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PAINT 'EM GREEN

by BURT K. FILER

*Nobody wanted to escalate combat.
They just escalated preparedness
—at roughly the speed of light!*

It was drizzling, and my halo was buzzing static. I tweaked the hatband to switch it off, turned up my collar for the thirtieth time and headed for Abe's. I ducked in, only to remain a minute before returning to the street. No luck. Abe hadn't had an antiquated 714 Klystron in stock for five years, but oddly enough "some guy" had asked for one only last week, and now me. Funny, eh? Funny, rats. That just meant the boys at Unipower had got there first. It was the same story at Marco's, Terry's and all the rest. In a half hour my rainsuit was a wet smear and my shoes amounted to no more than portable puddles. Time out; I trudged up to Zero's Heroes.

Vapor rising from the second cup fogged pleasantly at my eyes, and my frustration began to diffuse. "There's still Jack Booth," I thought. "The boys • from U.P.

probably passed his grubby shop without even reading the sign." Eased by this dim hope, I relaxed and ruminated over the dregs.

After the Asians obliterated themselves with a dazzling atomic mistake, Ambrija and Russia, former allies, found themselves opponents once again. Cold war of course. Formal declaration of war was as obsolete as a mace and chain, even back then. We of Ambrija were, as now, trying to maintain an armament edge. That was the first big push for a superweapon. Of course the nonatomic rule was already in effect, so that immediate alternatives were few. Insanity projects weren't even thought of. The big push was for an effect machine.

In the best democratic tradition Ambrija Council requested bids from both national manufacturing firms for this thing, knowing that it would make one of us and break the

other. Everything but industry was socialized by then, and the regime was getting impatient with the two of us. They had a point, since our squabbles occupied about half the congressional session each year. One would be easier to handle. They didn't care which one. So the death duel carried a fat prize, 20% of the G.N.P. to whichever came up first with an effect machine. Didn't hear about it? Well, we don't hear much about sex-machines either, do we? Same reason; but let me explain how it was supposed to work.

It was to be a device that could affect matter at a distance. It didn't matter how, or how efficiently. The idea is simple, but the implications are tremendous. Here comes an enemy army: turn on the effect machine, raise them twenty feet off the ground and turn off the effect machine. Here comes a missile: turn it around on its own trajectory. Suppose you're taken to General Assembly Trial by an enemy statesman who smokes cigars. He's about to make a crucial speech and condemn you to a 3 per cent cut in wheat credits. Subtly you switch on your effect machine and unobtrusively turn his cigar end-for-end where it rests in the ash-tray. He rises to speak, silence falls in the great chamber, he absently takes a last puff . . .

So you can easily see the effectiveness of such a weapon. No one knew how to build one, and of course no one knew they couldn't be built. It was ignorance on both counts that had me out shopping in

the rain for pre-war Klystrons. (No, the 3rd not the 4th war.) You see, we had a clue. Ten years previous a madman named Kishlar made quite a splash by moving bottle caps around with an electric field. When it turned out that that was all he could do everyone lost interest. He died poor, kneedeep in unsolvable equations and burnt-out Klystron tubes. But at the moment everyone was very anxious to dig up Kishlar's work, since his bottle-cap-mover began to look more and more like a prototype effect machine.

Just then my halo buzzed so I tweaked it on. "Confer, please," it said.

"GX44 reporting; count me in." I vocalized silently so that the halo could pick up my conscious thought over the frustrated subconscious and the usually prurient id. There were half a dozen similar replies in the circuit.

"GX19 requests group nexus on the following: 18 tons sheet type 7071BB Al-alloy @ Cr. 2,600/ton. Accept or reject? Type D vendor—repeat, Type D."

"Have you checked out the shipment, 6X19?" I asked.

"Affirmative."

"How thoroughly?" asked Dorothea Koyto, from our main office across town. She was officially GX27, my secret love.

"Well," said the requestor, 6X19 or Marty Rugys. "I hit the second and sixth sheet of every bundle with a laser spectograph and micro-hardness gauge. All were okay."

"Not good enough," chimed Mike Starkey (6X40). "These Type D

aliens can predict most of our statistical sampling procedures. Run a 100% eyeball check on the first bundle; that'll throw 'em. Then if it's okay, buy. Otherwise reject. 6X circuit, do you agree?"

We agreed. The halo subsided to a buzz, and I tweaked it off. Sometimes these groupthink conferences could be a bore. Of course I wouldn't attempt a decision without group nexus, not then anyway. I finished my coffee and confronted the dismal street once more. "Only three blocks," I said to myself, and winced.

Jack Booth put down his soldering gun as I entered. "Hello, Charlie," he chuckled. "Y'look a bit dampish."

"Typically understated," I muttered. "Jack, have you any 714 Klystrons about?"

"Now, what do you bright lads at Genprod want with an outmoded thing like that, if I may be so bold?"

"Secret; but have you . . ."

"Sorry, Charlie, but no go." His eyes shifted. "Sold two of 'em last week, wouldn't y'know, but they were all I had. Some chap . . ."

"Some chap, some guy, some blankety-blank has beaten me to every WW III Klystron in the city," I exploded, "and he's probably with Unipower!"

"Now, now, calm down. Have a chair and get the blood out of your eye." The little surplus dealer scurried to fetch the duplicate of his own shabby chair and placed it before the space-heater. I shucked my rainsuit and took it gratefully.

"Hell, Jack, might as well give you the straight scoop," I sighed. "We're trying to build an effect machine. So's U.P. That much must have leaked out by now."

"Oh, yes," he answered, bending once again to gutting the more valuable components from a wrecked radar chassis. "Seems both outfits are taking Kishlar's approach, yes?" He glanced sideways at me over his busy hands.

"Yes."

"So." Jack put down his work and sank back in the chair. "Now I'll level with you. Nobody from U.P. has been scrounging Klystrons around here; I have. What d'you think of that?" he smiled.

Startled, I stared at him across the six inches separating our noses in that museum of electronic skeletons. Jack made a living, picking these bones; an oddly attractive way of life. I was an electronics engineer but seldom got the chance to muck around with all these glorious gadgets. Jack did, though.

"My good friend Charles," he continued, "I've gone on with Kishlar's experiments for a decade, knowing their military significance would sooner or later be realized. Lately there's been headway. I've just been waiting for someone like your paternal Genprod to make me a rich man; and here you are." He rose and bowed flamboyantly before the curtain into his back room. "Charlie, come with me."

Usually unkempt, Jack felt as if the occasion warranted some formality and put on a faded jack-

et. At one time it was veddy British, but the effect was lost since the fuzzy brown tweed matched his fuzzy brown chin in a ludicrous manner. I suppressed a grin. Jack Booth was erratic, but I'd long respected his feel for electronics. "Feel is all it is, though," I told myself. He had had neither the benefits of education nor groupthink nexus.

He walked over to four shelves of equipment. In front of the shelves was a pingpong table with a large birdcage on it. Underneath the table were exactly eleven 715 Klytron tubes. He clunked a very large switch, and they all began to glow. A hoarse hum droned from the assorted gadgetry on the shelves.

"All right, now." He strutted smugly. "Observe. I open the cage and place a small chunk of wood within." The block was undistinguished except that a rusty screw protruded half-length from it. With theatrical carelessness Jack tossed a screwdriver beside the block and closed the door. He retreated to the back of the room and began to diddle with an antique electric typewriter, humming *Hail Britannia* softly beneath his breath.

"P. T. Barnum himself," I muttered, which was closer to the bone than I knew.

He punched keys in a distracted way until the screwdriver arose from the floor of the cage. Then he frowned and plunked a few letters with great deliberation. The driver began to rotate slowly. Jack punched a nicely rhythmic, repetitive sequence a few times, and the screw-

driver advanced toward the screw. The rest is anticlimax.

"Jack, you've got it!" I couldn't contain myself.

"Elementary. For a quarter billion or so I'll tell you the secret." His undernourished face barely had room for its grin. There was a long pause, and then I got suspicious.

"You've been working on this since Kishlar's day. Hmm. How come you've never mentioned it? Hell, Jack, I've been by here off and on for a couple of years, yes? And we've done a little business and shared a few drinks. Funny you'd keep this all quiet 'til now."

"Afraid to talk," Jack shrugged. "Afraid a bright lad like yourself might poke holes in m'little theory. You'd have said it wouldn't work, and right or wrong I'd have believed it. I didn't want to risk being demoralized, y'know. This gadget is all that's kept me going for years. Hell, Charlie, it's still not right. But I got it all by myself in the end, while you groupthink fellows were looking elsewhere. I got it, one man, *me!*"

The diminutive chin was out-thrust, and I really empathized with the lonely man. God knows, no one person can do anything significant these days. But Jack had managed, and maybe I could pick up the ball and do a little something myself. By then I was completely fired up with the machine, with Jack's sincerity and with the desire to get him under the generous aegis of Genprod.

Again the room was silent as I did some more rapid thinking. Jack was enough of a businessman to at

least look unconcerned, and he sat casually on the pingpong table, fingering the birdcage and humming.

"Before I can sell the idea to G.P.," I began. "I'll need some kind of theoretical support. In plain words and circuit math — how's it work?"

Jack got out a bulky notebook and opened it somewhere near the middle. I leaned over his shoulder and tried to follow his scrawl.

"Remember Kishlar's premise?" He pointed. "Saturate any space with three-dimensional radiation and you can sense the position of any particle of matter therein."

"Sure. That much is a proven fact. Three coordinates will locate anything anywhere."

"Well, Kishlar also integrated the information coordinates with respect to frequency." Jack's eyes were aglow as he turned the page.

"True," I answered. "Theoretically he could not only sense position but create position, if those integrals were determinate and the equations solved. But they're not, they're indeterminate, or so everybody says. I can't solve 'em, anyway. Don't tell me *you've* managed?"

"Not analytically. But in general what's the accepted approach to an indeterminate equation?" he asked.

"Trial and error. But Jack, we've T-and-E'd Kishlar's equations to death and . . ."

"Digitally, yes. Empirically, no. I'll bet you programmed your trials without even once getting down to grit and trying to *build* anything. But I did."

"But, good grief, Jack. That's working a ten-variable matrix on seven equations! There're over a million ways you could set something up and get it wrong!"

"Ah, yes," he sighed. "A million possible solutions, but I was lucky and hit the right one after two hundred thousand or so. I've rebuilt the gadget just about that many times. And though the published notes on Kishlar's later experiments are rather sparse, it appeared he took about twice as many tries before he died, without hitting it right. So I've done pretty well." He glanced up from the notebook, waiting for my next question.

"Can you amplify the effect? Can you expand that birdcage to a battlefield and twist missiles instead of screwdriver? Can you generate enough power?"

"Easily," he said. "Power isn't in it. It's all precision, all in the antenna. But that's all y'get for free, Charlie." He shut the notebook with a snap, turned around and crossed his ankles comfortably. "Not another word from me until you ante up." The cocky beggar closed his eyes and smirked. I took a seat on a dusty spool of magnet wire and feverishly tweaked out a call for groupthink conference. This was *big*; I needed help.

After I'd made plain this situation, it came down to this:

"What's this 'Jack Booth's' background, 6X44." (That's me.) "Sounds like a well disguised Type L."

"Doubt it," I answered. "He's had no formal training to speak of,

and no groupthink nexus either. He's just a good man with a hell of a lot of practical ken."

"Forget it," said Dorothea Koyto. "The statistical likelihood of his coming up with anything authentically original under those conditions is virtually nil. Charlie, it's got to be a hoax."

"But 6X27," I pleaded. "I know the man. I've *seen* this experiment!"

"Uh-huh," came in Rugys, skeptically. "I agree with 6X27. This man has read the newspapers all right, but probably knows no more about effect machines than we do. Er, I mean . . ."

"I know what you mean, you stuffed shirt. Look, let me push this one on my own hook. I absolve everyone from nexus responsibility. *I'm* convinced, even if it means risking a career."

"Well, if you want to cut it *that* way," mumbled half a dozen voices, and they all tweaked out. I was on my own with one hell of a decision. During the conference I'd been sitting stock still, staring at the birdcage; and Jack was fidgeting.

"I say, are you all right?" he asked anxiously.

"Yeah, yeah; just in nexus. Jack, let's talk this out."

I led the way back to our spraddled wooden chairs in the front room and sat down. If this was totally on my shoulders I was going to be damn sure of what Genprod spent its credits on. Jack sat beside me, and we soaked up the warmth of the space-heater together. Outside the rain continued.

"Look," I stuttered. "I'm on my own now. I've got to sell you to Daddy G.P. with no group . . . no group support." I felt almost sick hearing my own words. "Everyone but me thinks you're a charlatan. We won't be authorized more than a few thousand under conditions. For a while, anyway. But after the machine proves out . . ."

"Be precise," he cut in crisply. "I've waited years for this. How many is a 'few' thousand?"

"Three?" I tendered.

"And after the thing is thoroughly proved?"

"Sky's the limit," I said hastily.

"Sold." He stood and marched proudly down a corridor of junk to the front door. He closed and locked it with a flourish. "Good-bye, junkshop, hello laboratory." He returned grabbed his notebook and beckoned me once again into the back. "Now I tell all — partner," he beamed.

"The problem is essentially one of precision. You and I live in a universe that is more or less saturated with electro-magnetic radiation, true? There's light, heat, radiofrequency stuff. . . ." He raised his brows to see if I followed. I nodded.

"Well, the exact E.M. state of any given point in space is influenced by every wave passing through it. As I said, the sources of radiation are nearly infinite so that the condition at a point is unpredictable, unless —"

"Unless you shield the space," I interjected. "Put it in a metal box or screen."

"Just so. When you shield an

area from random radiation you can control the E.M. state precisely, because there's no static. Kishlar's conditions can be broadcast effectively only in a well shielded area. That birdcage is just a shield, with the perch wired as an antenna."

I looked; sure enough. "And you punch in the requisite E.M. variation with that keyboard?"

"Yes."

"Great. You've got the basic phenomena down pat, Jack; but how the hell can you surround a battlefield with a shield? Or air space, or a coastline. . . ."

"D'you know what a Klein bottle is?" he cut in.

"Of course." I was piqued and to rub him back a bit I recited a theorem from one of the better known topology texts: "A Klein bottle is an imperfect surface so convoluted that it is exposed to both its own contained volume and the surrounding space. This . . ."

"Enough." Jack held up his hand. "If that one surface sees both the external and internal volume, who's to say which is contained and which is expelled?"

"I don't quite see. . . ." But I was beginning to. Jack wagged a finger.

"Does a one gallon Klein bottle contain one gallon separate from the universe? *Or does it merely expel one gallon from the universe which it contains!*"

We were nose to nose again. "My God," Jack shouted. "If we shaped an antenna like a Klein bottle, all the emitted radiation would be self-shielded!"

"Just so," he smiled delightedly.

The next few months were hectic. After showing Jack's apparatus and notebook to Genprod they reluctantly agreed to underwrite us. Reluctantly, because they still mistrusted a single mind in an era when group thought was the rule if not the law. No one could read the scrawled notebook, but that little birdcage was mighty convincing.

The matter of a single antenna that shielded its own broadcasts was a little harder to sell. We were granted about two thousand to test it. Jack and I fabricated a Klein bottle antenna about the size of a basket ball in his cluttered back room.

Have you ever seen a Klein bottle? It might most easily be described as a "goosed goose." Suppose a goose tucks his head under a wing, and for the sake of better else to do, chews a hole through his ribs into his belly. He finds it a bit dark and heads for the first glimmer of light he sees. You know where *that* is. When the goose's head emerges from his anus, that goose is a Klein bottle. (Always assuming his mouth is open.)

The damned things are naturally hard to fabricate; not a single flat surface on them, and the longer you stare at the drawings, the more intense your vertigo. Klein must have had the op-art dizzies in a big way. We made it in record time nonetheless.

The last wire was meshed to the circuit, and Jack clonked the switch. The hum came loudly and all the loose hardware in the room began

to rattle. Our K-bottle was dangling loosely from cords to the ceiling, but was at least a dozen feet from the table, now devoid of its cage. When Jack stepped to his keyboard, the buzz from the shelves was almost loud enough to drown his clacking. The screwdriver rose from the table, executed a full gainer with a half twist, and descended upon the screw. I have never seen a more graceful screwdriver.

Jack faked a sober Churchill frown and held two fingers up in V for victory. I joined him.

I was back at Genprod the next day, making an utter fool of myself by daring my boss *not* to give us more money for a bigger K-bottle.

"The range is totally dependent on antenna size," I told him. "We'd better get busy before the spy-gap closes and we're copied and outstripped."

"How good's your security down there," asked Starkey (my boss). "At Booth's shop, I mean."

"Nil," I said cheerfully. "Spy-gap is probably thirty minutes." As if in an answer the door burst open and Rugys fell in waving a newspaper.

"Unipower's got it already," he shouted. On the front page was a picture of Unipower's upstate test facility. In the middle of an open field men were building an immense Klein bottle. It would have filled a barn.

Starkey's barracuda jaw went white. "We'll show those sneaks." He flipped the intercom. "Miss Gedman, see that the Booth project is allocated Cr. 100,000 immediate-

ly," he said. All the explanation in the world wouldn't have sold him. But let our competitor even hint the project warranted attention and wham, instant money.

Dorothea, my secret love, came in thirty seconds behind Rugys. She was out of breath, which considering her physique, required some running.

"The Russians have it," she cried and flung yet another tabloid on the desk. The telecameras in Alaska had focused on the Siberian plains across the Bering Strait. Four thousand workmen were building a Klein bottle at least a mile across.

Starkey hit the switch again. "Make it a billion, Miss Gedman." He stood. "To Alaska!" he said.

As I packed it came to me that mass hysteria is *good*.

We were ninety miles northwest of Nome, on a very cold and very wide seashore. Facing us was the Bering Strait and beyond it the Chukchi Peninsula of Russia. A naked eye was all that was needed to see the huge Goose taking shape across the water. A hundred miles upshore Unipower's Goose required better eyes to see its *top* than its sides. But *ours*, ours beggared description. We were winning, for the moment.

Then the fatal word came. Dorothea galloped up in a Sno-cat and screamed "They're tearing down!"

"Who?" bellowed Starkey in return.

"Both!" she wailed and galloped off.

"Give me that transmitter," he

said between his teeth. I obliged. "Miss Gedman, give the order to tear down. The new Mark XVI Goose is to be larger than the present structure by two orders of magnitude. And get me the Secretary of the Treasury."

"Hello, Flores?" he said after a pause. "Look, we can't compete any more. You'll have to nationalize U.P. and G.P. to tackle this together. The Russians are building . . ."

Another pause.

"U.P. has called already?"

Pause.

"You mean we *are* nationalized?"

Pause.

"And mobilized. Yes, sir!"

The war of the Geese continued. I hadn't known there was enough metal in the northern hemisphere to build Mark XX. Actually there wasn't; some of it was Bolivian tin. Jack and I were pretty much ignored. He steadfastly insisted that his basic apparatus could operate Klein bottles of any range capacity. I must admit that as Mark XX blotted the sun from above us I felt a few qualms. After all, it *was* my doing all this. So I tried to check out the circuitry on Jack's setup. He didn't mind; in fact he helped from time to time. I couldn't make head or tail of it though. An electronic organ and an antiquated Loran unit formed most of the apparatus. "Music that I can see in the dark, yes; an effect machine, maybe; something *I* can fathom, no." I gave up and tried Jack's notebook for a little reference material. Hentracks, wormtracks, numbers and frustration.

PAINT 'EM GREEN

Jack loafed about and uttered incomprehensibilities to newsmen. His mother was Irish and so was mine, and I swear he was mouthing obscene limericks in Gaelic. My doubts grew. Finally, one day, he came into our trailer and confronted me.

"Charlie, d'you think I'm a Caphony?" He knocked the snow from his boots.

"Uh — well, Jack, uh — yes, I think I do," I mumbled between mouthfuls of cuticle. There were no nails left.

"Well, you're right." He slapped me on the back. "Absolutely right. Only you won't tell, right?"

"Right. They'd castrate me with a hammer if I even suggested the whole thing was a farce." I was miserable.

"I should think so," he laughed, gazing keenly at our huge folly looming on the Arctic snow. "You are in too deep to defect." He stepped to our cupboard. "Bourbon, Charlie?" I nodded. He filled our glasses and continued.

"How much of Ambrija is tied up in this project by now," he asked.

"All. Every cent everyone has went into Mark XX. We're without metal when it's complete; there's no more ore. You know that."

"And our Slavic competitors?"

"Very likely the same. I understand the Russians have impoverished every resource for the final K-bottle. Only *theirs* won't work either."

"Right. Jupak Budski has perpet-

uated as big a fraud over there as I have here. Wonderful!" Jack hugged himself with glee. "When's 'R' day?" he asked when his mirth subsided.

"Tuesday a week," I answered. Everything has turned to mud, including my lunch. I could almost feel Starkey lighting the match to my pyre. The growing flames obliterated any curiosity I should have had about Jupak Budski. "Oooh," I moaned.

"Cheer up," said Jack. "It's not all bad. R-day will have us at Puget Sound, I believe?"

"Yes," I muttered. 'R' or Rayday would be the day we energized our 600% GNP Klein bottle. An attempt would be made to pour the Atlantic Ocean all over the Chukchi Peninsula. Already political cartoonists had made everything ludicrously graphic. And with the transparent security prevalent back then it was a sure thing the Russians had slated the same event for the same time with equal publicity. Bath and I were supposed to hover near Puget Sound in an airboat as telescanning observers. Observers of nothing.

The day came with awful quickness, and there we were. Six or seven miles away a Russian skyboat hovered, probably our opposite number. A voice on our radio blurted countdown in paroxysms of emotion.

"Nine."

Nothing would happen.

"Eight, seven." (Graver.)

You're in for a shock, pal.

"Six!"

Ooh, I'm sick.

"Five, four, three-ee-ee!"

Nothing's going to happen.

"Two!" (Crowds cheering.)

Nothing's going to happen.

"One!" (Hysteria.)

Nothing.

Jack turned off the radio when it became apparent that anarchy was imminent. After all, four billion Ambrijans had gone, and would go, without their accustomed standard of living for six years to build that Klein bottle. Believe you me, when the switch was thrown they wanted water. And when no water came, they wanted *blood*.

"Mission accomplished," Jack smiled. He steered our vessel over to the Russian launch. We joined and were soon confronted by two Slavic visitors. One looked exactly like Jack Booth. The other, in his youth and general helplessness, looked like me.

Jack and Jupak embraced and chattered eagerly in a weird dialect unlike either Russian or Ambrijan.

Finally the two Jacks broke off and confronted us with benevolent grins. "No war," they said in unison. "Everyone's too poor and disorganized. We're headed back to Argus-Pluto now. We had to stop your warring before you disrupted the whole system."

"And the Klein bottles?" said my Russian friend.

"Oh. Use them as statues. Paint 'em green. No use otherwise."

"Like the Easter Island stone heads?" I snapped in a flash.

"How'd you guess?" said the aliens.

END

IF