

Firing Line

By GEORGE O. SMITH

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Mark Kingman was surprised by the tapping on his windowpane. He thought that the window was unreachable from the outside—and then he realized that it was probably someone throwing bits of dirt or small stones. But who would do that when the doorway was free for any bell-ringer?

He shrugged, and went to the window to look out—and become cross-eyed as his eyes tried to cope with a single circle not more than ten inches distant. He could see the circle—and the bands on the inside spiraling into the depths of the barrel, and a cold shiver ran up his spine from there to here. Behind the heavy automatic, a dark-complected man with a hawklike face grinned mirthlessly.

Kingman stepped back and the stranger swung in and sat upon the windowsill.

"Well?" asked the lawyer.

"Is it well?" asked the stranger. "You know me?"

"No. Never saw you before in my life? Is this a burglary?"

"Nope. If it were, I'd have drilled you first so you couldn't describe me."

Kingman shuddered. The stranger looked as though he meant it.

"In case you require an introduction," said the hard-faced man, "I'm Allison Murdoch."

"Hellion?"

"None other."

"You were in jail—"

"I know. I've been there before."

"But how did you escape?"

"I'm a doctor of some repute," said Hellion, "Or was, until my darker reputation exceeded my reputation for neural surgery. It was simple. I slit my arm and deposited therein the contents of a cigarette. It swelled up like gangrene and they removed me to the hospital. I removed a few guards and lit out in the ambulance. And I am here."

"Why?" Kingman then became thoughtful. "You're not telling me this for mutual friendship, Murdoch. What's on your mind?"

"You were in the clink, too. How did you get out?"

"The court proceedings were under question for procedure. It was further ruled that—"

"I see. You bought your way out."

"I did not—"

"Kingman, you're a lawyer. A smart one, too."

"Thank you—"

"But you're capable of buying your freedom, which you did. Fundamentally, it makes no difference whether you bribe a guard to look the other way or bribe a jury to vote the other way. It's bribery in either case."

Kingman smiled in a superior way. "With the very important difference that the latter means results in absolute freedom. Bribing a guard is freedom only so long as the law may be avoided."

"So you did bribe the jury?"

"I did nothing of the sort. It was a ruling over a technicality that did me the favor."

"You created the technicality."

"Look," said Kingman sharply. "You didn't come here to steal by your own admission and your excellent logic. You never saw me before, and I do not know of you save what I've heard. Revenge for something real or fancied is obviously no reason for this visit. I was charged with several kinds of larceny, which charges fell through and I was acquitted of them—which means that I did not commit them. I, therefore, am no criminal. On the other hand, you have a record. You were in jail, convicted, and you escaped by some means that may have included the act of first-degree murder. You came here for some reason, Murdoch. But let me tell you this: I am in no way required to explain the workings of my mind. If you expect me to reveal some legal machination by which I gained my freedom, you are mistaken. As far as the solar system is concerned, everything was legal and above board."

"I get it," smiled Murdoch. "You're untouchable."

"Precisely. And rightfully so."

"You're the man I want, then."

"It isn't mutual. I have no desire to be identified with a criminal of your caliber."

"What's wrong with it?" asked Murdoch.

"It is fundamentally futile. You are not a brilliant criminal. You've been caught."

"I didn't have the proper assistance. I shall not be caught again. Look," he said suddenly, "how is your relationship with Venus Equilateral?"

Kingman gritted his teeth and made an animal noise.

"I thought so. I have a score of my own to settle. But I need your help. Do I get it?"

"I can't see how one of your caliber is capable—"

"Are you or aren't you? Your answer may decide the duration of your life."

"You needn't threaten. I'm willing to go to any lengths to get even with Channing and his crowd. But it must be good."

"I was beaten by a technical error," explained Murdoch. "The coating on my ship did it."

"How?"

"They fired at me with a super electron-gun. A betatron. It hit me and disrupted the ship's apparatus. The thing couldn't have happened if the standard space-finish hadn't been applied to the *Hippocrates*."

"I'm not a technical man," said Kingman. "Explain, please."

"The average ship is coated with a complex metallic oxide which among other things inhibits secondary emission. Had we been

running a ship without this coating, the secondary emission would have left the *Hippocrates* in fair condition electronically, but the Relay Station would have received several times the electronic charge. But the coating accepted the terrific charge and prevented the normal urge of electrons to leave by secondary emission—"

"What is secondary emission?"

"When an electron hits at any velocity, it drives from one to as high as fifty electrons from the substance it hits. The quantity depends upon the velocity of the original electron, the charges on cathode and anode, the material from which the target is made, and so on. We soaked 'em in like a sponge and took it bad. But the next time, we'll coat the ship with the opposite stuff. We'll take a bit of Venus Equilateral for ourselves."

"I like the idea. But how?"

"We'll try no frontal attack. Storming a citadel like Venus Equilateral is no child's play, Kingman. As you know, they're prepared for anything either legal or technical. I have a great respect for the combined abilities of Channing and Franks. I made my first mistake by giving them three days to make up their minds. In that time, they devised, tested, and approved an electron weapon of some power. Their use of it was as dangerous to them as it was to me—or would have been if I'd been prepared with a metallic-oxide coating of the proper type."

"Just what are you proposing?" asked Kingman. "I do not understand what you're getting at."

"You are still one of the officials of Terran Electric?"

"Naturally."

"You will be surprised to know that I hold considerable stock in that company."

"How, may I ask?"

"The last time you bucked them, you did it on the market. You lost," grinned Murdoch. "Proving that you haven't a one hundred percent record either. Well, while Terran Electric was dragging its par value down around the twos and threes, I took a few shares."

"How do you stand?"

"I rather imagine that I hold fifteen or twenty percent."

"That took money."

"I have money," said Murdoch modestly. "Plenty of it. I should have grabbed more stock, but I figured that between us we have enough to do as we please. What's your holdings?"

"I once held forty-one percent. They bilked me out of some of that. I have less than thirty percent."

"So we'll run the market crazy again, and between us we'll take off control. Then, Kingman, we'll use Terran Electric to ruin Venus Equilateral."

"Terran Electric isn't too good a company now," admitted Kingman. "The public stays away in huge droves since we bucked Interplanetary Communications. That bunch of electronic screwballs has the public acclaim. They're now in solid since they opened person-to-person phone on the driver frequencies. You can talk to someone in the Palanortis Country of Venus with the same quality and speak-ability that you get in making a call from here to the house across the street."

"Terran Electric is about finished," said Murdoch flatly. "They shot their wad and lost. You'll be bankrupt in a year, and you know it."

"That includes you, doesn't it?"

"Terran Electric is not the mainstay of my holdings," smiled Murdoch. "Under assumed names, I have picked up quite a few bits. Look, Kingman, I'm advocating piracy!"

"Piracy?" asked Kingman aghast.

"Illegal piracy. But I'm intelligent. I realize that a pirate hasn't a chance against civilization unless he is as smart as they are. We need a research and construction organization, and that's where Terran Electric comes in. It's an old company, well established. It's now on the rocks. We can build it up again. We'll use it for a base, and set the research boys to figuring out the answers we need. Eventually we'll control Venus Equilateral, and half of the enterprises throughout the system."

"And your main plan?"

"You run Terran Electric, and I'll run the space piracy. Between us we'll have the system over a barrel. Space craft are still run without weapons, and no weapons are suited for space fighting. But the new field opened up by the driver radiation energy may exhibit something new in weapons. That's what I want Terran Electric to work on."

"We'll have to plan a bit more," said Kingman thoughtfully. "I'll cover you up, and eventually we'll buy you out. Meanwhile we'll go to work on the market and get control of Terran Electric. And plan, too. It'll have to be foolproof."

"It will be," said Murdoch. "We'll plan it that way."

"We'll drink on it," said Kingman.

"*You'll* drink on it," said Murdoch. "I never touch the stuff. I still pride myself on my skill with a scalpel, and I do not care to lose it. Frankly, I hope to keep it long enough to uncover the metatarsal bones of one Donald Channing, Director of Communications."

Kingman shuddered. At times, murder had passed through his mind when thinking of Channing. But this cruel idea of vivisectioning an enemy indicated a sadism that was far beyond Kingman's idea of revenge. Of course, Kingman never considered that ruining a man financially, reducing him to absolute dependency upon friends or government, when the man had spent his life in freedom and plenty—the latter gained by his ability under freedom—was cruel and inhuman.

And yet it would take a completely dispassionate observer to tell which was worse; to ruin a man's body or to ruin a man's life.

The man in question was oblivious to these plans on his future. He was standing before a complicated maze of laboratory glassware and a haywire tangle of electronic origin. He looked it over in puzzlement, and his lack of enthusiasm bothered the other man. Wesley Farrell thought that his boss would have been volubly glad to see the fruits of his labor.



"No doubt it's wonderful," smiled Channing. "But what is it, Wes?"

"Why, I've been working on an alloy that will not sustain an arc."

"Go on. I'm interested even though I do not climb the chandelier and scream, beating my manly chest."

"Oil switches are cumbersome. Any other means of breaking contact is equally cumbersome if it is to handle much power. My alloy is non-arcing. It will not sustain an arc, even though the highest current and voltage are broken."

"Now I am really interested," admitted Channing. "Oil switches in a spaceship are a definite drawback."

"I know. So—here we are."

"What's the rest of this stuff?" asked Channing, laying a hand on the glassware.

"Be careful!" said Farrell in concern. "That's hot stuff."

"Oh?"

"In order to get some real voltages and currents to break without running the main Station bus through here, I cooked this stuff up. The plate-grilleworks in the large tubes exhibit a capacity between them of about one microfarad. Empty, that is, or I should say precisely point nine eight microfarads in vacuuo. The fluid is of my own devising, concocted for the occasion, and has a dielectric constant of thirteen times ten to the sixth power. It—"

"Great Howling Rockets!" exploded Channing. "That makes the overall capacity equal to thirteen *farads!*"

"Just about. Well, I have the condenser charged to three kilovolts, and then I discharge it through this switch made of the non-arcing alloy. Watch! No, Don, from back here, please, behind this safety glass."

Channing made some discomfoting calculations about thirteen farads at three thousand volts charge and decided that there was something definitely unlucky about the number thirteen.

"The switch, now," continued Farrell, as though thirteen farads was just a mere drop in the bucket, "is opened four milliseconds after it is closed. The time-constant of the discharging resistance is such that the voltage is point eight three, of its peak three thousand volts, giving a good check of the alloy."

"I should think so," groused Channing. "Eighty-three percent of three thousand volts is just shy of twenty-five hundred volts. The current of discharge passing through a circuit that will drop the charge in a thirteen farad condenser eighty-three percent in four milliseconds will be something fierce, believe me."

"That is why I use the heavy busbars from the condenser bank through the switch."

"I get it. Go ahead, Wes. I want to see this non-arcing switch of yours perform."

Farrell checked the meters, and then said "Now!" and punched the switch at his side. Across the room a solenoid drove the special alloy bar between two clamps of similar metal. Almost immediately, four thousandths of a second later, to be exact, the solenoid reacted automatically and the no-arc alloy was withdrawn. A minute spark flashed briefly between the contacts.

"And that is that," said Channing, slightly dazed by the magnitude of it all, and the utter simplicity of the effects. "But look, Wes, may I ask you a favor? Please discharge that infernal machine and drain that electrolyte out. Then make the thing up in a tool-steel case and seal it. Also hang on busbars right at the plates themselves, and slap a peak-voltage fuse across the terminals. One that will close at anything above three thousand volts. Follow me?"

"I think so. But that is not the main point of interest—"

"I know," grinned Channing, mopping his forehead. "The non-arc is. But that fragile glassware makes me as jittery as a Mexican jumping bean."

"But why?"

"Wes, if that glassware fractures somewhere, and that electrolyte drools out, you'll have a condenser of one microfarad—charged to thirteen million times three thousand volts. Or, in nice, hollow, round numbers, forty billion volts! Four times ten to the tenth. Of course, it won't get that far. It'll arc across the contacts before it gets that high, but it might raise particular hell on the way out. Take it easy, Wes. We're seventy millionodd miles from the nearest large body of dirt, all collected in a little steel bottle about three miles long and a mile in diameter. I'd hate to stop all interplanetary communications while we scraped ourselves off of the various walls and treated ourselves for electric shock. It would—the discharge itself, I mean—raise hell with the equipment anyway. So play it easy, Wes. We do not permit certain experiments out here because of the slow neutrons that sort of wander through here at fair density. Likewise, we cannot permit dangerous experiments. And anything that includes a dangerous experiment must be out, too."

"Oh," said Wes. His voice and attitude were together crestfallen.

"Don't take it so hard, fella," grinned Channing. "Anytime we have to indulge in dangerous experiments, we always do it with an assistant—and in one of the blister-laboratories. But take that fragile glassware out of the picture and I'll buy it," he finished.

Walt Franks entered and asked what was going on.

"Wes was just demonstrating the latest equipment in concentrated deviltry," smiled Channing.

"That's my department," said Walt.

"Oh, it's not as bad as your stuff," said Channing. "What he's got here is an alloy that will break several million watts without an arc. Great stuff, Walt."

"Sounds swell," said Walt. "Better scribble it up and we'll get a patent. It sounds useful."

"I think it may bring us a bit of change," said Channing. "It's great stuff, Wes."

"Thanks. It annoyed me to see those terrific oil-breakers we have here. All I wanted to do was to replace 'em with something smaller and more efficient."

"You did, Wes. And that isn't all. How did you dream up that high-dielectric?"

"Applied several of the physical phenomena."

"That's a good bet, too. We can use several fluids of various dielectric constants. Can you make solids as well?"

"Not as easily. But I can try—?"

"Go ahead and note anything you find above the present, listed compounds and their values."

"I'll list everything, as I always do."

"Good. And the first thing to do is to can that stuff in a steel case."

"It'll have to be plastalloy."

"That's as strong as steel and nonconducting. Go ahead."

Channing led Franks from the laboratory, and once outside Channing gave way to a session of the shakes. "Walt," he asked plaintively, "take me by the hand and lead me to Joe's. I need some vitamins."

"Bad?"

"Did you see that glassblower's nightmare?"

"You mean that collection of cut glass?" grinned Walt. "Uh-huh. It looked as though it were about to collapse of its own dead weight."

"That held an electrolyte of dielectric constant thirteen times ten to the sixth. He had it charged to a mere three thousand volts. Ye Gods, Walt. Thirteen farads at three KV. *Whew*. And when he discharged it, the confounded leads that went through the glass sidewalls to the condenser plates positively glowed in the cherry red. I swear it!"

"He's like that," said Walt. "You shouldn't worry about him. He'll have built that condenser out of good stuff—the leads will be alloys like those we use in the bigger tubes. They wouldn't fracture the glass seals no matter what the temperature difference between them and the glass was. Having that alloy around the place—up in the tube-maintenance department they have a half ton of quarter-inch rod—he'd use it naturally."

"Could be, Walt. Maybe I'm a worry wart."

"You're not used to working with his kind."

"I quote: 'Requiring a high voltage source of considerable current capacity, I hit upon the scheme of making a super-high capacity condenser and discharging it through my no-arc alloy. To do this it

was necessary that I invent a dielectric material of C equals thirteen times ten to the sixth.' Unquote."

"Wes is a pure scientist," reminded Walt. "If he were investigating the electrical properties of zinc, and required solar power magnitudes to complete his investigation, he'd invent it and then include it as incidental to the investigation on zinc. He's never really understood our recent divergence in purpose over the power tube. That we should make it soak up power from Sol was incidental and useful only as a lever or means to make Terran Electric give us our way. He'd have forgotten it, I'll bet, since it was not the ultimate goal of the investigation."

"He knows his stuff, though."

"Granted. Wes is brilliant. He is a physicist, though, and neither engineer nor inventor. I doubt that he is really interested in the practical aspects of anything that is not directly concerned with his eating and sleeping."

"What are we going to do about him?"

"Absolutely nothing. You aren't like him—"

"I hope not."

"And conversely, why should we try to make him like you?"

"That I'm against!" chimed in a new voice. Arden Channing took each man by the arm and looked up on either side of her, into one face and then the other. "No matter how, why, when, who, or what, one like him is all that the solar system can stand."

"Walt and I are pretty much alike."

"Uh-huh. You are. That's as it should be. You balance one another nicely. You couldn't use another like you. You're speaking of Wes Farrell?"

"Right."

"Leave him alone," said Arden sagely. "He's good as he is. To make him similar to you would be to spoil a good man. He'd then be neither fish, flesh, nor fowl. He doesn't think as you do, but instead proceeds in a straight line from remote possibility to foregone conclusion. Anything that gets needed en route is used, or gadgeteered and forgotten. That's where you come in, fellows. Inspect his by-products. They may be darned useful."

"O.K. Anybody care for a drink?"

"Yup. All of us," said Arden.

"Don, how did you rate such a good-looking wife?"

"I hired her," grinned Channing. "She used to make all my stenographic mistakes, remember?"

"And gave up numerous small errors for one large one? Uh-huh. I recall. Some luck."

"It was my charm."

"Baloney. Arden, tell the truth. Didn't he threaten you with something terrible if you didn't marry him?"

"You tell him," grinned Channing. "I've got work to do."

Channing left the establishment known as Joe's and advertised as the "Best bar in twenty-seven million miles, minimum," and made

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