

Dr. Faust in the Incubator

Molecular biology laboratory in Sydney: Glass incubator with agar plates, centrifuges, glassware, gel electrophoresis, chemical bottles, computer. A scientist from Germany enters and turns to the audience.

"You see, this is what a modern laboratory looks like. No matter where you go: the Berlin Charité, the Life Science Building at UC Berkeley, a small shack on Hawaii's Coconut Island, or here in a research hospital in Sydney. You see, everything freshly furnished with a gigantic cash injection from the Ministry of Health, everything brand new—no equipment from the 1950s, no, even the centrifuge is Porsche-designed. Bright blue—a splash of color amid the white hygiene."

Laughs maliciously. Slips on a white lab coat. Puts on rubber gloves. Turns to the incubator, which is filled with various Petri dish cultures. Picks out a specific Petri dish.

"Hygiene. Nah. Everything highly dangerous. The incubator is at 37°C—body temperature, that's where they grow best. Here, take a look, just two days old and already caramel-like slime is dripping from the lid. You'd better not eat that for dessert, it's *Cryptococcus neoformans*. A yeast-like fungus, an isolate from pigeon shit. Wait, what does it say on it? NT27. Yeah, of course, the 27th pigeon droppings sample from the train station in Newtown."

"Ha, Newtown! Sydney's second-largest trendy district, lots of positives—an opportunistic infection with *Cryptococcus* is then often the end—meningitis, and after a few months, dead as a doornail. Well, we are researching it. How do we do it?"

"Doctor Faust, the scientist par excellence, ruminates and finds: 'In the beginning was the deed?' But no, in the beginning was the idea, dear Faust. The idea is the crucial point, after all. You then only need to test the hypothesis twice, and there you have a fine paper—an article in some hopefully recognized scientific journal. Preferably in *Nature* or *Science*, if you have the right connections. Researching all by yourself doesn't exist anymore. Faust hocked his soul and is sizzling in purgatory. A Faust doesn't stand a chance today (unless he had money, Elon-esque financial resources that granted him total independence). No, no—teamwork with an everlasting smile on your face and a meat market in a suit and tie are the order of the day. And what's all this theater for? For the greatest, the highest achievable thing: your own lab, with a Porsche design, as I said. Work is supposed to be fun, after all. After all, you sit here all day, until 8 or 10 in the evening. Or on weekends: turning a machine on and switching it off after 6 or 10 hours. All very time-consuming. You're nailed down there. The modern scientist can only be glad when he loses his chains—catapults himself out of the lab and into life for a change."

"I know many colleagues who drop out for a few years and make a bit of dough. Free he must be, the scientist, on the ball: surfing the globe, and joining in on everything: animal

testing preferably in a high-security wing, AIDS research preferably on Black people in Uganda, letting atomic bombs burst preferably in the South Pacific, dragging filth (even if under the mantle of science) preferably across national borders: out of sight, out of mind; better yet, letting it drop to the ocean floor; well, that's probably where it actually causes the least trouble. Just think of the disposal of the oil platform in the North Atlantic, what a theater that was, when the cheapest option, sinking it into a deep-sea trench, would probably have been the most environmentally friendly. Placed in the right spot, the garbage would have been pushed under the continental plate by subduction and eaten up by the Earth's mantle. But politics, propaganda—even science is not immune to that. Even Greenpeace isn't always correctly informed."

Chuckles to himself.

"What am I working on? Well, the idea is: an infection occurs because the pathogen, when it invades the host, turns on a specific gene from its genome, which is responsible for overcoming the immune barrier of the average Joe or Jane."

"*Cryptococcus* is a single-celled organism. Pigeon droppings, as I said, weather away, are blown by the wind, and finally inhaled. Inhaled while the *Cryptococcus* cells are still alive—from the finely atomized bird shit."

"Wonderful places for inhalation are Venice's Piazza San Marco or Kraków's Rynek Główny, with its Cloth Hall in the middle, or the Meccas of the Renaissance: Florence, the main portal of Milan Cathedral, or Notre-Dame, wherever you like. There, all you can do is pray to the worm-eaten 16th-century Jesus at the Veit Stoss altarpiece. And for non-Catholics, there's a *Cryptococcus* variant here in Australia that grows on eucalyptus. Well, what do you expect, the white man has barely lived here for 200 years—no Renaissance, just convicts, the military, and maybe a bit of colonial gentry. Here, no one has heard of the legendary courtiers of a medieval ruler in Kraków cursed into pigeons. On the Rynek Główny, the fat flower woman with her Slavic headscarf and seven petticoats is still respectfully shoved off her stool by a flock of pigeons."

"Where was I? — Overcoming the immune barrier. Usually, it doesn't matter if we inhale such germs; our respiratory apparatus is beautifully designed for gas exchange, but on the other hand, it is completely adapted for particle defense and filtering. The airways are lined with filaments that transport the smallest particles back outside. True to the sputum motto: collect phlegm and hawk it up."

"However, even surrounded by a thick polysaccharide capsule, the *Cryptococcus* cells breach this first barrier. Having penetrated the alveolus, a gene is now activated that synthesizes an enzyme and, for its part, paralyzes the phagocytosis of a weakened immune system, for example. Phagocytosis, you ask? Well, a monocyte comes along, engulfs the pathogen, internalizes it, and digests it at leisure, or at least renders it harmless. You see, and that's how the working idea would continue: if you could turn off this gene, even a weakened defense would still run its normal course and an infection

would be prevented. When we've finished all our research here in the lab, the pharmaceutical industry needs to come up with a pill that turns off, invalidates, precisely this gene we've identified."

Lights Bunsen burner.

"Working cleanly is the most important thing. The air is full of germs, germs naturally have their own genes—so contamination with foreign genetic material is quite easy. Here, the Bunsen burner creates a thermal updraft; all light particles are swept upward with the rising air, some are burned, away from the workspace. If I open the Petri dish close to the flame now, no foreign germ can land on it; all loose material flies high into the air."

Using an inoculating loop, he removes sufficient Cryptococcus culture from the Petri dish and transfers it to a mortar with liquid nitrogen. Vapor rises from the dish.

"That's liquid nitrogen, freezes everything instantly. Minus 196°C. Stops enzyme activity that degrades genetic material, for example. After all, we want to find genes. First step: breaking open the cells. Deep-frozen, you can now grind the *Cryptococcus* in the mortar and dissolve its fine powder. There, that's done. Vortexing, filtering, centrifuging."

Does what he says.

"This centrifuge, round, bold—a mechanical marvel with erotic contours. Ha, the advertising psychologists, they know how to keep you in the lab. For that matter, glossy surfaces like a car body. Or have you ever looked at a modern motorcycle, one of those 'crotch rockets' from above? Female forms through and through. The seat of the solo machine: a wasp waist, and the massive tank, framed by the clip-on handlebars, triggers an arch reflex—this roundness, like the rear view of a cow that makes every bull extend his tail. Mounting is the technical term. Well, mounting this little centrifuge doesn't work out so well; maybe it has other qualities. Could it be a good vibrator?"

"But let's be serious; as a passionate motorcyclist, I have to say something about time. Not the obvious point that you get through traffic faster, but something about time itself. When riding a motorcycle, there is no past and no future. The *now* is the fascinating factor. Speeding down the track, the motorcyclist experiences directly: perceiving a eucalyptus tree by its cloud of scent, which it exudes and which is sliced through at that very moment by the man-machine. Unadulterated, and not first laboriously sucked in through the air conditioning of a car, the motorcyclist experiences the ethereal magic of the nose."

"How else does this moment manifest itself? The sun on your left knee, cold wind on your right. Rain pelting down on your gear, or properly whipped through the mud diagonally behind the dual tires of a semi-truck. Or just the humming of the machine by the field path, at the edge of the forest, broken by the guardrail or a wall—never the same hum—but always an intoxication that is unrelenting as long as you ride."

"The high-revving roar of the engine when it lets off steam beyond the 200 km/h mark, the scenery bending past the helmet visor, and the rider hugging the tank with his upper arms, becoming one with the machine to reduce air resistance, ecstatically holding himself in the *now*. A rush has begun; the rider can only register the markings on the concrete track, everything else blurs—left and right. A tunnel has opened into another world, a fantastic world free of past and future, and therefore free of fears, because fear has its roots in the past and its direction in the future."

Takes an Erlenmeyer flask from the shelf and softens agar in the microwave.

"The sweet game with fear has become a perfidious habit not only for mafia bosses and insurance companies, but vehemently and increasingly for politicians and mainstream media, to further intimidate the foolishly over-insured populace, to make them compliant and docile. With the overreaching nature of the naively moralizing moment, things are divided into good and evil, and dialogue is forfeited. Any questioning is beaten to death with the mainstream media club. What remains is an isolated and spineless consumer rat that believes it is thinking everything correctly. Sure, we increasingly consume information from the web, with or without editorials. Even social media censors haphazardly. Actually, I should keep my gossiping mouth shut. But meanwhile, Twitter, Meta & Co. are overtaking the good old gay grapevine: a colleague in L.A., with a few computers in his office, had his most powerful one switched to permanent Gay-Online. Modern gay grapevine, as it were; yet all alone, at home from the edge of the sofa. Everything seems more short-lived, and you think you're constantly missing out on something. Absolute poppycock, how does Brecht put it: 'Everyone chases after happiness / Happiness runs close behind...' Everyone hides behind a mandated mask, missing the best in life. An entire, just-blossoming generation is falling into agonizing moralism. So, I get on my racing machine and resist fear, keeping myself in the happy *now*, until the supremacy of the do-gooders or death do us part."

Magpies chirp through the ajar window.

"Hear that? Five o'clock! It's winter in Sydney, and these birdies are accurate twilight worshippers. Well, now it's dark, now I can keep working; I'm not getting anything out of happiness now anyway. During the day it's warm, like the middle of a Berlin summer; but these long nights, these short days, they're enough to make you lose your mind. Especially when you're allowed to keep working... But it is cool when you step out onto your balcony in the evening, smoke a little cigarette, and suddenly a flying fox sails past—silently—down the Parramatta River. Not those tiny, squeaky common noctules from Germany. No! A mammal with genuine pterodactyl qualities. Gondwanaland. Mesozoic in the Holocene. Winter in summer. North in the south. Another world, indeed."

Pours agar into the prepared electrophoresis tank.

"I am a biologist after all, so while I pour the gel here, let me babble a bit more about the Outback. Hang on, the comb has to stand perfectly vertical... no bubbles... everything leveled. Therre we go, done, just needs to cool down and solidify, then I can load a few microliters of the sample and see if the gene extraction actually worked."

Places the used Erlenmeyer flask in the sink, rinses it with water.

"Outback... yeah... even though I'm walking around the lab here with a coat thrown over my shoulders, I haven't forgotten the butterfly net and the botanizing drum from my undergraduate studies. Both had their heyday in the 19th century and have since gone completely out of style. Aside from a few museum folks who haven't given up hunting and gathering yet. Or possibly still useful when searching for some forgotten jungle drug to make the inadequacies of self-domestication more bearable. Be that as it may, close to nature—as the lovely phrase goes—I stand by that. Australia was a well-considered career goal, even if I only earn two days of vacation per month here. Fortunately, in my position, from time to time I find myself forced to scrape a new *Cryptococcus* isolate off some Outback tree. Outback—what am I always rambling on about—a tourist term; Australians call it Bulamakanka, and that really is the middle of nowhere!"

"On Cape York, anyway, in the tropical rainforest—more bearable in winter, by the way—we encountered it. I had already been waiting for it longingly for two weeks, but unfortunately in vain. By then, quite a few monitor lizards and bush turkeys had fallen onto our tent. We had already fed hundreds of kangaroos, wallabies, and possums, day and night. A fat she-oak skink had stuck its noble blue tongue out at us. We had already fled into the safety of the car from a venomous taipan. And then? Then we had finally driven off, but had to turn back because the ferry was damaged. A final forced night at Cape Kimberley—let anyone tell me that Voltaire's providence is nothing but a lie and a cheat! At dawn. Early departure. Wisps of morning mist."

"An atmosphere like a Russian fairy tale: Masha and Dasha go picking mushrooms in the forest. The mushrooms already reach up to the children's chests, suddenly the trees begin to speak, and Baba Yaga is not far off. — Into this mood, all of a sudden, steps—slowly but unstoppably—this human-sized bird out of the thicket on the right, wades across the sandy path in front of us, and disappears into the thicket on the left."

"A mirage? In front of our field car! — And yet every detail visible for a split second. Far too dark for a photo! Thicket left and right—and the low morning sun, as I said—and of course only 100 ISO film in the camera. Nevertheless: an indescribable primeval bird, armed with dangerous dinosaur claws grown on stocky legs covered in lizard skin. Dinosaur claws—clunky and large—far too large for the animal."

"The plumage on top, like long, shaggy hair—dark, almost black. The broad beak and the open ear give the bird's head something human! From the long, shimmering blue neck, pairs of bright red wattles dangle into the fur-like plumage. Plus the unbelievable

crowning glory: a shovel-shaped bone! Right on the crown of its head. Smashed head-first through a brick wall, you'd think."

"And indeed, the bone allows it to flee into the thickening undergrowth of the rainforest. Only once before—back when I was a kid—had I seen such a creature: dead as a doornail and stuffed in a glass showcase belonging to a long-since-departed Polish naturalist. The man must have carried the southern cassowary on a long ship passage from Cape York to Europe."

"What an experience! Pure, human-independent nature! ... bypassing the daily clash between the New World mentality of the Americans or Aussies and the reflective, heavy European depth. Europe's sun, moon, and stars—clouded by depressiveness and buried under history, which, after all, had also been humanity and Enlightenment."