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*Cover by ED EMMH illustrating S.O.S. PLANET UNKNOWN,
Drawing for the TALES THEY TELL, by Kelly Froas.*

*No dreamy, impractical artists are wanted in a steel mill.
Not, that is, unless what you want is — SuperSteel.*

THE STRAD EFFECT

by

Raymond F. Jones

HELL MUST EASILY BE as beautiful as Heaven, John Ward thought. At least, if a flowing stream of pure, molten steel is any symbol of Hell's hot fury.

He touched the crane controls with a gentle movement, upending a trifle more the massive ladle from which the white stream of steel emptied into the last of the moulds. It splashed over the edge as the mould filled to the top, and ran momentarily in a million points of fire on the pouring floor.

But the ladle was empty and this was the end of the shift. John Ward righted the ladle and swung it high, rolling the entire crane on its track to the end of the room. He turned off the power and tucked his glasses in his back pocket. He snapped his gloves together in his left hand, and filled out the day's log.

He glanced at the still-glowing moulds as he climbed down the ladder to the floor. This was going

to be a good batch of steel, he thought. The best ever.

Intermountain Steel was a small outfit as steel companies go. But what it lacked in size it made up in vigor. It had an engineering department that believed steel was still as crude as clay, compared with what it ought to be in hardness and tensile strength. It had an advertising department that believed steel could be sold like cigarettes on TV, and it had a president, Jack Cochran, who believed in letting men do what they had enthusiasm for.

That's why Intermountain had a laboratory that would have done credit to a plant four times its size. Chief Test Engineer Mike Willard believed in production controls that had teeth.

When he went out for lunch he glanced through the glass panels of the lab where technician Wade Beck sat hunched on a high stool

beside the giant hydraulic stress machine. Willard remembered that Beck had been sitting exactly that way at ten a.m.

When the Test Engineer came back from lunch the technician still had not moved. Willard entered the lab.

"You posing for a life study or something? You've been on that stool since ten o'clock this morning!"

Beck looked up, then slowly handed a clip board with a figure covered sheet to his Chief. "It's not easy for a man to admit he's slipping off his rocker."

Willard glanced at the figures. "There's something wrong with the machine."

Beck shook his head. "I've checked it over a dozen times. I've switched gauges until I've used every one in the place. They all check to the umpteenth place."

Willard clapped him on the shoulder. "Take off for lunch and come back this afternoon. You'll find the bug." He sighed thoughtfully. "This would be wonderful if it were true—a steel with a tensile strength eighty thousand pounds higher than the best we've ever turned out of this shop before."

"That gives me an idea!" Beck exclaimed. "I'm going to run some of our old stock, just to check on the machine. Maybe there is something new here!"

"Not that new. We'll have to send out for some gauges if you

don't find the trouble soon. We want those tests by tomorrow forenoon. But go on out for lunch now, and clear the cranium."

Beck ignored the advice. He went to the stock room and got some samples of cold rolled rod from the batch he had tested two days before. He inserted the sample in the stress machine and stepped behind the shield to turn the power on.

Slowly, the needles of the gauges advanced as the stress increased. Beck watched it edge toward the normal reading for that type of metal. He glanced up once at the bar that was gradually thinning under the tremendous tension drawing it apart.

And then it snapped with a singing whine. Beck glanced at the graph that plotted the peak stress. It stood exactly at the point recorded for the batch two days ago.

He paused, his breath coming more heavily now. There was nothing wrong with the gauges. He was sure of that.

Swiftly, he replaced the sample with another specimen from the batch he'd been testing all morning. Behind the shield once again, he watched the tension mount. It crawled to the level at which the previous rod had broken—and was still going.

He watched it climb. Ten thousand pounds higher. Twenty. He peered out at the rod, which had thinned a little, but showed no

signs of breaking yet. He leaned back, refusing to participate in the test with his personal reflexes any longer. He moved only once to reset the pen of the recorder as it moved off scale, as it had been doing all morning.

Then, at an incredible eighty-two thousand pounds above the previous reading, he heard the thin, screaming note of the parting steel.

There was nothing wrong with the machine or the gauges. They had a steel like no steel that had ever been seen before.

Jack Cochran was there, and Mike Willard. Thompson, and Manning, two of the floor foremen stood in the background. Pete Roberts, head of Sales, was moving around the desk, feeling one sample after another, as if some kind of magic would rub off on his own hands from the precious stuff. His eyes were glowing.

Wade Beck was describing for the twentieth time the sequence of tests and their results. This was a matter of form; all the others had witnessed some tests.

"When we announce this in the

trade," Pete Roberts said excitedly as Beck finished, "there's going to be some reshuffling at the top of the pile. Little old Intermountain is going to tell U.S. Steel and some of the other boys to move over. We can charge our own price for this, and customers will be standing in line. A decrease in tonnage will make it compare in total cost with what they've already been using, but they'll be coming to Intermountain for a better product!"

"The patent department will have to consider this, first," said Cochran mildly.

"Look," Willard exclaimed in weariness. "Can't you get it through your heads that we have nothing to patent? We have nothing to sell! This thing is a freak. We don't know how this steel was made. We don't know if we can ever make another batch like it."

"Let me look at those logs again," Cochran asked Thompson.

The foreman passed them over and Cochran turned the pages slowly for the dozenth time. He shook his head. "There seems to be absolutely no variation in the charge that went into the furnace

RAYMOND F. JONES has been turning out speculative fiction since 1941. A former radio engineer and present government meteorologist, he specializes in "pure" s-f, in which all the facts are straight and the central dramatic actor is the idea. He is the author of two adult novels, "Renaissance" and "This Island Earth"; the latter was made into a movie. He has also written a teen-age novel, "The Secret People" (Avalon Books).

on those shifts. Are you sure you personally watched these charges and they looked normal to you?"

Thompson nodded. "Not a cinder went into that furnace that wasn't strictly according to Hoyle. It was charged just like I've been charging furnaces for twenty years. You can't blame me."

"We're not blaming you," Cochran said with a wry smile. "We'd like to credit you with discovering something no steelman has ever seen before. But we seem to have a complete mystery on our hands. A new steel, stronger than anything of its kind in history. And nobody knows how it was made!"

"What does that matter?" Pete Roberts said. "As long as we've got it we can sell it!"

"How do you know you'll ever get another batch like this?" Willard demanded angrily.

"Why shouldn't we?" Roberts' eyes were wide and innocent. He left production problems to those who understood them. "Nobody knows what keeps his own heart ticking—but he keeps on using it as long as he can and doesn't worry because he knows it's going to stop. I say let's sell this stuff while it's coming out."

"We've certainly got something here that we could market," Cochran said soberly, "if we knew we had a constant supply. But I'm inclined to agree with Willard. We ought to know more about what made this batch different, before

we make any announcement, even to our own Directors. Continue the production tests," he said to Willard, "and stockpile any more that comes out like this. After a week or so we'll see what it looks like and go from there. Be sure you get a double check on every charge that goes in. We want to know exactly what this stuff is made of even if we don't know how."

It gave Willard a kind of perverse satisfaction that the next batch tested was entirely normal. By some incredible fluke, he thought, they had been given a glimpse into a kind of metallurgical heaven. But now the heavens were closed and they could expect no more visions like this.

The batch after that tested ninety-one thousand pounds per square inch above normal.

They instituted a weighing and watching procedure that measured the charges going into the furnaces down to the last gram. They had all logs triple checked and signed. No one's observations were to be trusted without verification.

It seemed to make no difference which of the four furnaces was involved. During the next two weeks there were batches that tested high in tensile strength, and there were batches that tested normal. And both kinds came from all the furnaces.

At the end of the second week,

Cochran reviewed the reports as a second conference was called. "It's baffling," he said, "but-it looks as if we've got something we can count on. About one third of our production of steel is high tensile strength. The production curve seems to be regular—in its own spotty way."

"Then we can start a sales campaign right away?" Roberts asked.

"I'm inclined to favor it, on the basis that we are offering the results of new and limited production methods. Don't try to build it too big to start with. It's a risky thing to be doing, without any more knowledge than we've got. But on the other hand, it would be senseless not to sell what we've got for what it is."

"I'm against it," Willard said. "It's completely crazy. We can't go to steel users and tell them we've got something to sell that may be cut off any minute."

"We can't go on stockpiling this much of our production indefinitely," said Cochran. "It's either sell it for what it is, or push it out with the rest of our production without saying anything about it. That doesn't make very good sense either, does it?"

Willard shook his head. "I don't know the answer. I only know we're caught no matter which way we move."

He had to admit that Roberts' production was a masterpiece of the advertiser's misguided art. "Out of

the Crucible of Superior Scientific Effort Comes the Miracle of a Metallurgical Milestone!"

His ads went on with quite a description of the sweat and blood of Intermountain Steel's scientific staff which had gone into the making of SuperSteel, his name for their unexpected miracle. He backed it up with charts and tables of the tests they had run.

The result was literally instantaneous. The office was swamped with orders for the new steel, and the laboratories were swamped with scientific inquiries concerning their methods of production.

The patent department was no happier about the situation than Willard was, but they had to admit you couldn't patent something you didn't know how you made. Everybody kept quiet on the subject. The scientists were put off with the story that the production methods were not ready to be revealed for legal reasons.

At the end of three days the stockpile of SuperSteel was depleted, and orders were being taken on a rationing basis for future production.

Willard knew they were sitting on a pile of dynamite. And the same day they shipped the last ton of SuperSteel from the yard his worst fears came true.

Out of a full twenty-four hours' production there was not an ounce of SuperSteel.

They stayed up all night watch-

ing the next runs. Nothing had changed in the routine. Nobody said anything to anybody. They just watched.

When batches were finally prepared for testing, out of those runs, they were all present once more. There was still little conversation except about the weather and the Yanks' batting. In silence they watched the needles and the graphs as Beck and Willard put in the samples and applied the stress. Every one snapped at normal limits.

"It looks like we've had it," Willard said. "It was a good thing while it lasted. Now all we need is a digestive system that can handle crow for a good, long time."

"Nuts!" Roberts snapped. "You guys are engineers. You're supposed to know how steel is made. You made SuperSteel once. You can do it again. Where's the guts of this outfit?"

Cochran smiled tolerantly. "I'm afraid this is one case where the pep talk and the old college try won't do, Pete. We know everything that went into SuperSteel. We know every factor affecting its production. *Every* one!"

"Except the one that gave it the tensile strength it had," said Pete.

"Maybe you're right there," Cochran conceded, "but if that's true, it's a factor that can't be weighed, measured, or observed in any known manner. We couldn't produce another ounce of Super-

Steel if our lives depended on it—except by accident."

"That last batch of tungsten—maybe it wouldn't hurt to add another tenth—" Thompson muttered lamely.

"No!" Willard snapped. "That's the one thing we must not do now—tinker with the charge and the alloy percentages. We've got to find out why we got SuperSteel with the formula we used or we won't find out anything!"

"I agree with that," said Cochran. "Let's stick to the routine that produced SuperSteel until we get some more. It's all we can do, outside of continued analysis of what we made to see why it's so tough."

"And my next ad was a doozy!" Roberts complained. "Now I guess I've got to kill it. What're we going to do with the orders we've accepted?"

"That's your problem," said Willard as he turned to the door. "You were so anxious to get them. Let's see you take care of them."

The whole thing was like one of those dreams where you cavort with houris on some south sea island all through the night, and then wake up to a morning of cold drizzle outside, a mouth like an old flannel jacket, and the wife gone home to Mother for two weeks.

It just hadn't happened. If there were not a few samples in the testing lab he would never believe that

SuperSteel had existed, Willard thought.

He was thinking that as he sat in the company cafeteria at noon. There was an executives' table where the gold badge boys were supposed to get priority service and quality, but Willard preferred to sit with the men from the mill. Somehow, the toughest cuts of meat, the wateriest soup, and the stalest bread seemed to find its way down the exec table. Willard felt in a mood to go back to the kitchen and find out just how that was managed.

His mood was interrupted by Dr. Lloyd Evans, the Director of Personnel and Counseling at Inter-mountain. Evans sat down and drew the menu toward him. "Too bad about this SuperSteel fluke," he said. "It would have been nice if you could have caught it before it played out. Have any idea why?"

"It's not supposed to be out yet," Willard said, suspiciously. "Where did you get it?"

"You pick things up around a place like this. They're hard to hide. Think you're going to find the answer?"

Willard shook his head. "We've checked on everything. We've measured the batches down to the last milligram. Temperatures to the hundredth of a degree. No variables. But no SuperSteel."

"How about personnel? Made any check on them?"

"What do you mean? The same

crew's been with us all through the thing. Thompson, Manning, Hartley—"

"They're your foremen and crew chiefs. You know them, sure. But how about all the boys on the floor?"

Willard shrugged. "I don't know. They're all the same as far as I know. You think somebody new could have been hired and might be sabotaging the production? That's out! Such a thing would be impossible."

"Why don't you make a check, just for the heck of it?"

Willard hesitated over refusal of the ridiculous notion, then gave in and beckoned for a plug-in phone to be brought to the table. He called Personnel. "Get me any employment changes on the furnace crew and pouring floor during the past week."

"Better include the lab staff, too," Evans said.

In a moment Willard had the information. He hung up and put the phone aside. "Just as I told you. Nothing's changed. Only one man has left, John Ward, a craneman. And his place has been filled by moving up another employee. There's nobody new in contact with SuperSteel production—or, rather, lack of it."

"John Ward—" Evans said thoughtfully. "College boy, as I recall. Been working in steel every summer while going to school. Did Ward pour all the batches that

came out as SuperSteel?"

"How the hell should I know that, either?"

"Find out."

Willard hesitated on the verge of refusal a second time, then reached for the phone with a patronizing gesture, as if to pamper a childish whim of his associate. This time he had to check the batch numbers of SuperSteel against the personnel working the various shifts at the time SuperSteel appeared. It took longer.

At last he hung up and looked across the table at Evans. "All right. Ward poured every batch of SuperSteel. Nobody else. But that doesn't prove a thing. A crane man couldn't affect the quality of a batch of steel even if he wanted to."

The psychologist smiled. "It's the only variable factor you've found so far. You don't have to take my advice, but I'd say that if you're smart you'll get Ward back here. Just to pour one batch for you, if nothing more."

"This is the first time I ever had lunch with a lunatic!"

The idea had a crazy, gnawing quality that wouldn't let go. Willard spent the afternoon personally supervising the charging of Number Two and Number Four. He reviewed the logs of previous charges, all the way back to the last time SuperSteel came from these furnaces. It was as Evans had said: Ward, the crane man, was the only

variable he could find in the whole chain of factors.

At a couple minutes to five he called the personnel office again. "Miss Jensen—Willard of Test Lab—get me the file on John Ward who quit as crane man last week. Find out if he left a forwarding address."

While he waited, he reminded himself again that only an idiot would go this far, and that he wasn't going to carry it one step further.

"Mr. Ward left to attend classes at CalTech," said Miss Jensen. "I have his address in care of the school, if you want it."

As soon as he had written down the information, Willard wadded up the slip of paper and threw it in the nearest wastebasket. He walked out of the room feeling like a free man.

At ten o'clock that night he finally made telephone contact with John Ward at his dormitory address. The former crane man sounded wary, Willard thought.

"This is Mr. Willard, of Inter-mountain Steel," said the engineer. "I understand you were operating the crane on the pouring floor for us this summer."

"Yes."

"We've got a new man on the job, and there seems to be some trouble with the machinery. All our mechanics have had a look at it without finding anything wrong, but it still won't work right."

"I didn't have any trouble when I was running it," said Ward.

"That's what everyone tells me—that you could make it behave like a trained kitten. I know it sounds crazy, but we've tried everything else, and there might be some personal gimmick in the method of operation you used. It would be a great favor to us if you would come out and take over a shift, just to satisfy our feelings about this."

"I'm afraid there would be trouble if I did that," said Ward. "Mr. Masovitch told me he'd personally unhook my neck from my backbone if I ever set foot in the Intermountain plant again."

"Masovitch? The foreman?"

"Yes."

"Why?"

"He just didn't like the way I did some things."

"Then you didn't quit—you were fired?"

"I expected to work another quarter before coming back to school. But it's all right. I'm rather glad Mr. Masovitch fired me, now."

"Listen, don't worry about Masovitch. We want you to come back and help us out now. We'll pay all your expenses, including travel by plane, and will give you a hundred dollars for the shift. You can make it on the week-end when you're free of classwork. Better still, if you need to work some more, why don't you come on back until you're really ready to start school?"

"I couldn't do that. Everything

is under way here now. But I can't very well turn down your special deal. I'll see you Sunday morning, if that's all right with you."

"I'll meet you at the airport!"

"Don't let Mr. Masovitch hear about this."

Willard was glad it was Sunday. He should have thought of that, himself. Few, if any, of the executive staff would be around. He might be able to get Ward in and out of the plant without anyone being particularly aware of his presence. He hoped so. He'd hate to have to explain to Cochran—or anyone else—why he was doing this.

He met the plane at a quarter to six Sunday morning, and picked up John Ward personally. He remembered seeing him around the plant, and liking his looks.

Ward was smiling as he stepped off the plane. "I'm sure I don't know what I can do for you, Mr. Willard. But it was a nice trip over."

"We'll see," said Willard, "We appreciate your coming. Nothing's lost, even if you aren't able to help us."

They got into Willard's car. "This sounds funny, I guess," he said. "Don't be afraid to say so, because we feel the same way about it. The only thing is, we've tried everything else except tearing down the whole machine."

There was a little wait, after they reached the plant and climbed to

the crane cab. But Number One and Number Three were ready for tapping this morning. Ward tried the controls while they waited. "I don't see anything wrong," he said. "She's working just the same as when I left."

Willard nodded. "I don't know. Just go ahead and put her through her paces in your usual way."

He sat beside Ward through the morning hours as they watched the first white trickle of liquid fire burst from the furnaces and turn to a volcanic fury. He sensed the delicate touch of Ward's hands on the controls as the crane moved carefully above the bright hell below them. One by one the moulds filled, the color slowly dying in them.

"There's not a thing wrong with this crane," said Ward as he finished Number One. "You must have had a moron trying to run it."

"Jakes was handling her."

"That explains it. Get a man with some brains."

Ward finished the shift alone. Willard went back to his office and waited in solitude. He was aware for the first time that his hands were wet with sweat, and the back of his shirt was soaked. And it wasn't from the heat of the pouring floor. He was just plain jittery, wondering what those billets would turn out to be when they were cured, rolled, tempered, tested—

Ward thanked him for the check for pay and expenses when the

shift was over. "I'll do that any week-end you like," he said, grinning. "But all you need to do is get that dope off the crane and she'll run all by herself."

Willard found it hard to sleep until samples of the batch could be tested. He forced himself to remain in his office the day they were tested. He got the results by phone.

Ward's batches were a long way from SuperSteel. They were slightly below normal, for the most part.

Evans looked up from his desk as Willard entered. "Well, it was a good idea, but it was a bust," the engineer said. "I got Ward here, as you suggested."

"I saw you driving in Sunday morning. The tests weren't any good?"

Willard shook his head with a smile. "You didn't really think they would be, did you? I guess I must have let myself get a little balmy, going for a proposition like that. Anyway, you can't say I haven't been willing to try everything." He turned to go.

"Wait a minute." Evans got up from behind his desk and came toward the engineer. "This should have worked. You haven't got any other variables, have you?"

"No. But we'll find some!"

"Any idea where to look?"

"No. But I know where we're *not* going to look—not any more."

"Tell me about Ward. Everything you noticed."

"Look—I've got work to do!"

"You haven't any other variables, remember."

In disgust, Willard recited everything he could remember about the young engineer-craneman, his looks, his manner, his attitude.

"You say Masovitch fired him?" Evans said wonderingly. "Can you imagine what for? Masovitch is a good steelman. If Ward is as good a craneman as you say, why did Masovitch fire him?"

"Who knows? And what difference does it make? Personal grudges come up without any rational foundation all the time. You personnel people know more about that than I do."

Evans nodded. "And from all you tell me there was absolutely no basis for Ward's firing. Why don't we go down and ask Masovitch himself?"

"I've got more important things to do!"

But Willard allowed himself to be led to the foreman's cubicle. The big Polish foreman was going over his production figures as Evans entered. "We just wanted to ask a few questions about one of the men who used to work for you," said the psychologist. "Fellow named John Ward."

Masovitch spat into the corner beyond his desk. "That nut? Why would anybody want to know anything about him?"

"You think he's a nut, huh? Why?"

"Because he is, that's why. Crazy as they come. One day he won't pour steel because the wind's blowing too hard outside. Next day he won't pour because it isn't blowing at all. Or maybe it's too hot, or too cold. Jeez, you'd think he had a little crystal ball up there in the cab, telling him what to do. He even started telling us how to tap the furnaces!"

Evans glanced at Willard. "He was a pretty crazy character, eh?" he said to the foreman. "When did you first notice this? Ever since he first came?"

"No—no, he was a nice kid at first. Wanted to do everything just right, just the way you told him. Then he went nuts all of a sudden, like I told you. You can't make steel with guys like that. You're going to look up some day and find 'em pouring a ladle full of hot metal down the back of your neck!"

"Was this about the time that SuperSteel began to be produced?"

Masovitch looked thoughtful, as if going back in time to that remarkable event. "About then, I guess," he said matter-of-factly. "Right about that time. Say, when are we going to get some more batches like that? That was real great stuff!"

Evans walked back along the corridor that took Willard to his test lab. Neither spoke until they reached the doorway to Willard's office.

"You'd better get Ward back here," Evans said finally. "Get him to do exactly and whatever crazy thing he was doing when Super-Steel came out. You'll never sleep easy until you do."

"Now you're trying to tell me a nut was responsible for Super-Steel!"

"Ward didn't look like a nut to you, did he? I thought you said he was quite a serious young student."

"He appeared that way."

"You ever hear of a man named Stradivarius?" said Evans slowly.

"The fiddle maker?"

"The same," said Evans. "For about a century and a half, people have been trying to make violins as good as Stradivarius made them. Nobody has done it yet."

"Now wait a minute—"

"The varnish has been analyzed, the wood has been identified, the measurements have been taken. Everything that could possibly have gone into the making of Stradivarius violins has been measured, weighed and duplicated as near as is physically possible. But they just don't play the same."

"What are you trying to tell me?" Willard felt an unaccountable anger rising.

"Just what made a Strad violin so good that it can't be duplicated after all these years of trying?"

"How in hell should I know? You just said everything's been analyzed without finding out."

"And that's all anybody can say.

But suppose Stradivarius just *wanted* his violins to be better than any other violins ever made."

"He'd have to do a lot more than just want—"

"Suppose somebody—John Ward, say — just *wanted* the steel he worked on to be the best ever made—"

"You're absolutely and completely off your rocker. Why don't you go see a head shrinker?" said Willard quietly.

The two men let their eyes lock without speaking for a full thirty seconds. Then Evans resumed slowly. "John Ward knows how to make SuperSteel. He doesn't *know* that he knows, but he does."

"He doesn't *do* anything to it!"

"Yes, he does. He pours it from a furnace ladle into a mould. He's a part of the production process, and while playing that small part he gets into the batch that ingredient that makes a steel such as the world has never seen. Don't you want to know how he does it?"

"But if *he* doesn't even know—"

Evans nodded. "That's the catch. Stradivarius didn't know how he produced his wonderful violins, either. He never taught anybody else how to do it. Did you ever watch one of these computing geniuses at work? I saw a Swiss farm girl once who could multiply twenty digit numbers in thirty seconds flat. She could recite everything she'd ever read, word for word. Otherwise, she was a dolt."

"John Ward's no dolt."

"That's where we're lucky. He may be capable of the kind of inspection that will reveal how he does it. Or the talent may sink completely out of sight the moment he realizes he has it."

"We don't even know if he has it!"

"Get him back here. Permanently. We'll put every kind of test on him we can think of until he becomes suspicious. We won't tell him what's up until he does. Then we'll tell, and see what happens to his ability."

"Maybe he won't even believe it."

"That, in itself, may be enough to wipe it out."

Willard moved along slowly to a corridor window that looked out on the plant's great coke ovens. "I'm afraid I'm the one that's never going to believe this thing, no matter what evidence I'm shown. How *could* it be possible?"

There was still a major problem that remained unsolved, Willard realized as he left Evans. Money. He went directly to the office of the President. He strode past Dorothy, the receptionist Cochran had hired chiefly as artwork.

"The Boss in?" Willard said.

"No appointments this afternoon, Mr. Willard. Mr. Cochran gave me strict instructions. Mr. Willard—!"

He was already in. Cochran

frowned in the middle of a phone conversation with someone in New York. The engineer looked out the window until he heard the phone replaced.

"You've always said you believe in letting a man do his job in his own way," he said.

Cochran hesitated warily. "That's the philosophy I've tried to follow from this office. What's on your mind, Willard?"

"A hundred thousand dollars for a special project I think will be worth it."

"You're not talking peanuts, even for these days of reputed excess profits. What the hell do you want a hundred grand for?"

"That has to be my secret."

"Isn't that letting the crust rise pretty thick? I have to account for the way I run this plant."

"You wouldn't authorize it if you knew what I wanted it for."

"SuperSteel?"

"Yes."

"You think it'll solve the problem?"

"No—not really."

"Then what—?"

"It's something that's got to be tried. Something *I've* got to try before we say it can't be done. That's all I'm going to say about it."

Cochran frowned irritably. "It's going to be a red-letter day when I finally find a good enough excuse to fire you. Go ahead, set up your project file. The money'll be

allotted. But I expect to see a hundred thousand dollars worth of results!"

Willard reached John Ward by phone again late that night. The former craneman recognized his voice at once.

"Hello, Mr. Willard," he said happily. "You need me for any more hundred dollar shifts on the crane?"

"Yes, as a matter of fact, quite a few."

"I'm sorry, I was only kidding."

"I wasn't," said Willard. "How would you like to come back and work for Intermountain on a steady job for a year, Ward?"

"I'm afraid I couldn't do that. I intend to finish school and then go into metallurgical engineering."

"You didn't ask about the salary. We'd pay you enough so that you could finish school without worrying about part time and summer work."

"How much?"

"Fifty thousand dollars."

"For one year?"

"We'll sign a contract on it."

There was a long period of silence at the other end. Finally, Ward came back. "You want me to work just as a craneman?"

"Most of the time. There might be a chance to do a little lab work on occasion, but it would be mostly on the crane."

"I don't know, Mr. Willard," Ward said. "It's like asking me to sell a piece of my life. It's a ques-

tion whether the price is worth it in terms of what I want to do."

"We'll make it seventy-five thousand dollars, Ward. What is it that you want to do?"

"I want to be a scientist. I want to know everything there is to know about metals—why they hold together, why some are strong and some are weak, why some conduct electricity and some resist it. I want to know their molecules as well as if I could see them, and put them together, like blocks, in any shape and form and strength I choose."

And perhaps you already can, Willard thought soberly. *Why do you think you must go to school to learn those things?*

"We'd like to help you realize those ambitions and dreams," he said aloud. "Money isn't everything, but it sure helps a lot."

"I don't understand why you're willing to pay me this. There's something important you haven't told me."

"I'm reserving the right to withhold that information until the end of the year. I can guarantee it's honorable and honest, but I can't tell you what it is."

"You make it sound very mysterious."

"You'll be asked to do nothing for Intermountain that you have not done before."

"Let me sleep on it."

"We know about Mr. Masovitch," said Willard slowly. "He told us why he fired you. You

won't have any more trouble with him. You can proceed just as before. If the wind isn't right, you can wait until it is. If it's too cold, you can wait until the sun comes up farther."

He heard Ward's breath suck sharply at the other end of the line. The man's voice was filled with quiet excitement when he spoke again.

"I'll be there day after tomorrow," he said.

The production of SuperSteel resumed with the first batch he poured.

"How is he?" Evans asked. "Does this present setup seem to affect his attitude or the quality of the steel?"

"The first batch he poured ran only seventy-eight thousand p.s.i. above normal, but everything since then has gone over eighty, where it used to be."

"He knows what he's doing," said Evans. "He knows why we brought him back."

"You think so?"

"He'd be an idiot not to recognize it. Why do you think he does all those crazy tricks of timing his pours and adjusting to the weather?"

Willard shook his head. "Eccentric. Or crazy, I guess. Whatever you want to call it. But as long as it doesn't hurt the steel, I guess we can put up with it. Production goes down when he wants to wait, but

we can afford that for the amount of SuperSteel we're getting."

"Did it ever occur to you that maybe *that* is the way he makes SuperSteel?"

"By waiting on the weather? By timing his pour according to that weird formula he uses?"

"Yes."

"I guess I'm willing to listen to anything," said Willard sadly. "I never believed Ward had anything to do with it in the first place. Now, all I care about is learning *how*. If you say his shenanigans are responsible, I'm willing to be shown."

"It's not that easy." Evans shook his head. "That's the part I don't think Ward understands himself. He's just shooting in the dark, but he's hitting pretty close!"

"Someday I'm going to wake up and discover this was all a beautiful nightmare!"

Evans growled irritably at Willard's persistent refusal to accept the obvious. "Does Cochran know about Ward yet?"

Willard shook his head. "I don't think he's noticed. I've told Ward nobody is to know about the deal except you and me. I don't know how long he'll hold still for that kind of treatment, but he's signed the contract. What do we do if we can't tell him why he's here—or that we know he knows already?"

Evans smiled. "We don't want to play ostrich indefinitely. I just want a substantial period in which

to observe him as he now functions, without disturbing him by obvious study."

"It's out of my hand now," said Willard, rising. "We've applied every test and measurement we know in order to find out what goes into this steel. We don't know any more than when we started. It's up to you to pull it out of Ward. If you need help by way of a staff, we can still get something in the budget."

"I may need plenty before this is over!"

President Cochran was pleased enough that SuperSteel production had resumed, but its previous decline had taught him they were on shaky ground. He vetoed a resumption of the massive trade campaign that Roberts wanted to get under way again.

He stood with Willard and Roberts overlooking the pouring floor while the sales chief protested they were losing the opportunity of a lifetime.

"We're not going to get caught in the kind of jam we had before," Cochran said. "We'll fill some of the back orders that weren't taken care of, and let it be known by word of mouth that we have small amounts available to our old customers. That will take care of all we can turn out until we find out the how of this thing."

"We could put in more furnace capacity. Double production!" Rob-

erts protested.

"When we learn *how* to make SuperSteel," Cochran said with finality. Then he pointed down to the crane, moving slowly beyond them. "We've got a new man there. I hadn't noticed the change before. I wonder when he came on.

"Seems to be a good operator," Willard mumbled. "Let's go down and have a look at the charge logs," he added quickly, drawing at Cochran's arm.

"It's that kid that was here once before," Roberts said. "Thought he left to go to school or something. Must not have panned out. These guys care more for money than education these days. He's likely to regret it ten years from now. What's running a crane compared with a good education?"

While Evans studied Ward physically and psychologically like a white rat running a maze, Willard set up an observation crew that watched every move he made, by telescope and by hidden instruments in the crane cab. Ward had agreed to the physical tests as a condition of employment. He made no protest when these sometimes included an electroencephalograph reading, though he looked inquiringly at the nurses and doctors who examined him.

As far as Willard knew, however, the craneman didn't know about the observation of his working habits and techniques. At the

end of two months the test engineer believed he knew everything that Ward did in producing SuperSteel.

One night, on a graveyard shift when Ward was home asleep, Willard took the crane controls himself. Carefully, and with meticulous attention to the fantastic detail Ward had accumulated, he poured a batch.

There wasn't a molecule of SuperSteel in the lot.

Willard began to wonder if, somehow, they were all being taken for one big ride. SuperSteel—its appearance only when Ward was around—the apparently psychic relationship between the craneman and the new metal—the impossibility of duplicating it when Ward was absent—

On the face of it, the whole thing looked as if some fantastic hoax were being perpetrated. Only the tension gauges in his own laboratory kept Willard from this conclusion.

The day after Willard's failure to duplicate the young craneman's effort he decided to quit beating around the bush, Evans or no Evans. He called Ward to his office before the shift began.

Ward acted as if he had been expecting something. He twisted his workman's gloves uneasily. Willard came to the point.

"You know about SuperSteel," he said.

Ward nodded; his nervous fid-

dling with the gloves increased.

"We think you have something to do with it."

Ward nodded again. "I know," he said.

"What do you know?" Willard demanded. "You know we suspect this? Or you know how SuperSteel is made?"

"Both," said Ward.

"I'll skip asking why you haven't said anything about it before now. But you did agree to sign a contract, and you signed a patent agreement also. You do have a certain obligation to disclose any such information to the company."

"I'm more than willing," Ward said. "I've been trying for weeks to figure out how to do it. There's no one here to whom I could teach it."

"Tell me. No—wait. I want Evans and Cochran to hear this."

The test engineer disappeared, returning in fifteen minutes with the psychologist and Intermountain's president. They sat at the small conference table in Willard's office as Ward looked uncomfortably from one to the other.

"Now," said Willard.

"I don't know how to say it," Ward said in obvious misery. "When you made your offer I told myself I was going to let you have the secret as soon as possible—but I don't know how to do it."

"Just describe what you know of making SuperSteel," said Cochran. "Let us judge whether we can

learn it or not." His voice sounded as if the long tension within himself could not be held much longer.

"There are so many things that count," said Ward, musingly. "Masovitch thought I was crazy because I was concerned with temperature out-doors, and with barometric pressure, and humidity. All those things count. But there's more, too. The feel of the lessening weight in the ladle as you pour. The thickness of the falling column. The height from which it's dropped. And these things aren't the same all the time. They vary with the constituency of the batch. You have to know how to feel just what's inside the ladle in order to know how to get the best steel out of it. Do you see what I mean?"

The others stared at him. Finally, Evans broke the silence. "The Strad Effect," he said slowly.

"What are you talking about?" Cochran demanded angrily.

Evans told him what he'd said previously to Willard about the violin-maker. "You can say that any man whose skill goes beyond the normal through an almost psychic understanding of his materials is operating under the Stradivarius Effect. You physicists like names like that." He smiled in Willard's direction. "I should think you'd find it appropriate."

"Quite appropriate," said Willard. "But whatever you call it, we've got to find a way to duplicate it."

"There's more to it than you've understood," said Ward. "When a man loves a thing he develops that understanding of materials. The love for the skill comes first."

Evans nodded. "That's understandable."

"That's why I can't teach it!" said Ward.

The others looked at one another in silence again. "You mean to say I don't love this business enough to be able to make the best steel?" Cochran said.

"No," said Ward.

"You're crazy! There's nothing I wouldn't do to put this little outfit on top of the heap! I'd get down there on the pouring floor in overalls two shifts a day, myself, if I thought it would yield Super-Steel!"

"That's just it," said Ward. "You love the company, the business end of steel-making. You want Inter-mountain to be the biggest of its kind, and give your own personal pride in the management of it.

"But you don't love steel."

Cochran's face darkened. "Why, you—"

"Take it easy," Evans said. "The man's telling the truth, and you know it. I'm just beginning to see what this is all about. How many steelmen in the whole country care for steel the way Stradivarius cared for violin making?"

He smiled as the others failed to answer. "Take Masovitch," he continued. "What does he care for?"

He's the foreman, but any other job would be just as good as long as it gave him three squares and let him feed his kids right. You, Willard—how much are you in love with steel?"

"I don't see what that's got to do with anything!" the test engineer snapped, almost irritably. "I'm not a steel fanatic, certainly, but I'd like to see the job done right. I'd like to see SuperSteel put on a production basis for the sheer satisfaction of doing it. I don't see why I can't learn the technique as well as anybody else."

"You're closer than any, maybe," said Ward. "But there are so many variables in every batch. You have to know what to do about each one. The rules are no good. You have to feel how to do the right thing at the right time to make the steel good. You can't feel it unless you care enough. Stradivarius cared enough about violins so that he could make them all nearly perfect, even though no two pieces of wood were ever alike. That's the way it has to be with steel."

A wall had risen between them. On one side, Evans and the steel-makers seemed to watch Ward through a thickening barrier they could not penetrate. Ward, doubtless, felt the same on his side of the table.

"I guess you won't need me around here any more," he said. "I

know you hired me and offered me all that money so you could learn how to make SuperSteel. I can't teach you. I'm sorry."

"What do you mean, we won't need you?" Cochran demanded. "You don't need to go back to school to learn about metals! You know more than all the metallurgists in the world, put together. I'll double your salary if you'll keep on producing SuperSteel for us."

"You can hardly expect a man of his intellect to continue as a craneman," said Evans. "He belongs in a university laboratory."

Ward smiled.

"I won't be a craneman," he said, "any more than Stradivarius was a wood carver. If you really want me, nothing in the world could tear me away from steelmaking. And I'll make it better and better—every batch I pour!"

From the gallery they watched him go back to the cab of the crane. Cochran shook his head disbelievingly. "Stradivarius! Who'd ever expect to find him in a steel mill!"

Then he turned suddenly and strode off.

"Where are you going in such a hurry?" Evans called.

"To get my overalls," Cochran called back. "I'm going to make a liar out of Stradivarius!"