

if

WORLDS of SCIENCE FICTION

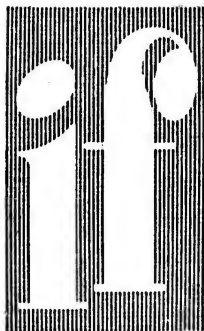
AUGUST 1954

35 CENTS

ID



7099



WORLDS of SCIENCE FICTION

AUGUST 1954

All Stories New and Complete

Editor: JAMES L. QUINN

Assist. Editors: THOR L. KROGH, EVE P. WULFF

Art Editor: ED VALIGURSKY

Cover by Ken Fagg: *The Old Spaceman's Tales*

NOVELETTES

THE UNLEARNED by Raymond F. Jones	4
THE ACADEMY by Robert Sheckley	45
BEING by Richard Matheson	76

SHORT STORIES

THE JOY OF LIVING by William F. Nolan	35
EXHIBIT PIECE by Philip K. Dick	63
CONTACT POINT by Poul Anderson and Theodore Cogswell	102

FEATURES

A CHAT WITH THE EDITOR	2
WHAT IS YOUR SCIENCE I.Q.?	75
WORTH CITING	101
TODAY AND ATOMICS by M. T. Kay	117
LOOKING AHEAD	120

COVER PICTORIAL:

Investigating the Moon's Resources

IF is published monthly by Quinn Publishing Company, Inc. Volume 3, No. 6. Copyright 1954 by Quinn Publishing Co., Inc. Office of publication, 8 Lord Street, Buffalo, New York. Entered as Second Class Matter at Post Office, Buffalo, New York. Subscription \$3.50 for 12 issues in U.S. and Possessions; Canada \$4 for 12 issues; elsewhere \$4.50. Allow four weeks for change of address. All stories appearing in this magazine are fiction; any similarity to actual persons is coincidental. Not responsible for unsolicited artwork or manuscripts. 35c a copy. Printed in U.S.A.

EDITORIAL AND BUSINESS OFFICES, KINGSTON, NEW YORK

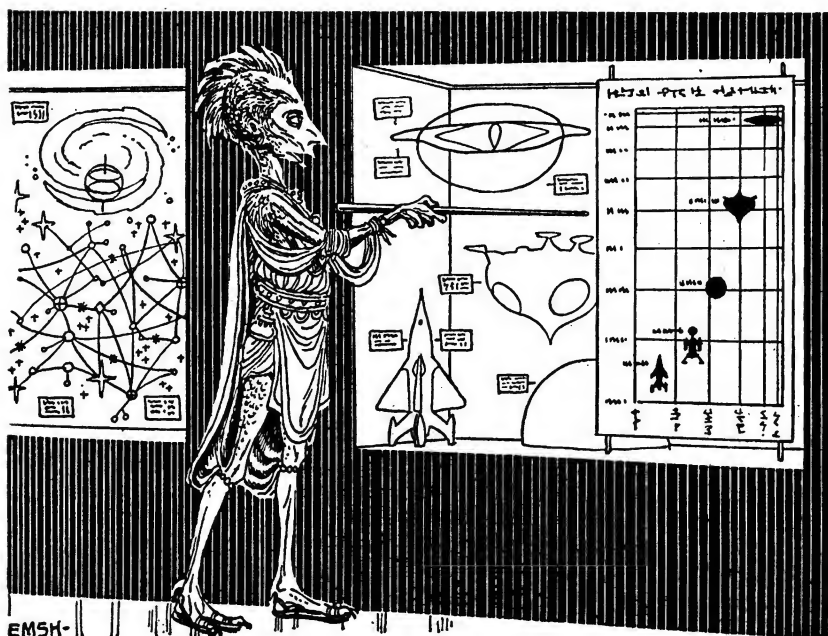
Next issue on sale July 10th

The scientists of Rykeman III were conceded by all the galactic members to be supreme in scientific achievement. Now the Rykes were going to share their vast knowledge with the scientists of Earth. To any question they would supply an answer—for a price. And Hockley, of all Earth's scientists, was the stubborn one who wanted to weigh the answers with the costs . . .

THE UNLEARNED

By Raymond F. Jones

Illustrated by Ed Emsch



THE CHIEF Officer of Scientific Services, Information and Coordination was a somewhat misleading and obscure title, and Dr. Sherman Hockley who held it was not the least of those whom the title misled and sometimes obscured.

He told himself he was not a mere library administrator, although he was proud of the information files built up under his direction. They contained the essence of accumulated knowledge found to date on Earth and the extra-terrestrial planets so far contacted. He didn't feel justified in claiming to be strictly a research supervisor, either, in spite of duties as top level administrator for all divisions of the National Standardization and Research Laboratories and their

subsidiaries in government, industry, and education. During his term of supervision the National Laboratories had made a tremendous growth, in contrast to a previous decline.

Most of all, however, he disclaimed being a figurehead, to which all the loose strings of a vast and rambling organization could be tied. But sometimes it was quite difficult to know whether or not that was his primary assignment after all. His unrelenting efforts to keep out of the category seemed to be encountering more and more determination to push him in that direction.

Of course, this was merely the way it looked in his more bitter moments—such as the present. Normally, he had a full awareness



of the paramount importance of his position, and was determined to administer it on a scale in keeping with that importance. His decision could affect the research in the world's major laboratories. Not that he was a dictator by any means, although there were times when dictation was called for. As when a dozen projects needed money and the Congress allotted enough for one or two. Somebody had to make a choice—

His major difficulty was that active researchers knew it was the Congressional Science Committee which was, ultimately responsible for their bread and butter. And the Senators regarded the scientists, who did the actual work in the laboratories, as the only ones who mattered. Both groups tended to look upon Hockley's office as a sort of fulcrum in their efforts to maintain balance with each other—or as referee in their sparring for adequate control over each other.

At that, however, things researchwise were better than ever before. More funds and facilities were available. Positions in pure research were more secure.

And then, once again, rumors about Rykeman III had begun to circulate wildly a few days ago.

Since Man's achievement of extra-galactic flight, stories of Rykeman III had tantalized the world and made research scientists sick with longing when they considered the possible truth of what they heard. The planet was rumored to be a world of super-science, whose people had an answer for every research problem a man could conceive. The very few Earthmen

who had been to Rykeman III confirmed the rumors. It was a paradise, according to their stories. And among other peoples of the galaxies the inhabitants of Rykeman III were acknowledged supreme in scientific achievement. None challenged them. None even approached them in abilities.

What made the situation so frustrating to Earthmen was the additional report that the Rykes were quite altruistically sharing their science with a considerable number of other worlds on a fee basis. Earth scientists became intoxicated at the mere thought of studying at the feet of the exalted Rykes.

Except Dr. Sherman Hockley. From the first he had taken a dim view of the Ryke reports. Considering the accomplishments of the National Laboratories, he could see no reason for his colleagues' half-shameful disowning of all their own work in favor of a completely unknown culture several hundred million light years away. They were bound to contact more advanced cultures in their explorations—and could be thankful they were as altruistic as the Rykes!—but it was no reason to view themselves as idiot children hoping to be taught by the Rykes.

He had kept his opinions very much to himself in the past, since they were not popular with his associates, who generally regarded his attitudes as simply old-fashioned. But now, for the first time, a Ryke ship was honoring Earth with a visit. There was almost hysterical speculation over the possibility that Earth would be offered tutelage by the mighty Ryke scientists. Hockley

wouldn't have said he was unalterably opposed to the idea. He would have described himself as extremely cautious. What he did oppose wholeheartedly was the enthusiasm that painted the Rykes with pure and shining light, without a shadowy hue in the whole picture.

Since his arrival, the Ryke envoy had been closeted with members of the Congressional Science Committee. Not a word had leaked as to his message. Shortly, however, the scientists were to be let in on the secret which might affect their careers for better or for worse during the rest of their lives, and for many generations to come. The meeting was going to be—

Hockley jumped to his feet as he glanced at the clock. He hurried through the door to the office of his secretary, Miss Cardston, who looked meaningfully at him as he passed.

"I'll bet there isn't a Senator on time," he said.

In the corridor he almost collided with Dr. Lester Showalter, who was his Administrative Assistant for Basic Research. "The Ryke character showed up fifteen minutes ago," said Showalter. "Everyone's waiting."

"We've got six minutes yet," said Hockley. He walked rapidly beside Showalter. "Is there any word on what the envoy's got that's so important?"

"No. I've got the feeling it's something pretty big. Wheeler and Johnson of Budget are there. Somebody said it might have something to do with the National Lab."

"I don't see the connection between that and a meeting with the

Ryke," said Hockley.

Showalter stopped at the door of the conference room. "Maybe they want to sell us something. At any rate, we're about to find out."

The conference table was surrounded by Senators of the Committee. Layered behind them were scientists representing the cream of Hockley's organization. Senator Markham, the bulky, red-faced Chairman greeted them. "Your seats are reserved at the head of the table," he said.

"Sorry about the time," Hockley mumbled. "Clock must be slow."

"Quite all right. We assembled just a trifle early. I want you to meet our visitor, Special Envoy from Rykeman III, Liacan."

Markham introduced them, and the stick-thin envoy arose with an extended hand. His frail, whistling voice that was in keeping with his bird-like character spoke in clear tones. "I am happy to know you, Dr. Hockley, Dr. Showalter."

The two men sat down in good view of the visitor's profile. Hockley had seen the Rykes before, but had always been repelled by their snobbish approach. Characteristically, the envoy bore roughly anthropomorphic features, including a short feather covering on his dorsal side. He was dressed in bright clothing that left visible the streak of feathering that descended from the bright, plumed crown and along the back of his neck. Gravity and air pressure of Earth were about normal for him. For breathing, however, he was required to wear a small device in one narrow nostril. This was connected to a compact tank on his shoulder.

Markham called for order and introduced the visitor. There was a round of applause. Liacan bowed with a short, stiff gesture and let his small black eyes dart over the audience. With an adjustment of his breathing piece he began speaking.

"It is recognized on Earth," he said, "as it is elsewhere, that my people of Rykeman III possess undisputed intellectual leadership in the galaxies of the Council. Your research is concerned with things taught only in the kindergartens of my world. Much that you hold to be true is in error, and your most profound discoveries are self-evident to the children of my people."

Hockley felt a quick, painful contraction in the region of his diaphragm. So this was it!

"We are regarded with much jealousy, envy, and even hatred by some of our unlearned neighbors in space," said the Ryke. "But it has never been our desire to be selfish with our superior achievements which make us the object of these feelings. We have undertaken a program of scientific leadership in our interstellar neighborhood. This began long before you came into space and many worlds have accepted the plan we offer."

"Obviously, it is impractical to pour out all the knowledge and basic science we have accumulated. Another world would find it impossible to sort out that which was applicable to it. What we do is act as a consultation center upon which others can call at will to obtain data pertaining to any problem at hand. Thus, they are not required to sort through wholly inapplicable information to find what they

need.

"For example, if you desire to improve your surface conveyances, we will supply you with data for building an optimum vehicle suitable for conditions on Earth and which is virtually indestructible. You will of course do your own manufacturing, but even there we can supply you with technology that will make the process seem miraculous by your present standards."

"Our services are offered for a fee, payable in suitable items of goods or raw materials. When you contemplate the freedom from monotonous and unending research in fields already explored by us, I am certain you will not consider our fees exorbitant. Our desire is to raise the cultural level of all peoples to the maximum of which they are capable. We know it is not possible or even desirable to bring others to our own high levels, but we do offer assistance to all cultures in accord with their ability to receive. The basic principle is that they shall ask—and whatever is asked for, with intelligence sufficient for its utilization, that shall be granted."

"I am certain I may count on your acceptance of the generous offer of my people."

The envoy sat down with a jiggling of his bright plume, and there was absolute silence in the room. Hockley pictured to himself the dusty, cobweb laboratories of Earth vacated by scientists who ran to the phone to call the Rykes for answers to every problem.

Senator Markham stood up and glanced over the audience. "There is the essence of the program which

has been submitted to us," he said. "There is a vast amount of detail which is, of course, obvious to the minds of our friends on Rykeman III, but which must be the subject of much deliberation on the part of us comparatively simple minded Earthmen." He gave a self-conscious chuckle, which got no response.

Hockley felt mentally stunned. Here at last was the thing that had been hoped for by most, anxiously awaited by a few, and opposed by almost no one.

"The major difficulty," said Markham with slow dignity, "is the price. It's high, yes. In monetary terms, approximately twelve and a half billions per year. But certainly no man in his right mind would consider any reasonable figure too high for what we can expect to receive from our friends of Rykeman III.

"We of the Science Committee do not believe, however, that we could get a commitment for this sum to be added to our normal budget. Yet there is a rather obvious solution. The sum required is very close to that which is now expended on the National Standardization and Research Laboratories."

Hockley felt a sudden chill at the back of his neck.

"With the assistance of the Rykes," said Markham, "we shall have no further need of the National Laboratories. We shall require but a small staff to analyze our problems and present them to the Rykes and relay the answers for proper assimilation. Acceptance of the Ryke program provides its own automatic financing!"

He glanced about with a triumphant smile. Hockley felt as if he were looking through a mist upon something that happened a long time ago. The National Lab! Abandon the National Lab!

Around him there were small nods of agreement from his colleagues. Some pursed their lips as if doubtful—but not very much. He waited for someone to rise to his feet in a blast of protest. No one did. For a moment Hockley's own hands tensed on the back of the chair in front of him. Then he slumped back to his seat. Now was not the time.

They had to thrash it out among themselves. He had to show them the magnitude of this bribe. He had to find an argument to beat down the Congressmen's irrational hopes of paradise. He couldn't plead for the Lab on the grounds of sentiment—or that it was sometimes a good idea to work out your own problems. The Senators didn't care for the problems or concerns of the scientists. It appeared that even the scientists themselves had forgotten to care. He had to slug both groups with something very solid.

Markham was going on. "We are convinced this is a bargain which even the most obstinate of our Congressional colleagues will be quick to recognize. It would be folly to compute with building blocks when we can gain access to giant calculators. There should be no real difficulty in getting funds transferred from the National Laboratory.

"At this time we will adjourn. Liacan leaves this evening. Our acceptance of this generous offer will be conveyed to Rykeman III direct-

ly upon official sanction by the Congress. I wish to ask this same group to meet again for discussion of the details incident to this transfer of operations. Let us say at ten o'clock in the morning, gentlemen."

HOCKLEY said goodbye to the envoy. Afterwards, he moved through the circle of Senators to his own group. In the corridor they tightened about him and followed along as if he had given an order for them to follow him. He turned and attempted a grin.

"Looks like a bull session is in order, gents. Assembly in five minutes in my office."

As he and Showalter opened the door to Miss Cardston's office and strode in, the secretary looked up with a start. "I thought you were going to meet in the conference room."

"We've met," said Hockley. "This is the aftermeeting. Send out for a couple of cases of beer." He glanced at the number surging through the doorway and fished in his billfold. "Better make it three. This ought to cover it."

With disapproval, Miss Cardston picked up the bills and turned to the phone. Almost simultaneously there was a bellow of protest and an enormous, ham-like hand gripped her slender wrist. She glanced up in momentary fright.

Dr. Forman K. Silvers was holding her wrist with one hand and clapping Hockley on the back with the other. "This is not an occasion for beer, my boy!" he said in an enormous voice. "Make that a case of champagne, Miss Cardston." He

released her and drew out his own billfold.

"Get somebody to bring in a couple of dozen chairs," Hockley said.

In his own office he walked to the window behind his desk and stood facing it. The afternoon haze was coming up out of the ocean. Faintly visible were the great buildings of the National Laboratories on the other side of the city. Above the mist the sun caught the tip of the eight story tower where the massive field tunnels of the newly designed gammatron were to be installed.

Or *were* to have been installed.

The gammatron was expected to make possible the creation of gravitational fields up to five thousand g's. It would probably be a mere toy to the Rykes, but Hockley felt a fierce pride in its creation. Maybe that was childish. Maybe his whole feeling about the Lab was childish. Perhaps the time had come to give up childish things and take upon themselves adulthood.

But looking across the city at the concrete spire of the gammatron, he didn't believe it.

He heard the clank of metal chairs as a couple of clerks began bringing them in. Then there was the clink of glassware. He turned to see Miss Cardston stiffly indicating a spot on the library table for the glasses and the frosty bottles.

Hockley walked slowly to the table and filled one of the glasses. He raised it slowly. "It's been a short life but a merry one, gentlemen." He swallowed the contents of the glass too quickly and returned to his desk.

"You don't sound very happy about the whole thing," said Mor-

tenson, a chemist who wore a neat, silvery mustache.

"Are you overjoyed," said Hockley, "that we are to swap the National Lab for a bottomless encyclopedia?"

"Yes, I think so," said Mortenson. "There are some minor objections, but in the end I'm certain we'll all be satisfied with what we get."

"Satisfied! Happy!" exclaimed the mathematician, Dr. Silvers. "How can you use words so prosaic and restrained in references to these great events which we shall be privileged to witness in our lifetimes?"

He had taken his stand by the library table and was now filling the glasses with the clear, bubbling champagne, sloshing it with ecstatic abandon over the table and the rug.

Hockley glanced toward him. "You don't believe, then, Dr. Silvers, that we should maintain any reserve in regard to the Rykes?"

"None whatever! The gods themselves have stepped down and offered an invitation direct to paradise. Should we question or hold back, or say we are merely happy. The proper response of a man about to enter heaven is beyond words!"

The bombast of the mathematician never failed to enliven any backroom session in which he participated. "I have no doubt," he said, "that within a fortnight we shall be in possession of a solution to the Legrandian Equations. I have sought this for forty years."

"I think it would be a mistake to support the closing of the National Laboratories," said Hockley slowly.

As if a switch had been thrown, their expressions changed. There was a sudden carefulness in their stance and movements, as if they were feinting before a deadly opponent.

"I don't feel it's such a bad bargain," said a thin, bespectacled physicist named Judson. He was seated across the room from Hockley. "I'll vote to sacrifice the Lab in exchange for what the Rykes will give us."

"That's the point," said Hockley. "Exactly what are the Rykes going to give us? And we speak very glibly of sharing their science. But shall we actually be in any position to share it? What becomes of the class of scientists on Earth when the Lab is abandoned?"

Wilkins stood abruptly, his hands shoved part way into his pockets and his lower jaw extended tensely. "I don't believe that's part of this question," he said. It is not just we scientists who are to share the benefits of the Rykes. It is Mankind. At this time we have no right to consider mere personal concerns. We would betray our whole calling—our very humanity—if we thought for one moment of standing in the way of this development because of our personal concern over economic and professional problems. There has never been a time when a true scientist would not put aside his personal concerns for the good of all."

Hockley waited, half expecting somebody to start clapping. No one did, but there were glances of self-righteous approval in Wilkins' direction. The biologist straightened the sleeves of his coat with a smug

gesture and awaited Hockley's rebuttal.

"We are Mankind," Hockley said finally. "You and I are as much a part of humanity as that bus load of punch machine clerks and store managers passing on the street outside. If we betray ourselves we have betrayed humanity."

"This is not a sudden thing. It is the end point of a trend which has gone on for a long time. It began with our first contacts beyond the galaxy, when we realized there were peoples far in advance of us in science and economy. We have been feeding on them ever since. Our own developments have shrunk in direct proportion. For a long time we've been on the verge of becoming intellectual parasites in the Universe. Acceptance of the Ryke offer will be the final step in that direction."

Instantly, almost every other man in the room was talking at once. Hockley smiled faintly until the angry voices subsided. Then Silvers cleared his throat gently. He placed his glass beside the bottles on the table with a precise motion. "I am sure," he said, "that a moment's thought will convince you that you do not mean what you have just said."

"Consider the position of pupil and teacher. One of Man's greatest failings is his predilection for assuming always the position of teacher and eschewing that of pupil. There is also the question of humility, intellectual humility. We scientists have always boasted of our readiness to set aside one so-called truth and accept another with more valid supporting evidence."

"Since our first contact with other galactic civilizations we have had the utmost need to adopt an attitude of humility. We have been fortunate in coming to a community of worlds where war and oppression are not standard rules of procedure. Among our own people we have encountered no such magnanimity as has been extended repeatedly by other worlds, climaxed now by the Ryke's magnificent offer."

"To adopt sincere intellectual humility and the attitude of the pupil is not to function as a parasite, Dr. Hockley."

"Your analogy of teacher and pupil is very faulty in expressing our relation to the Rykes," said Hockley. "Or perhaps I should say it is too hellishly accurate. Would you have us remain the eternal pupils? The closing of the National Laboratories means an irreversible change in our position. Is it worth gaining a universe of knowledge to give up your own personal free inquiry?"

"I am sure none of us considers he is giving up his personal free inquiry," said Silvers almost angrily. "We see unlimited expansion beyond anything we have imagined in our wildest dreams."

On a few faces there were frowns of uncertainty, but no one spoke up to support him. Hockley knew that until this vision of paradise wore off there were none of them on whom he could count.

He smiled broadly and stood up to ease the tension in the room. "Well, it appears you have made your decision. Of course, Congress can accept the Ryke plan whether we approve or not, but it is good to

go on record one way or the other. I suppose that on the way out tonight it would be proper to check in at Personnel and file a services available notification."

And then he wished he hadn't said that. Their faces grew a little more set at his unappreciated attempt at humor.

SHOWALTER remained after the others left. He sat across the desk while Hockley turned back to the window. Only the tip of the gammatron tower now caught the late afternoon sunlight.

"Maybe I'm getting old," Hockley said. "Maybe they're right and the Lab isn't worth preserving if it means the difference between getting or not getting tutelage from the Rykes."

"But you don't feel that's true," said Showalter.

"No."

"You're the one who built the Lab into what it is. It has as much worth as it ever had, and you have an obligation to keep it from being destroyed by a group of politicians who could never understand its necessity."

"I didn't build it," said Hockley. "It grew because I was able to find enough people who wanted the institution to exist. But I've been away from research so long—I never was much good at it really. Did you ever know that? I've always thought of myself as a sort of impressario of scientific productions, if I might use such a term. Maybe those closer to the actual work are right. Maybe I'm just trying to hang onto the past. It

could be time for a jump to a new kind of progress."

"You don't believe any of that."

Hockley looked steadily in the direction of the Lab buildings. "I don't believe any of it. That isn't just an accumulation of buildings over there, with a name attached to them. It's the advancing terminal of all Man's history of trying to find out about himself and the Universe. It started before Neanderthal climbed into his caves a half million years ago. From then until now there's a steady path of trial and error—of learning. There's exultation and despair, success and failure. Now they want to say it was all for nothing."

"But to be pupils—to let the Rykes teach us—"

"The only trouble with Silvers' argument is that our culture has never understood that teaching, in the accepted sense, is an impossibility. There can be only learning—never teaching. The teacher has to be eliminated from the actual learning process before genuine learning can ever take place. But the Rykes offer to become the Ultimate Teacher."

"And if this is true," said Showalter slowly, "you couldn't teach it to those who disagree, could you? They'd have to learn it for themselves."

Hockley turned. For a moment he continued to stare at his assistant. Then his face broke into a narrow grin. "Of course you're right! There's only one way they'll ever learn it: go through the actual experience of what Ryke tutelage will mean."

Most of the workrooms at Information Central were empty this time of evening. Hockley selected the first one he came to and called for every scrap of data pertaining to Rykeman III. There was a fair amount of information available on the physical characteristics of the world. Hockley scribbled swift, privately intelligible notes as he scanned. The Rykes lived under a gravity one third heavier than Earth's, with a day little more than half as long, and they received only forty percent as much heat from their frail sun as Earthmen were accustomed to.

Cultural characteristics included a trading system that made the entire planet a single economic unit. And the planet had no history whatever of war. The Rykes themselves had contributed almost nothing to the central libraries of the galaxies concerning their own personal makeup and mental functions, however. What little was available came from observers not of their race.

There were indications they were a highly unemotional race, not given to any artistic expression. Hockley found this surprising. The general rule was for highly intellectual attainments to be accompanied by equally high artistic expression.

But all of this provided no data that he could relate to his present problem, no basis for argument beyond what he already had. He returned the films to their silver cans and set staring at the neat pile of them on the desk. Then he smiled at his own obtuseness. Data on Rykeman III might be lacking, but the Ryke plan had been tried on plenty of other worlds. Data on

them should not be so scarce.

He returned the cans and punched out a new request on the call panel. Twenty seconds later he was pleasantly surprised by a score of new tapes in the hopper. That was enough for a full night's work. He wished he'd brought Showalter along to help.

Then his eye caught sight of the label on the topmost can in the pile: Janisson VIII. The name rang a familiar signal somewhere deep in his mind. Then he knew—that was the home world of Waldon Thar, one of his closest friends in the year when he'd gone to school at Galactic Center for advanced study.

Thar had been one of the most brilliant researchers Hockley had ever known. In bull session debate he was instantly beyond the depth of everyone else.

Janisson VIII. Thar could tell him about the Rykes!

Hockley pushed the tape cans aside and went to the phone in the workroom. He dialed for the interstellar operator. "Government priority call to Janisson VIII," he said. "Waldon Thar. He attended Galactic Center Research Institute twenty-three years ago. He came from the city Plar, which was his home at that time. I have no other information, except that he is probably employed as a research scientist."

There was a moment's silence while the operator noted the information. "There will be some delay," she said finally. "At present the inter-galactic beams are full."

"I can use top emergency priority on this," said Hockley. "Can you clear a trunk for me on that?"

"Yes. One moment, please."

He sat by the window for half an hour, turning down the light in the workroom so that he could see the flow of traffic at the port west of the Lab buildings. Two spaceships took off and three came in while he waited. And then the phone rang.

"I'm sorry," the operator said. "Waldon Thar is reported not on Janisson VIII. He went to Rykeman III about two Earth years ago. Do you wish to attempt to locate him there?"

"By all means," said Hockley. "Same priority."

This was better than he had hoped for. Thar could really get him the information he needed on the Rykes. Twenty minutes later the phone rang again. In the operator's first words Hockley sensed apology and knew the attempt had failed.

"Our office has learned that Walden Thar is at present on tour as aide to the Ryke emissary, Liacan. We can perhaps trace—"

"No!" Hockley shouted. "That won't be necessary. I know now—"

He almost laughed aloud to himself. This was an incredible piece of good luck. Walden Thar was probably out at the space port right now—unless one of those ships taking off had been the Ryke—

He wondered why Thar had not tried to contact him. Of course, it *had* been a long time, but they had been very close at the center. He dialed the field control tower. "I want to know if the ship from Rykeman III has departed yet," he said.

"They were scheduled for six hours ago, but mechanical difficulty

has delayed them. Present estimated take-off is 1100."

Almost two hours to go, Hockley thought. That should be time enough. "Please put me in communication with one of the aides aboard named Waldon Thar. This is Sherman Hockley of Scientific Services. Priority request."

"I'll try, sir." The tower operator manifested a sudden increase of respect. "One moment, please."

Hockley heard the buzz and switch clicks of communication circuits reaching for the ship. Then, in a moment, he heard the somewhat irritated but familiar voice of his old friend.

"Waldon Thar speaking," the voice said. "Who wishes to talk?"

"Listen, you old son of a cyclotron's maiden aunt!" said Hockley. "Who would want to talk on Sol III? Why didn't you give me a buzz when you landed? I just found out you were here."

"Sherm Hockley, of course," the voice said with distant, unperturbed tones. "This is indeed a surprise and a pleasure. To be honest, I had forgotten Earth was your home planet."

"I'll try to think of something to jog your memory next time. How about getting together?"

"Well—I don't have very long," said Thar hesitantly. "If you could come over for a few minutes—"

Hockley had the jolting feeling that Waldon Thar would just as soon pass up the opportunity for their meeting. Some of the enthusiasm went out of his voice. "There's a good all-night interplanetary eatery and bar on the field there. I'll be along in fifteen

minutes."

"Fine," said Thar, "but please try not to be late."

On the way to the field, Hockley wondered about the change that had apparently taken place in Thar. Of course, *he* had changed, too—perhaps for much the worse. But Thar sounded like a stuffed shirt now, and that is the last thing Hockley would have expected. In school, Thar had been the most irreverent of the whole class of irreverents, denouncing in ecstasy the established and unproven lore, riding the professors of unsubstantiated hypotheses. Now—well, he didn't sound like the Thar Hockley knew.

He took a table and sat down just as Thar entered the dining room. The latter's broad smile momentarily removed Hockley's doubts. The smile hadn't changed. And there was the same expression of devilish disregard for the established order. The same warm friendliness. It baffled Hockley to understand how Thar could have failed to remember Earth was his home.

Thar mentioned it as he came up and took Hockley's hand. "I'm terribly sorry," he said. "It was stupid to forget that Earth meant Sherman Hockley."

"I know how it is. I should have written. I guess I'm the one who owes a letter."

"No, I think not," said Thar.

They sat on opposite sides of a small table near a window and ordered drinks. On the field they could see the vast, shadowy outline of the Ryke vessel.

Thar was of a race genetically close to the Rykes. He lacked the feathery covering, but this was replaced by a layer of thin scales, which had a tendency to stand on edge when he was excited. He also wore a breathing piece, and carried the small shoulder tank with a faint air of superiority.

Hockley watched him with a growing sense of loss. The first impression had been more nearly correct. Thar hadn't wanted to meet him.

"It's been a long time," said Hockley lamely. "I guess there isn't much we did back there that means anything now."

"You shouldn't say that," said Thar as if recognizing he had been too remote. "Every hour of our acquaintance meant a great deal to me. I'll never forgive myself for forgetting—but tell me how you learned I was aboard the Ryke ship."

"The Rykes have made us an offer. I wanted to find out the effects on worlds that had accepted. I learned Janisson VIII was one, so I started looking."

"I'm so very glad you did, Sherm. You want me to confirm, of course, the advisability of accepting the offer Liacan has made."

"Confirm—or deny it," said Hockley.

Thar spread his clawlike hands. "Deny it? The most glorious opportunity a planet could possibly have?"

Something in Thar's voice gave Hockley a sudden chill. "How has it worked on your own world?"

"Janisson VIII has turned from a slum to a world of mansions. Our

economic problems have been solved. Health and long life are routine. There is nothing we want that we cannot have for the asking."

"But are you *satisfied* with it? Is there nothing which you had to give up that you would like returned?"

Waldon Thar threw back his head and laughed in high pitched tones. "I might have known that would be the question you would ask! Forgive me, friend Sherman, but I had almost forgotten how unventuresome you are.

"Your question is ridiculous. Why should we wish to go back to our economic inequalities, poverty and distress, our ignorant plodding research in science? You can answer your own question."

They were silent for a moment. Hockley thought his friend would have gladly terminated their visit right there and returned to his ship. To forestall this, he leaned across the table and asked, "Your science—what has become of that?"

"Our science! We never had any. We were ignorant children playing with mud and rocks. We knew nothing. We had nothing. Until the Rykes offered to educate us."

"Surely you don't believe that," said Hockley quietly. "The problem you worked on at the Institute—gravity at micro-cosmic levels. That was not a childish thing."

Thar laughed shortly and bitterly. "What disillusionment you have coming, friend Sherman! If you only knew how truly childish it was. Wait until you learn from the Rykes the true conception of gravity, its nature and the part it plays in the structure of matter."

Hockley felt a sick tightening

within him. This was not the Waldon Thar, the wild demon who thrust aside all authority and rumor in his own headlong search for knowledge. It couldn't be Thar who was sitting passively by, being *told* what the nature of the Universe is.

"Your scientists—?" Hockley persisted. "What has become of all your researchers?"

"The answer is the same," said Thar. "We had no science. We had no scientists. Those who once went by that name have become for the first time honest students knowing the pleasure of studying at the feet of masters."

"You have set up laboratories in which your researches are supervised by the Rykes?"

"Laboratories? We have no need of laboratories. We have workshops and study rooms where we try to absorb that which the Rykes discovered long ago. Maybe at some future time we will come to a point where we can reach into the frontier of knowledge with our own minds, but this does not seem likely now."

"So you have given up all original research of your own?"

"How could we do otherwise? The Rykes have all the answers to any question we have intelligence enough to ask. Follow them, Sherman. It is no disgrace to be led by such as the Ryke teachers."

"Don't you ever long," said Hockley, "to take just one short step on your own two feet?"

"Why crawl when you can go by trans-light carrier?"

Thar sipped the last of his drink and glanced toward the wall clock.

"I must go. I can understand the direction of your questions and your thinking. You hesitate because you might lose the chance to play in the mud and count the pretty pebbles in the sand. Put away childish things. You will never miss them!"

They shook hands, and a moment later Hockley said goodbye to Thar at the entrance to the field. "I know Earth will accept," said Thar. "And you and I should not have lost contact—but we'll make up for it."

Watching him move toward the dark hulk of the ship, Hockley wondered if Thar actually believed that. In less than an hour they had exhausted all they had to say after twenty years. Hockley had the information he needed about the Ryke plan, but he wished he could have kept his old memories of his student friend. Thar was drunk on the heady stuff being peddled by the Rykes, and if what he said were true, it was strong enough to intoxicate a whole planet.

His blood grew cold at the thought. This was more than a fight for the National Laboratories. It was a struggle to keep all Mankind from becoming what Thar had become.

If he could have put Thar on exhibition in the meeting tomorrow, and shown what he was once like, he would have made his point. But Thar, before and after, was not available for exhibit. He had to find another way to show his colleagues and the Senators what the Rykes would make of them.

He glanced at his watch. They wouldn't like being awakened at this hour, but neither would the scientists put up much resistance to his

request for support in Markham's meeting. He went back to the bar and called each of his colleagues who had been in the meeting that day.

HOCKLEY was called first when the assembly convened at ten that morning. He rose slowly from his seat near Markham and glanced over the somewhat puzzled expressions of the scientists.

"I don't know that I can speak for the entire group of scientists present," he said. "We met yesterday and found some differences of opinion concerning this offer. While it is true there is overwhelming sentiment supporting it, certain questions remain, which we feel require additional data in order to be answered properly.

"While we recognize that official acceptance can be given to the Rykes with no approval whatever from the scientists, it seems only fair that we should have every opportunity to make what we consider a proper study and to express our opinions in the matter.

"To the non-scientist—and perhaps to many of my colleagues—it may seem inconceivable that there could be any questions whatever. But we wonder about the position of students of future generations, we wonder about the details of administration of the program, we wonder about the total effects of the program upon our society as a whole. We wish to ask permission to make further study of the matter in an effort to answer these questions and many others. We request permission to go as a committee to

Rykeman III and make a first hand study of what the Rykes propose to do, how they will teach us, and how they will dispense the information they so generously offer.

"I ask that you consider this most seriously, and make an official request of the Rykes to grant us such opportunity for study, that you provide the necessary appropriations for the trip. I consider it most urgent that this be done at once."

There was a stir of concern and disapproval from Congressional members as Hockley sat down. Senators leaned to speak in whispers to their neighbors, but Hockley observed the scientists remained quiet and impassive. He believed he had sold them in his telephone calls during the early morning. They liked the idea of obtaining additional data. Besides, most of them wanted to see Rykeman III for themselves.

Senator Markham finally stood up, obviously disturbed by Hockley's abrupt proposal. "It has seemed to us members of the Committee that there could hardly be any need for more data than is already available to us. The remarkable effects of Ryke science on other backward worlds is common knowledge.

"On the other hand we recognize the qualifications of you gentlemen which make your request appear justified. We will have to discuss this at length, but at the moment I believe I can say I am in sympathy with your request and can encourage my Committee to give it serious consideration."

A great deal more was said on

that and subsequent days. News of the Ryke offer was not given to the public, but landing of the Ryke ship could not be hidden. It became known that Liacan carried his offer to other worlds and speculation was made that he offered it to Earth also. Angry questions were raised as to why the purpose of the visit was not clarified, but government silence was maintained while Hockley's request was considered.

It encountered bitter debate in the closed sessions, but permission was finally given for a junket of ninety scientists and ten senators to Rykeman III.

This could not be hidden, so the facts were modified and a story given out that the party was going to request participation in the Ryke program being offered other worlds, that Liacan's visit had not been conclusive.

In the days preceding the take-off Hockley felt a sense of destiny weighing heavily upon him. He read every word of the stream of opinion that flowed through the press. Every commentator and columnist seemed called upon to make his own specific analysis of the possibilities of the visit to Rykeman III. And the opinions were almost uniform that it would be an approach to Utopia to have the Rykes take over. Hockley was sickened by this mass conversion to the siren call of the Rykes.

It was a tremendous relief when the day finally came and the huge transport ship lifted solemnly into space.

Most of the group were in the ship's lounge watching the television port as the Earth drifted away beneath them. Senator Markham

seemed nervous and almost frightened, Hockley thought, as if something intangible had escaped him.

"I hope we're not wasting our time," he said. "Not that I don't understand your position," he added hastily to cover the show of antagonism he sensed creeping into his voice.

"We appreciate your support," said Hockley, "and we'll do our best to see the time of the investigation is not wasted."

But afterwards, when the two of them were alone by the screen, Silvers spoke to Hockley soberly. The mathematician had lost some of the wild exuberance he'd had at first. It had been replaced by a deep, intense conviction that nothing must stand in the way of Earth's alliance with the Rykes.

"We all understand why you wanted us to come," he said. "We know you believe this delay will cool our enthusiasm. It's only fair to make clear that it won't. How you intend to change us by taking us to the home of the Rykes has got us all baffled. The reverse will be true, I am very sure. We intend to make it clear to the Rykes that we accept their offer. I hope you have no plan to make a declaration to the contrary."

Hockley kept his eyes on the screen, watching the green sphere of Earth. "I have no intention of making any statement of any kind. I was perfectly honest when I said our understanding of the Rykes would profit by this visit. You all agreed. I meant nothing more nor less than what I said. I hope no one in the group thinks otherwise."

"We don't know," said Silvers.

"It's just that you've got us wondering how you expect to change our views."

"I have not said that is my intention."

"Can you say it is not?"

"No, I cannot say that. But the question is incomplete. My whole intention is to discover as fully as possible what will be the result of alliance with the Rykes. If you should conclude that it will be unfavorable that will be the result of your own direct observations and computations, not of my arguments."

"You may be sure that is one thing that will not occur," said Silvers.

IT TOOK them a month to reach a transfer point where they could change to a commercial vessel using Ryke principles. In the following week they covered a distance several thousand times that which they had already come. And then they were on Rykeman III.

A few of them had visited the planet previously, on vacation trips or routine study expeditions, but most of them were seeing it for the first time. While well out into space the group began crowding the vision screens which brought into range the streets and buildings of the cities. They could see the people walking and riding there.

Hockley caught his breath at the sight, and doubts overwhelmed him, telling him he was an utter and complete fool. The city upon which he looked was a jewel of perfection. Buildings were not indiscriminate masses of masonry and metal and

plastic heaped up without regard to the total effect. Rather, the city was a unit created with an eye to esthetic perfection.

Silvers stood beside Hockley. "We've got a chance to make Earth look that way," said the mathematician.

"There's only one thing missing," said Hockley. "The price tag. We still need to know what it's going to cost."

Upon landing, the Earthmen were greeted by a covey of their bird-like hosts who scurried about, introducing themselves in their high whistling voices. In busses, they were moved half way across the city to a building which stood beside an enormous park area.

It was obviously a building designed for the reception of just such delegations as this one, giving Hockley evidence that perhaps his idea was not so original after all. It was a relief to get inside after their brief trip across the city. Gravity, temperature, and air pressure and composition duplicated those of Earth inside, and conditions could be varied to accommodate many different species. Hockley felt confident they could become accustomed to outside conditions after a few days, but it was exhausting now to be out for long.

They were shown to individual quarters and given leisure to unpack and inspect their surroundings. Furniture had been adjusted to their size and needs. The only oversight Hockley could find was a faint odor of chlorine lingering in the closets. He wondered who the last occupant of the room had been.

After a noon meal, served with

foods of astonishingly close approximation to their native fare, the group was offered a prelude to the general instruction and indoctrination which would begin the following day. This was in the form of a guided tour through the science museum which, Hockley gathered, was a modernized Ryke parallel to the venerable Smithsonian back home. The tour was entirely optional, as far as the planned program of the Rykes was concerned, but none of the Earthmen turned it down.

Hockley tried to concentrate heavily on the memory of Waldon Thar and keep the image of his friend always before him as he moved through the city and inspected the works of the Rykes. He found it helped suppress the awe and adulation which he had an impulse to share with his companions.

It was possible even, he found, to adopt a kind of truculent cynicism toward the approach the Rykes were making. The visit to the science museum *could* be an attempt to bowl them over with an eon-long vista of Ryke superiority in the sciences. At least that was most certainly the effect on them. Hockley cursed his own feeling of ignorance and inferiority as the guide led them quietly past the works of the masters, offering but little comment, letting them see for themselves the obvious relationships.

In the massive display showing developments of spaceflight, the atomic vessels, not much different from Earthmen's best efforts, were far down the line, very near to the earliest attempts of the Rykes to rocket their way into space. Beyond that level was an incredible series of



developments incomprehensible to most of the Earthmen.

And to all their questions the guide offered the monotonous reply: "That will be explained to you later. We only wish to give you an overall picture of our culture at the present time."

But this was not enough for one of the astronomers, named Moore, who moved ahead of Hockley in the crowd. Hockley saw the back of Moore's neck growing redder by the minute as the guide's evasive answer was repeated. Finally, Moore forced a discussion regarding the merits of some systems of comparing the brightness of stars, which the guide briefly showed them. The guide, in great annoyance, burst out with a stream of explanation that completely flattened any opinions Moore might have had. But at the same time the astronomer grinned amiably at the Ryke. "That ought to settle that," he said. "I'll bet it won't take a week to get our system changed back home."

Moore's success loosened the restraint of the others and they be-seiged the guide mercilessly then with opinions, questions, comparisons—and even mild disapprovals. The guide's exasperation was obvious—and pleasant—to Hockley, who remained a bystander. It was frightening to Markham and some of the other senators who were unable to take part in the discussion. But most of the scientists failed to notice it in their eagerness to learn.

After dinner that night they gathered in the lounge and study of their quarters. Markham stood beside Hockley as they partook cautiously of the cocktails which the Rykes had attempted to duplicate for them. The Senator's awe had returned to overshadow any concern he felt during the events of the afternoon. "A wonderful day!" he said. "Even though this visit delays completion of our arrangements with the Rykes those of us here will be grateful forever that you proposed it. Nothing could have so impressed us all with the desirability of accepting the Ryke's tutelage. It was a stroke of genius, Dr. Hockley. And for a time I thought you were actually opposed to the Rykes!"

He sipped his drink while Hockley said nothing. Then his brow furrowed a bit. "But I wonder why our guide cut short our tour this afternoon. If I recall correctly he said at the beginning there was a great deal more to see than he actually showed us."

Hockley smiled and sipped politely at his drink before he set it down and faced the Senator. "I was wondering if anyone else noticed that," he said.

HOCKLEY slept well that night except for the fact that occasional whiffs of chlorine seemed to drift from various corners of the room even though he turned the air-conditioning system on full blast.

In the morning there began a series of specialized lectures which had been prepared in accordance with the Earthmen's request to acquaint them with what they would be getting upon acceptance of the Ryke offer.

It was obviously no new experience for the Rykes. The lectures were well prepared and anticipated many questions. The only thing new about it, Hockley thought, was the delivery in the language of the Earthmen. Otherwise, he felt this was something prepared a long time ago and given a thousand times or more.

They were divided into smaller groups according to their specialties, electronic men going one way, astronomers and mathematical physicists another, chemists and general physicists in still another direction. Hockley, Showalter and the senators were considered more or less free floating members of the delegation with the privilege of visiting with one group or another according to their pleasure.

Hockley chose to spend the first day with the chemists, since that was his own first love. Dr. Showalter and Senator Markham came along with him. As much as he tried he found it virtually impossible not to sit with the same open-mouthed wonder that his colleagues exhibited. The swift, free-flowing exposition of the Ryke lecturer led them immediately beyond their own

realms, but so carefully did he lead them that it seemed that they must have come this way before, and forgotten it.

Hockley felt half angry with himself. He felt he had allowed himself to be hypnotized by the skill of the Ryke, and wondered despairingly if there were any chance at all of combating their approach. He saw nothing to indicate it in the experience of that day or the ones immediately following. But he retained hope that there was much significance in the action of the guide who had cut short their visit to the museum.

In the evenings, in the study lounge of the dormitory, they held interminable bull sessions exchanging and digesting what they had been shown during the day. It was at the end of the third day that Hockley thought he could detect a subtle change in the group. He had some difficulty analyzing it at first. It seemed to be a growing aliveness, a sort of recovery. And then he recognized that the initial stunned reaction to the magnificence of the Rykes was passing off. They had been shocked by the impact of the Rykes, almost as if they had been struck a blow on the head. Temporarily, they had shelved all their own analytical and critical facilities and yielded to the Rykes without question.

Now they were beginning to recover, springing back to a condition considerably nearer normal. Hockley felt a surge of encouragement as he detected a more sharply critical evaluation in the conversations that buzzed around him. The enthusiasm was more measured.

It was the following evening,

however, that witnessed the first event of pronounced shifting of anyone's attitude. They had finished dinner and were gathering in the lounge, sparring around, setting up groups for the bull sessions that would go until long after midnight. Most of them had already settled down and were talking part in conversations or were listening quietly when they were suddenly aware of a change in the atmosphere of the room.

For a moment there was a general turning of heads to locate the source of the disturbance. Hockley knew he could never describe just what made him look around, but he was abruptly conscious that Dr. Silvers was walking into the lounge and looking slowly about at those gathered there. Something in his presence was like the sudden appearance of a thundercloud, his face seemed to reflect the dark turbulence of a summer storm.

He said nothing, however, to anyone but strode over and sat beside Hockley, who was alone at the moment smoking the next to last of his Earthside cigars. Hockley felt the smouldering turmoil inside the mathematician. He extended his final cigar. Silvers brushed it away.

"The last one," said Hockley mildly. "In spite of all their abilities the Ryke imitations are somewhat less than natural."

Silvers turned slowly to face Hockley. "I presented them with the Legrandian Equations today," he said. "I expected to get a straightforward answer to a perfectly legitimate scientific question. That is what we were led to expect, was it not?"

Hockley nodded. "That's my impression. Did you get something less than a straightforward answer?"

The mathematician exhaled noisily. "The Legrandian Equations will lead to a geometry as revolutionary as Riemann's was in his day. But I was told by the Rykes that I 'should dismiss it from all further consideration. It does not lead to any profitable mathematical development.'"

Hockley felt that his heart most certainly skipped a beat, but he managed to keep his voice steady, and sympathetic. "That's too bad. I know what high hopes you had. I suppose you will give up work on the Equations now?"

"I will not!" Silvers exclaimed loudly. Nearby groups who had returned hesitantly to their own conversations now stared at him again. But abruptly he changed his tone and looked almost pleadingly at Hockley. "I don't understand it. Why should they say such a thing? It appears to be one of the most profitable avenues of exploration I have encountered in my whole career. And the Rykes brush it aside!"

"What did you say when they told you to give it up?"

"I said I wanted to know where the development would lead. I said it had been indicated that we could have an answer to any scientific problem within the range of their abilities, and certainly this is, from what I've seen.

"The instructor replied that I'd been given an answer to my question, that 'the first lesson you must learn if you wish to acquire our pace in science is to recognize that

we have been along the path ahead of you. We know which are the possibilities that are worthwhile to develop. We have gained our speed by learning to bypass every avenue but the main one, and not get lost in tempting side roads.'

"He said that we've got to learn to trust them and take their word as to which is the correct and profitable field of research, that 'we will show you where to go, as we agreed to do. If you are not willing to accept our leadership in this respect our agreement means nothing.' Wouldn't that be a magnificent way to make scientific progress?"

The mathematician shifted in his chair as if trying to control an internal fury that would not be capped. He held out his hand abruptly. "I'll take that cigar after all, if you don't mind, Hockley."

With savage energy he chewed the end and ignited the cigar, then blew a mammoth cloud of smoke ceilingward. "I think the trouble must be in our lecturer," he said. "He's crazy. He couldn't possibly represent the conventional attitude of the Rykes. They promised to give answers to our problems—and this is the kind of nonsense I get. I'm going to see somebody higher up and find out why we can't have a lecturer who knows what he's talking about. Or maybe you or Markham would rather take it up—through official channels, as it were?"

"The Ryke was correct," said Hockley. "He *did* give you an answer."

"He could answer *all* our questions that way!"

"You're perfectly right," said

Hockley soberly. "He could do exactly that."

"They won't of course," said Silvers, defensively. "Even if this particular character isn't just playing the screwball, my question is just a special case. It's just one particular thing they consider to be valueless. Perhaps in the end I'll find they're right—but I'm going to develop a solution to these Equations if it takes the rest of my life!"

"After all, they admit they have no solution, that they have not bothered to go down this particular side path, as they put it. If we don't go down it how can we ever know whether it's worthwhile or not? How can the Rykes know what they may have missed by not doing so?"

"I can't answer that," said Hockley. "For us or for them, I know of no other way to predict the outcome of a specific line of research except to carry it through and find out what lies at the end of the road."

HOCKLEY didn't sleep very well after he finally went to bed that night. Silvers had presented him with the break he had been expecting and hoping for. The first chink in the armor of sanctity surrounding the Rykes. Now he wondered what would follow, if this would build up to the impassable barrier he wanted, or if it would merely remain a sore obstacle in their way but eventually be bypassed and forgotten.

He did not believe it would be the only incident of its kind. There would be others as the Earthmen's stunned, blind acceptance gave way completely to sound, critical evalu-

ation. And in any case there was one delegate who would never be the same again. No matter how he eventually rationalized it Dr. Forman K. Silvers would never feel quite the same about the Rykes as he did before they rejected his favorite piece of research.

Hockley arose early, eager but cautious, his senses open for further evidence of disaffection springing up. He joined the group of chemists once more for the morning lecture. The spirit of the group was markedly higher than when he first met with them. They had been inspired by what the Rykes had shown them, but in addition their own sense of judgment had been brought out of suspension.

The Ryke lecturer began inscribing on the board an enormous organic formula, using conventions of Earth chemistry for the benefit of his audience. He explained at some length a number of transformations which it was possible to make in the compound by means of high intensity fields.

Almost at once, one of the younger chemists named Dr. Carmen, was on his feet exclaiming excitedly that one of the transformation compounds was a chemical on which he had conducted an extensive research. He had produced enough to know that it had a multitude of intriguing properties, and now he was exuberant at the revelation of a method of producing it in quantity and also further transforming it.

At his sudden enthusiasm the lecturer's face took on what they had come to recognize as a very dour look. "That series of transformations has no interest for us," he said.

"I merely indicated its existence to show one of the possibilities which should be avoided. Over here you see the direction in which we wish to go."

"But you never saw anything with properties like that!" Carmen protested. "It goes through an incredible series of at least three crystalline-liquid phase changes with an increase in pressure alone. But with proper control of heat it can be kept in the crystalline phase regardless of pressure. It is closely related to a drug series with anesthetic properties, and is almost sure to be valuable in—"

The Ryke lecturer cut him off sharply. "I have explained," he said, "the direction of transformation in which we are interested. Your concern is not with anything beyond the boundaries which our study has proven to be the direct path of research and study."

"Then I should abandon research on this series of chemicals?" Carmen asked with a show of outward meekness.

The Ryke nodded with pleasure at Carmen's submissiveness. "That is it precisely. We have been over this ground long ago. We know where the areas of profitable study lie. You will be told what to observe and what to ignore. How could you ever hope to make progress if you stopped to examine every alternate probability and possibility that appeared to you?" He shook his head vigorously and his plume vibrated with emotion.

"You must have a plan," he continued. "A goal. Study of the Universe cannot proceed in any random, erratic fashion. You must

know what you want and then find out where to look for it."

Carmen sat down slowly. Hockley was sure the Ryke did not notice the tense bulge of the chemist's jaw muscles. Perhaps he would not have understood the significance if he had noticed.

Hockley was a trifle late in getting to the dining room at lunch time that day. By the time he did so the place was like a beehive. He was almost repelled by the furor of conversation circulating in the room as he entered.

He passed through slowly, searching for a table of his own. He paused a moment behind Dr. Carmen, who was declaiming in no mild terms his opinions of a system that would pre-select those areas of research which were to be entered and those which were not. He smiled a little as he caught the eye of one of the dozen chemists seated at the table, listening.

Moving on, he observed that Silvers had also cornered a half dozen or so of his colleagues in his own field and was in earnest conversation with them—in a considerably more restrained manner, however, than he had used the previous evening with Hockley, or than Carmen was using at the present time.

The entire room was abuzz with similar groups.

The senators had tried to mingle with the others in past days, always with more or less lack of success because they found themselves out of the conversation almost completely. Today they had no luck whatever. They were seated together at a couple of tables in a

corner. None of them seemed to be paying attention to the food before them, but were glancing about, half-apprehensively, at their fellow diners—who were also paying no attention to food.

Hockley caught sight of his political colleagues and sensed their dismay. The field of disquietude seemed almost tangible in the air. The senators seemed half frightened by what they felt but could not understand.

Showalter's wild waving at the far corner of the room finally caught Hockley's eye and he moved toward the small table which the assistant had reserved for them. Showalter was upset, too, by the atmosphere within the room.

"What the devil is up?" he said. "Seems like everybody's on edge this morning. I never saw a bunch of guys so touchy. You'd think they woke up with snakes in their beds."

"Didn't you know?" said Hockley. "Haven't you been to any of the lectures this morning?"

"No. A couple of the senators were getting bored with all the scientific doings so I thought maybe I should try to entertain them. We took in what passes for such here, but it wasn't much better than the lectures as a show. Tell me what's up."

Briefly, Hockley described Silvers' upset of the day before and Carmen's experience that morning. Showalter let his glance rove over his fellow Earthmen, trying to catch snatches of the buzzing conversation at nearby tables.

"You think that's the kind of thing that's got them all going this morning?" he said.

Hockley nodded. "I caught enough of it passing through to know that's what it is. I gather that every group has run into the same kind of thing by now, the fencing off of broad areas where we have already tried to do research.

"After the first cloud of awe wore off, the first thing everyone wanted was an answer to his own pet line of research. Nine times out of ten it was something the Rykes told them to chuck down the drain. That advice doesn't sit so well—as you can plainly see."

Showalter drew back his gaze and stared for a long time at Hockley. "You knew this would happen. That's why you brought us here—"

"I had hopes of it. I was reasonably sure this was the way the Rykes operated."

Showalter remained thoughtful for a long time before he spoke again. "You've won your point, I suppose, as far as this group goes, but you can't hope to convince all of Earth by this. The Rykes will hold their offer open, and others will accept it on behalf of Earth.

"And what if it's we who are wrong, in the end? How can you be sure that this isn't the way the Rykes have made their tremendous speed—by not going down all the blind alleys that we rattle around in."

"I'm sure it is the way they have attained such speed of advancement."

"Then maybe we ought to go along, regardless of our own desires. Maybe we never did know how to do research!"

Hockley smiled across the table at his assistant. "You believe that, of course."

"I'm just talking," said Showalter irritably. "The thing gets more loopy every day. If you think you understand the Rykes I wish you would give out with what the score is. By the looks of most of these guys I would say they are getting ready to throttle the next Ryke they see instead of knuckle under to him."

"I hope you're right," said Hockley fervently. "I certainly hope you're right."

BY EVENING there was increasing evidence that he was. Hockley passed up the afternoon lecture period and spent the time in the lounge doing some thinking of his own. He knew he couldn't push the group. Above all, he mustn't give way to any temptation to push them or say, "I told you so." Their present frustration was so deep that their antagonism could be turned almost indiscriminately in any direction, and he would be offering himself as a ready target if he were not careful.

On the other hand he had to be ready to take advantage of their disaffection and throw them a decisive challenge when they were ready for it. That might be tonight, or it might be another week. He wished for a sure way of knowing. As things turned out, however, the necessity of choosing the time was taken from him.

After dinner that night, when the group began to drift into the lounge, Silvers and Carmen and three of the other men came over to where Hockley sat. Silvers fumbled with the buttons of his coat as if preparing to make an address.

"We'd like to request," he said, "that is—we think we ought to get together. We'd like you to call a meeting, Hockley. Some of us have a few things we'd like to talk over."

Hockley nodded, his face impassive.

"The matter I mentioned to you the other night," said Silvers. "It's been happening to all the men. We think we ought to talk about it."

"Fine," said Hockley. "I've been thinking it would perhaps be a good idea. Pass the word around and let's get some chairs. We can convene in ten minutes."

The others nodded somberly and moved away with all the enthusiasm of preparing for a funeral. And maybe that's what it would be, Hockley thought—somebody's funeral. He hoped it would be the Rykes.

The room began filling almost at once, as if they had been expecting the call. In little more than five minutes it seemed that every member of the Earth delegation had assembled, leaving time to spare.

The senators still wore their looks of puzzlement and half-frightened anxiety, which had intensified if anything. There was no puzzlement on the faces of the scientists, however, only a set and determined expression that Hockley hardly dared interpret as meaning they had made up their minds. He had to have their verbal confirmation.

Informally, he thrust his hands in his pockets and sauntered to the front of the group.

"I have been asked to call a meeting," he said, "by certain members of the group who have something on their minds. They seem to feel

we'd all be interested in what is troubling them. Since I have nothing in particular to say I'm simply going to turn the floor over to those of you who have. Dr. Silvers first approached me to call this discussion, so I shall ask him to lead off. Will you come to the front, Dr. Silvers?"

The mathematician rose as if wishing someone else would do the talking. He stood at one side of the group, halfway to the rear. "I can do all right from here," he said.

After a pause, as if coming to a momentous decision, he plunged into his complaint. "It appears that nearly all of us have encountered an aspect of the Ryke culture and character which was not anticipated when we first received their offer." Briefly, he related the details of the Ryke rejection of his research on the Legrandian Equations.

"We were told we were going to have all our questions answered, that the Ryke's science included all we could anticipate or hope to accomplish in the next few millenia. I swallowed that. We all did. It appears we were slightly in error. It begins to appear as if we are not going to find the intellectual paradise we anticipated."

He smiled wryly. "I'm sure none of you is more ready than I to admit he has been a fool. It appears that paradise, so-called, consists merely of a few selected gems which the Rykes consider particularly valuable, while the rest of the field goes untouched.

"I want to offer public apologies to Dr. Hockley, who saw and understood the situation as it actually existed, while the rest of us had our

heads in the clouds. Exactly how he knew, I'm not sure, but he did, and very brilliantly chose the only way possible to convince us that what he knew was correct.

"I suggest we do our packing tonight, gentlemen. Let us return at once to our laboratories and spend the rest of our lives in some degree of atonement for being such fools as to fall for the line the Rykes tried to sell us."

Hockley's eyes were on the senators. At first there were white faces filled with incredulity as the mathematician proceeded. Then slowly this changed to sheer horror.

When Silvers finished, there was immediate bedlam. There was a clamor of voices from the scientists, most of whom seemed to be trying to affirm Silvers' position. This was offset by explosions of rage from the senatorial members of the group.

Hockley let it go, not even raising his hands for order until finally the racket died of its own accord as the eyes of the delegates came to rest upon him.

And then, before he could speak, Markham was on his feet. "This is absolutely moral treachery," he thundered. "I have never heard a more vicious revocation of a pledged word than I have heard this evening.

"You men are not alone concerned in this matter. For all practical purposes you are not concerned at all! And yet to take it upon yourselves to pass judgment in a matter that is the affair of the entire population of Earth—out of nothing more than sheer spite because the Rykes refuse recognition of your own childish projects! I have never

heard a more incredible and infantile performance than you supposedly mature gentlemen of science are expressing this evening."

He glared defiantly at Hockley, who was again the center of attention moving carelessly to the center of the stage. "Anybody want to try to answer the Senator?" he asked casually.

Instantly, a score of men were on their feet, speaking simultaneously. They stopped abruptly, looking deferentially to their neighbors and at Hockley, inviting him to choose one of them to be spokesman.

"Maybe I ought to answer him myself," said Hockley, "since I predicted that this would occur, and that we ought to make a trial run before turning our collective gray matter over to the Rykes."

A chorus of approval and nodding heads gave him the go ahead.

"The Senator is quite right in saying that we few are not alone in our concern in this matter," he said. "But the Senator intends to imply a major difference between us scientists and the rest of mankind. This is his error.

"Every member of Mankind who is concerned about the Universe in which he lives, is a scientist. You need to understand what a scientist is—and you can say no more than that he is a human being trying to solve the problem of understanding his Universe, immediate or remote. He is concerned about the inanimate worlds, his own personality, his fellow men—and the interweaving relationships among all these factors. We professional scientists are no strange species, alien to our race. Our only difference is per-

haps that we undertake *more* problems than does the average of our fellow men, and of a more complex kind. That is all.

"The essence of our science is a relentless personal yearning to know and understand the Universe. And in that, the scientist must not be forbidden to ask whatever question occurs to him. The moment we put any restraint upon our fields of inquiry, or set bounds to the realms of our mental aspirations, our science ceases to exist and becomes a mere opportunist technology."

Markham stood up, his face red with exasperation and rage. "No one is trying to limit you! Why is that so unfathomable to your minds? You are being offered a boundless expanse, and you continue to make inane complaints of limitations. The Rykes have been over all the territory you insist on exploring. They can tell you the number of pretty pebbles and empty shells that lie there. You are like children insistent upon exploring every shadowy corner and peering behind every useless bush on a walk through the forest.

"Such is to be expected of a child, but not of an adult, who is capable of taking the word of one who has been there before!"

"There are two things wrong with your argument," said Hockley. "First of all, there is no essential difference between the learning of a child who must indeed explore the dark corners and strange growths by which he passes—there is no difference between this and the probing of the scientist, who must explore the Universe with his own senses and with his own instru-

ments, without taking another's word that there is nothing there worth seeing.

"Secondly, the Rykes themselves are badly in error in asserting that they have been along the way ahead of us. They have not. In all their fields of science they have limited themselves badly to one narrow field of probability. They have taken a narrow path stretching between magnificent vistas on either side of them, and have deliberately ignored all that was beyond the path and on the inviting side trails."

"Is there anything wrong with that?" demanded Markham. "If you undertake a journey you don't weave in and out of every possible path that leads in every direction opposed to your destination. You take the direct route. Or at least *ordinary* people do."

"Scientists do, too," said Hockley, "when they take a journey. Professional science is not a journey, however. It's an exploration.

"There is a great deal wrong with what the Rykes have done. They have assumed, and would have us likewise assume, that there is a certain very specific future toward which we are all moving. This future is built out of the discoveries they have made about the Universe. It is made of the system of mathematics they have developed, which exclude Dr. Silvers' cherished Legendrian Equations. It excludes the world in which exist Dr. Carmen's series of unique compounds.

"The Rykes have built a wonderful, workable world of serenity, beauty, scientific consistency, and economic adjustment. They have eliminated enormous amounts of

chaos which Earthmen continue to suffer.

"But we do not want what the Rykes have obtained—if we have to pay their price for it."

"Then you are complete fools," said Markham. "Fortunately, you cannot and will not speak for all of Earth."

Hockley paced back and forth a half dozen steps, his eyes on the floor. "I think we do—and can—speak for all our people," he said. "Remember, I said that all men are scientists in the final analysis. I am very certain that no Earthman who truly understood the situation would want to face the future which the Rykes hold out to us."

"And why not?" demanded Markham.

"Because there are too many possible futures. We refuse to march down a single narrow trail to *the* golden future. That's what the Rykes would have us do. But they are wrong. It would be like taking a trip through a galaxy at speeds faster than light—and claiming to have seen the galaxy. What the Rykes have obtained is genuine and good, but what they have not obtained is perhaps far better and of greater worth."

"How can you know such an absurd thing?"

"We can't—not for sure," said Hockley. "Not until we go there and see for ourselves, step by step. But we aren't going to be confined to the Rykes' narrow trail. We are going on a broad path to take in as many byways as we can possibly find. We'll explore every probability we come to, and look behind every bush and under every pebble.

"We will move together, the thousands and the millions of us, simultaneously, interacting with one another, exchanging data. Most certainly, many will end up in blind alleys. Some will find data that seems the ultimate truth at one point and pure deception at another. Who can tell ahead of time which of these multiple paths we should take? Certainly not the Rykes, who have bypassed most of them!

"It doesn't matter that many paths lead to failure—not as long as we remain in communication with each other. In the end we will find the best possible future for us. But there is no *one* future, only a multitude of possible futures. We must have the right to build the one that best fits our own kind."

"Is that more important than achieving immediately a more peaceful, unified, and secure society?" said Markham.

"Infinitely more important!" said Hockley.

"It is fortunate at least, then, that you are in no position to implement these insane beliefs of yours. The Ryke program was offered to Earth, and it shall be accepted on behalf of Earth. You may be sure of a very poor hearing when you try to present these notions back home."

"You jump to conclusions, Senator," said Hockley with mild confidence. "Why do you suppose I proposed this trip if I did not believe I could do something about the situation? I assure you that we did not come just to see the sights."

Markham's jaw slacked and his face became white. "What do you

mean? You haven't dared to try to alienate the Rykes—"

"I mean that there is a great deal we can do about the situation. Now that the sentiments of my colleagues parallel my own I'm sure they agree that we must effectively and finally spike any possibility of Earth's becoming involved in this Ryke nonsense."

"You wouldn't dare!—even if you could—"

"We can, and we dare," said Hockley. "When we return to Earth we shall have to report that the Rykes have refused to admit Earth to their program. We shall report that we made every effort to obtain an agreement with them, but it was in vain. If anyone wishes to verify the report, the Rykes themselves will say that this is quite true: they cannot possibly consider Earth as a participant. If you contend that an offer was once made, you will not find the Rykes offering much support since they will be very busily denying that we are remotely qualified."

"The Rykes are hardly ones to meekly submit to any idiotic plan of that kind."

"They can't help it—if we demonstrate that we *are* quite unqualified to participate."

"You—you—"

"It will not be difficult," said Hockley. "The Rykes have set up a perfect teacher-pupil situation, with all the false assumptions that go with it. There is at least one absolutely positive way to disintegrate such a situation. The testimony of several thousand years' failure of our various educational systems indicates that there are quite a variety

of lesser ways also—

"Perhaps you are aware of the experiences and techniques commonly employed on Earth by white men in their efforts to educate the aborigine. The first procedure is to do away with the tribal medicine men, ignore their lore and learning. Get them to give up the magic words and their pots of foul smelling liquids, abandon their ritual dances and take up the white man's great wisdom.

"We have done this time after time, only to learn decades later that the natives once knew much of anesthetics and healing drugs, and had genuine powers to communicate in ways the white man can't duplicate.

"But once in a long while a group of aborigines show more spunk than the average. They refuse to give up their medicine men, their magic and their hard earned lore accumulated over generations and centuries. Instead of giving these things up they insist on the white man's learning these mysteries in preference to *his* nonsensical and ineffective magic. They completely frustrate the situation, and if they persist they finally destroy the white man as an educator. He is forced to conclude that the ignorant savages are unteachable.

"It is an infallible technique—and one that we shall employ. Dr. Silvers will undertake to teach his mathematical lecturer in the approaches to the Legrandian Equations. He will speculate long and noisily on the geometry which potentially lies in this mathematical system. Dr. Carmen will elucidate at great length on the properties of

the chain of chemicals he has been advised to abandon.

"Each of us has at least one line of research the Rykes would have us give up. That is the very thing we shall insist on having investigated. We shall teach them these things and prove Earthmen to be an unlearned, unteachable band of aborigines who refuse to pursue the single path to glory and light, but insist on following every devious byway and searching every darkness that lies beside the path.

"It ought to do the trick. I estimate it should not be more than a week before we are on our way back home, labeled by the Rykes as utterly hopeless material for their enlightenment."

The senators seemed momentarily appalled and speechless, but they recovered shortly and had a considerable amount of high flown oratory to distribute on the subject. The scientists, however, were comparatively quiet, but on their faces was a subdued glee that Hockley had to admit was little short of fiendish. It was composed, he thought, of all the gloating anticipations of all the schoolboys who had ever put a thumbtack on the teacher's chair.

Hockley was somewhat off in his

prediction. It was actually a mere five days after the beginning of the Earthmen's campaign that the Rykes gave them up and put them firmly aboard a vessel bound for home. The Rykes were apologetic but firm in admitting they had made a sorry mistake, that Earthmen would have to go their own hopeless way while the Rykes led the rest of the Universe toward enlightenment and glory.

Hockley, Showalter, and Silvers watched the planet drop away beneath them. Hockley could not help feeling sympathetic toward the Rykes. "I wonder what will happen," he said slowly, "when they crash headlong into an impassable barrier on that beautiful, straight road of theirs. I wonder if they'll ever have enough guts to turn aside?"

"I doubt it," said Showalter. "They'll probably curl up and call it a day."

Silvers shook his head as if to ward off an oppressive vision. "That shouldn't be allowed to happen," he said. "They've got too much. They've achieved too much, in spite of their limitations. I wonder if there isn't some way we could help them?"

• • • THE END

The scientific investigator is not urged on by some brummagem idea of Service but a boundless almost pathological thirst to penetrate the unknown; much like a dog sniffing tremendously at an endless number of ratholes.

—H. L. Mencken

Of the "real" universe we know nothing, except that there exist as many versions of it as there are perceptive minds.

—Gerald Bullett