsaw Uprising had failed and the Nazis ordered the entire city to be emptied. Hundreds of thousands of people, including Zofia, her mother, and Jana, were moved to Pruszkow, where they were either sent to death camps or to other parts of Nazi-controlled Poland.



Zofia, as a healthy young woman, was sent to work in a camp, but by chance a doctor working in Pruszkow, recognised her and gave her a fake medical certificate to convince the Nazis she was carrying the terrible disease tuberculosis.



Jana tied a pillow around her stomach to look pregnant and so the two girls, along with Zofia's mother, were sent away from the camps, onboard an open-topped train carriage usually used to move cows.

After 70km, under the cover of a rainstorm, Zofia, her mother and Jana escaped, jumping over the wagon's sides and hiding with a railway worker friendly to the resistance.



They boiled their clothes to kill the lice from the journey, and hid with others who had escaped from the Nazi trains until Zofia's father tracked them down.



Together at last, although far from their home, they were finally safe.

By 1945, the terrible war in Europe was finally over. After five years of oppression, Germany and the Axis powers had been defeated.



As the Nazis began to lose the war, they had scattered, running from the cities they had captured. But Warsaw was different. Hitler was determined to destroy the city following the Warsaw Uprising. So, at the end of 1944, as the Nazis' defeat across Europe seemed certain, they left the already wounded city, but then turned their weapons back on it.



They set fire to churches and smashed down schools, demolished museums and stole from art galleries. They shot, and crushed, tore and toppled and in just a few months, Warsaw, Zofia's beautiful home, was almost wiped from the face of the Earth.

Zofia walked back to the remains of her city, but in Żoliborz she found her beautiful home had been destroyed. Almost nothing had survived except, incredibly, her bicycle.



She peddled through the ghostly city. Street after street lay ruined but, to her surprise, she discovered that the Museum of Zoology was still – just about – standing.



Sharing space with the museum's homeless curators and volunteers, Zofia slept among the bottles of collected animals and drawers of fossils, a refuge built from knowledge. Reading book after book from the surviving library, slowly, Zofia the Rebel was able to be just Zofia, learning about the natural world that had all the time been there around her, but hidden by the noise of war.

Her time spent among the curators and specimens of the museum had convinced her: Zofia would study biology at her city's university. But the university had barely any buildings still standing: its classrooms had been levelled, its libraries lay in ruins.



Instead, Zofia was taught wherever her teachers could find space. It was in one such place, in the apartment of Professor Kozlowski on Wilcza Street, where her life changed forever.

Professor Kozlowski stood behind his table and drew on his blackboard, speaking quickly as he taught Zofia's small class about the countless species that had lived throughout the history of life on Earth.

And it was in this room, in this small apartment, that Zofia learned about the daring expeditions of Roy Chapman Andrews, twenty years ago.



How the American and his team had braved bandits and sandstorms in the vast Gobi Desert on their mission to find dinosaur bones...

About dangers of working in the desert, about the wonderful people they had encountered, and the dinosaur eggs and mammal skulls they had prized from the sandy rocks of Bayn Dzak.



Zofia was entranced.



Where the Gobi Desert now stretched – cold, barren, inhospitable – had once been a bustling, ancient shoreline. In her mind, Zofia waded in freshwater rivers and explored the conifer forests, rich with the scents of the Earth's first flowers. The humid air thick with the chatter of insects overhead, while the shadows of dinosaurs passed between the trees and her mammal ancestors scampered underfoot.

Velociraptor


Aloramus

Sauropus

Zalamdalester

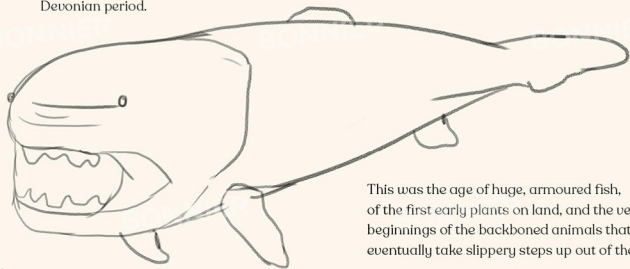
Deltatheridium

Where there was nothing, there had once been everything.




Following the war, travel was near-impossible so Zofia started to look at ancient animals found far closer to home.

As Poland began its next, difficult chapter, Zofia became a paleontologist and spent the next 14 years in her home country, climbing the heights of the Holy Cross Mountains – and traveling 360 million years back in time to the Devonian period.



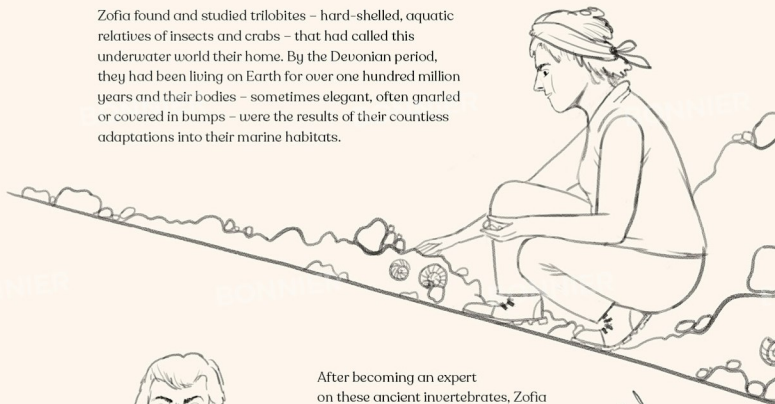
This was the age of huge, armored fish, of the first early plants on land, and the very beginnings of the backboned animals that would eventually take slippery steps up out of the water.



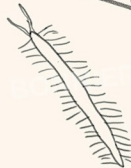
Back then most of what would become Poland was under water so the fossils Zofia found had all lain to rest on the bottom of an ocean.



Zofia found and studied trilobites – hard-shelled, aquatic relatives of insects and crabs – that had called this underwater world their home. By the Devonian period, they had been living on Earth for over one hundred million years and their bodies – sometimes elegant, often gnarled or covered in bumps – were the results of their countless adaptations into their marine habitats.

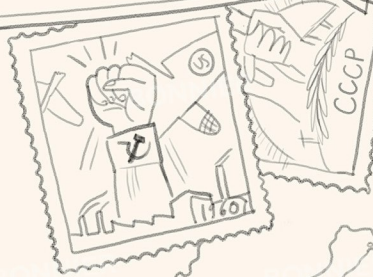


After becoming an expert on these ancient invertebrates, Zofia began excavating the fossils of polychaete worms that had burrowed through the vanished seabed, only their jaws remaining in the rocks she carefully dissolved in acid.



Zofia was learning the history of the Earth and how to read the secret stories held in the smallest of fossils.

Zofia longed to visit museums in other countries, to see famous fossils with her own eyes. But traveling outside Poland was not easy.



Her country had changed again since the end of war, and even had a new name: the Polish People's Republic. But this was a 'puppet state', controlled by the Soviets – the same politicians who had stolen Polish land and abandoned the Polish people during the Warsaw Uprising.

Zofia did manage to travel to Western Europe but it was much easier to visit other Soviet countries. Her bosses were keen to show off Soviet science to the world, and she saw her chance: Mongolia – a Soviet satellite state – and the country Zofia had longed to visit for so long.



Zofia didn't think that anyone would give her the money to mount an adventure to the Gobi desert. After all, she was an expert in trilobites and ancient worms, not dinosaurs. But, thanks to her talent for finding fossils and her knowledge of where the Americans had (and had not) dug in the 1930s, she was given the funds to visit Mongolia and work with scientists there – and tasked with bringing back to Warsaw the city's first dinosaurs.

UNION OF SOVIET

SOCIALIST REPUBLICS (USSR)

Moscow

She could barely believe it: soon she would be sitting on a plane to Mongolia's capital city. She was going to Ulaanbaatar.

The Soviets were powerful, spreading their ideas and beliefs across Eastern Europe, cutting themselves off from America and the rest of Europe to the West. This was known as the Iron Curtain. Although there was no fighting between these two groups of nations, the world was locked in a cold war with both sides distrusting the other.

Ulaanbaatar

MONGOLIA

After the war, Germany had been split between the Allied forces – West Germany was controlled by the USA, UK and France whilst East Germany went to the Soviets. In 1961, the Berlin Wall was built that physically separated East Germany and West Germany – breaking up families, creating further divides.

The Iron Curtain was an invisible boundary separating the East and West.



The clock began ticking. Zofia assembled a small band of fellow scientists who would arrive – just before her – in Mongolia in the Spring of 1964 but there was a lot to do in the few months before they left.

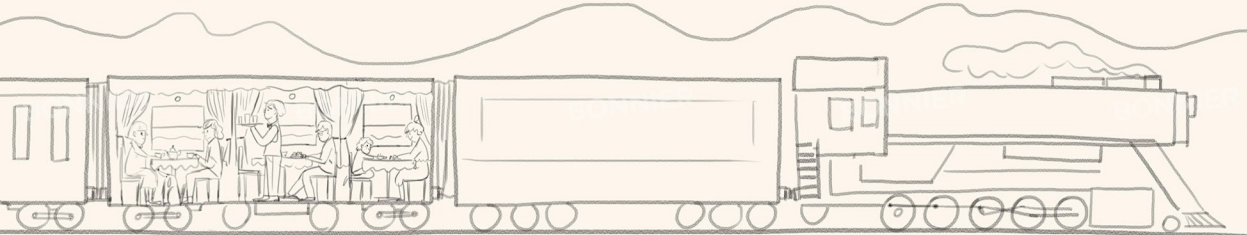


Zofia's team crammed everything into wooden crates, hammered them shut, and sent them four and a thousand miles over land onboard the Trans-Siberian Railway, their sleeping bags and tents traveling beside diplomats and tourists journeying to the furthest reaches of the Soviet world. Everything they would need would be waiting for them when they arrived.

Throughout the winter in Warsaw, they prepared for their journey. They were going to have to take more than just their passports and sunglasses.

THEY WOULD NEED:

- * pens and ink for drawing what they would discover
- * typewriters for writing up their findings
- * 100 ready-made crates for storing their discoveries
- * wood, 70kg nails, screws and tools for building crates to transport any fossils
- * 40 hammers, 20 pickaxes, 33 spades, 40 hammers, 100 chisels, 50 paint brushes and 1 hand pulley for excavation
- * 2 tonnes of plaster for protecting any bones they found
- * 120 litres of liquid polystyrene and 200 square metres of corrugated cardboard for packing fossils
- * 150 square metres of canvas
- * 14,000 litres of petrol, and a repair kit for the enormous trucks they would drive over the dunes.
- * food for twenty people for four months
- * knives, forks, spoons, and a field kitchen for the whole team
- * tents, sleeping bags, blow-up-mattresses
- * light clothes for the blistering heat of the day, and warm layers for the freezing desert nights
- * a medicine chest
- * flashlights and candles



Zofia knew that they could bring all the finest equipment, the newest tools and the biggest trucks, but the most important thing they could take with them couldn't be packed in a box. If she didn't understand the country she was visiting, they would have no hope of finding their way out of the airport, let alone finding fossils. So, in the months before she left, Zofia invited two of Mongolia's finest palaeontologists, Naydin Douchin and Demberlyin Dashzeveg, to brave the Polish winter with her in Warsaw.



Zofia learned how to read Mongolian maps and speak a few phrases in their language. They taught her about gers – the traditional houses Mongolia's nomadic people lived in – that were strong enough to withstand sandstorms but light enough to be carried from valley to valley. About the traditional deel tunics still worn on the steppe, and about delicious hevjin boov cakes. They read microfilms about the dinosaurs the Americans had discovered and planned their trip.

They spoke for days together about their country, about its history – not only of dinosaurs, but of the ancient Xiongnu empire, Buddhist monks, and Ghengis Khan.

Hello: Сайнуу

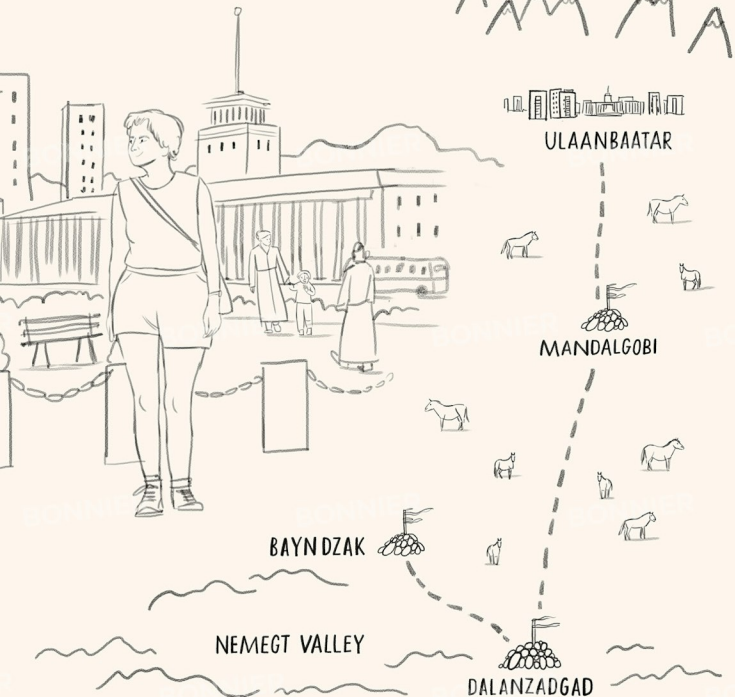
My truck has broken down:
миний ачааны машин эвээрсэн

Zofia knew how lucky she was that these experts would be leading them through their country and into their desert, and she only hoped they could provide them with something in return.

The winter passed and soon it was time for Zofia to leave. With a head full of facts, and a chest full of excitement, she walked onboard the plane that would carry her, finally, to the desert.

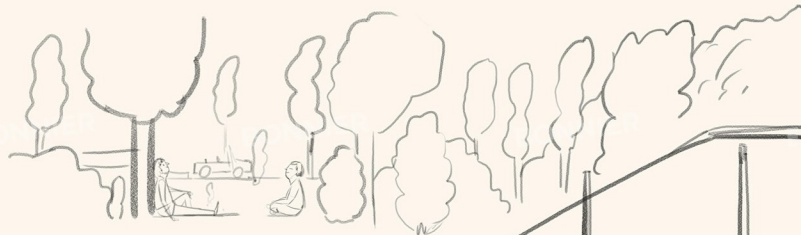
Zofia was finally here.

She was standing in the capital city of Ulaanbaator, her skin burning under the clear sky and her throat sore from the dry, thin air. She was soon to begin the long, difficult journey to the Nemeqt Valley and Tsagan Khushu, and then North, to Bayn Dzak, the graveyard of the dinosaurs.



Alone, in a world unknown to her, she should have been lost. But joining her was Mr Dagwa, from The Mongolian Academy of Sciences. He spoke Polish beautifully and could help direct their driver, Batochir, who raced through the steppe, somehow picking out the invisible 1000km route, while singing folk songs from behind the wheel.

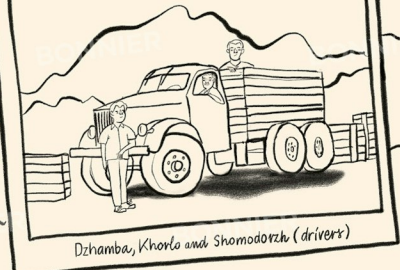
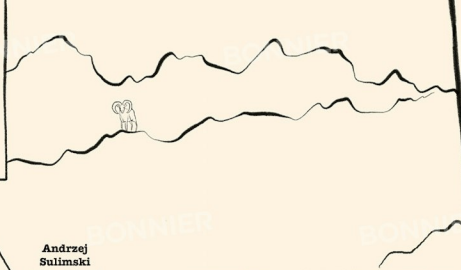
Beneath the endless sky, the ground seemed to go on forever, broken only by occasional obo mounds – ancient signposts that once showed silk-road travelers the routes home. They passed camels and horses, but no people.



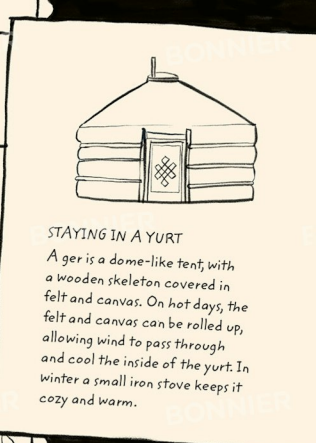
They reached Dalanzadgad after 48 hours and rested, a park in the centre of the small town a shining oasis within the endless desert, before driving 300km more to Bayn Dzak, cold and high on the steppe. But that night, Zofia would spend her first night in a ger.



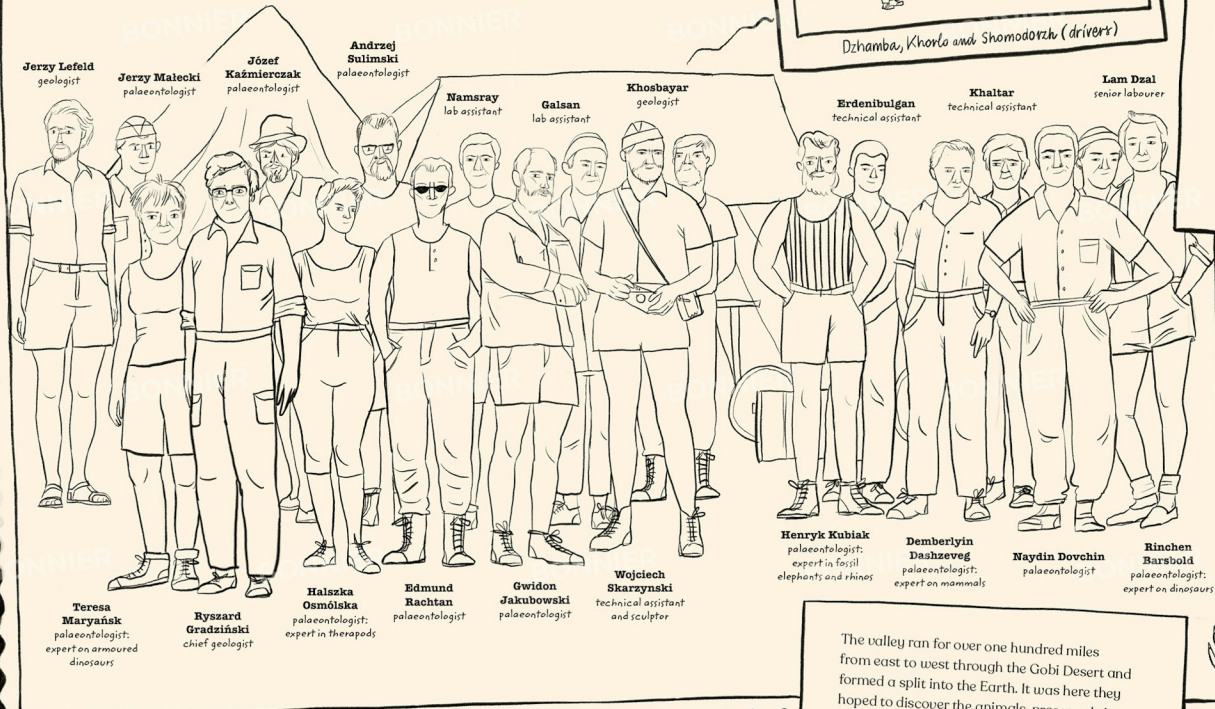
The next day, Zofia, Dagwa and Batochir met the rest of the team who had set up camp in Naran Bulak, sheltered by a dune overgrown with tamarisk shrubs, in the southern part of the Nemegt Valley.



Dzhamba, Khorlo and Shomodorzh (drivers)



STAYING IN A YURT
 A ger is a dome-like tent, with a wooden skeleton covered in felt and canvas. On hot days, the felt and canvas can be rolled up, allowing wind to pass through and cool the inside of the yurt. In winter a small iron stove keeps it cozy and warm.



Jerzy Lefeld
geologist

Jerzy Malecki
paleontologist

Józef Kaźmierczak
paleontologist

Andrzej Sulimski
paleontologist

Namsray
lab assistant

Galsan
lab assistant

Khosbayar
geologist

Erdenbulgan
technical assistant

Khaltar
technical assistant

Lam Dzal
senior labourer

Teresa Maryańska
paleontologist;
expert on armoured dinosaurs

Ryszard Gradziński
chief geologist

Halszka Osmólska
paleontologist;
expert in theropods

Edmund Rachtan
paleontologist

Gwidon Jakubowski
paleontologist

Wojciech Skarzynski
technical assistant
and sculptor

Henryk Kubiak
paleontologist;
expert in fossils
elephants and rhinos

Dembertiyin Dashzeveg
paleontologist;
expert on mammals

Naydin Dovchin
paleontologist

Rinchen Barsbold
paleontologist;
expert on dinosaurs

The valley ran for over one hundred miles from east to west through the Gobi Desert and formed a split into the Earth. It was here they hoped to discover the animals, preserved since the Cretaceous, in the sandy rocks.

Zofia had assembled an amazing team of young adventurers, and they were joined by an equally brilliant group of Mongolian scientists. As no one from Zofia's Polish team had seen the desert before, they watched and listened to their new Mongolian friends, learning how to survive in this new – but ancient – world.



A DAY IN THE LIFE OF THE DESERT CAMP

Life in the camp was not going to be a holiday. They woke at seven each morning after a freezing night, the frost on their tents crackling as they unzipped the doors.



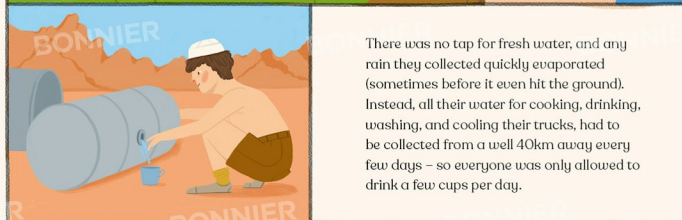
After a speedy breakfast of Mongolian tea boiled in milk they set off on their work.



Moving slowly across the dusty ground, their eyes close to the sand, they 'prospected' for fossils. No matter what they found, they would have to stop by lunchtime when the temperatures rose to over 40 degrees. Forced into the shade, they returned to their work in the late afternoon until the light began to fail.



Each night as the sun set, they discussed what they had prized from the sandy rocks. They would build a fire from the paper-dry desert shrubs, which grew around their camp, to boil water and cook the canned food they had shipped from Europe.



There was no tap for fresh water, and any rain they collected quickly evaporated (sometimes before it even hit the ground). Instead, all their water for cooking, drinking, washing, and cooling their trucks, had to be collected from a well 40km away every few days – so everyone was only allowed to drink a few cups per day.

In the light of their evening fires, desert flies would buzz around them. Some nights they were surrounded by clouds of biting insects so thick, they had to sit down to their evening meals with their heads and faces wrapped in towels and scarves. They made the most of it – laughing at how silly they looked, singing songs to raise their spirits and drinking kumiss (fermented horse or camel milk) that their Mongolian friends shared with them.



Despite their laughter, working on the camp could be dangerous. Mongolia was five times the size of Poland but home to less people than lived in the whole of Warsaw. With no one to ask directions and no radio communications, if they got lost, they might never find their way back.

But Zofia and her team were not alone in the Gobi. Beside them as they worked were the desert's non-human inhabitants...

Gobi jerboa (*Allactaga bullata*)

These nocturnal mammals avoided the devastating temperatures by burrowing under the ground during the day.



Zofia had to look out for scorpions and spiders to avoid bites or stings, but a far greater danger could descend from the skies: it wasn't long before she lived through her first sandstorm.

Gobi pit vipers (*Gloydius halys*)

Like all pit vipers, this snake, difficult to see against the brown sands and rocks of the desert, was venomous. Although some members of the team thought these snakes should be destroyed, Wojciech preferred picking them up by their tail and carrying them to safety far away.



Gobi scorpions (*Mesobuthus eupeus*)

Although not deadly, the venomous strike of a scorpion's sting was extremely painful!



Tarbagan marmots (*Marmota sibirica*)

Despite their cuteness, everyone tried their best to stay away from these rodents, as they could carry pneumonic plague – a deadly disease for humans.



Camel-spiders (*Solifugids*)

Fast, aggressive and armed with powerful jaws, these arachnids appear to be a mix of spider and scorpion – no one wanted to find one of these in their sleeping bags!



Long eared hedgehogs (*Hemiechinus auritus*)

Like many other desert-dwelling mammals, this hedgehog's ears were very long to help it draw heat away from its body. These hedgehogs had a habit of raiding the expedition's rubbish, making a mess in the process.



She had been working inside her tent when she saw a grey thunder cloud. Within minutes, the breeze grew faster and stronger, until their tent ropes snapped and their equipment scattered. The tower of swirling sand blotted the sun from the sky and in near darkness Zofia and her team threw themselves on top of their tents, holding them down while the sand whipped their skin and tore at their eyes.



Sandstorms could last longer than an hour and, after the wind had calmed, the camp always looked like a battle site and would take days to be repaired.

Soon all the hardship began to pay off.

Zofia and Gwinda discovered the fossilised skull of a dinosaur: it's tell-tale snout, its eye sockets, the shape of its teeth, all revealed the story of its ancestry.

Slowly and carefully they began to expose the delicate bones - first with spades, picks and chisels, and then with spatulas and eventually paint brushes.

As they gradually removed fragments of stone, the team freed an animal wondrous to behold in its preserved sleep. The slender, powerful skull lay at the end of a curved neck, and they soon discovered ribs, small arms, powerful hips and legs, and a long tail, balancing the weight of the dinosaur's muscles, stomach and head.

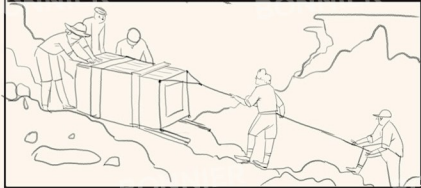
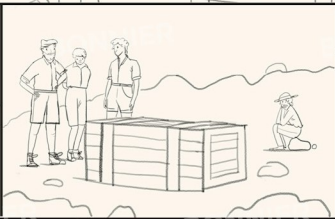
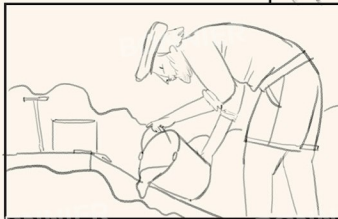
After only a few days in the field, they had discovered an almost complete *Tyrannosaurus*, a 10-meter predator, a cousin of *Tyrannosaurus rex*, that had hunted prey through the seasonal wetlands before being encased in rock for 70 million years.

As the expedition continued, magnificent fossils appeared day after day, including a gigantic 12-tonne saurapod skeleton so large it would take two weeks to free it from its sandstone prison.

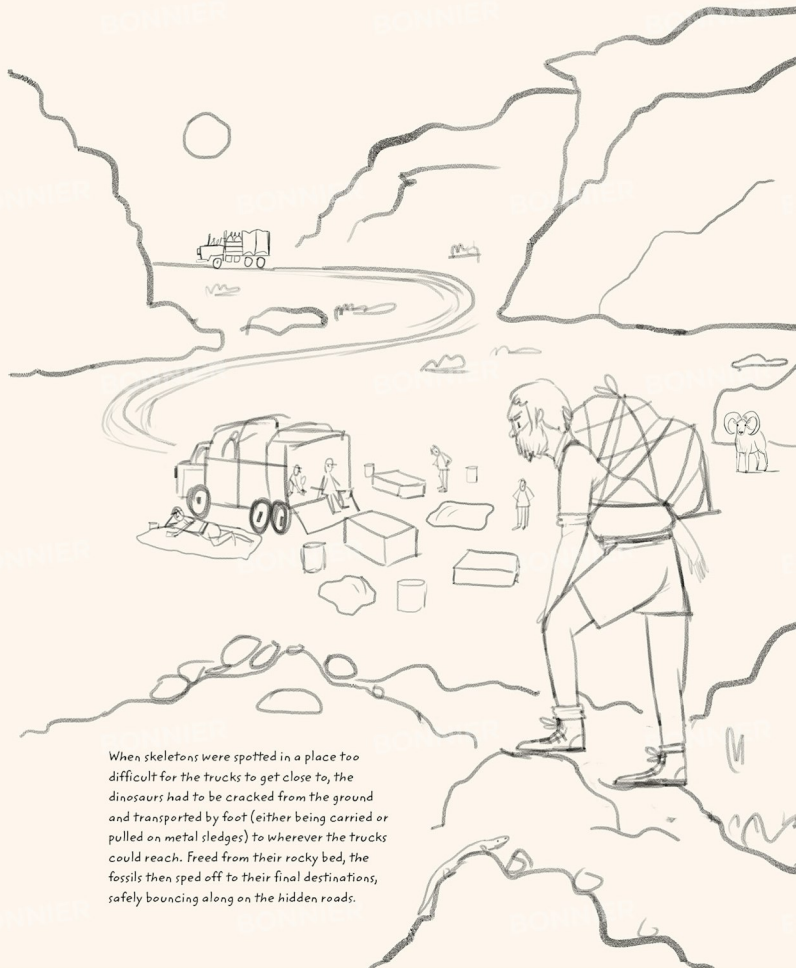


Discovering dinosaurs was only the first step. After recording and photographing the fossils, there remained the enormous task of protecting the fossils in plaster and shipping them back to Ulaanbaatar to be studied in the museum.

After a skeleton or collection of bones was found, a wooden frame was built around it and plaster poured in on top of the fossil. After leaving the plaster overnight to harden, a lid was nailed on the crate and trench dug around the base.



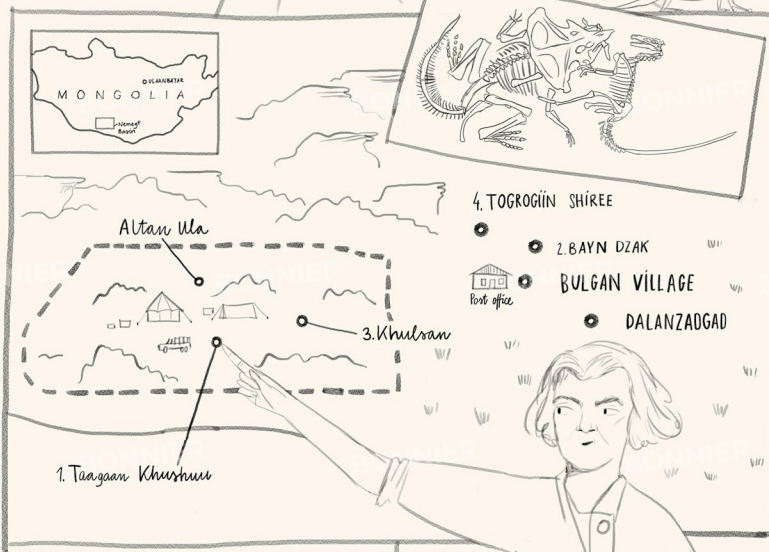
Then, after rope had been attached to the corners, all members of the expedition would pull or push the crate until the rocky stem it sat on cracked and the fossil, safe in its protective casing, snapped off.



When skeletons were spotted in a place too difficult for the trucks to get close to, the dinosaurs had to be cracked from the ground and transported by foot (either being carried or pulled on metal sledges) to wherever the trucks could reach. Freed from their rocky bed, the fossils then sped off to their final destinations, safely bouncing along on the hidden roads.

The adventure was a fantastic success. Zofia had led an international band of scientists into the heart of the desert, and despite the heat of the day, the cold of the night, and the back-breaking hard work, they had pulled wonders from the Earth that had been held secret for 70 million years.

One expedition wasn't enough and over the next seven years, Zofia and her team returned to the Gobi five more times, exploring more of the desert, expanding their gateway to the Cretaceous. Each time they faced new challenges, but every year their amazing discoveries made it worth the sandstorms, sunburns and scorpion stings.



FOSSIL DISCOVERIES

1. Tsagaan Khushuu (South Nemegt)

The six-metre long, fast-running, ostrich-like dinosaur Gallimimus was discovered at this site. All the bones were later discovered to have been infused with uranium-rich ground water, and so were highly radioactive!

2. Bayn Dzak

Nine skulls of Cretaceous mammals found.

3. Khulsan

An unknown ankylosaur was discovered within the basin. Difficult to reach, the team needed scaffolding to scale the cliff side.

4. Togrogiin Shiree

In 1971, Teresa Maryańska and her colleagues discover a Velociraptor and Protoceatorops fossilised as if in battle together. Whether they died struggling together, or the Velociraptor was scavenging a meal is still unknown today.

Some of the dinosaurs they discovered were enormous, but others were much smaller and easier to remove, like *Homoiocephale* - a tiny relative of the dome-headed *Pachycephalosaurus* - that Zofia discovered when she turned over an interesting looking block of stone, only to find a couple of eye sockets looking back at her!

Bulgan Village
The only post office for hundreds of miles.

Altan Ula
"The Cafe" at Altan Ula was close to the Polish-Mongolian camps.

Dalanzadgad
The capital of the Southern Gobi province, and where food and tools were stored.

It was in Altan Ula that Zofia would make one of her greatest discoveries...

It was the Festival of Naadam – the Mongolian national holiday – and everyone was celebrating.



Folk songs had been sung around the fireplace, while they ate argali with rice washed down with lots of cups of kumiss. Ryszard had stunned everyone by walking barefoot over the hot coals of the fire.



It had been a wonderful change of their routine, but the next day would be even more unusual. It was, for one thing, raining.

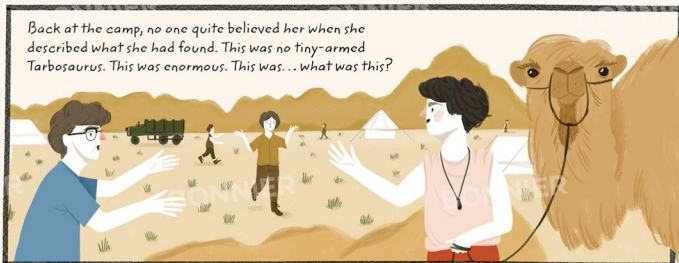


Rain in the Gobi was very rare and Zofia didn't think she would have much luck spotting anything in the darkened, soaked sand.



But soon she was stopped in her tracks as, lying in front of her, half-exposed to the overcast sky, stretched a collection of thin bones. As she started to clear the sand from the fossils, she couldn't believe her eyes. She had found an arm, a hand, and then a 20cm-long curved claw...

Back at the camp, no one quite believed her when she described what she had found. This was no tiny-armed Tarbosaurus. This was enormous. This was... what was this?



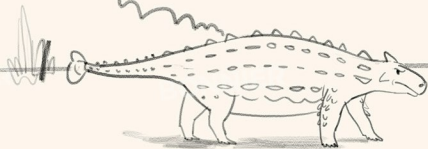
The next day, with Edmund, Halszka, and Barsbold's help, she found more: a shoulder bone longer than she was tall, and an arm 2.4 meters long, tipped with three, knife-like claws.

After a dusty day of excitement and confusion, Halszka, Teresa, Henryk and Zofia tore through the expedition's library, but none of their books helped at all.

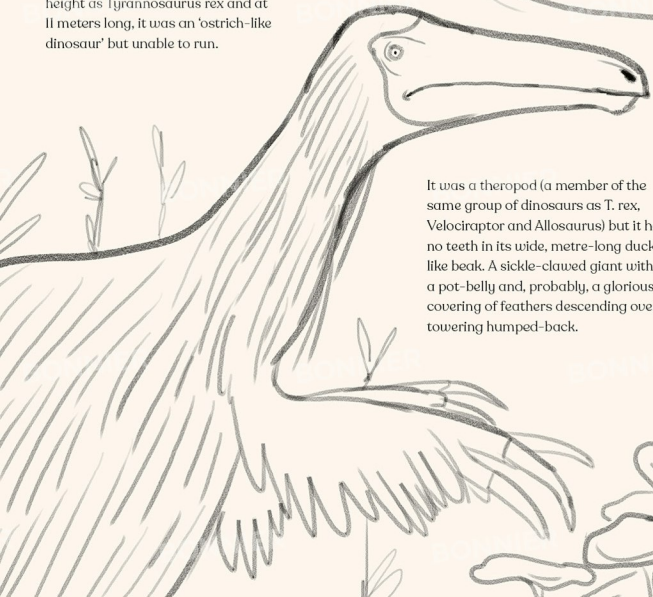


On that rainy morning, Zofia had stumbled upon what would become one of the greatest mysteries of palaeontology in the twentieth century...

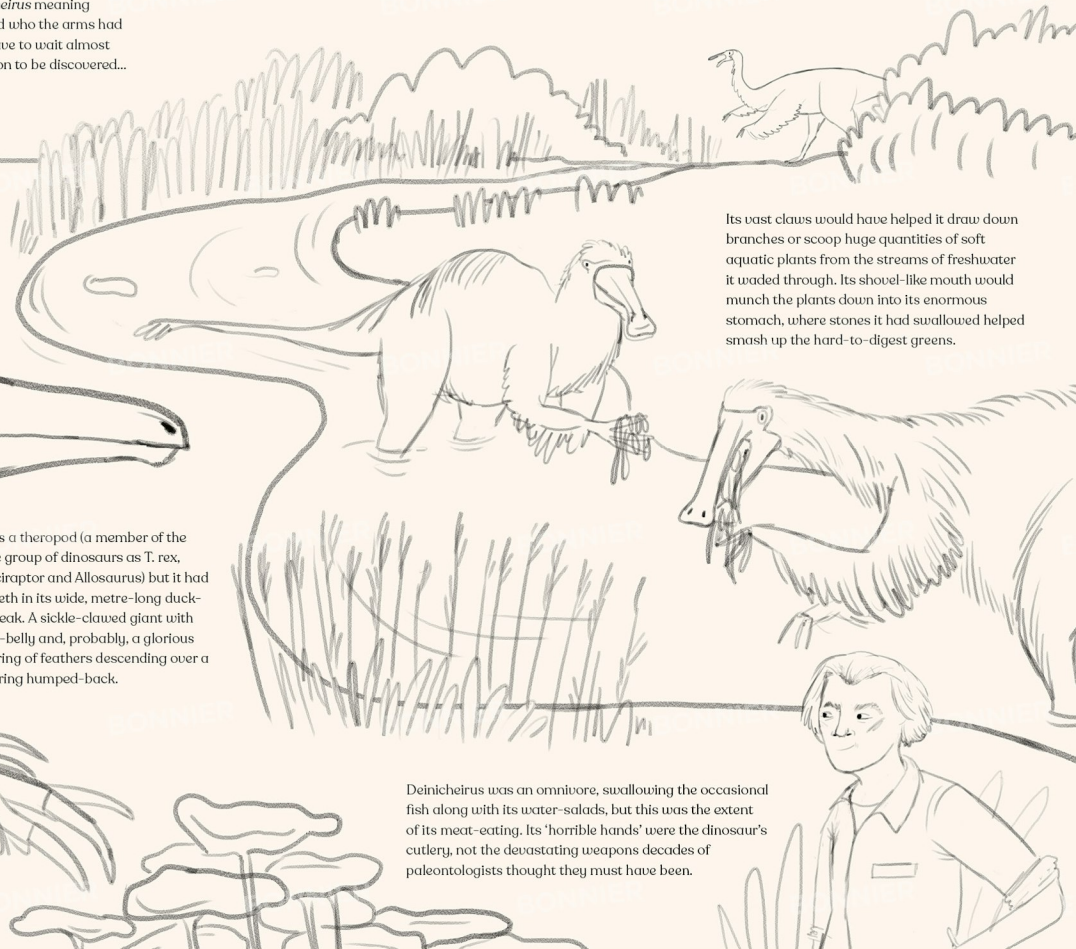
This terrifying fossil would be named *Deinocheirus* meaning "horrible hand" but no one could have guessed who the arms had belonged to. In fact, the whole world would have to wait almost fifty years for the rest of the dinosaur's skeleton to be discovered...



Deinocheirus' stupendous arms were attached to an almost unbelievable animal. Standing at almost the same height as *Tyrannosaurus rex* and at 11 meters long, it was an 'ostrich-like dinosaur' but unable to run.



It was a theropod (a member of the same group of dinosaurs as *T. rex*, *Velociraptor* and *Allosaurus*) but it had no teeth in its wide, metre-long duck-like beak. A sickle-clawed giant with a pot-belly and, probably, a glorious covering of feathers descending over a towering humped-back.



Its vast claws would have helped it draw down branches or scoop huge quantities of soft aquatic plants from the streams of freshwater it waded through. Its shovel-like mouth would munch the plants down into its enormous stomach, where stones it had swallowed helped smash up the hard-to-digest greens.

Deinocheirus was an omnivore, swallowing the occasional fish along with its water-salads, but this was the extent of its meat-eating. Its 'horrible hands' were the dinosaur's cutlery, not the devastating weapons decades of paleontologists thought they must have been.

At the end of each expedition, the fossils, safe in their plaster of Paris cocoons, were divided between the Mongolian and Polish teams. The Polish collection travelled by train to Warsaw, and the remaining fossils (along with most of the equipment used by the scientists) stayed in Ulanbaatar to be studied by Dashzeveg, Douchin, Barsbold and their students.

Gallimimus

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

Saurolophus

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

It took years to remove the last of the desert rock from the fossilised bones. They researched what they had found and wrote scientific articles until finally it was time to hoist the bones up and show everyone what they had discovered. In 1968 at the Palace of Culture Dinosaurs from the Gobi Desert astonished the people of Warsaw.

Saichania

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

Deinocheirus

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

Wide-eyed children squealed beneath the awe-inspiring grin of Tarbosaurus and the extraordinary might of Opisthocoelocaudia, while their parents pondered on the mysterious arms of Deinocheirus and the wonderful remains of Protoceratops.

Tarbosaurus

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

Opisthocoelocaudia (reconstruction)

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

Prenocephale

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

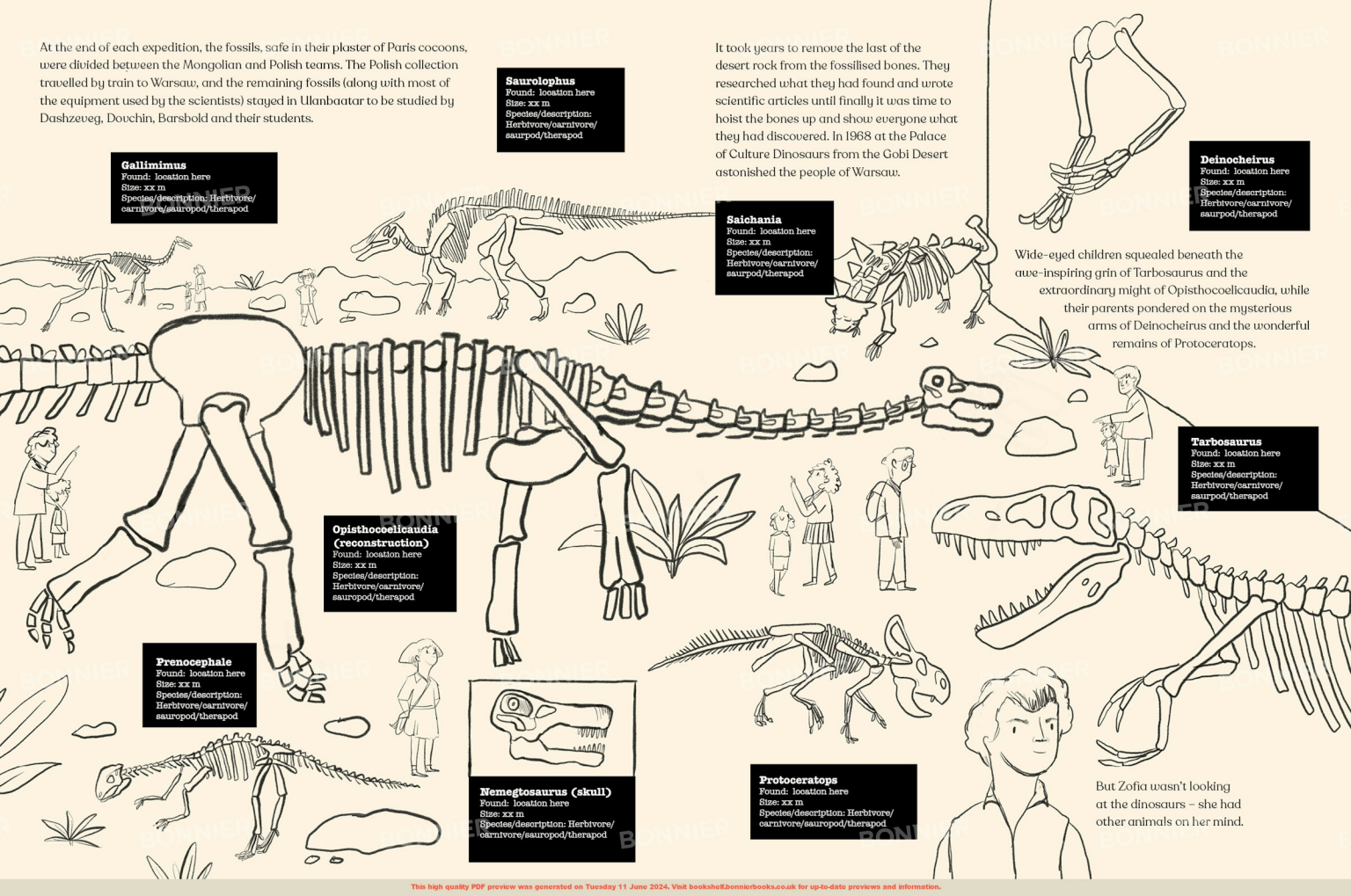
Nemegtosaurus (skull)

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Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

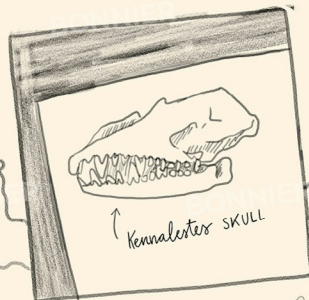
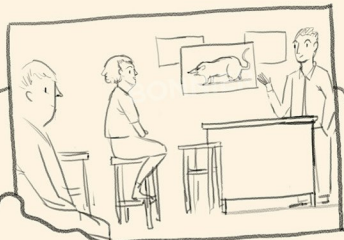
Protoceratops

Found: location here
Size: xx m
Species/description: Herbivore/ornithomim/sauropod/theropod

But Zofia wasn't looking at the dinosaurs - she had other animals on her mind.



Ever since she had first seen drawings of *Deltatheridium* and *Zalambdalestes* in Professor Kozlowski's apartment, Zofia had dreamed of discovering mammals from the age of the dinosaurs.



Before her first expedition, only 11 mammal skulls from the Cretaceous period had ever been found but, by the end of 1965, Zofia and her team had almost doubled that number just from Bajin Dzak.

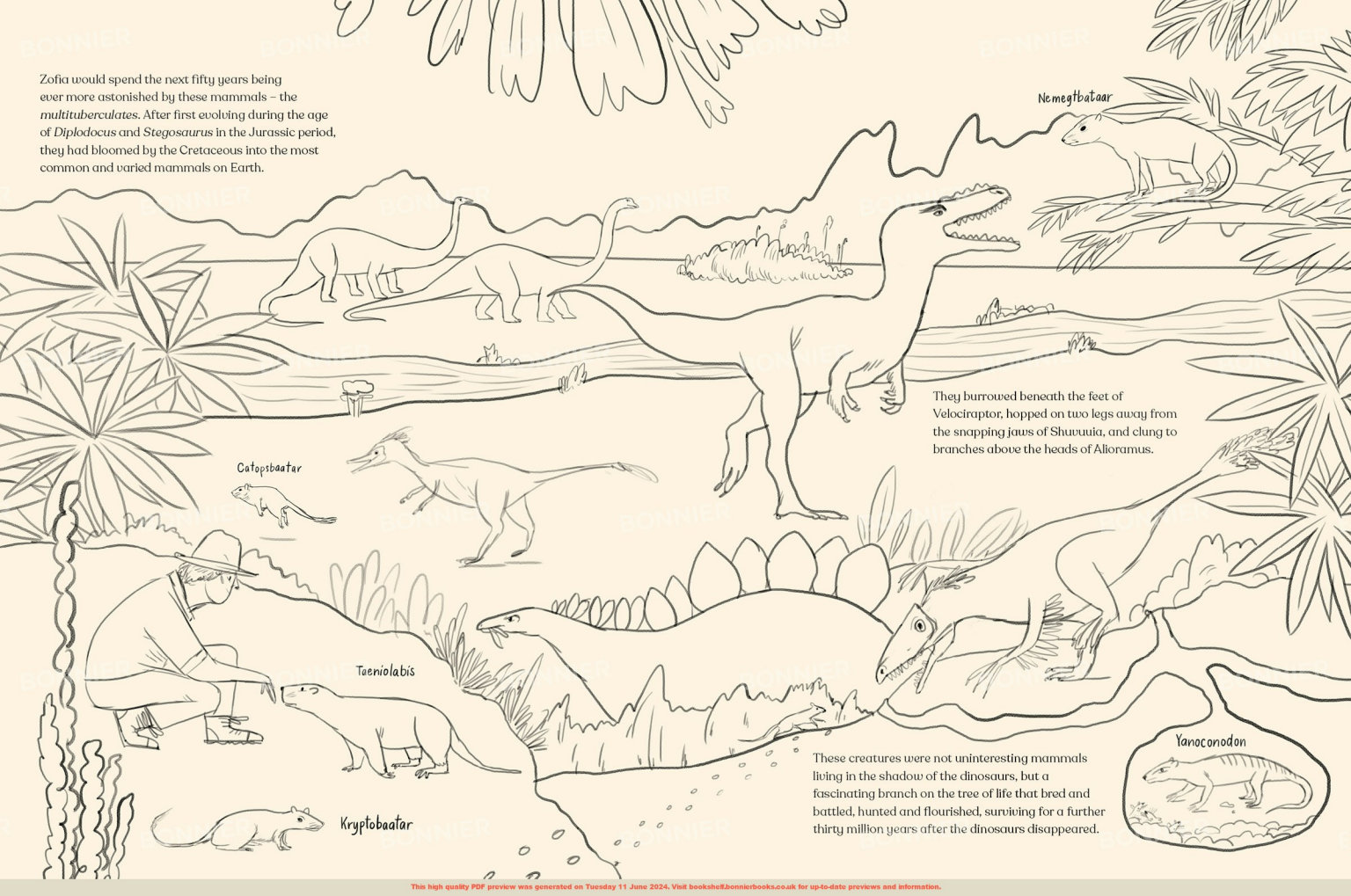


But the pursuit of early mammals was no picnic. Dinosaur fossils were often much larger than the humans digging them up, whereas ancient mammals had tiny, fragile bones that often broke away from their skeletons. Zofia would spend hours on her stomach, her face close to the ground looking for millimeter-long teeth glinting in the sunlight or fingernail-long jaw bones.



On one expedition, Zofia took her team to the dark-red rocks of Hermin Tsau where they quickly began finding mammals thanks to their slow, steady, head-down approach. Then, when exploring Khulsan, they struck scientific gold. In one afternoon, they found five mammal skulls and then, after staying for ten days, found a further 22. No human had ever before seen the animals they were to discover, and these fossils would help change how the world thought about the first mammals.

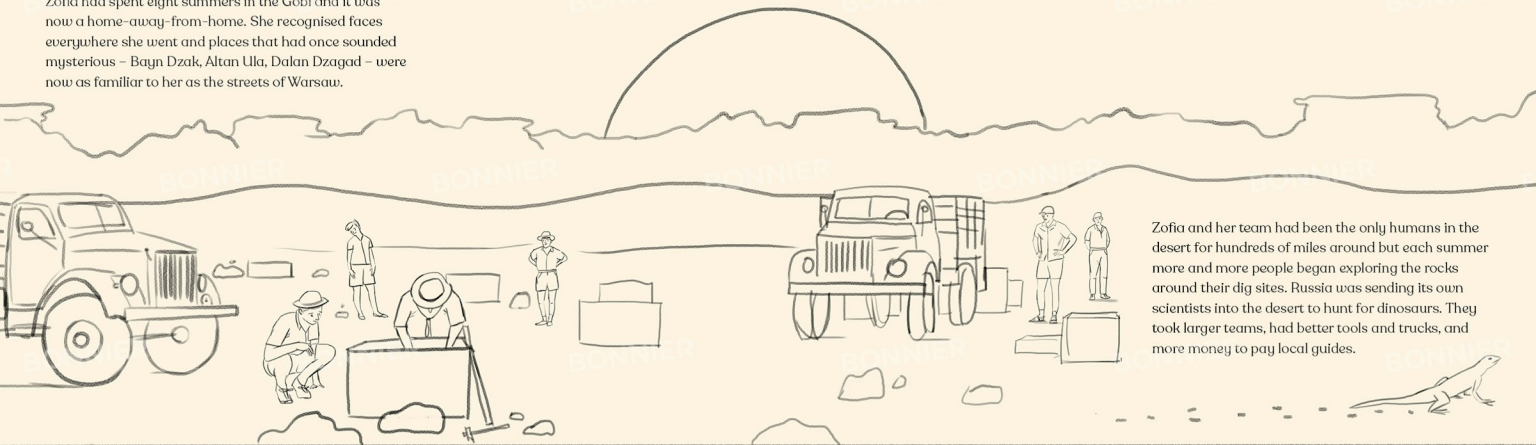
Zofia would spend the next fifty years being ever more astonished by these mammals – the *multituberculates*. After first evolving during the age of *Diplodocus* and *Stegosaurus* in the Jurassic period, they had bloomed by the Cretaceous into the most common and varied mammals on Earth.



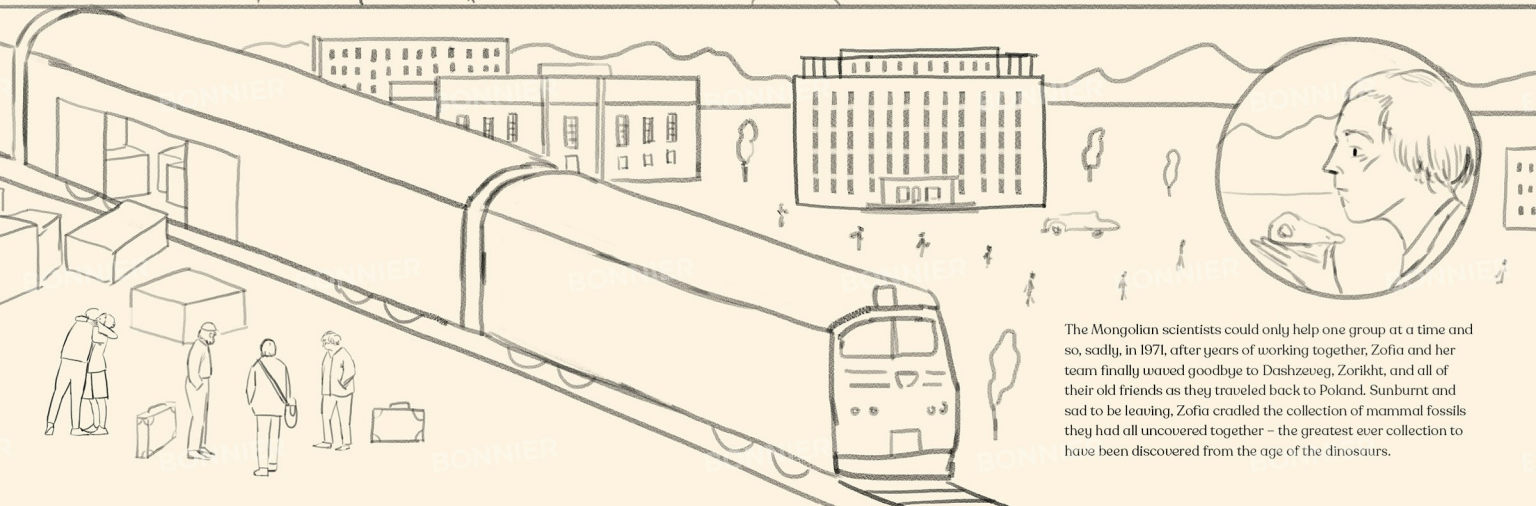
They burrowed beneath the feet of *Velociraptor*, hopped on two legs away from the snapping jaws of *Shuvuuia*, and clung to branches above the heads of *Allioramus*.

These creatures were not uninteresting mammals living in the shadow of the dinosaurs, but a fascinating branch on the tree of life that bred and battled, hunted and flourished, surviving for a further thirty million years after the dinosaurs disappeared.

Zofia had spent eight summers in the Gobi and it was now a home-away-from-home. She recognised faces everywhere she went and places that had once sounded mysterious – Bayn Dzak, Altan Ula, Dalan Dzagad – were now as familiar to her as the streets of Warsaw.



Zofia and her team had been the only humans in the desert for hundreds of miles around but each summer more and more people began exploring the rocks around their dig sites. Russia was sending its own scientists into the desert to hunt for dinosaurs. They took larger teams, had better tools and trucks, and more money to pay local guides.



The Mongolian scientists could only help one group at a time and so, sadly, in 1971, after years of working together, Zofia and her team finally waved goodbye to Dashzeveg, Zorlikt, and all of their old friends as they traveled back to Poland. Sunburnt and sad to be leaving, Zofia cradled the collection of mammal fossils they had all uncovered together – the greatest ever collection to have been discovered from the age of the dinosaurs.

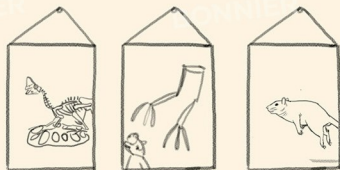
Returning to the concrete and drizzle of
Warsaw – but also to the warmth of her family
– Zofia never left the desert and the wonderful
discoveries she and her friends had made.

To celebrate their finds, Zofia and the expeditions'
technician Wojciech Skarżyński recreated life-size
constructions at the Silesian Zoological Park in
Chorzów for everyone to enjoy!

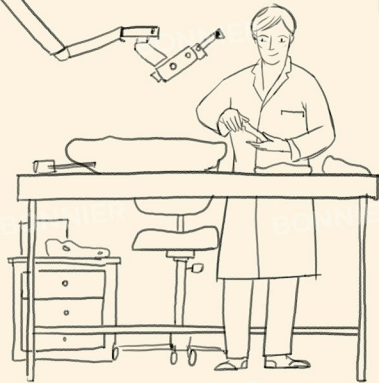


The Dinosaur Valley was completed
in 1974 with seven Mongolian species,
including Tarbosaurus, Nemegtosaurus,
Saurolophus, Protoceratops, Saichania,
Prenocephale, and Gallimimus.

Zofia wrote books about her expeditions and appeared on TV (sneaking dinosaur eggs into the studios in her handbag), talking about the wonders of the natural world and how important it is to stay curious, to ask questions, and to go on adventures.



Despite the Nazis who had tried to crush her people, and to wipe her city from the face of the Earth, Zofia had broken free. She had drunk kumiss in yurts, listened to rock n' roll in America, and taken tea in London. She had connected with people - no matter where they lived, what language they spoke, what music they listened to, or what they believed in - through the joy of discovery; of uncovering the secrets of a world before ghettos, iron curtains, or cold wars. Science could not be done alone, and she made sure her work, as well as reaching backwards through time, also reached outwards across nations.



In labs, she cleaned, described and tried to make sense of the rocky fossil puzzles from the Gobi desert with young students who were as entranced by her stories of adventures with her Mongolian friends as she had been listening to the tales of Roy Chapman Andrews in her war-torn youth.

