

Refocusing on his crisis at Harvard, Harrigan assured himself that courage and moxie would aid in facing it. He'd recover from the penalty.

He watched Wentz exit the conference room and sit, tearful and silent, next to him. Harrigan felt like hitting someone for this humbling of Dr. Wentz but told himself to cool. The massive oak door opened and the chancellor's assistant's face jutted out. It struck Harrigan as a pin-head and a pencil-neck.

"You may come in now, Dr. Harrigan."

The assistant ducked from Harrigan's glare and yielded the passage.

Harrigan stood rigid before the Board. *Ethical-immaculates*, he silently branded them.

The chancellor, visibly tired, addressed the accused. "It's been a long thirty-some days, Dr. Harrigan, and it's late, so I'll come right to the point. The Board has determined that your unauthorized and unethical research was independent of that conducted to fulfill your doctoral requirements. As such, it has declined the Disciplinary Committee's recommendation that your degree be rescinded. I concur. So, you will retain your degree.

"But it is a fact that you participated in the creation and destruction of fetuses, using University resources and donor eggs not authorized by the donors for such a purpose. The University will, tomorrow, release a press statement to that effect, announcing that all findings, data, and specimens involved have been destroyed. Those items will be destroyed after this meeting.

"You and Dr. Wentz might be relieved to know that we will not disclose the origin of the specimen, since it could not be verified. But you are permanently barred from this institution and a summary of the case will be released. I doubt you'll be able to make anything of yourself in genetics."

"Your opinion, Chancellor, of my career prospects is as wrong as your ethics. You're just trying to avoid lawsuits from me, the donors, and the Italian government. Dr. Wentz gave you years of loyal service and important discoveries, but now you kick him when he's down. You've got a lot of nerve. This institution teaches abortion techniques, and its medical plan pays for RU-586. I suppose that's appropriate. But you are hypocrites if you think my research on fetal material is any different. Hypocrites!"

Harrigan fought the impulse to violence and left the room. In the anteroom, he grasped Dr. Wentz's hand firmly.

"Should have taken my advice *und* gotten a lawyer. Vill you keep your Ph.D., Kevin?"

"Yes. They decided to avoid a suit, but they'd better be careful how they publicize this. What will you do with your retirement, Dr. Wentz?"

"*Weis nicht*—I just don't know. But I want to stay away from the public for a very long time. Did you read the *Science Journal* article? They are saying we made hybrid fetuses *und* killed them. Lies. How can they view it that way? We discovered gene repair during the formation of eggs."

Wentz held Harrigan's shoulder and resumed. "You discovered how to redeem archaic genetic material. This could be of monumental importance. *Und* they are destroying all the research. Imbeciles! Man was meant to study man." Wentz's voice clogged in his throat. "Now it's all lost. Your brilliant research career *ist vorbei* before it's begun." His voice turned melancholy and quiet. Wentz looked at the floor. "*Und* mine is ended in disgrace. I can never face friends *und* colleagues again. We're beaten, finished."

"You've long needed a rest. Take a cruise. Maybe put your notes back together to defy these sanctimonious jerks. And don't be so sure they've beaten *me*. As for the gene redemption process and 'primary' meiotic RNA discovery, they can't take those out of my brain."

"Vat vill you do now, Kevin?"

"I haven't decided. My folks have been great through the controversy. I'll visit them for a few days. Then maybe go on vacation to plan my next moves, career-wise; duck the press. If those bastards think they can wave a pen and stop me, they're wrong."

"Goot luck, Kevin. I hope you can build a life after this."

"Thank you, Dr. Wentz, for everything. Don't get despondent. It's like Mannie Freund, my old college buddy used to say: 'It's how you view life.' You do have at least one friend; I respect you and appreciate you. So, chin up, okay?"

"Ja. 'Chin up.' That *ist* the way."

Harrigan smiled warmly, shook Wentz's hand, and left.

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That evening Harrigan drove, stone-faced and steaming over the chancellor's prediction, past the Cathedral of the Holy Cross toward his apartment on Union Park Street. He parked, eyeing the cathedral's huge circular window above the arched entrance. He knew the red-stained glass depicted the figure of an English king, but it looked distinctly like a blooming rose to him now. He concluded that he was hallucinating due to stress and that it might also have been prompted by the scent of roses surrounding the Madonna statue on the cathedral lawn.

*That's odd, he mused, my windows are rolled up; no AC.* Harrigan saw only dark mist. Infants weeping reverberated from a one-story, flat-roofed building below a cliff. His breath became shallow, halting. Then a glistening woman in a white gown and blue shawl appeared against a pitch-black sky. Ashes flew from a gash in the earth as dividing bubbles streamed from a jagged hole in the building's roof. These soared behind her as a red-sashed rider on a white horse appeared in the distance. A dozen stars shone around her head, only to burst into countless suns, filling the firmament with light.

"Much is at stake, son of Ephraim," she whispered in a comforting yet challenging voice, "for you eternally, for all humanity. You who must choose between your prideful will and the source of redemption. Choose humbly."

He blinked, now gazing at the cross atop the cathedral. His eyes filled with tears as he considered going to confession and Mass. He let out an awkward, pitiful moan that surprised him, embarrassed momentarily for having yielded to what he thought of as superstition. He put the car in gear and proceeded to his apartment. He wrote a few to-do notes and slept. The next morning, he left for a four-day visit to his parents' home in Connecticut.

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On his last morning at his parent's Hartford home, just before light, Harrigan sat sipping coffee in the small but cozy kitchen. His father was not yet up. This morning he felt guilty that he had anticipated an "I told you so" attitude but encountered only moving support from both parents despite all the media criticism and debate of the last four weeks.

His mother stared at him from across the kitchen. "The newspapers say all the work you were doing has been destroyed. Why?"

"The university said they destroyed everything because findings may only be added to the genetics body of knowledge if obtained ethically – by their self-serving definition of ethics. They didn't want anyone to have any possible incentive for doing unauthorized research – any possibility that their work would be kept. The real reason is that they didn't want an investigation that could enable the anonymous egg donors to sue them."

"The *Time* article said you were able to rejuvenate destroyed sperm. A Fossil Gene

Redemption process, they called it. How could that be done?"

"It can't, exactly. I wanted to study how sperm and eggs are produced; how the genes are assembled when they're first created. That production process is called meiosis. For boys, meiosis occurs when they're several years old and practically impossible to study. The sperm would have to be observed forming in *living* testicular filaments. But for girls, meiosis occurs while they're still in the womb. We can study fetuses in a genetically modified pig uterus. So, fetuses are vastly easier to obtain and work with.

"For years, Wentz couldn't get permission for an unrestricted study of meiosis. Finally, he and I just went ahead and did it, and we discovered an RNA molecule that occurs only *during* meiosis. We thought it may inhibit certain types of human mutation. It might also..."

"Also what, dear?"

"Don't talk about this, okay? I suspect it makes some traits dormant for generations. This could explain how saber teeth appear in one species of cat, skip another species that arose from the first, and then reappear in another that evolved directly from the second. Re-emergence is called atavism. It could be a key to reviving prehistoric traits of extinct animals, even human ancestors. We could only find traces of it in animals, but lots in the Ice Man. We suspect it's even more prevalent in modern humans."

"Gawd between us and harm, Kevin!"

"The Ice Man specimen offered us the chance to go further. When I discovered this new RNA, I wanted to find out whether it occurred only in humans and how far back in the development of sapiens this trait arose. I couldn't implant any of the genes from the specimen into a modern egg, but I found a way to stretch out the convoluted genetic material without destroying it and enhance the way computer-controlled scanners could follow and read its segments. That enabled that PCR machine I showed you last year to reconstruct most of the genetic coding in the archaic sperm. It's like this, Mom:"

Harrigan grabbed a thin booklet that his father had left lying on the table. It was the instruction manual for assembling a cabinet.

"Imagine you have instructions, say four pages typed, for making a cabinet. These printed pages represent the genetic blueprint of a possible baby the Ice Man might have fathered, less the egg's half of course. Now imagine I tore each page into five or six pieces."

He ripped the booklet as his mother gasped but held her tongue.

"That tearing represents the damage done to the sperm's genetic instructions over ten thousand years. Got it so far?"

"I think so. You could put them back together if you could read the language. You could tell which words and sentences would make sense as you put the puzzle together. Right?"

"Exactly. And we have a mental model of what these pages ought to look like. The words and sentences are like gene segments. The computer can read and make sense of them. That's because it has a database, like the language that the cabinet instructions are written in, from the recently completed human genome project. Remember I told you about that project to decipher and map human genes?"

"Yes, but there must be many different children any given man could father. How can the genes be put back together with all of that complication?"

"First, siblings aren't as different as you might think. I've begun to suspect that far more extensive 'personality sequences' exist in genes than were discovered in the last decade—that these produce the really significant differences. Even if so, personality genes are a tiny portion of all sequences. Second, I discovered that all the instructions for marginally distinct potential children can be estimated by the computer. The genetic coding in each sperm is only slightly

different. For any given man – and the ‘Ice Man’ was no exception – *most* segments in the genes of each sperm are identical.

“All of the segments were damaged, *but* that damage was never in exactly the same place for every fossil sperm. The computer read the instructions – the genetic sequences – in hundreds of sperm. It could infer what the destroyed segments were by reading the *corresponding intact segment* from a different sperm in the same sample.

“I had the computer build a model of what the most common configuration of genetic sequences were, then compared its readings of each sperm scanned to the model. That way it kept updating and perfecting the model of the most common configuration. It eventually built a model of the coding of the typical sperm in the sample. It’s like reassembling these printed pages – by being able to read and know which words and sentence fragments would make sense if you put them together.

“Then, we just waited a few days while the enhanced-speed PCR machine manufactured an actual set of gene sequences from that perfected model – the reassembled instructions. I added instructions that mass-produce a sort of editing tool – my own version of the CRISPR molecule that gene therapy clinics have used for years to splice and insert genes. CRISPR’s a long acronym I won’t bother you with, and mine’s different anyway. It multiplies and moves along gene strands to accelerate the whole process. Then we put the new genes into a donor egg – a kind of artificial mating.

“The reconstruction was very good but imperfect, so to avoid creating a freak, I inserted genes that coded all the embryos to be female and to terminate just after meiosis would occur. The RNA molecule *only* appears during meiosis. It falls apart once the female embryo’s own eggs form. I think it’s the same for sperm production. Evidence from doing this with donor eggs of several races suggests that it’s present in every modern population. The Ice Man showed us that ‘primary’ meiotic RNA was less prevalent long ago. The significance, Mom, is that a biological process might be occurring that keeps humans from evolving further! This isn’t published and I’m not *about* to give the press any interviews. These Harvard fools won’t even study it. This research could lead to genetic cures! Did I explain this clearly?”

Harrigan saw horror, possibly a deeper understanding, in her eyes.

“Kevin, you created human beings using living women’s eggs and a dead man’s sperm – and prearranged for the little-girl fetuses to be unable to grow to experience a mother’s love – while you studied what went on in the doomed fetuses’ ovaries.”

“I started it all for Peter! I wanted to be able to fix genes for individuals – even humanity’s genome – so no one has to suffer from Down Syndrome... or other genetic flaws.”

“Your brother doesn’t suffer. He’s just different, and he’s the way God intended him to be. We don’t love him less because he’s not a brilliant scientist like you.”

“He’s not normal. Someday anyone will be able to be made normal by correcting genes.”

“Who are you to determine what is normal?”

Kevin stared at her, not comprehending how she could be so dense.

“Don’t you tell your father,” she continued. “It would kill him. And God help you, son of mine. I’m not your judge. But I *am* a mother, and I know what a human being is. Caring about human suffering hasn’t kept you from wrong judgment.”

Harrigan’s face turned ashen. He realized his parents must not have completely read or understood the many articles that taunted him when they offered their warmth. Then his face reddened and hardened in an indignant frown. “Then you *are* judging me. Stop it, Mom. It’s not against the law. Look: It’s man’s destiny and purpose to study every aspect of himself and his world. So, don’t lecture *me*. I’m doing this for the good of mankind.”

“All right, Kevin.” Her voice sounded sad and quiet, almost defeated. “I won’t lecture you. I’ll just pray for you.”

Harrigan noticed his father standing in the kitchen. The man’s eyes brimmed with tears. “I understand now, Kevin.” And he walked, head low, silently from the room.

Harrigan stared after him, equally vindicated and ashamed. *I can’t teach them anything.*

After gathering his belongings, he drove back to Boston to pack for a Florida vacation.

Just after noon, a man arrived with an ornate envelope. Inside was a note from a diplomat from Iraq’s newly reformed government. It hinted at joint scientific projects with the Israelis to promote peace, and it involved the newly famous African-British explorer Dr. Bart Lloyd, captor of a yeti – abominable snowman of the Himalayas – alive.

The envelope also had tickets for a London flight that very evening.

*Why not?* Harrigan thought, grinning for the first time in weeks. *What could go wrong?*