Rogue Terminator

Brian Stableford

Brian Stableford's fiftieth novel (and seventy-fifth book), Year Zero, was released last June by Sarob Press. It was followed in October by the Warhammer novel, *The Wine of Dreams,* which was published by Games Workshop's "Black Library" under the pseudonym Brian Craig. His future history series from Tor, so far consisting of Inherit the Earth (1998), Architects of Emortality (1999), and The Fountains of Youth (2000), will continue in 2001 with The Cassandra Complex.

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Dorset pharmers are old-fashioned folk—as you can readily see by the fact that we still spell the word "pharmer" rather than "pharma," the way the trendies in Berkshire do. Food-growers, of course, still spell the word with an f, but there haven't been many food-growers around Yetminster during the last twenty years. Even the apple-growers in Somerset have given up the cider business in the interests of packing their Coxes and Braeburns with plantigens. Up in Taunton they rub their hands in glee every time one of the tabloids tells us that the first plague war is bound to break out any day now.

It's because we're so attentive to tradition in these parts that we still do our serious drinking on a Sunday. Pharming is just as much a seven-day-a-week job as farming used to be, and no one hereabouts actually rested on the Sabbath even in the days when there were still a few wives and pensioners addicted to religious observance, but you have to make room for drinking somewhere in the calendar and the best pub in Yetminster happens to be just across the road from the biggest church. Pharmers, like farmers, aren't the kind of folk to do their drinking willy-nilly; it's the kind of vocation that requires its followers to get together on a regular basis to swap news and tips—especially tips. The science is still moving forward at breakneck pace, you see, and nobody but a fool ever waits until the AgMin field tests are complete before improving his stocks. It's not enough to be up with the Honest Joneses if you want to make real money—you have to be a step or two ahead. We like to think of it as Dorset's heroic contribution to the cutting edge of progress.

The bravest—and, as it turned out, strangest—of all our contributions to the cutting edge of progress began on a cold night in February 2034, when there were so few townies about that we didn't even have to wait for chucking-out time before getting down to the meat of the conversation. Naturally enough, it was Jack Gridley who had the tip. The Gridleys have always been fashion-leaders, ever since Jack's granddad, Old Freddy, came up with the wheeze of using a plank and a bit of string

to make mysterious circles in our cornfields so our folks could charge tourists and scientists a pound a head to see them. Come to think of it, though, it was also Old Freddy who couldn't be content with circles, and got so carried away with more complicated designs that he became obsessed with the idea that he was being inspired and guided by beings from a higher dimension—which did rather undermine the whole point of the exercise.

"You doing rape this season, Lukey?" Jack asked me, in a quasi-confidential manner, as he stared contemplatively at the froth on his third pint of the night. That furtive way of speaking was the signal for everyone else to prick up their ears, and everyone did, although they continued to maintain the polite pretense that Jack and I were having a private discussion.

"Course I am," I told him. "The arse's dropped right out of wheat and corn's way past hackneyed. Oilseed's where it's at. Everyone knows that. Fifty-seven new varieties last year alone. I'm thinking of sowing the whole top field with morphine precursors, the ones either side of the stream with hyped-up beta-two agonists and cytochrome-P450 assistants, and maybe splitting the rest between dystrophin repair agents, telomere extrapolators and transposon suppressants."

"Good mix," Jack said, approvingly. "Except maybe the dystrophin repairers and the transposon blockers. That's Fancy Dan stuff. My old granddad always used to say *stick to the basics and you won't go far wrong."*

"Pity he could never follow his own advice," I observed, refusing to allow myself to be nettled.

"Well, that's as it may be," Jack conceded, "but I'm a Gridley through and through, and I'm content to leave it to the big boys to muck about with so-called orphans. I'm going for the new generation of coryza inhibitors myself."

I'd had my fingers burned back in '31 dabbling in cold cures, and I wasn't prepared to bet that the new generation would be any more effective in the long term than the last three, but I could tell that Jack had something else on his mind apart from pick-and-mix pharm stocks, so I didn't argue.

"Mind you," he went on, when the pause had been pregnant long enough, "it's a real pain in the arse having to buy new seed every year. Gives us the scope to experiment, of course, and it certainly wouldn't do to keep on planting the same old stuff in a rapidly evolving market, but how long is it now that you've been producing those morphine precursors? And how much better are this year's beta-two agonists than last year's?"

"No way around it," I said, cautiously. The seed companies loved their terminators, and the AgMin was behind them all the way. Nobody wanted to go back to the old days, when there were townies coming out and trampling our business left, right and center just in case we gave a butterfly a stomach ache. The only way the civil serpents at the AgMin had been able to weasel the GeneMod legislation through

the New Lords was to promise faithfully that the only crops grown on English pharms would be incapable of producing fertile seed, so that anything that went wrong would be a once and once only affair.

"Well," said Jack, "that's what people think—but I've always been a Gilbert and Sullivan fan, and I've always been exceeding fond *of The Mikado,* which makes the very wise point that as long as the public at large believes that the executioner has done his work, whether he actually has or not, the ends of justice are served."

I wasn't about to argue with Gilbert and Sullivan, even though I knew they'd been dead far too long to have any meaningful opinions on the Genetic Revolution, so I cut straight to the chase. "Are you saying that you can lay your hands on some engineered rape stocks that haven't been neutered?" I asked.

"Naw," he said, disgustedly. "Anyone can do that—but what do you get out of your crop except soap and cooking oil? What I'm saying is that I know where I can lay my hands on a terminator decoupler. A way to turn the reproductive potential of *any* GM seed back on."

"And where did *that* come from?" I asked, skeptically.

"From a pharm, of course," he told me. "A YAC pharm, as it happens. Hasn't yeast always been the agriculturist's best friend, ever since the day that the first beer was brewed?"

YAC production isn't what I'd call proper pharming. Yeast Artificial Chromosomes are just molecular machines used in genome sequencing, not real Pharmaceuticals. I have to admit, though, that molecular artificers are clever buggers. If anyone was going to come up with a terminator terminator, I figured, it was highly likely to be some bored YAC pharmer stirring up his vats to see if anything interesting floated up with the scum.

"I'd still have to buy this year's seed," I pointed out, "And every time I wanted to try something new in future, I'd have to buy it in."

"You'd have to keep buying new stock anyway, to avoid suspicion," Jack pointed out. "We wouldn't want the Minispies to come poking their long noses in, would we? But think how much you could save if you could plant, say, half your fields with seed from the previous year's crops? You'd have your choice, after all. If the dystrophin repair business happens to go belly-up you can just chuck the seed away, but telomere extrapolants might last as long as you do—and if they work the way they're supposed to, that could be a *very* long time."

He had a point—and he'd finished his pint.

"Let me get you another," I said. "Maybe we can do a bit of business." I wasn't the only one, of course. By the time Jack left the pub at four in the morning he'd sunk at least sixteen, and hadn't had to pay for a single one. His walk was as

steady and forceful as ever, though, and I knew that his Land Rover wouldn't hit anything he hadn't aimed it at during the five-mile drive back to his place. It's wonderful what a man can accomplish with a little ingenuity, a good stock of home-grown rapes stuffed full of cytochrome-P450 assistants, and a contact in the YAC business.

The best thing about the terminator decoupler was that it was so close to being alive that it could reproduce itself almost as easily outside the infused seeds as inside. As long as I kept the culture well-fed with enriched glucose substrate, Jack assured me, I'd never run out. He wasn't spreading the stuff around with the intention of making a big profit, you see. He was doing it because we were mates, all in the same business and all in the same boat. That was why we were happy to let the little miracle-worker be known by one and all as Jack's YAC, although it wasn't, strictly speaking, a YAC and he hadn't actually invented it. Matiness has always been the strength of English farming folk—except, of course, for those located east of Salisbury, west of Chard and north of Wincanton. We stick together, and we guard one another's backs. We like to think of it as the spirit of the Cerne Abbas giant.

I decided to be careful, and not to expose the entirety of my newly bought seed-stocks to the terminator decoupler. I knew full well that the first law of genetic engineering is that you can never do *one thing*. Every alteration of the metabolic flux inside a cell has consequences, and the feedback mechanisms regulating that flux are so complicated that some of the consequences are always unforeseeable. So I carefully split each parcel of seeds into two, exposing one to Jack's YACs and leaving the other uninfected. I also divided the stocks between different fields wherever it was practicable, or different halves of the same field where it wasn't. Never let it be said that mere pharmers are too stupid to understand the underlying logic of the experimental method.

We had a very good spring, even by comparison with the early Greenhouse years before the UN Forestry Commission got its plant-a-billion-a-year program off the ground. My fields turned green, then vivid yellow, in a very satisfactory manner. There wasn't any obvious difference between the crops that had been treated with Jack's terminator terminator and the ones that hadn't—but I hadn't expected any, so that was all right. The morphine precursor producers seemed to be having a particularly good year, but the plants whose oils were engineered to be full of transposon suppressants were slow starters. I thought for a while that we might have a problem in the boggier ground with some kind of facultative pest that had made the jump, but once the flowers were out the plants came on well enough, much to my relief. The Biodiversity Lobby had become so strong that the Ministry wouldn't let us use any but the most specific biopesticides in case we took out a few innocent bystanders along with the rapemunchers, but every five years or so natural selection would throw up a new subspecies that was ready, willing, and able to take our pride

and joy apart, and the AgMin troubleshooters never found a fix in time, no matter how quickly the bug was reported.

All in all, though, things were going very smoothly by midsummer's day, when family tradition dictated that I take a few hours off to drive Shelley and the kids up to the top of the downs for a good old-fashioned picnic. We always sat on the edge of one of the Ministry's woodland sanctuaries, where we could listen to the birds that still knew how to sing while looking out over the vast ocean of yellow that extended all the way to Sherborne in the north and all the way to Dorchester in the south.

The rapesea was dotted everywhere with islands, some of them green, some of them red-tiled, and not a few of them grey, but it had no obvious boundaries except the railway and the Frome. About half the green islands were wildlife minisanctuaries; the rest included a few relict oakwoods, a couple of dozen test crops—mostly strawberries, but some potatoes, and even a few beets—and a few fugitive fields of barley.

"It's all very impressive," Shelley admitted, when I called her attention to the stately calm of the lovely yellow expanse, "but I can never quite get over the fact that it's called *rape.* Remember all those old jokes about the rape of the English countryside?"

"It's *oilseed* rape," I reminded her, not for the first time. "If it makes you feel better, pretend it's mustard. And if you think this is impressive, imagine what it must be like in India." South-East Asia was so oil-poor that the second generation of oilseeds adapted for tropical and sub-tropical habitats had been taken up by native farmers almost as enthusiastically as the rubber trees and bananas that secreted vaccines against hepatitis-C, malaria, and every other pestilence endemic to the region had been taken up in Indonesia and Malaysia.

I tried to explain to the kids that the climatologists loved the Indian rapeseas even more extravagantly than the politicians because of the contribution they were making to rainfall distribution, but they weren't in a mood to be lectured. Shelley told me that they weren't old enough to grasp the significance of the fact that the age-old tyranny of the monsoon was finally giving way to an era of environmental fraternity, but she was just trying to let the brats off the hook. Liz probably wasn't old enough to take it all aboard, but Joe could have taken an intelligent interest if only he'd been that way inclined.

"It's all so *boring"* Joe complained, just to make certain that I knew that he'd far rather have stayed at home to play VR-games. "It's all the *same."*

"No it's not," I assured him. "There are more than thirteen thousand variants of oilseed rape in Dorset. Shall I explain why we can't simply grow all the different drugs in the same plant?"

"Anything but *that*, Dad," he complained. "Anyway, I know already—I'm not

stupid, you know."

"It's not just because it's a good idea to keep your products separate, although it certainly is," I soldiered on, regardless. "The real problem is that if you carry out multiple transformations on a single set of chromosomes, the risk of buggering up the developmental process increases exponentially."

Shelley frowned, because she didn't like me saying "buggering" in front of the kids, but she didn't say anything. She left that to Joe, whose response was: "Boring, buggering *boring!"*

It was true that he wasn't stupid, even though he was easily bored. He was smart enough, in his own way, but I'd begun to worry that he'd never make a pharmer. That, I supposed, was down to Shelley's genes. I'd countered their influence as best I could, but there's only so much DNA a man can provide. It wasn't her fault, of course—she hadn't designed the mechanics of inheritance. I'd often wondered what kind of parent would foist a name like Shelley on a Yetminster girl, but her mum and dad had died the year before I met her, killed on the M3 north of Winchester by a lorry driver busy arguing on his mobile phone. That was one problem the pharmacogenomicists would never get to grips with—infinitely more intractable than souping up the liver to provide instant sobriety on demand. We'd agreed readily enough to call our own girl Elizabeth.

"The birds are pretty, aren't they, Mummy?" was Liz's contribution to the cause of family harmony.

"Yes, they are," Shelley assured her. "Every year we come there are more and more. One day, they'll learn to sing again the way they used to. They have the voices. They just have to learn to use them musically."

She was being sentimental, but it was okay by me. I missed the birdsong too, and lots of other things besides—but I was a pharmer through and through, and pharmers have to think of the future. The pharmacogenomicists may be the ones who are designing the future, but pharmers are the ones who actually have to *make* it. If ever the plague war does come, we'll be the poor buggers digging for victory.

I kept a careful eye on the YAC-infected plants as they continued to grow, of course, but the terminator decoupler didn't seem to have had any visible effect on the flowers—in fact, I began to wonder if it had had any effect at all. It occurred to me that I was going to look like a prize fool if I sowed half my fields the following year with seed that turned out not to be fertile at all. The insects buzzing and fluttering benignly around the flowers seemed happy enough, but I wasn't sure whether to take that as a good sign or not. The birds that came chasing the local insects seemed happy enough too, but that didn't seem relevant.

As Shelley had observed during our trip to the downs, the birds still seemed

to be increasing their numbers year by year. It was difficult to believe that even chaffinches, tree sparrows, and lapwings had been brought to the brink of extinction as recently as ‘21—the year Joe had been born. All but a handful of familiar species had eventually come through the great depletion pretty well, but they’d had to change their habits considerably. By 2034, the larks, swallows, sparrows, and thrushes had been on the way back for a full decade, but the abandonment of their old territorial habits had caused many of them to fall silent, because their singing had always been so closely associated with the marking of those territories. Some people saw that as a disaster, or an accusing commentary on our management of history, but I wasn’t so sure.

Like pharmers, I figured, the pioneers of new avian culture had been merely forced by the ecological revolution to abandon their outdated territorial assumptions and adapt to a more flexible way of life. In so doing, if you cared to look at it like that, they were providing a shining example of the awesome versatility of Nature. Maybe it was a pity that they’d given up on their traditional ditties—but I’d lived on the land all my life, and I’d always thought that their songs were crude and primitive. I’d actually written to the *Guardian* to say so in ‘25, when the letter column had been besieged by ridiculous proposals to set up educational tannoy systems throughout the south of England to “teach the world to sing again” by using digital technology to “restore the lost heritage of the skylarks and the thrushes.”

Personally, I approved of the gutsy way in which the newly discreet birds had got used to flying considerable distances in mixed flocks to feed themselves, returning to their roosting-areas at nights. I liked the way they sometimes darkened the sky at dusk while they traded places with the bats. The bats had been having a particularly good time since the last anti-extinction crusade, and there was hardly a loft in Yetminster and Crewkerne in ‘34 that didn’t have a purpose-built batroost as well as a soffit-set of nesting-boxes. My place was an exception, of course, but if any passing townie asked, I always said I’d had the chimneys on the house and the roof-space of the barn converted. Who was ever going to know the difference without climbing up to take a look?

I became worried all over again when the time came to bring the crop in and put it through quality control. I was tempted to try to keep the two halves of the various stocks separate so that I’d know if there was any difference in yield between the plants whose terminators had supposedly been deactivated and those that were exactly as the suppliers intended, but in the end I mixed them all up. Any difference that had showed up would have attracted further attention from the scrutineers, and the last thing I wanted was to excite the curiosity of my suppliers’ agents or visiting Minispies. Overall, returns were pretty good, especially the morphine precursors and—less expectedly—the late-blooming transposon suppressants.

“What exactly *are* transposon suppressants?” I asked the company’s tallyman as he calculated his rake-off.

“As I understand it, transposons are weird DNA sequences that can shift

other bits of DNA around the chromosomes during meiosis," he said, offhandedly. "Opinions seem to vary as to whether they're relics of conscripted viruses or satellite spinoff. Anyway, their activity increases the generation-on-generation mutation-rate, especially in mammoth genes. Most of the affected eggs abort, but some don't. The posy gits in PR say it's one of the selective taxes we paid for our rapid evolution from the ancient primates. For the moment, transposon suppressants are officially classified as orphan drugs, targeted at a narrow range of infertility problems, but we're hoping to upgrade them. The lab boys are confident that our present field trials will demonstrate that long term usage can delay menopause, but the real problem is that they're such delicate compounds. We're more anxious about stability than utility. I don't mind telling you that it's quite a relief to see you bringing in the crop at this level of productivity. If only they'll store as well as they grow, they could be big money-spinners. It's possible that they can help reverse falling sperm counts, too—lots of demand for *that* nowadays."

Not round here, I muttered, under my breath. *We're all Cerne Abbas giants in these parts.* Aloud, I said: "Do they stop transposons shifting the plant DNA around too?" I wasn't just making conversation or showing off—I really *do* try to take an interest in these matters. It's a pharmer's clear duty.

"Plants don't have as much intergenic DNA as animals," the tallyman assured me, "so they probably don't go in much for transposons. It wouldn't matter if they did, though. All the suppressants would do is make sure they bred a little truer, if they bred at all—which they don't."

I dropped the topic then, lest the conversation should stray on to dangerous ground.

Come the spring of '35, all the Sunday-night regulars were getting a bit worried about Jack's YACs. We all needed reassurance that the seed we'd reserved would actually germinate. None of us had put all his eggs in the one basket, of course—there was the usual range of new variants to try, and we had to buy in some repeat stocks to stop our suppliers getting suspicious. Mercifully, there were so many biotech companies clamoring for our attention that they were all quite used to being in one year and out the next. I don't think any of us intended to plant more than a third of his acreage with the reserved seed, and the more cautious souls were thinking in the region of a fifth or a sixth—but even that represented a considerable gamble, given the other uncertainties to which our profit margins were prey.

"You have to speculate to accumulate, lads," Jack told us. "Anyway, it's our duty as men of Wessex to be the standard-bearers of the revolution. Didn't our ancestors fight tooth and nail to take this land from the Celts? Are we men or mice?"

Now that the patient sequencers have assured us that mice have homologues of 98 percent of human genes, and protogenes comparable to half of the remainder, the distinction between mice and men doesn't seem quite as clear as it must have done in the good old days when the West Saxons were kicking the shit out of King

Arthur and his Romanesque nancy-boys, but it would have been ungenerous to point it out. Anyway, we could all remember the money we'd made before the arse dropped out of the corn circle scam, so we were still inclined to put our trust in Gridley ingenuity and Jack's YACs.

We were duly rewarded for our faith when the reserved seed sprouted with astonishing vigor, easily outgreening the fields in which we'd planted seeds whose terminators were supposedly still operative.

Some people say that pharmers, like farmers, are never satisfied, and I suppose there's a certain truth in that. There's always *something* to worry about on a pharm. There are so many things that *could* go wrong that every time things go right you can't help feeling that fate is busy storing up trouble. I have to admit that I got more and more worried as the growing-season progressed, simply because its progress was so prodigious.

The new plants did pretty well, but the plants grown from the illicitly reserved seed did *incredibly* well. They grew fast and they grew tall. Their color was bright even when they were still green, but when they put out flowers, the yellow was dazzling. The yellow of engineered rape has always been a little more fervent than the slightly primrosy tint of the natural varieties, and the flowers always feel slicker to the touch, but all the rapes whose terminators had been decoupled caught the sunlight like amber warning-lights, and when I pinched them in my fingers they were positively *buttery.* Even engineered rape doesn't have a lot of odor, and I'd never thought of it as particularly sweet-smelling, but Jack's YACs had wrought miracles with the scent of the refertilized stocks. They were so nearly intoxicating that I couldn't help wondering whether I could do a deal with the guys from Country Wines who were doing a roaring trade with engineered elderflower.

None of this was just my opinion, either. There was no particular surprise in the fact that Shelley and Liz approved of the unprecedented lushness, but even Joe felt compelled to comment on it.

"Shit, Dad," he said, feeling free to swear because Shelley wasn't around. "What kind of fertilizer have you been *using?* It's bad enough going through adolescent hormone hell without getting a blast of raw pheromones every time I open my window!"

"Human pheromones are a silly myth," I told him, sternly. "They're the physiological equivalent of feng shui."

"I didn't mean it *literally,"* he assured me. "Mind you, if the wind's blowing toward Cerne Abbas, Old Chalky's likely to get right up and go a'huntin'—and not for rabbits, if you get my drift. *Now* I understand why they call it rape."

"Don't let your mother hear you talking dirty like that," I said. It didn't seem

to be the right time to inform him that the mighty tool of the Cerne Abbas giant was a nineteenth-century fake—probably the work of Old Freddy Gridley's grandfather—although he was certainly old enough to know the truth.

I couldn't help remembering Joe's verdict, though, while I watched the birds and the bees at play. It certainly seemed to me that the friendly insects *loved* the nectar of the superabundant flowers, and that the ever-discreet birds loved the taste of insects reared on that produce. I had never seen so many swallows and swifts over my fields, even in my father's day, and the thrushes were beginning to flock like the starlings of old. They were chirping a fair bit too, albeit a bit uncertainly—as if they were trying to remember, but hadn't quite got the knack of it. Even the jays and peregrines seemed to be having a bonanza year. It was obvious that if these increases in productivity were reflected in the oil extracted from the plants, the tally-men were going to be just as happy as the birds—and as suspicious as all hell.

"What are you worried about?" Jack retorted, scornfully, when I voiced anxieties on the second Sunday in June. "You know the drill. Deny everything. Must be something in the soil, Mr. Ministryman. Us poor yokels don't understand these newfangled biochemical thingumajigs."

"Suppose the YACs show up on the assay?"

"Suppose they do. Same drill. What's a YAC, Mr. Ministryman? Tibetan cows, ain't they? Are you telling us that those bloody salesmen have been peddling *contaminated stock?"*

"It might not be that easy, Jack," I persisted. "What we have here is an unexpected side-effect. Your bloody YACs haven't stopped at decoupling the terminators. Who knows what else they've stirred up? Suppose they've interfered with the products—what then? It's no good growing giant plants if the morphine precursors won't precurse and the beta two agonists won't agonize."

He didn't bother laughing at the feeble jokes. "Suppose they haven't, Lukey," he said. "Suppose they've done nothing but boost our yields sky-high. We Gridleys have always had a nose for these things, and I reckon we're on to a real winner here. I reckon this could make us rich, boy. Keep your nerve and stick with it, that's my advice."

It was safe enough, as advice went. After all, what choice did we have? We were in for the penny and in for the pound—and as Jack said, if it did blow up in our faces, all we had to do was deny everything. If all else failed, we could always try to blame it on little green men. It had worked before.

"Well," Sid Phillips put in, cheerily, "at least we got the dawn chorus back, don't we? Just like old times. Well, not quite, but even better in a way."

That was true too, I realized, especially the "not quite, but even better in a way." I hadn't really noticed it until my attention was called to it, because the dawn

chorus had always sounded raucous to me, and the fact that it was gathering volume day by day had seemed to me like a progressive return to the old days—but it wasn't, quite. It was a more remarkable thing than that. Unprompted by any tannoy systems, the few birds that had begun to sing again had been experimentalists, and now the results of their experiments were beginning to spread. The dawn's heralds were singing new songs, more exotic—and perhaps more accomplished—than the old.

It wasn't until midsummer day that I realized the true extent of the developing problem—if "problem" is the right word. I was too close to it on the pharm, always inside looking out, seeing the details one by one but not weaving them together into any kind of coherent whole. It wasn't until our annual picnic that I got a chance to see the big picture, in all its awful glory.

There was nothing awful and everything glorious about the day itself. Even Joe seemed glad to be dragged out of virtual reality. It was Joe, in fact, who first observed that the scene which confronted us as we sat together on the same old hilltop was considerably different from the one we were used to.

"Your precious sea of yellow looks a lot stormier this year, Dad," he observed, with the kind of sneer that only a teenager can contrive.

From that distance, it was easy enough to see that he was right. The illusory ocean formed by the fusion of millions of rape-flowers was much less flat than usual. The plants were growing to such different heights that some invisible and intangible wind seemed to be whipping up big waves, as if in anticipation of a typhoon. Given that the sky was so clear and blue, such choppiness seemed decidedly inappropriate.

"I rather like it," Shelley said. "It's bright, and there's more color in it—isn't there, Luke?"

There certainly was. To Shelley, of course, color was just color, but my pharmer's eyes were already straining hard as I tried to figure out *why* there was more color in what should have been a seamless place of pure and unadulterated yellow. It wasn't just the unprecedented brightness that had caught her eye; there were pinks and purples too. A man in my profession always has to be on the lookout for the return of the dreaded *weeds,* but I soon realized that the new colors weren't new plants; they were differences in the shading of the rape.

It was Liz, inevitably, who mentioned that the woods were noisier than usual. She had no old memories to awaken, no reflexes of exclusion. There was more birdsong in the carefully planted wood now than there had ever been during any picnic she'd been on. It was on its way back to what most people would have considered its natural level—but not to its natural state.

"Oh bugger," I muttered.

“What’s wrong?” Shelley demanded, crossly.

“Nothing,” I said. “Everything’s fine and dandy. *Exceedingly* fine and dandy. It’s summertime, and the rape is high. Higher than it’s ever been before, and still getting higher. The birds are singing the way they never sang before, the bees are humming fit to bust, and the whole of bloody Dorset’s got rosy cheeks. Everything’s absolutely peachy. Too lively by half. It’s supposed to be tame, but it’s not. Jack’s bloody YACs have slipped the leash, and they’re making the rape run wild.”

“What *are* you on about, Dad?” Joe wanted to know.

“Cross-pollination,” I said. “Cross-bloody-pollination and hybrid bloody vigor. Switch off the terminators, and the flowers stay fertile—but they don’t fertilize themselves and their pollinators don’t have enough discrimination to stick to their own kind. It shouldn’t have mattered much, because the crossbreeds ought to have been selected out—combining different transformations is supposed to bugger up the developmental process, as every bloody schoolkid knows. Except that it hasn’t. I can see that just by looking. The rogue terminator’s running amok.”

I realized, belatedly, that I hadn’t ever asked Jack the most important question of all. He wouldn’t have had an answer, of course, but I really ought to have asked, and I should have insisted that I wasn’t going to use his bloody YACs unless and until his genomic wizards spelled out exactly *how* Jack’s bloody YACs were going to decouple the terminators in our seeds. Without knowing that, I and all the others had simply had to take it on trust that it wouldn’t decouple anything else—and now we were paying the price.

“It’s those unstable tranposon suppressants,” I muttered. “The little buggers have shafted those too. And the process isn’t neutral. The decoupled products are *active.* The whole bloody mechanism has gone into reverse.”

“Boring,” Joe said. “Bloody buggering boring.”

“This is supposed to be a picnic, Luke,” Shelley said, through gritted teeth. “Can’t you forget the ins and outs of pharming for five minutes?”

“Oh, it’s a picnic all right,” I told her. “It’s a right bloody picnic and no mistake!”

By mid-August, the transformation of southwest England had made the TV news. By the end of August, it *was* the news, and not just because it was the so-called silly season. The Ministry men were out in force by then, sampling everything in sight and marveling at the results.

The birds were singing new songs. The bees were making new honey. The wildlife sanctuaries were overflowing, not merely with sturdy and virile individuals

but with countless new varieties. The butterflies with psychedelic patterns on their wings were the most obvious, but I knew that the most significant changes would be inside, deep down in the metabolic flux of every cell.

The first rule of genetic engineering is that no matter how hard you try, you can never do just *one* thing. The second rule is that if you try to do too many things, chaos takes over. There isn't a third rule, because everything else is outside *the rules,* but humankind didn't evolve from the ancient primates—let alone from amoebas—by doing one thing at a time or giving up on chaos. Sometimes, when you mix things up, you don't just get a mess, you get *cooking.* What else is civilization about?

To the TV reporters and the curious townies, all the new colors were just colors, but we pharmers are physician enough to know that heightened color is a symptom of fever, and I knew soon enough that Jack's YACs had kick-started a real fever of creativity in the fields of north Dorset. If thrushes were composing concertos and bees were packing their honey full of pheromones, and even the butterflies were playing Picasso, what would be going on inside the rape? What sorts of oil would we strike when we brought in the crop? Were we going to get paid for it, and if so, how much?

I suppose I was lucky not to get caught when the white-coated detectives descended on the fields like hail. The way I'd planted everything half and half, in neatly paired samples, would have been a dead giveaway if Jack's YACs had stayed where they were supposed to stay. Fortunately or unfortunately, they hadn't. They'd spread a lot more widely than anyone had anticipated. The fact that they could survive and thrive outside their hosts had enabled them to migrate out of the previous season's rape-roots into the soil, where they'd infected hundreds of other organisms, including nematodes, annelid worms, and beetle larvae. It hadn't made much difference while that first season lasted, any more than it had made much difference to the infected rapes, but that had only been the beginning.

None of the YACs' new hosts were in any way inconvenienced by their new commensals, so they had served as a reservoir from which the YACs remigrated to infect all the seeds I sowed in the spring of '35. That year's crop was, therefore, divided between second-generation terminator-decoupled individuals and first-generation terminator-decoupled individuals. By the time the Minispies started poking around, the natural conclusion for them to draw was that the whole farm and the whole bloody district had been hit by an unprecedented epidemic, whose symptoms were so various that the decoupling of the terminators didn't leap out at them as a uniquely significant or suspicious circumstance.

The second-generation plants I'd sown included the full range of variants I'd planted in '34, but I'd eliminated cytochrome-P450 assistants and the dystrophin repair agents from the new stocks, doubled my order of transposon suppressants and added a brand new line of novel anti-depressants. It turned out that all the products were more-or-less okay except the transposon suppressants, which had

done a backflip and turned into transposon enhancers. That made them completely useless for medical purposes, because in the context of higher animal genomes, they had become dangerously mutagenic—but as the tally-man had pointed out to me the previous autumn, plants don't go in much for Fancy Dan stuff like mammoth genes, protogenes, and humungous satellite-repeat sequences. Nor do insects. Their DNA is exon-rich, and what the energized transposons were doing, not merely to their host plants but to the insects that fed on their nectar, and to anything that fed on the insects, was multiplying the number of functional genes. Polyploidy in plants and invertebrate animals often leads to giantism, and the partial polyploidy promoted by the rogue transposons was encouraging all the local wildlife in that direction, as well as promoting other local superabundances.

If all else had been equal, the work of the rogue transposons would have been strictly short-term, because the augmented chromosomes of the affected plants wouldn't have been able to pair up in the next round of cross-fertilization. In effect, the accidentally created transposon-enhancers would have functioned as a natural one-step-removed terminator technology—but Jack's YACs had taken care of that by drastically reducing the fussiness of the chromosomes during meiosis.

All of which, as Joe might say, is boring, buggering boring—except in sum. What it added up to in the summer of '35, though, was a spectacular boost to the local pace of evolution whose like had not been seen since the last supervolcano went off seventy-four thousand years before and scoured all the continents clean, ushering in a new phase of fabulous adaptive radiation.

Fortunately, the main consequence of the fact that the new ecoboom was limited, at least in the beginning, to a triple handful of farms in north Dorset, Somerset, and Devon was a dramatic increase in tourism. Townies love singing birds and pretty butterflies, and above all else they love novelty. Even if the crops hadn't come in as well as they did, we'd all have grown richer. As it was, we grew *much* richer.

If the Minispies had known what to look for, they might just have been able to figure out that all three of the affected communities had a key member who knew somebody who knew somebody who worked on a YAC pharm, but they didn't. By the time they got involved, the ecosituation had become very complicated indeed, and it would have taken Sherlock Holmes and a Cray supercomputer to work out how it had all started—but just in case, Jack Gridley and I started taking surreptitious trips to Hampshire and Berkshire armed with buckets full of YAC soup, surreptitiously depositing the stuff here, there and everywhere, for all the world as if it had fallen from Heaven. Maybe there is a third rule of genetic engineering, identical to the eleventh commandment: *whatever else you do, cover your arse*.

We were as discreet as we were generous, though, in more ways than one. As soon as the townies started flocking westward in droves, inspired by the reports in the *Sun* and the *Mirror*, we had to make bloody sure that our farms were the ones that every tour-guide considered unmissable. They had to be the best of the bunch,

so that we could bill them as the English Edens and the twin focal points of the New Genesis. We worked as hard toward that goal as any pharmer ever had, since the day when it all began.

The way it all turned out was very gratifying, even if the Ministry did put an end to it when they bred a bug to chase down all Jack's YACs and made sure that normal service was resumed, evolutionwise. It was great while it lasted, and I did my utmost to make the most of it. I think I succeeded.

I was pleased for myself, of course, but what really made me proud that August was the way Joe took to it all like a duck to water. The little bugger had always liked showing off, and suddenly he was in his element. There was no more skulking in his bedroom once the gawkers began to arrive in their hundreds, including teenage girls by the dozen. He was out in the fields like a true pharmer's son, giving them a proper education in the intricacies of genomics, the mysteries of the transposon, and the perennially wayward ways of Nature.

He never meant a single bloody word of it, but it was birdsong to my ears.

Jack Gridley, alas, went the other way. His son was never a talker—the bullshit always seemed to skip a generation in his family—so Jack became the carnival barker himself. If he'd been as canny a scriptwriter as my Joe turned out to be, he'd have pleased a more various crowd, but he went all mystical and started talking about the supernatural gifts of providence and the mysterious ways of the divine intelligence.

It wouldn't have been so bad if it had all been insincere, but Jack started going on in exactly the same way after hours on Sundays, lecturing us all on the subject of how he'd obviously been chosen by God Himself to bring the miracle of spiritual renewal to the primal wilderness of Wessex. Some people just don't know when to stop.

Sid Phillips nudged me one night when Jack was holding forth and said that it was the spiritual renewal of the Cerne Abbas Giant all over again, but Jack had always been my best friend and it didn't seem right to laugh at him, even if he was going off half-cocked. If we're going to survive and make progress, we pharmers have to stick together, and mind one another's business as carefully as we can.

After all, if we don't, who will?