tion. Charlie, prowling the drafting room after a two-hour conference with his assistant project engineers, saw her for the first time, perched on her high stool with a sharp pencil in her hand and her curly hair rumpled, bent over an opened blueprint. She was frowning at the print as if she did not like what she saw there.

Charlie leaned against a pillar and watched her idly for a moment and then he saw the badge clipped to the waistband of her trousers and saw, by its shape, that she was not a clerk or a draftsman, but a salaried engi-neer, and the realization jarred him with more in casual force. Economy burned in his eye. He looked around until he located Bert Tukes, the equipment group engineer, then summoned him peremptorily and together they stood in the lee of the pillar. Charlie pointed cautiously. "Who," he demanded, "is that? The one with the hair?"

Bert looked. He took the pipe out of his mouth. "That," he said, "is the genius who thought up and laid out the air-conditioning system you've been gloating over."

Charlie eyed him severely but found no levity. "Andrews," he said slowly. "Troy Andrews."

Bert nodded. "She's been on vacation since before you were reconverted." He looked at Charlie over the top of his glasses. "You left her on yourself, as a matter of fact, when you swung your ax and laid off half my peo-

ple." "I left Troy Andrews on the basis of the air-conditioning idea," Charlie said. He peered around the pillar again, like a squirrel around a tree. "But she's a woman." And his tone clearly implied fraud.

Bert nodded solemnly. "I've noticed that myself," he said dryly. He took his pipe out of his mouth. "You want this flying hunk of luxury of ours to be air-conditioned, or don't you?'

Charlie said nothing. He stood against the pillar and rubbed his lean face pensively.

Bert called: "Troy!" He saw the sudden frown on Charlie's face, but he ignored it ind beckoned to the girl. She climbed off her stool and came over to them, a slim, proud, graceful figure, with the frown still on her smooth face and her short, curly hair still rumpled. "This," said Bert, "is the legendary C.

Peters, our new project boss, back at Atlas again after settling the recent international unpleasantness. Miss Andrews, Mr. Peters." Troy said politely: "How do you do, Mr. Peters?

Charlie nodded and clung to his pillar and glared at Bert.

BERT got out a match and struck it and applied it to his pipe with careful deliberation, enjoying the silence. He loosed clouds of smoke and blew out the match and looked from Charlie to the girl and back to Charlie again. He said, finally: "Mr. Peters is happy about your air-conditioning ideas, Troy. He is not happy about your sex." He waved his hand airily. "Mr. Peters is shy," he added, "so I speak for him."

Charlie said grimly: "I wish you'd shut up. Bert.'

There was more silence. Bert puffed thoughtfully on his pipe. Troy stood quietly, her hands relaxed at her sides and her slim shoulders square.

"I," said Charlie, "uh-"

Bert nodded understandingly. He took the pipe from his mouth. "I've known him since he came here fresh out of M.I.T.," he explained to Troy, "bursting with ideas to revolutionize the industry. I learned to understand him. What he means to say is that he is allergic to all women, and particularly to those in pants.'

Troy said tartly: "Perhaps it would be bet-ter if I didn't wear pants."

Charlie writhed against his pillar. "It's an first?" icea," Bert said.

Troy said angrily: "I mean-"

"It's all right," Bert said soothingly. "I'm a married man. I understand these things."

"I like your air-conditioning design," Charlie blurted.

"But you don't like my sex," Troy snapped, "and I don't know what I can do to change

HEY met the morning Troy returned it." Her smooth face was set and there was to the plane factory after her vaca- deep anger in her eyes.

Bert got out another match and relighted his pipe and let the silence hang like a fog. And when his pipe was bubbling happily, he And when his pipe was bucoming happing, in-brushed the smoke away with his hands and moved for adjournment. "I think we've set-tled about all we can at this meeting," he said. "Maybe we'd better break it up." He "Maybe we'd better break it up. turned back to his group and Troy followed him and Charlie loosed hold of his pillar and went brooding back to his office.

He sat for a time and then he buzzed for his secretary and asked her to bring him the file on air-conditioning and when it was on his desk, he went through the correspondence from the airlines and through the Atlas replies and the half-dozen tentative design presentations, none of which was worth the powder and shot to blow it up, a fact which the airline correspondence pointed out with emphasis. The first letter in the file was dated 1940; the discussions, then, had raged all during the five years of Charlie's absence from Atlas. He squirmed and dug farther through the file and found the interdepartmental communications from the sales branch, pointing out to the engineering department that in the face of rival company promises to these same airlines, Atlas had better whip up something to keep the passengers cool and warm and happy in the air and on the ground, or just forget the whole thing and trot out a design for a good washing machine.

Charlie put the file aside, dragged out the new design layouts and isometrics, and studied them with care. They were good. They were first-class. They were not startling, not revolutionary, but they were sound. The air-lines would like the new design; the sales department would like it; even the tooling cople would like it as much as they ever liked any change. And at the bottom of each vellum, written in neat, capable lettering, was the name Troy Andrews. Charlie frowned at the name and rubbed his lean face hard and long and thought unpleasant thoughts about women who forsook their femininity and invaded men's bailiwicks.

He was still glaring at the vellums when the phone rang in the outer office; after a moment his own buzzer sounded. He picked up the phone. "Peters," he said.

It was Jones, the tough little chief project engineer. "Sales," said Jones, "is shouting for help. Again. They have a contingent from South America with a fat loan in their pockets and a yen to buy some airplanes. Sales has been hauling them around and feeding them liquor and rumba music and showing them pictures and giving them demonstration rides. It isn't enough. Sales wants to know do we have any new gimmicks up our sleeve that might clinch the deal."

Charlie's eyes were still on the vellums spread out in front of him. He thought of the file he had gone through. He said slowly: "Like an air-conditioning design?"

There was silence for a moment. Charlie could almost see Jones hauling facts out of that amazing memory of his, pushing the Atlas fighter and the two Atlas bombers and the four Atlas experimental jobs out of his mind and concentrating on the transport and on the history of its development. Jones said: 'I've seen a lot of proposals in the last five years and none of them was fit to air-condition a doghouse. Which one do you have in mind?

"A new one," Charlie said. "A brand-new one that will work." He hoped he was right. The design looked good, but in the details there might be bugs that would ruin the whole idea. He had seen that before. "Will that do it?" he asked. "It'll do it," Jones said slowly. "If you're

right, that is. These Latin Americans aren't stupid." He paused for a moment. "All right," he said finally. "I'll call sales and tell them to bring their pigeons to you.'

Charlie said: "You want to see the layouts

"No," Jones said flatly. "You're the project (Continued on page 54)

Charlie watched Trøy's moving pencil and found himself listening to her and forgetting that she was a woman with no right to know such things

THERE OUGHT TO BE A LAW

BY RICHARD STERN

After all, you can't really blame Charliethe girl was much too smart to be beautiful, and a great deal too beautiful to be safe



BY DR. HAROLD C. UREY As told to Michael Amrine

T OF ATCHIC SCIENTISTS ton, D.C. TO THE EDITORS OF COLLIER'S: The solartists anded together in the Pede eed on the following aims; the developed the atomic ration of Atomic Solentists To study the implications to our world of the liberation of mucle to preste a realisation of the dang ation and all sivilisation will far remendous destructive potential of " nation ers that this p establish an atmosphere of world security ah the beneficial possibilities of nuclear may be developed. muolear sherey study the Policy.

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. Resember 5, Association of Manhattan Project Scientists, Fork City Area

WRITE this to frighten you. I'm a frightened man, my-self. All the scientists I know are frightened—frightened for their lives-and frightened for your life.

For the past few weeks we have been in Washington giving our advice—when we are asked—concerning the poten-tialities of the atomic bomb. In so doing, we have naturally learned a good deal about the potentialities of politics. What we have learned has increased our fears.

I say to you—and I wish I could say it face to face—that we who have lived for years in the shadow of the atomic bomb are well acquainted with fear, and it is a fear you should share if we are intelligently to meet our problems. We were dealing with unknowns in the structure of matter. Now, in thinking about world control, mankind is dealing with new and unknown factors in the structure of international civilization. Here political leaders must pioneer as scientists have pioneered. At present they are extremely reluctant to do so, partially because they have not lived daily with this subject as atomic scientists have done for years. It is hard for anyone who did not live through it to comprehend the suspense of that atomic arms race.

As soon as it appeared that scientists would accomplish this mission, we lived in fear that Germany might capture the secret before we did. We knew enough to know this would mean the end of our countries as we loved them—the obliteration of London, Washington, New York, Detroit, or Los Alamos and Oak Ridge. That terrible fear was height-ened whenever we read newspaper reports of "mysterious explosions" along the French coast, or commando raids on research stations," which we later learned to have been V-2 laboratories.

My point is this: A few years from now, that fear may come home to you. By that time you will no longer feel so relaxed and carefree—happy that the war is over. A few years from now, you may be wondering what is going on behind the locked doors of laboratories all over the world, just as we once wondered, night and day. Then you will understand our suspense and know why we were frightened -but then it may be too late. Now, in Washington, we have

Dr. Harold C. Urey is a professor of chemistry at the University of Chicago. He achieved world fame, and the Nobel prize in Science, for his discovery in 1934 of the heavy isotope of hydrogen, an important factor in nuclear energy research. Dr. Urey is probably the most social-minded American scientist, and is a former chairman of the University Federation for Democracy and Intellectual Freedom. He joined the federal atomic energy project in 1941, and has since been deeply concerned with the political-social implications of the atomic bomb. Testifying before Congress, he said that world control must be so effective that no nation can manufacture atomic bombs without instant detection and punishment

learned a new fear: We are afraid of what politicians and diplomats may do with the atomic bomb.

Perhaps you are thinking this scientist is not going to talk about science—he is going to talk about politics. He has no right to do that. What does he know about politics?

I know this: I hear people talking about the possible use of the atomic bomb in war.

As a scientist, I tell you there must never be another war. As to how to avoid war, you do not want any detailed opinions on a World Government or the machinery which might be set up by the Big Three or the Security Council of the United Nations. A scientist is not fitted to do the job of the diplomats and the politicians. We are now seeing world diplomats rising to new levels of statesmanship in their understanding and leadership in atomic problems.

Technical and Political Viewpoints

But there are certain aspects of this thing which are both technical and political-for example, the question of international inspection. In addition, we scientists can speak as citizens. As citizens we are people who have had more time than the rest of you to think about the political possi-bilities of the bomb. We do not begin to know all the answers. But by this time, we know the questions.

Our stay in Washington has shown me that, despite all the reams of material which have been written about this, a dangerous proportion of politicians apparently does not know or understand the questions.

For example, they keep asking us, "Won't there be some defense against the atomic bomb?" I have never heard—and you have never heard—any

scientist say there is any scientific defense against the atomic bomb.*

In the world as we know it there is no conceivable barrier which could keep any possible plane from somehow

*See Air Power in the Atomic Age, by General Carl A. Spaatz, in Collier's for December 8, 1945.

getting through from one country to another. Furthermore, the mere presence of the bomb cannot be detected by any "magical" means, and it is of such a size that it could fairly easily be smuggled in pieces from one country and assembled in another to await explosion at the touch of a distant radio control.

I do not know that it would even be necessary to knock out 40 or 50 cities with 40 or 50 bombs. In a country possessing excellent news communications, is it not possible that when a few cities are atomically destroyed, panic might empty the remaining cities and thus destroy the power of that country to resist?

You may say that bombing failed to reduce the will-toresist of the British or even of the German people. But the atomic bomb is entirely different from other bombs, Ordinary bombs do damage in a relatively small area.

Relatively few persons are killed by any single bomb of the older type. If an ordinary bomb, even a block-buster, explodes in a city block, that block is horribly shattered, but unless the bomb lands near a theater or public meeting place, relatively few persons die. The bomb may kill, say, 500 persons, and wound others. Ambulances rush to the scene. Rescue crews dig through the rubble. Wounded are sped to a hospital. Survivors thank their lucky stars and continue to hope the next bomb will also miss them.

But in an atomic explosion, thousands die within a fraction of a second. In the immediate area, there is nothing left standing. There are no walls. They are vanished into dust and smoke. There are no wounded. There are not even bodies. At the center, a fire many times hotter than any fire we have known has pulverized buildings and human beings into nothingness.

The report of the U.S. Strategic Bombing Survey showed that in Germany, incendiaries did eight times the damage done by high explosives. A single atomic bomb has the effect not only of 20,000 tons of TNT, but in addition starts a fire of hurricane intensity. Through the blitz, London saved itself with an army of volunteer fire fighters. In the war of the future there would be precious few fire fighters