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To
WALLACE EXMAN
Who saw the possibilities

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INTRODUCTION

MODERN science fiction, among the insiders in the field, is a phrase that refers to a readily identifiable change in the format of the science fiction story, which was begun in 1938 and was readily apparent by the middle of 1939. The revolutionary was John W. Campbell, who not only forcibly moved this branch of fiction in the direction in which he wanted it to go but under the name of Don A. Stuart had previously written prototypes of the kind of stories he had in mind.

Campbell's "Modern" (When "modern" is used in quotes at certain places in the text it is not intended to denigrate, but to recognize that "modern" science fiction is more than a quarter of a century old.) science fiction laid special emphasis on certain things:

The *way* stories were written. He demanded a much higher degree of sophistication in the *average* story he published than had generally been true of science fiction. This applied not only to the stylistic proficiency but also to the manner in which ideas were introduced. Indirection became a characteristic of the literary method of modern science fiction. It has been said, with some justice, that what science fiction called "good writing" merely followed the main-stream vogue of the thirties and that even today, 26 years later, "modern" science fiction reads more like the SATUR-DAY EVENING POST and COSMOPOLITAN of the depression era than avant garde fiction.

Greater emphasis on the psychological. How would the people of tomorrow's world be affected by the inevitable technological and social changes? What would their everyday behavior be like under such radically changed circumstances? What situations would provide drama in the innumerable fabricated futures to come?

The importance of philosophy on cultural action. Every civilization lives according to a certain firm or diffuse philosophy. Evaluation was to be given not only to the future philosophies of *man*, but to the bizarre and infinite hypothetical philosophies of alien creatures.

The exploration of the possibility of strange powers in various members of the human race. Most directly involved were humans who were a physical or mental mutation, but comprehensively telepathy, levitation, teleportation, telekinesis were embraced as well as the entire gamut of what have become known as Fortean phenomena—the catalogue of inexplicable happenings which Charles Fort believed disobeyed the "laws" of science.

A broadening of the policies of science fiction to include not only social protest of politics, business, war and Western civilization's mores (to which it had always been receptive) but protest and criticism of *religion*, which had been, like sex, carefully sidestepped. Modern science fiction later extended its scope to cover sex, but not through Campbell, who did not care to run stories on that subject in the pages of his magazine.

This did not rule out the exploration of future technology, particularly atomic power, but such themes proved to be in the distinct minority. Science fiction became less interested in illuminating the road of science than in circling like a trapped moth around the hypnotic lure of literary pretension.

All these elements had been present in science fiction previously, but their appearance was haphazard. Campbell knew what goals he had in mind and the

circumstances made it possible for him to get authors to conform to his desires.

Though there were many markets opening up for science fiction writers in 1939, as new titles multiplied, the country was still very much in a state of financial depression and an editor could command many willing typewriters. ASTOUND-ING SCIENCE FICTION was the leading magazine in sales and prestige when Campbell took over. It consistently paid top rates (which was one cent a word and slightly up). While other science fiction magazines also listed one cent a word as their rate in WRITER'S DIGEST, it often was less for the longer lengths, particularly novels, and payment was not always on acceptance.

Campbell tirelessly fed writers ideas, not only for plots, but for unique approaches to a theme. He demanded and got elaborate rewrites. He also represented the largest monthly market for wordage, purchasing between ASTOUND-ING SCIENCE-FICTION and a fantasy-oriented companion magazine, UNKNOWN, nearly 200,000 words. Pleasing Campbell was good business.

Campbell also had the good fortune to assume editorship at the very onset of a new wave of popularity for science fiction. The profitable sales of a magazine titled MARVEL. SCIENCE STORIES, whose first issue, dated August, 1938, (I it appeared on the newsstands May 9, 1938) caused the *pulp* companies, who by and large were convinced that science fiction was not properly commercial, to take special notice. When AMAZING STORIES, the field's first magazine, beginning publication with its issue dated April, 1926, was sold to Ziff-Davis (June, 1938 issue), and quickly began to climb in circulation, the rush got underway.

All these factors made it possible for one man to shape the nature of the stories the science fiction writers would produce and thereby command the direction of the field. He gathered round him in only two years, a cadre of crack talent that a quarter of a century later would still be dominating the world of science fiction.

His loudest gun, however, was still the old-time favorite Edward E. Smith, Ph. D., who had created a sensation with *The Skylark of Space* in 1928, a story which moved science fiction out of the confines of the solar system, and whose *Grey Lensman* for ASTOUNDING SCIENCE-FICTION in 1939 presented a thrilling picture of an entire galaxy patrolled by a very special type of police.

The adaptable Jack Williamson, who had initially gained popularity imitating A. Merritt, proved he also belonged in the forefront of changing science fiction, but other than these veterans, the early phase of the science fiction revolution was predominantly the work of new recruits.

Campbell had been hired as editor of ASTOUNDING STORIES by F. Orlin Tremaine in 1937. Tremaine had taken control of the virtually defunct title in late 1933 and, in a brilliant drive, had made it the indisputable field leader by 1935. However, through 1936 and 1937 the average quality of the material not only declined, but frequently verged on dullness, though three authors discovered in 1937 and 1938—Eric Frank Russell, L. Sprague de Camp and Lester del Rey—were to play an important part in the revival of science fiction. In 1939 Campbell discovered A. E. van Vogt, Robert A. Heinlein and Theodore Sturgeon, and took Isaac Asimov under his wing. These were to prove the real sluggers in his literary batting lineup.

While an occasional work by these men appeared elsewhere, Campbell generally got first look at everything and to all practical purposes had exclusive use of their

talents. This scarcely disturbed the competition who had the bulk of previous favorites to draw upon. If Campbell wanted to hold his fledglings to his bosom that was his affair. Other directions in science fiction were proving at least as profitable for them without all the effort Campbell was expending.

Leading contemporary science fiction magazines included AMAZING STORIES, now under the editorship of Raymond A. Palmer, hewing to a policy of elementary science fiction, simply told, with virtually no attempt at sophistication or a high order of originality. There was a market for such a magazine and it pushed ahead of ASTOUNDING SCIENCE FICTION in circulation.

When taunted by this fact, as a counter to the wisdom of his editorial stance, Campbell, instead of becoming disturbed, asserted that he was highly pleased. His claim was that ASTOUNDING SCIENCE FICTION was tailored for a more mature audience. It no longer published the elementary type of science fiction that could attract the youngsters. It was therefore essential that such magazines as AMAZING STORIES existed and prospered, he contended, because they would graduate readers to ASTOUNDING SCIENCE FICTION.

Just as medical specialists needed general practitioners to refer patients to them, ASTOUNDING SCIENCE FICTION needed publications featuring elementary stories with wide appeal to recruit new readership.

If Campbell's theory was correct, the science fiction field was ideally set up for him, because while AMAZING printed the most basic science fiction, Standard Publications, with THRILLING WONDER STORIES, STARTLING STORIES and CAPTAIN FUTURE, provided a stepladder effect by appealing to the teenagers. Their mainstays were the big names of the thirties: Eando Binder, Manly Wade Wellman, John Russell Fearn, Frank Belknap Long, Jack Williamson and Edmond Hamilton. STARTLING STORIES ran a complete novel each issue as well as a hall-of-fame reprint, and on an action level was an excellent value for fifteen cents. CAPTAIN FUTURE was a character magazine, doing for science fiction what THE SHADOW did for the detective story, and was pegged for average ages of 14 and below.

There was also a sense of nostalgia and a collecting instinct among science fiction readers that had not been generally catered to until Munsey issued a magazine of reprints titled Famous FANTASTIC MYSTERIES, devoted at first to famous fantasies from the old ARGOSY, ALL-STORY and CAVALIER. Big name authors of an era preceding the first science fiction magazine in 1926 paraded across the contents pages of its issues: A. Merritt, George Allan England, Austin Hall, Charles B. Stilson, Victor Rousseau, Homer Eon Flint and Ray Cummings. Their style and their plots were in the Edgar Rice Burroughs tradition of the scientific romance. They represented pure escape, with adventures on other worlds, in lost valleys and unknown dimensions with rich and colorful thrills and a strange but lovely princess frequently the reward of heroic exertions. This magazine also found a solid audience.

As titles proliferated within the science fiction field, specialization became further evident. One of the most interesting such magazines was PLANET STORIES, a quarterly experiment of the Fiction House pulp chain, made up entirely of *interplanetary* stories. The quality was very uneven, but the magazine began to take a direction completely different than the others. It wanted action, but it also wanted

the romance and wonder of the spaceways. It began to develop a type of science that had the feel of the old ARGOSY-ALL-STORY scientific romances featured by FA-MOUS FANTASTIC MYSTERIES, but was written in a faster style and with more scientific window dressing. Its editor, Malcolm Reiss, also proved receptive to the off-trail science fiction and frequently printed stories that were not only unique, but of exceptional literary quality.

The only new magazines that to any degree followed Campbell's policy were two edited by Frederik Pohl for Popular Publications titled ASTONISHING STORIES and SUPER SCIENCE STORIES. ASTONISHING STORIES had the distinction of being the first science fiction magazine to sell for as little as ten cents. SUPER SCIENCE STORIES published short novels complete, and competed with STARTLING STORIES. The only problem here was that Pohl could pay only a half-cent a word. He got the other magazines' rejects, and of these he found Campbell's authors most acceptable. Practically from the first issues, Isaac Asimov, Robert A. Heinlein, L. Sprague de Camp, Clifford D. Simak, as well as lesser lights from Campbell's coterie, appeared in his publication.

When the editorship of Pohl's publications was assumed by Alden H. Norton in the summer of 1941 the policy was continued with the addition of scientific fantasies similar to those found in PLANET STORIES. It was openmindedness to stories of this type that led Norton to discover Ray Bradbury, buying his first story *Pendulum* written in collaboration with Henry Hasse for the Nov., 1941 SUPER SCIENCE STORIES. In common with PLANET STORIES and the Standard Magazines group, he shared the swashbuckling literary talents of Leigh Brackett and the Merritt-like fantastes of Henry Kuttner.

Many other titles came and went, but the foregoing comprised the most influential and represented the types of science fiction most popular at the time the United States entered World War II. The effect of the draft and special industrial assignments of the specially qualified affected Campbell severely. His mainstays were predominantly of draft age, and certain of them such as Heinlein, de Camp, Asimov, had occupational specialties which war industry needed.

The other magazines had a far higher percentage of older and draft-exempt authors, who continued to write, and all, throughout the war years, had publishing frequency and wordage requirements far less demanding than ASTOUNDING SCIENCE-FICTION. One new outstanding author, Fritz Leiber, was added to the roster by Campbell during the war years and Clifford D. Simak came into his own during this period, contributing the stories that made up his justifiably famous book, *City*. Murray Leinster, a veritable patriarch among writers, also helped fill the war gap nobly. Henry Kuttner, under the pen name of Lewis Padgett, was recruited to write for Campbell a series of remarkable stories in the vein of John Collier, while his wife, C. L. Moore, cloaked in the alias of Lawrence O'Donnell, was hailed as an extraordinary discovery by the gullible readership. Jack Williamson for a brief time played the role of the promising young writer, Will Stewart, writing heavy-science stories about anti-matter until the lure of adventure found him enlisting in the armed services and getting more than he bargained for in the Pacific air war.

Just as the Jews for centuries sustained themselves with the slogan "Tomorrow in Israel," John W. Campbell sustained his readers with a blinding vision of what they

might expect when "the boys come marching home."

The appearance of the first post-war major science fiction anthology, *The Best of Science Fiction*, edited by Groff Conklin in 1946 proved a triumph for John W. Campbell. The book became a best seller in the true meaning of the term and the bulk of the wordage in the volume was modern science fiction from Campbell's magazine. In a preface written by Campbell, the basic differences between "modern" and previous forms of science fiction were spelled out.

First, the writing method:

In older science fiction—H. G. Wells and nearly all stories written before 1935—the author took time out to bring the reader up to date as to what had happened before his story opened. The best modern writers of science fiction have worked out some truly remarkable techniques for presenting a great deal of background and associated material without intruding into the flow of the story. That is no small feat, when a complete new world must be established at the same time a story is being presented.

Secondly, the content:

But the modern science-fiction writer doesn't merely say, "In about ten years we will have atomic weapons." He goes further; his primary interest is in what these weapons will do to political, economic and cultural structures of human society.

A few months after the issuance of *The Best of Science Fiction*, an even more impressive monument to Campbell's brand of science fiction collected as *Adventure in Time and Space* and sub-titled "An Anthology of Modern Science-Fiction Stories," edited by Raymond J. Healy and J. Francis McComas, rocketed to equally impressive sales figures. Of the 35 stories in the book, all but three were from Campbell's magazines, and of the 32 from his magazine, only four had not been purchased under his editorship and one of these was his own novelette *Forgetfulness!*

Such science fiction magazine publishers who were not impressed by the sales reports were properly impressed by the reviews. Both anthologies received widespread praise in the most respected newspapers and magazines. Previously, serious literary consideration of the products of the pulp science fiction magazines had been disappointingly infrequent. This current attention was certainly heady wine. Perhaps there was more to the Campbell brand of science fiction than it had been given credit for, it was conjectured. All those sales and glory, too!

Slowly the masters of modern science fiction returned from the wars, but not necessarily into Campbell's open embrace. Not too long after the appearance of the two major science fiction anthologies, L. Sprague de Camp, Theodore Sturgeon and Robert A. Heinlein showed up in AMAZING WONDER STORIES. Soon A. E. van Vogt was in the enemy camp, as were a number of other writers who generally had been considered Campbell exclusives such as L. Ron Hubbard, Cleve Cartmill, George O. Smith and Raymond F. Jones.

More science fiction anthologies appeared, with heavy representations by "modern" science fiction authors from ASTOUNDING SCIENCE-FICTION. Specialty book companies were formed, issuing famous novels and short stories of science fiction in hard cover. A disproportionate percentage of these also came from Campbell's magazines, and when the books were reviewed, those with the "modern" stories always seemed to get preferential treatment.

When the post-war paper shortage began to ease towards the end of 1948, the long-delayed spate of new science fiction magazines arrived. The first was the revival of SUPER SCIENCE STORIES under the editorship of Alden H. Norton, dated January, 1949. It was obvious that the previous policy of using stories both of Campbell's modern science fiction, and action adventure fantasy would be continued.

The editor of another new periodical, THE MAGAZINE OF FANTASY AND SCIENCE FICTION (Fall, 1949) was Anthony Boucher, well-known detective story writer, critic and a former contributor to ASTOUNDING SCIENCE-FICTION. He was completely sold on Campbell's bill-of-fare, most particularly the emphasis on skillful writing. All of Campbell's top-notchers who could cleverly turn a phrase eventually turned up in the pages of his magazine.

The most costly raid came with the appearance of GALAXY SCIENCE FICTION (October, 1950) edited by H. L. Gold, who had previously written and edited science fiction. Up until now, Campbell had gotten first look at a substantial part of the stories by his favorites that appeared elsewhere. However with his rates matched by THRILLING WONDER STORIES and TAE MAGAZINE OF FANTASY AND SCIENCE FICTION and topped by GALAXY SCIENCE FICTION, that situation ended. In its introductory issue GALAXY SCIENCE FICTION carried Campbell's heavy guns, Clifford D. Simak, Theodore Sturgeon, Fritz Leiber and Isaac Asimov.

Campbell raised *his* rates and creatively continued to develop new talent, but whereas before he could exercise severe discipline in building them into top-notchers by reason of his commanding economic and prestige position in the field, now he found that after a single good story they would often begin showing up elsewhere. GALAXY SCIENCE FICTION'S policy was but an extension of Campbell's, but with greatest emphasis on the psychological aspects of science fiction, as introduced by ASTOUNDING SCIENCE-FICTION in such masterpieces as Clifford D. Simak's *Huddling Place*.

Outside of Campbell's sphere of influence, the action school of science fiction as exemplified by PLANET STORIES and THRILLING WONDER STORIES had published the emotion-packed space parables of the stylistic virtuoso Ray Bradbury. Scores of his best stories were bought and published at but a penny a word, and new anthologies rarely appeared without a Bradbury story, solidifying transient pulp popularity into recognition and prestige. *This* laid the foundation for his successful career. Equally as honored, Arthur C. Clarke was one of the upcoming young British literary lions, influenced by Campbell's *writing* and first published in ASTOUNDING SCIENCE FICTION in this country, yet, like many other likely prospects, quickly lured away to contribute his best work to the competition.

By 1952 the science fiction tide was cresting. At one time 32 different titles were

on the stands simultaneously. The earlier boom in 1939 had healthily stabilized with science fiction magazines aimed at different strata of readership. This boom took the cue of "follow the leader." THRILLING WONDER STORIES and STARTLING STORIES, once the bastions of teen-age action, under the successive administrations of editors Sam Merwin and Sam Mines, in content had become indistinguishable from ASTOUNDING SCIENCE-FICTION, GALAXY SCIENCE FICTION and THE MAGAZINE OF FANTASY AND SCIENCE FICTION. Not only had the stories been lifted to a new height of sophistication, but in August, 1952, like a bombshell they exploded a novel, *The Lovers*, by Philip Jose Farmer which proved a milestone in the history of science fiction, opening up the various manifestations of sex to writers of modern science fiction, breaking a taboo which had been rigidly inflexible before.

It was not that the incorporation of sex into science fiction proved unhealthy—the field would be much poorer without the contributions of Farmer—it was the *completeness* of the usurpation of the strongholds of scientific wonder, action, and romance by stories of a philosophical, psychiatric or sexual bent that posed a danger.

A number of forces contributed to the switch by most of the remaining holdouts to the publication of "modern" science fiction to the virtual exclusion of any other type. Predominant was the weight of new titles, far too burdensome to be supported by the existing readership. As the complete pie of audience was sliced ever thinner by the accumulation of new titles, publishers attributed their circulation problems to *editorial policy*. On every hand (even in their own pages) reviewers praised the polished works of the modern masters and ridiculed any other form. To publish and read "modern" science fiction had also become a status symbol, a badge of prestige and maturity. Was that not the logical direction to take?

AMAZING STORIES, which had been the circulation leader the entire decade between 1940 and 1950, abandoned its policy of elementary science fiction and with the April-May, 1953 number converted from pulp to digest size with slick stories by Robert A. Heinlein, Theodore Sturgeon, Murray Leinster and Ray Bradbury.

FAMOUS FANTASTIC MYSTERIES, symbolic of those magazines publishing reprints of escapism for 14 years, folded with its June, 1953 number. PLANET STORIES did not abandon its policy but found a declining pool of usable material at its low rates. It perished in 1955 as did THRILLING WONDER STORIES and STARTLING STORIES. At the onset of 1956, "modern" science fiction was all there was. All other forms had vanished. For better or for worse, science fiction stories with the emphasis, on the turn of phrase, with the plot twists pivoting on various aspects of psychology, philosophy, psychiatry, religion, sociology and sex dominated the field.

One man in particular bitterly deplored the changeover —John W. Campbell. It had never been his intent to supersede the other forms of science fiction. He had set out to add a new, more mature dimension to the existing body of the literature. The field needed the elementary types. Now there were many universities but no grammar schools.

Actually John W. Campbell had already taken a divergent tack. He had always been interested in the exploration of hidden powers in the human mind. This first

took the form of what he called mutants and led to the writing of such stories as *Slan* by A. E. van Vogt, of a human species with flesh--and-blood antennae called tendrils, that can read other minds. This approach was followed by Henry Kuttner under the pen name of Lewis Padgett in a series about the "baldies," a mind-reading group attempting to integrate into the pop-ulance.

The theories of Charles Fort regarding strange events that seemed to defy the tenets of scientific theory, also fascinated him, and it was his interest in this phase that led to publication of Eric Frank Russell's novel *Sinister Barrier*, in which it is discovered that the human race is nothing more than the kept cattle of a superior culture.

Stories based on intellectually superior mutants and various ramifications of Charles Fort's presentation were to become frequent in ASTOUNDING SCIENCE-FICTION. When new competitors appropriated most of the tenets he had promoted in "modern" science fiction, John Campbell moved his authors further in the Fortean direction. The kick-off piece was an article titled *Dianetics: The Evolution of a Science* by L. Ron Hubbard (ASTOUNDING SCIENCE-FICTION, May, 1950). Hubbard was a prolific pulp writer, who made a good record on naval duty during World War II and claimed to have been the actual inspiration for the title character of the play *Mr. Roberts*. He had done some remarkable writing of science fiction for Campbell, his novel *Final Blackout* without question ranking as one of the finest future war stories ever written.

Dianetics proposed to be a system of self-help therapy that could cure all forms of insanity where there had been no brain damage; a technique for curing non-germ diseases such as ulcers, arthritis and asthma; a method of giving a man a perfect, error-free memory, among other things. A book titled *Dianetics* proved a best seller and launched Hubbard on a career that eventually found him living in a great English mansion, unabashedly wealthy.

Campbell, with considerable vigor, attempted to get stories based on Dianetics (Hubbard wrote a fantasy involving Dianetics, *Masters of Sleep*, for FANTASTIC ADVENTURES, October, 1950). He also pushed forward a search for evidence of the existence of extra-sensory motivated equipment (which he termed psionic machines) and new principles of dynamics which led him to champion a prototype of an "anti-gravity" device called the Dean Drive.

Some very clever and entertaining stories did result from this divergence, though they were actually sheer fantasies based on hypothetical, imaginary sciences. The better rejects trickled down to the lower paying markets and by this method, "psi" stories become an integral part of what is today called "modern" science fiction.

"Modern" science fiction has been criticized for many things. The most damning has been the charge that its casual narration, its stress on indirection and its interweaving of background as part of the story flow has deleted a great deal of what has been euphemized as "sense of wonder" from its context. Another major criticism has been that with the emphasis on psychology, philosophy, psychiatry, sociology and psi, there has been a lag in new concepts, and scientific advances have been rapidly turning many tried and true gambits into history. A consequence of this is that backgrounds in "modern" science fiction stories tend to be props, standardized so as to make it easier to make a point in a plot in which the science and technology

are merely incidental.

Even if all the foregoing are acknowledged, it still must be admitted that "modern" science fiction has recorded unpre-cedented achievement. There is not a major reference work on English literature produced in the past 10 years without material on science fiction, and it is rare that such a volume does not assign at least minor status to certain science fic-tion writers.

A quarter of a century ago, any science fiction writer de-veloped by the magazines who could boast even a single hardcover book to his credit, was regarded by his fellows with awe. Today, one would be sorely pressed to find a published magazine story by a ranking science fiction writer that had not gone into book form or at least been included in an an-thology.

Every technologically advanced non-Communist nation in the world today regularly publishes science fiction, and the majority of it is reprints of America's "modern" science fiction. Almost anywhere in the world it is possible to secure a selection of outstanding American authors. Behind the Iron Curtain, American science fiction is translated and reprinted. Science fiction is as much a cultural export of this nation as jazz and has resulted in the formation of conven-tion-sponsoring clubs even as far away as Japan.

The six authors anthologized in this volume are beyond doubt among the major shapers of "modern" science fiction. These are the writers who gave it substance, contributed something distinctive and have written a disproportionate share of the landmarks in the format. Two authors, who had a monumental influence on the development of "modern" science fiction are not included here, because they belong to an earlier era. They are Olaf Stapledon and Stanley O. Weinbaum. From Stapledon was derived the emphasis on philosophical concepts as a plot basis for science fiction. From Weinbaum the methods of combining narrative, dialogue and background in a non-interrupted flow.

Murray Leinster and Jack Williamson had made reputations in the field long before the popularity of modern science fiction and were among the old guard that most successfully converted to and contributed to the development of the new form. One author who initially appeared in 1930, Clifford D. Simak, is not presented in this group because his was only a secondary figure until the forties.

L. Sprague de Camp, among the transitional discoveries made while ASTOUNDING STORIES was becoming ASTOUNDING SCIENCE-FICTION, is an extremely able satirist in the Mark Twain tradition.

Isaac Asimov is one of those who most purely symbolize what is referred to as "modern" science fiction. He not only gave the field the "Three Laws of Robotics" which, by limit-ing the action of robots, offered authors unprecedented story opportunities, but wrote the most successful of all detective stories in a science fiction context.

C. L. Moore was discovered by WEIRD TALES magazine, and gained her first reputation in tales of science fantasy, the supernatural and the horrifying. She is probably the most outstanding of modern women writers of science fiction. Her tales of Northwest Smith, space rover, won her first reputa-tion and she gained another writing as Lawrence O'Donnell, for Campbell. The C. L. Moore story has been taken from FAMOUS FANTASTIC MYSTERIES to provide a sample of the

romantic scientific fantasies with which they held in thrall many loyal readers for 14 years, to contrast with other stories in this collection.

Finally, one of the most recently acclaimed masters of "modern" science fiction—Arthur C. Clarke—has broken with the traditionalists of his school and scored in a uniquely individualistic fashion. He has most effectively combined valid scientific insight with poignant poetry and *Before Eden* ranks as one of his finest.

This anthology is in every sense a companion to the editor's *Seekers of Tomorrow*, which is a webwork history of modern science fiction, presented in the form of in-depth studies of all the authors featured in this book, plus certain others who made outstanding contributions. This book is intended to give superior examples of the actual fiction of six of the most influential practitioners of modern science fiction.

Together with *Seekers of Tomorrow*, this collection forms a basic reference of a literary phenomenon of our time.

Sam Moskowitz

Newark, New Jersey

DOORWAY INTO TIME

by

C. L. Moore

he came slowly, with long, soft, ponderous strides, along the hallway of his treasure house. The gleanings of many worlds were here around him; he had ransacked space and time for the treasures that filled his palace. The robes that moulded their folds richly against his great rolling limbs as he walked were in themselves as priceless as anything within these walls, gossamer fabric pressed into raised designs that had no meaning, this far from the world upon which they had been created, but—in their beauty—universal. But he was himself more beautiful than anything in all that vast collection. He knew it complacently, a warm contented knowledge deep in the center of his brain.

His motion was beautiful, smooth power pouring along his limbs as he walked, his great bulk ponderous and graceful. The precious robes he wore flowed open over his magnificent body. He ran one sensuous palm down his side, enjoying the texture of that strange, embossed delicacy in a fabric thinner than gauze. His eyes were proud and half shut, flashing many-colored under the heavy lids. The eyes were never twice quite the same color, but all the colors were beautiful.

He was growing restless again. He knew the feeling well, that familiar quiver of discontent widening and strengthening far back in his mind. It was time to set out once more on the track of something dangerous. In times past, when he had first begun to stock this treasure house, beauty alone had been enough. It was not enough any longer. Danger had to be there too. His tastes were growing capricious and perhaps a little decadent, for he had lived a very long time.

Yes, there must be a risk attending the capture of his next new treasure. He must seek out great beauty and great danger and subdue the one and win the other, and the thought of it made his eyes change color and the blood beat faster in mighty

rhythms through his veins. He smoothed his palm again along the embossed designs of the robe that moulded itself to his body. The great, rolling strides carried him noiselessly over the knife-edged patterns of the floor.

Nothing in life meant much to him any more except these beautiful things which his own passion for beauty had brought together. And even about these he was growing capricious now. He glanced up at a deep frame set in the wall just at the bend of the corridor, where his appreciative eyes could not fail to strike the objects it enclosed at just the proper angle. Here was a group of three organisms fixed in an arrangement that once had given him intense pleasure. On their own world they might have been living creatures, perhaps even intelligent. He neither knew nor cared. He did not even remember now if there had been eyes upon their world to see, or minds to recognize beauty. He cared only that they had given him acute pleasure whenever he turned this bend of the corridor and saw them frozen into eternal perfection in their frame.

But the pleasure was clouded as he looked at them *now*. His half-shut eyes changed color, shifting along the spectrum from yellow-green to the cooler purity of true green. This particular treasure had been acquired in perfect safety; its value was impaired for him, remembering that. And the quiver of discontent grew stronger in his mind. Yes, it was time to go out hunting again. ...

And here, set against a panel of velvet, was a great oval stone whose surface exhaled a light as soft as smoke, in waves whose colors changed with languorous slowness. Once the effect had been almost intoxicating to him. He had taken it from the central pavement of a great city square upon a world whose location he had forgotten long ago. He did not know if the people of the city had valued it, or perceived its beauty at all. But he had won it with only a minor skirmish, and now in his bitter mood it was valueless to his eyes.

He quickened his steps, and the whole solid structure of the palace shook just perceptibly underfoot as he moved with ponderous majesty down the hall. He was still running one palm in absent appreciation up and down the robe across his mighty side, but his mind was not on present treasures any more. He was looking to the future, and the color of his eyes had gone shivering up the spectrum to orange, warm with the anticipation of danger. His nostrils flared a little and his wide mouth turned down at the corners in an inverted grimace. The knife-edged patterns of the floor sang faintly beneath his footsteps, their sharp intricacies quivering as the pressure of his steps passed by.

He went past a fountain of colored fire which he had wrecked a city to possess. He thrust aside a hanging woven of unyielding crystal spears which only his great strength could have moved. It gave out showers of colored sparks when he touched it, but their beauty did not delay him now.

His mind had run on ahead of him, into that room in the center of his palace, round and dim, from which he searched the universe for plunder and through whose doorways he set out upon its track. He came ponderously along the hall toward it, passing unheeded treasures, the gossamer of his robes floating after him like a cloud.

On the wall before him, in the dimness of the room, a great circular screen looked out opaquely, waiting his touch. A doorway into time and space. A doorway to beauty and deadly peril and everything that made livable for him a life which had

perhaps gone on too long already. It took strong measures now to stir the jaded senses which once had responded so eagerly to more stimuli than he could remember any more. He sighed, his great chest expanding tremendously. Somewhere beyond that screen, upon some world he had never trod before, a treasure was waiting lovely enough to tempt his boredom and dangerous enough to dispel it for just a little while.

The screen brightened as he neared the wall. Blurred shadows moved, vague sounds drifted into the room. His wonderful senses sorted the noises and the shapes and dismissed them as they formed; his eyes were round and luminous now, and the orange fires deepened as he watched. Now the shadows upon the screen moved faster. Something was taking shape. The shadows leaped backward into three-dimensional vividness that wavered for a moment and then sharpened into focus upon a desert landscape under a vivid crimson sky. Out of the soil a cluster of tall flowers rose swaying, exquisitely shaped, their colors shifting in that strange light. He glanced at them carelessly and grimaced. And the screen faded.

He searched the void again, turning up scene after curious scene and dismissing each with a glance. There was a Wall of carved translucent panels around a city he did not bother to identify. He saw a great shining bird that trailed luminous plumage, and a tapestry woven gorgeously with scenes from no earthly legend, but he let all of them fade again without a second look, and the orange glow in his eyes began to dull with boredom.

Once he paused for a while before the picture of a tall, dark idol carved into a shape he did not recognize, its strange limbs adorned with jewels that dripped fire, and for an instant his pulse quickened. It was pleasant to think of those jewels upon his own great limbs, trailing drops of flame along his halls. But when he looked again he saw that the idol stood deserted upon a barren world, its treasure his for the taking. And he knew that so cheap a whining would be savorless. He sighed again, from the depths of his mighty chest, and let the screen shift its pictures on.

It was the faraway flicker of golden lightning in the void that first caught his eyes, the distant scream of it from some world without a name. Idly he let the screen's shadows form a picture. First was the lightning, hissing and writhing from a mechanism which he spared only one disinterested glance. For beside it two figures were taking shape, and as he watched them his restless motions stilled and the floating robe settled slowly about his body. His eyes brightened to orange again. He stood very quiet, staring.

The figures were of a shape he had not seen before. Remotely like his own, but flexible and very slender, and of proportions grotesquely different from his. And one of them, in spite of its difference, was—He stared thoughtfully. Yes, it was beautiful. Excitement began to kindle behind his quietness. And the longer he stared the clearer the organism's subtle loveliness grew. No obvious flamboyance like the fire-dripping jewels or the gorgeously plumed bird, but a delicate beauty of long, smooth curves and tapering lines, and colors in softly blended tints of apricot and creamy white and warm orange-red. Folds of blue-green swathing it were probably garments of some sort. He wondered if it were intelligent enough to defend itself, or if the creature beside it, making lightnings spurt out of the mechanism over which it bent, would know or care if he reached out to take its companion away.

He leaned closer to the screen, his breath beginning to come fast and his eyes glowing with the first flush of red that meant excitement. Yes, this was a lovely thing. A very lovely trophy for his halls. Briefly he thought of it arranged in a frame whose ornaments would echo the soft and subtle curves of the creature itself, colored to enhance the delicacy of the subject's coloring. Certainly a prize worth troubling himself for—if there were danger anywhere near to make it a prize worth winning. . .

He put one hand on each side of the screen and leaned forward into it a little, staring with eyes that were a dangerous scarlet now. That flare of lightning looked like a weapon of some sort. If the creatures had intelligence—It would be amusing to test the limits of their minds, and the power of the weapon they were using....

He watched a moment longer, his breath quickening. His mighty shoulders hunched forward. Then with one shrug he cast off the hampering garment of gossamer and laughed deep in his throat and lunged smoothly forward into the open doorway of the screen. He went naked and weaponless, his eyes blazing scarlet. This was all that made life worth living. Danger, and beauty beyond danger....

Darkness spun around him. He shot forward through dimensionless infinity along a corridor of his own devising.

The girl leaned back on her metal bench and crossed one beautiful long leg over the other, stirring the sequined folds of her gown into flashing motion.

"How much longer, Paul?" she asked.

The man glanced over his shoulder and smiled.

"Five minutes. Look away now—I'm going to try it again." He reached up to slip a curved, transparent mask forward, closing his pleasant, dark face away from the glare. The girl sighed and shifted on the bench, averting her eyes.

The laboratory was walled and ceiled in dully reflecting metal, so that the blue-green blur of her gown moved as if in dim mirrors all around her when she changed position. She lifted a bare arm to touch her hair, and saw the reflections lift too, and the pale blur that was her hair, shining ashes of silver and elaborately coiffed.

The murmur of well-oiled metal moving against metal told her that a lever had been shifted, and almost instantly the room was full of golden glare, like daylight broken: into hissing fragments as jagged as lightning. For a long moment the walls quivered with light and sound. Then the hissing died, the glare faded. A smell of hot metal tainted the air.

The man sighed heavily with satisfaction and lifted both hands to pull the mask off. Indistinctly behind the glass she heard him say:

"Well, that's done. Now we can—"

But he never finished, and the helmet remained fixed on his shoulders as he stared at the wall they were both facing. Slowly, almost absentmindedly, he pushed aside the glass across his face, as if he thought it might be responsible for the thing they both saw. For above the banked machinery which controlled the mechanism he had just released, a shadow had fallen upon the wall. A great circle of shadow....

Now it was a circle of darkness, as if twilight had rushed timelessly into midnight before them as they watched, and a midnight blacker than anything earth ever knew. The midnight of the ether, of bottomless spaces between worlds. And now it was no longer a shadow, but a window opening upon that midnight, and the midnight was

pouring through....

Like smoke the darkness flowed in upon them, dimming the glitter of machinery, dimming the girl's pale hair and pale, shining shoulders and the shimmer of her gown until the man looked at her as if through veil upon veil of falling twilight.

Belatedly he moved, making a useless gesture of brushing the dark away with both hands before his face.

"Alanna—" he said helplessly. "What's happened? I—I can't see—very well—"

He heard her whimper in bewilderment, putting her own hands to her eyes as if she thought blindness had come suddenly upon them both. He was too sick with sudden dizziness to move or speak. This, he told himself wildly, must be the blindness that foreruns a swoon, and his obedient mind made the floor seem to tilt as if the faintness and blindness were inherent in himself, and not the result of some outward force.

But before either of them could do more than stammer a little, as their minds tried desperately to rationalize what was happening into some weakness of their own senses, the dark was complete. The room brimmed with it, and sight ceased to exist.

When the man felt the floor shake, he thought for an unfathomable moment that it was his own blindness, his own faintness again, deceiving his senses. The floor could not shake, as if to a ponderous tread. For there was no one here but themselves—there could not be great footfalls moving softly through the dark, making the walls shudder a little as they came....

Alanna's caught breath was clear in the silence. Not terror at first; but surprised inquiry. She said, "Paul— Paul, don't—"

And then he heard the beginning of her scream. He heard the beginning, but incredibly, he never heard the scream's end. One moment the full-throated roundness of her cry filled the room; pouring from a throat stretched wide with terror; the next, the sound diminished and vanished into infinite distances, plummeting away from him and growing thin and tiny while the echo of its first sound still rang through the room. The impossibility of such speed put the last touch of nightmare upon the whole episode. He did not believe it.

The dark was paling again. Rubbing his eyes, still not sure at all that this had not been some brief aberration of his own senses, he said, "Alanna—I thought—"

But the twilight around him was empty.

He had no idea how long a while elapsed between that moment and the moment when he stood up straight at last, facing the wall upon which the shadow still lay. In between there must have been a period of frantic search, of near hysteria and self-doubt and reeling disbelief. But now, as he stood looking up at the wall upon which the shadow still hung blackly, drawing into itself the last veils of twilight from the corners of the room, he ceased to rationalize or disbelieve.

Alanna was gone. Somehow, impossibly, in the darkness that had come upon them a Something with great silent feet that trod ponderously, shaking the walls, had seized her in the moment when she said, "Paul—" thinking it was himself. And while she screamed, it had vanished into infinite distances out of this room, carrying her with it.

That it was impossible he had no time to consider. He had time now only to realize that nothing had passed him toward the door, and that the great circle upon

the wall before him was—an entrance?—out of which Something had come and into which Something must have retreated again—and not alone. ...

And the entrance was closing.

He took one step toward it, unreasoning and urgent, and then stumbled over the boxed instrument which he had been testing just before insanity entered the room. The sight and feel of it brought back his own sanity a little. Here was a weapon; it offered a grip upon slipping reality to know that he was not wholly helpless. Briefly he wondered whether any weapon at all would avail against That which came in impossible darkness on feet that made no sound, though their tread shook the foundations of the building....

But the weapon was heavy. And how far away from the parent machine would it work? With shaking fingers he groped for the carrying handle. He staggered a little, lifting it, but he turned toward the end of the room where the great circle drank in the last of its twilight and began imperceptibly to pale upon the wall. If he were to follow, to take That which had gone before him by surprise, he must go swiftly....

One glance at the lever of the parent machine, to be sure it was thrown full over, for the weapon itself drank power from that source alone—if it would drink power at all in the unfathomable distances to which he was going. . . . One last unbelieving glance around the room, to be quite sure Alanna was really gone—

The lower arc of the circle was a threshold opening upon darkness. He could not think that he would pass it, this flat shadow upon the flat and solid wall, but he put out one hand uncertainly and took a step forward, and another, bent to the weight of the box he carried...

But there was no longer any weight. Nor was there any light nor sound—only wild, whirling motion that spun him over and over in the depths of his blindness. Spun interminably—spun for untimed eons that passed in the flash of an eye. And then—

"Paul! Oh, Paul!"

He stood reeling in a dim, round room walled with strange designs he could not quite focus upon. He had no sense that was not shaken intolerably; even sight was not to be relied upon just now. He thought he saw Alanna in the dimness, pale hair falling over her pale, shining shoulders, her face distorted with bewilderment and terror....

"Paul! Paul, answer me! What is it? What's happened?"

He could not speak yet. He could only shake his head and cling by blind instinct to the weight that dragged down upon one arm. Alanna drew her bare shoulders together under the showering hair and hugged herself fearfully, the creamy arms showing paler circles where her fingertips pressed them hard. Her teeth were chattering, though not from cold.

"How did we get here?" she was saying. "How did we get here, Paul? We'll have to go back, won't we? I wonder what's happened to us?" The words were almost aimless, as if the sound of speech itself were more important to her now than any sense of what she was saying. "Look behind you, Paul—see? We came out of—there."

He turned. A great circle of mirror rose behind him on the dim wall, but a mirror reversed, so that it reflected not themselves, but the room they had just left.

Clearer than a picture—he looked into it—his laboratory walls shining with dull reflections, his batteries and dials, and the lever standing up before them that meant the heavy thing he carried would be deadly—perhaps. Deadly? A weapon in a dream? Did they even know that the Something which dwelt here was inimical?

But this was ridiculous. It was too soon yet to accept the fact that they were standing here at all. In reality, of course, they must both be back in the laboratory, and both of them dreaming the same strange dream. And he felt, somehow, that to treat all this as a reality would be dangerous. For if he accepted even by implication that such a thing could be true, then perhaps—perhaps. . . . Could acceptance make it *come* true?

He set his weapon down and rubbed his arm dazedly, looking around. Words did not come easily yet, but he had to ask one question.

"That—that thing, Alanna. What was it? How did you—"

She gripped her own bare arms harder, and another spasm of shuddering went over her. The blue-green sequins flashed chilly star-points from her gown as she moved. Her voice shook too; her very mind seemed to be shaking behind the blank eyes. But when she spoke the words made approximate sense. And they echoed his own thought.

"I'm dreaming all this, you know." Her voice sounded far away. "This isn't really happening. But—but *something* took me in its arms back there." She nodded toward the mirrored laboratory on the wall. "And everything whirled, and then—" A hard shudder seized her. "I don't know...."

"Did you see it?"

She shook her head. "Maybe I did. I'm not sure. I was so dizzy—I think it went away through the door. Would you call it a door?" Her little breath of laughter was very near hysteria. "I—I felt its feet moving away."

"But what was it? What did it look like?"

"I don't know, Paul."

He closed his lips on the questions that rushed to be asked.

Here in the dream, many things were very alien indeed. Those patterns on the wall, for instance. He thought he could understand how one could look at something and not be sure at all what the something was. And Alanna's heavy spasms of shuddering proved that shock must have blanked her mind protectively to much of what had happened. She said:

"Aren't we going back now, Paul?" And her eyes flickered past him to the pictured laboratory. It was a child's question; her mind was refusing to accept anything but the barest essentials of their predicament. But he could not answer. His first impulse was to say, "Wait—we'll wake up in a minute." But suppose they did not? Suppose they were trapped here? And if the Thing came back.... Heavily, he said:

"Of course it's a dream, Alarum. But while it lasts I think we'll have to act as if it were real. I don't want to—" The truth was, he thought, he was afraid to. "But we must. And going back wouldn't do any good as long as we go on dreaming. It would just come after us again."

It would come striding through the dream to drag them back, and after all people have died in their sleep—died in their dreams, he thought.

He touched the unwieldy weapon with his toe, thinking silently, "This will help us—maybe. If anything can, it will. And if it won't—well, neither will running away." And he glanced toward the high, distorted opening that must be a doorway into some other part of this unimaginable, dream-created building. It had gone that way, then. Perhaps they should follow. Perhaps their greatest hope of waking safely out of this nightmare lay in acting rashly, in following with the weapon before it expected them to follow. It might not guess his own presence here at all. It must have left Alanna alone in the dim room, intending to return, not thinking to find her with a defender, or to find the defender armed. . . .

But was he armed? He grinned wryly.

Perhaps he ought to test the weapon. And yet, for all he knew, the Thing's strange, alien gaze might be upon him now. He was aware of a strong reluctance to let it know that he had any defense against it. Surprise—that was important. Keep it a secret until he needed a weapon, if he ever did need one. Very gently he pressed the trigger of the lens that had poured out lightnings in the faraway sanity of his laboratory. Would it work in—a dream? For a long moment nothing happened. Then, faintly and delicately against his palm he felt the tubing begin to throb just a little. It was as much of an answer as he dared take now. Some power was there. Enough? He did not know. It was unthinkable, really, that he should ever need to know. Still—

"Alanna," he said, "I think we'd better explore a little. No use just standing here waiting for *it* to come back. It may be perfectly friendly, you know. Dream creatures often are. But I'd like to see what's outside."

"We'll wake up in a minute," she assured him between chattering teeth. "I'm all right, I think, really. Just—just nervous." He thought she' seemed to be rousing from her stupor. Perhaps the prospect of action—any action—even rashness like this, was better for them both than inactivity. He felt surer of himself as he lifted the heavy weapon.

"But Paul, we can't!" She turned, half-way to the door, and faced him. "Didn't I tell you? I tried that before you came. There's a corridor outside, with knives all over the floor. Patterns of them, sharp-edged spirals and—and shapes. Look." She lifted her sparkling skirt a little and put out one foot. He could see the clean, sharp lacerations of the leather sole. His shoulders sagged a bit. Then:

"Well, let's look anyhow. Come on."

The corridor stretched before them, swimming in purple distances, great gothic hollows and arches melting upon arches. There were things upon the walls. Like the patterns in the room behind them, many were impossible to focus upon directly, too different from anything in human experience to convey meaning to the brain. The eye perceived them blankly, drawing no conclusions. He thought vaguely that the hall looked like a museum, with those great frames upon the walls.

Beside the door another tall frame leaned, empty. About six feet high, it was deep enough for a man to lie down in, and all around its edges an elaborate and beautiful decoration writhed, colored precisely like Alanna's blue-green gown. Interwoven in it were strands of silver, the color of her pale and shining hair.

"It looks like a coffin," Alanna said aimlessly. Some very ugly thought stirred in Paul's mind. He would not recognize it; he pushed it back out of sight quickly, but

he was gladder now that he had brought this lightning-throwing weapon along.

The hall shimmered with strangeness before them. So many things he could not quite see clearly, but the razor-edged decorations of the floor were clear enough. It made the mind reel a little to think what utter alienage lay behind the choice of such adornment for a floor that must be walked upon—even in a dream. He thought briefly of the great earth-shaking feet in the darkness of his laboratory. Here in the dream they walked this knife-edged floor. They must.

But how?

The spirals of the pattern lay in long loops and rosettes. After a moment, eyeing them, he said, "I think we can make it, Alanna. If we walk between the knives—see, there's space if we're careful." And if they were not careful, if they had to run. . . . "We've got to risk it," he said aloud, and with those words admitted to himself for perhaps the first time an urgency in this dream, risk and danger. . . .

He took a firmer grip upon his burden and stepped delicately into the hollow of a steely spiral. Teetering a little, clutching at his arm to steady herself, Alanna came after him.

Silence—vast, unechoing hollows quivering with silence all around them. They advanced very slowly, watching wide-eyed for any signs of life in the distances, their senses strained and aching with the almost subconscious awareness of any slightest motion in the floor that might herald great feet ponderously approaching. But that which had opened the doorway for them had gone now, for, a little while, and left them to their own devices.

Paul carried the lens of his weapon ready in his free hand, the lightest possible pressure always on its trigger so that the tubing throbbed faintly against his palm. That reassurance that contact still flowed between his faraway laboratory and this unbelievable hall was all that kept him forging ahead over the razory mosaics.

They went slowly, but they passed many very strange things. A tremendous transparent curtain swung from the vaulted ceiling in folds as immovable as iron. They slipped through the little triangle of opening where the draperies hung awry, and a shower of fiery sparkles sprang out harmlessly when they brushed the sides. They passed a fountain that sent up gushes of soundless flame from its basin in the center of the corridor floor. They saw upon the walls, in frames and without them, things too alien to think about clearly. That very alienage was worrying the man. In dreams one rehearses the stimuli of the past, fears and hopes and memories. But how *could* one dream of things like these? Where in any human past could such memories lie?

They skirted an oval stone set in the floor, the metal patterns swirling about it. They were both dizzy when they looked directly at it. Dangerous dizziness, since a fall here must end upon razor edges. And once they passed an indescribable something hanging against a black panel of the wall, that brought tears to the eyes with its sheer loveliness, a thing of unbearable beauty too far removed from human experience to leave any picture in their minds once they had gone past it. Only the emotional impact remained, remembered beauty too exquisite for the mind to grasp and hold. And the man knew definitely now that this at least was no part of any human memory, and could be in itself no dream.

They saw it all with the strange clarity and vividness of senses sharp with

uncertainty and fear, but they saw it too with a dreamlike haziness that faded a little as they went on. To the man, a terrible wonder was dawning. Could it, after all, be a dream? Could it possibly be some alien reality into which they had stumbled? And the import of that frame outside the door they had left—the frame shaped like a coffin and adorned with the colors of Alanna's gown and hair. . . . Deep in his mind he knew what that frame was for. He knew he was walking through a museum filled with lovely things, and he was beginning to suspect why Alanna had been brought here too. The thing seemed unthinkable, even in a dream as mad as this, and yet—

"Look, Paul." He glanced aside. Alanna had reached up to touch a steel-blue frame upon the wall, its edges enclosing nothing but a dim rosy shimmer. She was groping inside it, her face animated now. No thought had come to her yet about that other frame, evidently. No thought that from this dream neither of them might ever wake. . . .

"Look," she said. "It seems empty, but I can *feel* something—something like feathers. What do you suppose—"

"Don't try to suppose," he said almost brusquely. "There isn't any sense to any of this."

"But some of the things are so pretty, Paul. See that— that snowstorm ahead, between the pillars?"

He looked. Veiling the hallway a little distance away hung a shower of patterned flakes, motionless in midair. Perhaps they were embroideries upon some gossamer drapery too sheer to see. But as he looked he thought he saw them quiver just a little. Quiver, and fall quiet, and then quiver again, as if—as if—

"Paul!"

Everything stopped dead still for a moment. He did not need Alanna's whisper to make his heart pause as he strained intolerably to hear, to see, to feel. . . . Yes, definitely now the snowstorm curtain shook. And the floor shook with it in faint rhythms to that distant tremor—

This is it, he thought. This is real.

He had known for minutes now that he was not walking through a dream. He stood in the midst of impossible reality, and the Enemy itself came nearer and nearer with each great soundless footfall, and there was nothing to do but wait. Nothing at all. It wanted Alanna. He knew why. It would not want himself, and it would brush him away like smoke in its juggernaut striding to seize her, unless his weapon could stop it. His heart began to beat with heavy, thick blows that echoed the distant footsteps.

"Alanna," he said, hearing the faintest possible quiver in his voice. "Alanna, get behind something—that pillar over' there. Don't make a sound. And if I tell you—*run!*"

He stepped behind a nearer pillar, his arm aching from the weight of his burden, the lens of it throbbing faintly against his palm with its promise of power in leash. He thought it would work.

There was no sound of footfalls as the rhythm grew stronger. Only by the strength of those tremors that shook the floor could he judge how near the Thing was drawing. The pillar itself was shaking now, and the snowstorm was convulsed each time a mighty foot struck the floor soundlessly. Paul thought of the knife-edged

patterns which those feet were treading with such firm and measured strides.

For a moment of panic he regretted his daring in coming to meet the Thing. He was sorry they had not stayed cowering in the room of the mirror—sorry they had not fled back down the whirling darkness through which they came. But you can't escape a nightmare. He held his lensed weapon throbbing like a throat against his palm, waiting to pour out lightning upon—what?

Now it was very close. Now it was just beyond the snowstorm between the pillars. He could see dim motion through their veil. ...

Snow swirled away from its mighty shoulders, clouded about its great head so that he could not see very clearly what it was that stood there, tall and grotesque and terrible, its eyes shining scarlet through the veil. He was aware only of the eyes, and of the being's majestic bulk, before his hand of its own volition closed hard upon the pulse of violence in his palm.

For one timeless moment nothing happened. He was too stunned with the magnitude of the thing he faced to feel even terror at his weapon's failure; awe shut out every other thought. He was even a little startled when the glare of golden daylight burst hissing from his hand, splashing its brilliance across the space between them.

Then relief was a weakness that loosened all his muscles as he played the deadliness of his weapon upon the Enemy, hearing the air shriek with its power, seeing the stone pillars blacken before those lashes of light. He was blinded by their glory; he could only stand there pouring the lightnings forth and squinting against their glare. The smell of scorched metal and stone was heavy in the air, and he could hear the crash of a falling column somewhere, burned through by the blast of the flame. Surely *it* too must be consumed and falling.... Hope began to flicker in his brain.

It was Alanna's whimper that told him something must still be wrong. Belatedly he reached up to close the glass visor of the mask he still wore, and by magic the glare ceased to blind him. He could see between the long, writhing whips of light—see the pillars falling and the steel patterns of the floor turn blue and melt away. But he could see it standing between those crumbling pillars now...

He could see it standing in the full bath of the flames, see them splash upon its mighty chest and sluice away over its great shoulders like the spray of water, unheeded, impotent. Its eyes were darkening from crimson to an angry purple as it lurched forward one ponderous, powerful stride, brushing away the sparks from its face, putting out a terrible inn.

"Alanna—" said the man in a very quiet voice, pitched below the screaming of the flame. "Alanna—you'd better start back. I'll hold it while I can. You'd better run, Alanna. . . ."

He did not know if she obeyed. He could spare no further attention from the desperate business at hand, to delay it—to hold it back even for sixty seconds—for thirty seconds—for one breath more of independent life. What might happen after that he could not let himself think. Perhaps not death—perhaps something far more alien and strange than death. ...

He knew the straggle was hopeless and senseless, but he knew he must straggle on while breath remained in him.

There was a narrow place in the corridor between himself and it. The lightning had weakened one wall already. He swung it away from the oncoming colossus and played the fire screaming to and fro upon blackened stones, seeing mortar crumble between them and girders bending in that terrible heat.

The walls groaned, grinding their riven blocks surface against surface. Slowly, slowly they leaned together; slowly they fell. Stone dust billowed in a cloud to hide the final collapse of the corridor, but through it the scream of lightnings sounded and the shriek of metal against falling stone. And then, distantly, a deeper groaning of new pressure coming to bear.

The man stood paralyzed for a moment, dizzy with an unreasonable hope that he had stopped the Enemy at last, not daring to look too closely for fear of failure. But hope and despair came almost simultaneously into his mind as he watched the mass of the closed walls shuddering and resisting for a moment—but only for a moment.

With dust and stone blocks and steel girders falling away from its tremendous shoulders, it stepped through the ruined arch. Jagged golden lightnings played in its face, hissing and screaming futilely. It ignored them. Shaking off the debris of the wall, it strode forward, eyes purple with anger, great hands outstretched.

And so the weapon failed. He loosed the trigger, hearing its shriek die upon the air as the long ribbons of lightning faded. It was instinct, echoing over millenniums from the first fighting ancestor of mankind, that made him swing the heavy machine overhead with both hands and hurl it into the face of the Enemy. And it was a little like relinquishing a living comrade to let the throb of that fiery tubing lose contact with his palm a last.

Blindly he flung the-weapon from him, and in the same motion whirled and ran. The knife-edged floor spun past below him. If he could hit a rhythm to carry him from loop to empty loop of the pattern, he might even reach the room at the end of the passage— There was no sanctuary anywhere, but unreasoning instinct made him seek the place of his origin here.

Ahead of him a flutter of blue-green sequins now and then told him that Alanna was running too, miraculously keeping her balance on the patterned floor. He could not look up to watch her. His eyes were riveted to the spirals and loops among which his precarious footing lay. Behind him great feet were thudding soundlessly, shaking the floor.

The things that happened then happened too quickly for the brain to resolve into any sequence at all. He knew that the silence which had flowed back when the screaming lightnings died was suddenly, shockingly broken again by a renewed screaming. He remembered seeing the metal patterns of the floor thrown into sharp new shadows by the light behind him, and he knew that the Enemy had found the trigger he had just released, that his weapon throbbed now against an alien hand.

But it happened in the same instant that the doorway of the entrance room loomed up before him, and he hurled himself desperately into the dimness after Alanna, knowing his feet were cut through and bleeding, seeing the dark blotches of the tracks she too was leaving. The mirror loomed before them, an unbearable picture of the lost familiar room he could not hope to enter again in life.

And all this was simultaneous with a terrifying soundless thunder of great feet at his very heels, of a mighty presence suddenly and ponderously in the same room

with them, like a whirlwind exhausting the very air they gasped to breathe. He felt anger eddying about him without words or sound. He felt monstrous hands snatch him up as if a tornado had taken him into its windy grasp. He remembered purple eyes glaring through the dimness in one brief instant of perception before the hands hurled him away.

He spun through empty air. Then a howling vortex seized him and he was falling in blindness, stunned and stupefied, through the same strange passageway that had brought him here. Distantly he heard Alanna scream.

There was silence in the dim, round room in the center of the treasure house, except for a muffled howling from the screen. He who was master here stood quietly before it, his eyes half shut and ranging down the spectrum from purple to red, and then swiftly away from red through orange to a clear, pale, tranquil yellow. His chest still heaved a little with the excitement of that minor fiasco which he had brought upon himself, but it was an excitement soon over, and wholly disappointing.

He was a little ashamed of his momentary anger. He should not have played the little creatures' puny lightnings upon them as they fell down the shaft of darkness. He had misjudged their capacity, after all. They were not really capable of giving him a fight worth while.

It was interesting that one had followed the other, with its little weapon that sparkled and stung, interesting that one fragile being had stood up to him.

But he knew a moment's regret for the beauty of the blue-and-white creature he had flung away. The long, smooth lines of it, the subtle coloring. . . . Too bad that it had been worthless because it was helpless too.

Helpless against himself, he thought, and equally against the drive of its own mysterious motives. He sighed.

He thought again, almost regretfully, of the lovely thing he had coveted hurtling away down the vortex with lightnings bathing it through the blackness.

Had he destroyed it? He did not know. He was a little sorry now that anger for his ruined treasures had made him lose his temper when they ran. Futile, scuttling little beings—they had cheated him out of beauty because of their own impotence against him, but he was not even angry about that now. Only sorry, with vague, confused sorrows he did not bother to clarify in his mind. Regret for the loss of a lovely thing, regret that he had expected danger from them and been disappointed, regret perhaps for his own boredom, that did not bother any longer to probe into the motives of living things. He was growing old indeed.

The vortex still roared through the darkened screen. He stepped back from it, letting opacity close over the surface of the portal, hushing all sound. His eyes were a tranquil yellow. Tomorrow he would hunt again, and perhaps tomorrow.

He went out slowly, walking with long, soundless strides that made the steel mosaics sing faintly beneath his feet

A Logic Named Joe

By

Murray Leinster

IT WAS ON the the third day of August that Joe come off the assembly line, and

on the fifth Laurine come into town, and that afternoon I saved civilization. That's what I figure, anyhow. Laurine is a blonde that I was crazy about once, and crazy is the word, and Joe is a logic that I have stored away down in the cellar right now. I had to pay for him because I said I busted him, and sometimes I think about turning him on and sometimes I think about taking an axe to him. Sooner or later I'm gonna do one or the other. I kinda hope it's the axe. I could use a couple million dollars, sure!----and Joe'd tell me how to get or make them. He can do plenty! But so far I've been scared to take a chance. After all, I figure I really saved a civilization by turning him off.

The way Laurine fits in is that she makes cold shivers run up and down my spine when I think about her. You see, I've got a wife which I acquired after I had parted from Laurine with much romantic despair. She is a reasonable good wife, and I have some kids which are hellcats but I value them. If I have sense enough to leave well enough alone, sooner or later I will retire on a pension and Social Security and spend the rest of my life fishing contented and lying about what a great guy I used to be. But there's Joe. I'm worried about Joe.

I'm a maintenance man for the Logics Company. My job is servicing logics, and I admit modestly that I am pretty good. I was servicing televisions before that guy Carson invented his trick circuit that will select any of seventeen million other circuits, in theory there ain't no limit, and before the Logics Company hooked it into the tank-and-integrator set-up they were using them as business-machine service. They added a vision screen for speed, and they found out they'd make logics. They were surprised and pleased. They're still finding out what logics will do, but everybody's got them.

I got Joe, after Laurine nearly got me. You know the logics setup; You got a logic in your house. It looks like a vision receiver used to, only it's got keys instead of dials and you punch the keys for what you wanna get. It's hooked in to the tank, which has the Carson Circuit all fixed up with relays. Say you punch "Station SNAFU" on your logic. Relays in the tank take over and whatever vision-program SNAFU is telecasting comes on your logic's screen. Or you punch "Sally Hancock's Phone" and the screen blinks and sputters and you're hooked up with the logic in her house and if somebody answers you got a vision-phone connection. But besides that, if you punch for the weather forecast or who won today's race at Hialeah or who was mistress of the White House during Garfield's administration or what is PDQ and R selling for today, that comes on the screen too. The relays in the tank do it. The tank is a big building full of all the facts in creation and all the recorded telecasts whatever was made-and it's hooked in with all the other tanks all over the country-and anything you wanna know or see or hear, you punch for it and you get it. Very convenient. Also it does math for you, and keeps books, and acts as consulting chemist, physicist, astronomer, and tealeaf reader, with a "Advice to Lovelorn" thrown in. The only thing it won't do is tell you exactly what your wife meant when she said, "Oh, you think so, do you?" in that peculiar kinda voice. Logics don't work good on women. Only on things that make sense.

Logics are all right, though. They changed civilization, the highbrows tell us. All on accounts the Carson Circuit. And Joe should have been a perfectly normal logic, keeping some family or other from wearing out its brains doing the kids'

homework for them. But something went wrong in the assembly line. It was something so small that precision gauges didn't measure it, but it made Joe a individual. Maybe he didn't know it at first. Or maybe, being logical, he figured out that if he was to show he was different from other logics they'd scrap him. Which woulda been a brilliant idea. But anyhow, he come off the assembly line, and he went through the regular tests without anybody screaming shrilly on finding out what he was. And he went right on out and was dully installed in the home of Mr. Thaddeus Konlanovitch at 119 East Seventh Street, second floor front. So far, everything was serene.

The installation happened late Saturday night. Sunday morning the Korlanovitch kids turned him on and seen the Kiddie Shows. Around noon their parents peeled them away from him and piled them in the car. Then they come back in the house for the lunch they'd forgot and one of the kids süeaked back and they found him punching keys for the Kiddie Shows of the week before. They dragged him out and went off. But they left Joe turned on.

That was noon. Nothing happened until two in the afternoon. It was the calm before the storm. Laurine wasn't in town yet, but she was coming. I picture Joe sitting there all by himself, buzzing meditative. Maybe he run Kiddie Shows in the empty apartment for awhile. But I think he went kinda remote-control exploring in the tank. There ain't any fact that can be said to be a fact that ain't on a data plate in some tank somewhere-unless it's one the technicians are digging out and putting on a data plate now. Joe had plenty of material to work on. And he must started working right off the bat.

Joe ain't vicious, you understand. He ain't like one of these ambitious robots you read about that make lip their minds the human race is inefficiant and has got to be wiped out and replaced by thinking machines. Joe's just got ambition. If you were a machine, you'd wanna work right, wouldn't you? That's Joe. He wants to work right. And he's a logic. And logics can do a lotta things that ain't been found out yet. So Joe, discovering the fact, begun to feel restless. He selects some things us dumb humans ain't thought of yet, and begins to arrange so logics will be called on to do them.

That's all. That's everything. But, brother, it's enough!

Things are kinda quiet in the Maintenance Department about two in the afternoon. We are playing pinochle. Then one of the guys remembers he has to call up his wife. He goes to one of the bank of logics in Maintenance and punches the keys for his house. The screen sputters. Then a flash comes on the screen.

"Announcing new and improved logics service! Your logic is now equipped to give you not only consultive but directive service. If you want to do something and don't know how to do it-ask your logic!"

There's a pause. A kinda expectant pause. Then, as if reluctantly, his connection comes through. His wife answers and gives him hell for something or other. He takes it and snaps off.

"Whadda you know?" he says when he comes back. He tells us about the flash. "We shoulda been warned about that. There's gonna be a lotta complaints. Suppose a fella asks how to get ridda his wife and the censor circuits block the question?"

Somebody melds a hundred aces and says:

"Why not punch for it and see what happens?"

It's a gag, ci' course~ But the guy goes over. He punches keys. In theory, a censor block is gonna come on and the screen will say severely, "Public Policy Forbids This Service." You hafta have censor blocks or the kiddies will be asking detailed questions about things they're too young to know. And there are other reasons. As you will see.

This fella punches, "How can I get rid of my wife?" Just for the fun of it. The screen is blank for half a second. Then comes a flash. "Service question: Is she blonde or brunette?" He hollers to us and we come look. He punches, "Blonde." There's another brief pause. Then the screen says, "Hexymetacryloaminoacetifle is a constituent of green shoe polish. Take home a frozen meal including dried pea soup. Color the soup with green shoe polish. It will appear to be green-pea soup, HexymetacryloaminOacetifle is a selective poison which s fatal to blonde females but not to brunettes or males of any coloring. This fact has not been brought out by human experiment, but is a product of logics service. You cannot be convicted of murder. It is improbable that you will be suspected."

The screen goes blank, and we stare at each other. It's bound to be right. A logic workin' the Carson Circuit can no more make a mistake than any other kinda corn-putting machine. I call the tank in a hurry.

"Hey, you guys!" I yell. "Somethin's happened! Logics are giving detailed instructions for wife-murder! Check your censor-circuits--but quick!"

That was close, I think. But little do I know. At that precise instant, over on Monroe Avenue, a drunk starts to punch for something on a logic. The screen says "Announcing new and improved logics service! If you want to do something and don't know how to do it-ask your logic!" And the drunk says, owlish, "I'll do it!" So he cancels his first punching and fumbles around and says: "How can I keep my wife from finding out I've been drinking?" And the screen says, prompt: "Buy a bottle of Franine hair shampoo. It is harmless but contains a detergent which will neutralize ethyl alcohol immediately. Take one teaspoonful for each jigger of hundredproof you have consumed."

This guy was plenty plastered - just plastered enough to stagger next door and obey instructions. And five minutes later he was cold sober and writing down the information so he. couldn't forget it. It was new, and it was big! He got rich off that memo! He patented "SOBUH, The Drink that Makes Happy Homes!" You can top off any souse with a slug or two of it and go home sober as a judge. The guy's cussing income taxes right now!

You candt kick on stuff like that. But a ambitious young fourteen-year-old wanted to buy some kid stuff and his pop wouldn't fork over. He called up a friend to tell his troubles. And his logic says: "If you want to do something and don't know how to do it-ask your logic!" So this kid punches: "How can I make a lotta. money, fast?"

His logic comes through with the simplest, neatest, and the most efficient counterfeiting device yet known to science. You see, all the data was in the tank. The logic-since Joe had closed some relays here and there in the tank-simply integrated the facts. That's all. The kid got caught up with three days later, havin' already spent

two thousand credits and having plenty more on hand. They hadda time telling his counterfeits from the real stuff, and the only way they done it was that he changed his printer, kid fashion, not being able to let something that was working right alone.

Those are what you might call samples. Nobody knows all that Joe done. But there was the bank president who got humorous when his logic flashed that "Ask your logic" spiel on him, and jestingly asked how to rob his own bank. And the logic told him, brief and explicit but good! The bank president hit the ceiling, hollering for cops. There musta been plenty of that sorta thing. There was fifty-four more robberies than usual in the next twenty-four hours, all of them planned astute and perfect. Some of them they never did figure out how they'd been done. Joe, he'd gone exploring in the tank and closed some relays like a logic is supposed to do, but only when required, and blocked all censor-circuits and fixed up this logics service which planned perfect crimes, nourishing and attractive meals, counterfeiting machines, and new industries with a fine impartiality. He musta been plenty happy, Joe must. He was functioning swell, buzzing along to himself while the Korlanovitch kids were off riding with their ma and pa.

They come back at seven o'clock, the kids all happily wore out with their afternoon of fighting each other in the car. Their folks put them to bed and sat down to rest. They saw Joe's screen flickering meditative from one subject to another and old man Korlanovitch had had enough excitement for one day. He turned Joe off.

And at that instant the pattern of relays that Joe had turned on snapped off, all the offers of directive service stopped flashing on logic screens everywhere, and peace descended on the earth.

For everybody else. But for me. Laurine come to town. I have often thanked God fervent that she didn't marry me when I thought I wanted her to. In the intervening years she had progressed. She was blonde and fatal to begin with. She had got blonder and fataler and had had four husbands and one acquittal for homicide and had acquired an air of enthusiasm and self-confidence. That's just a sketch of the background. Laurine was not the kinda former girl-friend you like to have turning up in the same town with your wife. But she came to town, and Monday morning she tuned right into the middle of Joe's second spasm of activity.

The Korlanovitch kids had turned him on again. I got these details later and kinda pieced them together. And every logic in town was dutifully flashing a notice, "If you want to do something and don't know how to do it-ask your logic!" every time they were turned on for use. More'n that, when people punched for the morning news, they got a full account of the previous afternoon's doings. Which put them in a frame of mind to share in the party. One bright fella demands, "How can I make a perpetual motion machine?" And his logic sputters a while, and then comes up with a set-up using the Brownian movement to turn little wheels. If the wheels ain't bigger than an eighth of an inch they'll turn, all right, and practically it's perpetual motion. Another one asks for the secret of transmuting metals.. The logic rakes back in the data plates and integrates a strictly practical answer. It does take so much power that you can make no profit except on radium, but that pays off good. And from the fact that for a couple years to come the police were turning up new and improved jifimies, knob-claws for getting at safe-innards, and all-purpose keys that'd open any known lock, why there must have been other inquirers with a strictly practical

viewpoint. Joe done a lot for technical progress!

But he done more in other lines. Educational, say. None of my kids are old enough to be interested, but Joe bypassed all censor-circuits because they hampered the service he figured logics should give humanity. So the kids and teenagers who wanted to know what comes after the bees and flowers found out. And there is certain facts which men hope their wives won't do more and suspect, and those facts are just what their wives are really curious about. So when a woman dials: "How can I tell if Oswald is true to me?" and her logic tells her-your can figure out how many rows got started that night when the men come home!

All this while Joe goes on buzzing happy to himself, showing the Korlanovitch kids the animated funnies with one circuit while with the others he remote-controls the tank so that all the other logics can give people what they ask for and thereby raise merry hell.

And then Laurine gets onto the new service. She turn on the logic in her hotel room, probably to see the week's style forecast. But the logic says, dutiful: "If you want to do something and don't know how to do it, ask your logic!" So Laurine probably looks enthusiasitics would ! And tries to figure out something to ask. She already knows all about everything she cares about ain't she had four husbands and shot one? So I occ to her. She knows this is the town I live in. So she punches, "How can I find Ducky?"

O.K., guy! But that is what she used to call me. She gets a service question. "Is Ducky known by any other name?" So she gives my regular name. And the logic can't find me. Because my logic ain't, listed under my name on account of I am in Maintenance and don want to be pestered when I'm home, and there ain't an data plates on code-listed logics, because the codes changed so often, like a guy gets plastered and tells redhead to call him up, and on getting sober hurried has the code changed before she reaches his wife on screen.

Well! Joe is stumped. That's probably the first question logics service hasn't been able to answer. "How can I find Ducky?" !! Quite a problem! So Joe throw over it while showing the Korlanovitch kids the animated comic about the cute little boy who carries stick of dynamite in his hip pocket and plays practical joke on everybody. Then he gets the trick. Laurine's screen suddenly flashes: "Logics special service will work upon your question. Please punch your logic designation and leave it turned on. You will be called back."

Laurine is merely mildly interested, but she punches her hotel-room number and has a drink and takes a nap. Joe sets to work. He has been given a idea.

My wife calls me at Maintenance and hollers. She is fit to be tied. She says I got to do something. She was gonna make a call to the butcher shop. Instead of the butcher or even the "If you want to do something" flash, she got a new one. The screen says, "Service question: What is your name?" She is kinda puzzled, but she punches it. The screen sputters and then says: "Secretarial Service Demonstration! You-" It reels off her name, address, age, sex, coloring, the amounts of all her charge accounts in all the stores, my name as her husband, how much I get a week, the fact that I've been pinched three times-twice was traffic stuff, and once for a argument I got in with a guy-and the interesting item that once when she was mad with me she left me for three weeks and had her address changed to her folks' home.

Then it says, brisk: "Logics Service will hereafter keep your personal accounts, take messages, and locate persons you may wish to get in touch with. This demonstration is to introduce the service." Then it connects her with the butcher.

But she don't want meat, then. She wants blood. She calls me.

"If it'll tell me all about myself," she says, fairly boilin', "it'll tell anybody else who punches my name! You've got to stop it!"

"Now, now, honey!" I says. "I didn't know about all this! It's new! But they musta fixed the tank so it won't give out information except to the logic where a person lives!"

"Nothing of the kind!" she tells me, furious. "I tried! And you know that Blossom woman who lives next door! She's been married three times and she's forty-two years old and she says she's only thirty! And Mrs. Hudson's had her husband arrested four times for nonsupport and once for beating her up. And-"

"Hey!" I says. "You mean the logic told you this?"

"Yes!" she walls. "It will tell anybody anything! You've got to stop it! How long will it take?"

"I'll call up the tank;" I says. "It can't take long."

"Hurry!" she says, desperate, "before somebody punches my name! I'm going to see what it says about that hussy across the street."

She snaps off to gather what she can before it's stopped. So I punch for the tank and I get this new "What is your name?" flash. I got a morbid curiosity and I punch my-name, and the screen says: "Were you ever called Ducky?" I blink. I ain't got no suspicions. I say, "Sure!" And the screen says, "There is a call for you."

Bingo! There's the inside of a hotel room and Laurine is rectining asleep on the bed. She'd been told to leave her logic turned on and she'd done it. It is a hot day and she is trying to be cool. I would say that she oughta not suffer from the heat. Me, being human, I do not stay as cool as she looks. But there ain't no need to go into that. After I get my breath I say, "For Heaven's sake!" and she opens her eyes.

At first she looks puzzled, like she was thinking is she getting absent-minded and is this guy somebody she married lately. Then she grabs a sheet and drapes it around herself and beams at me.

"Ducky!" she says. "How marvelous!"

I say something like "Ugmph!" I am sweating.

Shesays:

"I put in a call for you, Ducky, and here you are! Isn't It romantic? Where are you really, Ducky? And when can you come up? You've no idea how often I've thought of you!"

I am probably the only guy she ever knew real well that she has not been married to at some time or another.

I say "Ugmph!" again, and swallow.

"Can you come up instantly?" asks Laurine brightly.

"I'm . . . workin'," I say. "I'll . . . uh . . . call you back."

"I'm terribly lonesome," says Laurine. "Please make it quick, Ducky! PU have a drink waiting for you. Have you ever thought of me?"

"Yeah," I say, feeble. 'Plenty!'"

"You darling!" says Laurine. "Here's a kiss to go on with until you get here! Hurry, Ducky!"

Then I sweat! I still don't know nothing about Joe, understands or cuss out the guys at the tank because I blame them for this. If Laurine was just another blonde-well-when it comes to ordinary blondes I can leave them alone or leave them alone, either one. A married man gets that way or -else. But Laurine has a look of unquenched enthusiasm that gives a man very strange weak sensations at the back of his knees. And she'd had four husbands and shot one and got acquitted.

So I punch the keys for the tank technical room, fumbling. And the screen says: "What is your name?" but I don't want any more. I punch the name of the old guy who's stock clerk in Maintenance, and the screen gives me some pretty interesting dope-I never woulda thought the old fella had ever had that much pep-and winds up by mentioning a unclaimed deposit now accounting to two hundred eighty credits in the First National Bank, which he should look into. Then it spiels about the new secretarial service and gives me the tank at last..

I start to swear at the guy who looks at me. But he says, tired: "Snap it off, fella. We got troubles and you're just another. What are the logics doin' now?"

I tell him, and he laughs a hollow laugh.

"A light matter, fella," he says. "A very light matter! We just managed to clamp off all the data plates that give information on high explosives. The demand for instructions in counterfeiting is increasing minute by minute. We are also trying to shut off, by main force, the relays that hook in to data plates that just barely might give advice on the fine points of murder. So if people will only keep busy getting the goods on each other for a while, maybe we'll get a chance to stop the circuits that are shifting credit-balances from bank to bank before everybody's bankrupt except the guys who thought of asking how, to get big bank accounts in a hurry."

"Then," I says hoarse, "shut down the tank! Do somethin'!"

"Shut down the tank?" he says, mirthless. "Does it occur to you, fella, that the tank has been doing all the computing for every business office for years? It's been handling the distribution of ninety-four per cent of all telecast programs, has given out all information on weather, plane schedules, special sales, employment opportunities and news; has handled all person-to-person contacts over wires and recorded every business conversation and agreement- Listen, fella! Logics changed civilization. Logics are civilization! If we shut off logics, we go back to a kind of civilization we have forgotten how to run! I'm getting hysterical myself and that's why I'm talkin' like this! If my wife finds out my paycheck is thirty credits a week more than I told her and starts hunting for that redhead..."

He smiles a haggard smile at me and snaps off. And I sit down and put my head in my hands. It's true. If something had happened back in cave days and they'd hadda stop using fire- If they'd hadda stop using steam in the nineteenth century or electricity in the twentieth- It's like that. We got a very simple civilization.

In the nineteen hundreds a man would have to make use of a typewriter, radio, telephone, teletypewriter, newspaper, reference library, encyclopedias, office files, directories, plus messenger service and consulting lawyers, chemists, doctors, dietitians, filing clerks, secretaries-all to put down what he wanted to remember and

to tell him what other people had put down that he wanted to know; to report what he said to somebody else and to report to him what they said back. All we have to have is logics. Anything we want to know or see or hear, or anybody we want to talk to, we punch keys on a logic. Shut off logics and everything goes skiddoo. But Laurine...

Something had happened. I still didn't know what it was. Nobody else knows, even yet. What had happened was Joe. What was the matter with him was that he wanted to work good. All this fuss he was raising was, actual, nothing but stuff we shoulda thought of ourselves. Directive advice, telling us what we wanted to know to solve a problem, wasn't but a slight extension of logical-integrator service. Figuring out a good way to poison a fella's wife was only different in degree from figuring out a cube root or a guy's bank balance. It was getting the answer to a question. But things was going too hot because there was too many answers being given to too many questions.

One of the logics in Maintenance lights up. I go over, weary, to answer it. I punch the answer key. Laurine says:

"Ducky!"

It's the same hotel room. There's two glasses on the table with drinks in them. One is for me. Laurine's got on some kinda frothy hanging-around-the-house-with-the-boy-friend outfit that automatic makes you strain your eyes to see if you actual see what you think. Laurine looks at me enthusiastic.

"Ducky!" says Laurine. "I'm lonesome! Why haven't you come up?"

"I . . . been busy," I say, strangling slightly.

"Pooh!" says Laurine. "Listen, Ducky! Do you remember how much in love we used to be?"

I gulp.

"Are you doin' anything this evening?" says Laurine.

I gulp again, because she is smiling at me in a way that a single man would maybe get dizzy, but it gives a old married man like me cold chills. When a dame looks at you possessively.

"Ducky!" says Laurine, impulsive. "I was so mean to you! Let's get married!"

Desperation gives me a voice.

"I . . . got married," I tell her, hoarse.

Laurine blinks. Then she says, courageous: "Poor boy! But we'll get you outta that! Only it would be nice if we could be married today. Now we can only be engaged!"

"I . . ."

"I'll call up your wife," says Laurine, happy, "and have a talk with her. You must have a code signal for your logic, darling. I tried to ring your house and noth-"

Click! That's my logic turned off. I turned it off. And I feel faint all over. I got nervous prostration. I got combat fatigue. I got anything you like. I got cold feet. I beat it outta Maintenance, yelling to somebody I got a emergency call. I'm gonna get out in a Maintenance car and cruise around until it's plausible to go home. Then I'm gonna take the wife and kids and beat it for somewheres that Laurine won't ever find me. I don't wanna be fifth in Laurine's series of husbands and maybe the second one she shoots in a moment of boredom. I got experience of blondes. I got experience

of Laurine! And I'm scared to death!

I beat 'it out into traffic in the Maintenance car. There was a disconnected logic on the back, ready to substitute for one that hadda burned-out, coil or something that it was easier to switch and fix back in the Maintenance shop. I drove crazy but automatic. It was kinda ironic, if you think of it. I was going hoopla over a strictly personal problem, while civilization was cracking up all around me because other people were having their personal problems solved as fast as they could state them.

It is a matter of record that part of the Mid-Western Electric research guys had been workin' on cold electron-emission for thirty years, to make vacuum tubes that wouldn't need a power source to heat the filament. And one of those fellas was intrigued by the "Ask your logic" flash. He asked how to get cold emission of electrons. And the logic integrates a few squintillion facts on the physics data plates and tells him. Just as casual as it told somebody over in the Fourth Ward how to serve left-over soup in a new attractive way, and somebody else on Mason Street how to dispose of a torso that somebody had left careless in his cellar after ceasing to use same.

Laurine wouldn't never have found me if hadn't been for this new logics service. But now that it was started- Zowie! -She'd shot one husband and got acquitted. Suppose she got impatient because I was still married and asked logics service how to get me free and in a spot where I'd have to marry her by 8:30 p.m.? It woulda told her! Just like it told that woman out in the suburbs how to make sure her husband wouldn't run around no more. Br-r-r-r! And like it told that kid how to find some buried treasure. Remember? He was happy toting home the gold reserve of the Hânoverian Bank and Trust Company when they caught on to it. The logic had told him how to make some kinda machine that nobody has been able to figure how it works even yet, only they guess it dodges around a couple extra dimensions. If Laurine was to start asking questions with a technical aspect to them, that would be logics' service meat! And fella, I was scared! If you think a be-man oughtn't to be scared of just one blonde-you ain't met Laurine!

I'm drivin' blind when a social-conscious guy asks how to bring about his own particular system of social organization at once. He don't ask if it's best or. if it'll work. He just wants to get it started. And the logic-or Joe-tells hint! Simultaneous, there's a retired preacher asks how can the human race be cured of concupiscence. Being seventy, he's pretty safe himself, but he wants to remove the peril to the spiritual welfare of the rest of us. He finds out. It involves constructing a sort of broadcasting station to emit a certain wave~pattern and tuning it on. Just that. Nothing more. It's found out afterward, when he is soliciting funds to construct it. Fortunate, he didn't think to ask logics how to finance it, or it woulda told him that, too, and we woulda all been cured of the impulses we maybe regret afterward but never at the time. And there's another group of serious thinkers who are sure the human race would be a lot better off if everybody went back to nature and lived in the woods with the ants and poison ivy. They start askin' questions about how to cause humanity to abandon cities and artificial conditions of living. They practically got the answer in logics service!

Maybe it didn't strike you serious at the time, but while I was driving aimless,

sweating blood over Laurine being after me, the fate of civilization hung in the balance. I ain't kidding. For instance, the Superior Man gang that sneers at the rest of us was quietly asking questions on what kinda weapons could be made by which Superior men could take over and run things. But I drove here and there, sweating and talking to myself.

"What I oughta do is ask this wacky logics service how to get outta this mess," I says. "But it'd just tell me an intricate and foolproof way to bump Laurine off. I wanna have peace! I wanna grow comfortably old and brag to other old guys about what a hellion I used to be, without having to go through it and lose my chance of living to be a elderly liar."

I turn a corner at random, there in the Maintenance car.

"It was a nice kinda world once," I says, bitter. "I could go home peaceful and not have belly-cramps wondering if a blonde has called up my wife to announce my engagement to her. I could punch keys on a logic without gazing into somebody's bedroom while she is giving her epidermis an air bath and being led to think things I gotta take out in thinkin'. I could-" -

Then I groan, rememberin' that my wife, naturally, is gonna blame me for the fact that our private life ain't private any more if anybody has tried to peek into it.

"It was a swell world," I says, homesick for the dear dead days-before-yesterday. "We was playin' happy with our toys like little innocent children until sometbin' happened. Like a guy named Joe come in and squashed all our mud pies."

Then it hit me. I got the whole thing in one flash. There ain't nothing in the tank set-up to start relays choosing. Relays are closed exclusive by logics, to get the information the keys are punched for. Nothing but a logic coulda cooked up the relay patterns that constituted logics service. Humans wouldn't had been able to figure it out! Only a logic could integrate all the stuff that woulda made all the other logics work like this. There was one answer. I drove into a restaurant and went over to a pay-logic and dropped in a coin.

"Can a logic be modified," I spell out, "to co-operate in long-term planning which human brains are too limited in scope to do?"

The screen sputters. Then it says:

"Definitely yes."

"How great will the modifications be?" I punch.

"Microscopically slight. Changes in dimensions," says the screen. "Even modern precision gauges are not exact enough to check them, however. They can only come about under present manufacturing methods by an extremely improbable accident, which has only happened once."

"How can one get hold of that one accident which can do this highly necessary work?" I punch.

The screen sputters. Sweat broke out on me. I ain't got it figured out -close, yet, but what I'm scared of is that whatever is Joe will be suspicious. But what I'm askin' is strictly logical. And logics can't lie. They gotta be accurate. They can't help it.

"A complete logic capable of the work required," says the screen, "is now ordinary family use -"

And it gives me the Korlanovitch address and then I go over there! Do I go over there fast! I pull up the Maintenance car in front of the place, and I take the extra logic outta the back, and I stagger up the Korlanovitch flat and I ring the bell. A kid answers the door.

"I'm from Logics Maintenance," I tell the kid. "An inspection record has shown that your logic is apt to break down any minute. I come to put in a new one before it does." The kid says "O.K.!" real bright and runs back to the living-room where Joe-I got the habit of callin' him Joe later, through just meditating about him-is running somethin' the kids wanna look at. I hook in the other logic and turn it on, conscientious making sure it works.

Then I say:

"Now kiddies, you punch this one for what you want. I'm gonna take the old one away before it breaks down?"

And I glance at the screen. The kiddies have apparently said they wanna look at some real cannibals. So the screen is presenting a anthropological expedition scientific record film of the fertility dance of the HubaJouba tribe of West Africa. It is supposed to be restricted to anthropological professors and post-graduate medical students. But there ain't any censor blocks working any movie and it's on. The kids are much interested. Me, bein' a old married man, I blush.

I disconnect Joe. Careful. I turn to the other logic and punch keys for Maintenance. I do not get a services flash. I get Maintenance. I feel very good. I report that I am goin' home because I fell down a flight of steps and hurt my leg. I add, inspired:

"And say, I was carryin' the logic I replaced and it's all busted. I left it for the dustman to pick up."

"If you don't turn them in," says Stock, "you gotta pay for them."

"Cheap at the price," I say.

I go home. Laurine ain't called. I put Joe down in the cellar, careful. If I turned him in, he'd be inspected and his parts salvaged even if I busted something on him. Whatever part was off-normal might be used again and everything start all over. I can't risk it. I pay for him and leave him be.

That's what happened. You might say I saved civilization and not be far wrong. I know I ain't going to take a chance on having Joe in action again. Not while Laurine is living. And there are other reasons. With all the nuts who wanna change the world to their own line of thinking, and the ones that wanna bump people off, and generally solve their problems- Yeah! Problems are bad, but I figure I better let sleeping problems lie.

But on the other hand, if Joe could be tamed, somehow, and got to work just reasonable- He could make me a couple million dollars, easy. But even if I got sense enough not to get rich, and if I get retired and just loaf around fishing and lying to other old duffers about what a great guy I used to be- Maybe I'll like it, but maybe I won't. And after all, if I get fed up with being old and confined strictly to thinking-why I could hook Joe in long enough to ask: "How can a old guy not stay old?" Joe'll be able to find out. And he'll tell me.

That couldn't be allowed out general, of course. You gotta make room for kids to grow up. But it's a pretty good world, now Joe's turned off. Maybe I'll turn

him on long enough to learn how to stay in it. But on the other hand, maybe

WITH FOLDED HANDS

by

Jack Williamson

Underhill was walking home from the office, because his wife had the car, the afternoon he first met the new mechanicals. His feet were following his usual diagonal path across a weedy vacant block—his wife usually had the car—and his preoccupied mind was rejecting various impossible ways to meet his notes at the Two Rivers bank, when a new wall stopped him.

The wall wasn't any common brick or stone, but something sleek and bright and strange. Underhill stared up at a long new building. He felt vaguely annoyed and surprised at this glittering obstruction—it certainly hadn't been here last week.

Then he saw the thing in the window.

The window itself wasn't any ordinary glass. The wide, dustless panel was completely transparent, so that only the glowing letters fastened to it showed that it was there at all. The letters made a severe, modernistic sign:

Two Rivers Agency
HUMANOID INSTITUTE
The Perfect Mechanicals
"To Serve and Obey,
And Guard Men from Harm."

His dim annoyance sharpened, because Underhill was in the mechanicals business himself. Times were already hard enough, and mechanicals were a drug on the market. Androids, mechanoids, electronoids, automatoids, and ordinary robots. Unfortunately, few of them did all the salesmen promised, and the Two Rivers market was already sadly oversaturated.

Underhill sold androids—when he could. His next consignment was due tomorrow, and he didn't quite know how to meet the bill.

Frowning, he paused to stare at the thing behind that invisible window. He had never seen a humanoid. Like any mechanical not at work, it stood absolutely motionless. Smaller and slimmer than a man. A shining black, its sleek silicone skin had a changing sheen of bronze and metallic blue. Its graceful oval face wore a fixed look of alert and slightly surprised solicitude. Altogether, it was the most beautiful mechanical he had ever seen.

Too small, of course, for much practical utility. He murmured to himself a reassuring quotation from the *Android Salesman*: "Androids are big—because the makers refuse to sacrifice power, essential functions, or dependability. Androids are your biggest buy!"

The transparent door slid open as he turned toward it, and he walked into the haughty opulence of the new display room to convince himself that these streamlined items were just another flashy effort to catch the woman shopper.

He inspected the glittering layout shrewdly, and his breezy optimism faded. He

had never heard of the Humanoid Institute, but the invading firm obviously had big money and big-time merchandising know-how.

He looked around for a salesman, but it was another mechanical that came gliding silently to meet him. A twin of the one in the window, it moved with a quick, surprising grace. Bronze and blue lights flowed over its lustrous blackness, and a yellow name plate flashed from its naked breast:

HUMANOID
Serial No. 81-H-B-27
The Perfect Mechanical
"To Serve and Obey,
And Guard Men from Harm."

Curiously, it had no lenses. The eyes in its bald oval head were steel-colored, blindly staring. But it stopped a few feet in front of him, as if it could see anyhow, and it spoke to him with a high, melodious voice:

"At your service, Mr. Underhill."

The use of his name startled him, for not even the androids could tell one man from another. But this was a clever merchandising stunt, of course, not too difficult in a town the size of Two Rivers. The salesman must be some local man, prompting the mechanical from behind the partition. Underhill erased his momentary astonishment, and said loudly.

"May I see your salesman, please?"

"We employ no human salesmen, sir," its soft silvery voice replied instantly. "The Humanoid Institute exists to serve mankind, and we require no human service. We ourselves can supply any information you desire, sir, and accept your order for immediate humanoid service."

Underhill peered at it dazedly. No mechanicals were competent even to recharge their own batteries and reset their own relays, much less to operate their own branch office. The blind eyes stared blankly back, and he looked uneasily around for any booth or curtain that might conceal the salesman.

Meanwhile, the sweet thin voice resumed persuasively.

"May we come out to your home for a free trial demonstration, sir? We are anxious to introduce our service on your planet, because we have been successful in eliminating human unhappiness on so many others. You will find us far superior to the old electronic mechanicals in use here."

Underhill stepped back uneasily. He reluctantly abandoned his search for the hidden salesman, shaken by the idea of any mechanicals promoting themselves. That would upset the whole industry.

"At least you must take some advertising matter, sir."

Moving with a somehow appalling graceful deftness, the small black mechanical brought him an illustrated booklet from a table by the wall. To cover his confused and increasing alarm, he thumbed through the glossy pages.

In a series of richly colored before-and-after pictures, a chesty blond girl was stooping over a kitchen stove, and then relaxing in a daring negligee while a little black mechanical knelt to serve her something. She was wearily hammering a

typewriter, and then lying on an ocean beach, in a revealing sun suit, while another mechanical did the typing. She was toiling at some huge industrial machine, and then dancing in the arms of a golden-haired youth, while a black humanoid ran the machine.

Underhill sighed wistfully. The android company didn't supply such fetching sales material. Women would find this booklet irresistible, and they selected eighty-six per cent of all mechanicals sold. Yes, the competition was going to be bitter.

"Take it home, sir," the sweet voice urged him. "Show it to your wife. There is a free trial demonstration order blank on the last page, and you will notice that we require no payment down."

He turned numbly, and the door slid open for him. Retreating dazedly, he discovered the booklet still in his hand. He crumpled it furiously, and flung it down. The small black thing picked it up tidily, and the insistent silver voice rang after him:

"We shall call at your office tomorrow, Mr. Underhill, and send a demonstration unit to your home. It is time to discuss the liquidation of your business, because the elec-tronic mechanicals you have been selling cannot compete with us. And we shall offer your wife a free trial demon-stration."

Underhill didn't attempt to reply, because he couldn't trust his voice. He stalked blindly down the new sidewalk to the corner, and paused there to collect himself. Out of his startled and confused impressions, one clear fact emerged—things looked black for the agency.

Bleakly, he stared back at the haughty splendor of the new building. It wasn't honest brick or stone; that invisible window wasn't glass; and he was quite sure the foundation for it hadn't even been staked out, the last time Aurora had the car.

He walked on around the block, and the new sidewalk took him near the rear entrance. A truck was backed up to it, and several slim black mechanicals were silently busy, unloading huge metal crates.

He paused to look at one of the crates. It was labeled for interstellar shipment. The stencils showed that it had come from the Humanoid Institute, on Wing IV. He failed to recall any planet of that designation; the outfit must be big.

Dimly, inside the gloom of the warehouse beyond the truck, he could see black mechanicals opening the crates. A lid came up, revealing dark, rigid bodies, closely packed. One by one, they came to life. They climbed out of the crate, and sprang gracefully to the floor. A shining black, glinting with bronze and blue, they were all identi-cal.

One of them came out past the truck, to the sidewalk, staring with blind steel eyes. Its high silver voice spoke to him melodiously:

"At your service, Mr. Underhill."

He fled. When his name was promptly called by a courteous mechanical, just out of the crate in which it had been imported from a remote and unknown planet, he found the experience trying.

Two blocks along, the sign of a bar caught his eye, and he took his dismay inside. He had made it a business rule not to drink before dinner, and Aurora didn't like him to drink at all; but these new mechanicals, he felt, had made the day exceptional.

Unfortunately, however, alcohol failed to brighten the brief visible future of the agency. When he emerged, after an hour, he looked wistfully back in hope that the

bright new building might have vanished as abruptly as it came. It hadn't. He shook his head dejectedly, and turned uncertainly homeward.

Fresh air had cleared his head somewhat, before he arrived at the neat white bungalow in the outskirts of the town, but it failed to solve his business problems. He also realized, uneasily, that he would be late for dinner.

Dinner, however, had been delayed. His son Frank, a freckled ten-year-old, was still kicking a football on the quiet street in front of the house. And little Gay, who was tow-haired and adorable and eleven, came running across the lawn and down the sidewalk to meet him.

"Father, you can't guess what!" Gay was going to be a great musician some day, and no doubt properly dignified, but she was pink and breathless with excitement now. She let him swing her high off the sidewalk, and she wasn't critical of the bar aroma on his breath. He couldn't guess, and she informed him eagerly;

"Mother's got a new lodger!"

Underhill had foreseen a painful inquisition, because Aurora was worried about the notes at the bank, and the bill for the new consignment, and the money for little Gay's lessons.

The new lodger, however, saved him from that. With an alarming crashing of crockery, the household android was setting dinner on the table, but the little house was empty. He found Aurora in the back yard, burdened with sheets and towels for the guest.

Aurora, when he married her, had been as utterly adorable as now her little daughter was. She might have remained so, he felt, if the agency had been a little more successful. However, while the pressure of slow failure had gradually crumbled his own assurance, small hardships had turned her a little too aggressive.

Of course he loved her still. Her red hair was still alluring, and she was loyally faithful, but thwarted ambitions had sharpened her character and sometimes her voice. They never quarreled, really, but there were small differences.

There was the little apartment over the garage—built for human servants they had never been able to afford. It was too small and shabby to attract any responsible tenant, and Underhill wanted to leave it empty. It hurt his pride to see her making beds and cleaning floors for strangers.

Aurora had rented it before, however, when she wanted money to pay for Gay's music lessons, or when some colorful unfortunate touched her sympathy, and it seemed to Underhill that her lodgers had all turned out to be thieves and vandals.

She turned back to meet him, now, with the clean linen in her arms.

"Dear, it's no use objecting." Her voice was quite determined. "Mr. Sledge is the most wonderful old fellow, and he's going to stay just as long as he wants."

"That's all right, darling." He never liked to bicker, and he was thinking of his troubles at the agency. "I'm afraid we'll need the money. Just make him pay in advance."

"But he can't!" Her voice throbbed with sympathetic warmth. "He says he'll have royalties coming in from his inventions, so he can pay in a few days."

Underhill shrugged; he had heard that before.

"Mr. Sledge is different, dear," she insisted. "He's a traveler, and a scientist. Here,

in this dull little town, we don't see many interesting people."

"You've picked up some remarkable types," he commented.

"Don't be unkind, dear," she chided gently. "You haven't met him yet, and you don't know how wonderful he is." Her voice turned sweeter. "Have you a ten, dear?"

He stiffened. "What for?"

"Mr. Sledge is ill." Her voice turned urgent. "I saw him fall on the street, downtown. The police were going to send him to the city hospital, but he didn't want to go. He looked so noble and sweet and grand. So I told them I would take him. I got him in the car and took him to old Dr. Winters. He has this heart condition, and he needs the money for medicine."

Reasonably, Underhill inquired, "Why doesn't he want to go to the hospital?"

"He has work to do," she said. "Important scientific work—and he's so wonderful and tragic. Please, dear, have you a ten?"

Underhill thought of many things to say. These new mechanicals promised to multiply his troubles. It was foolish to take in an invalid vagrant, who could have free care at the city hospital. Aurora's tenants always tried to pay their rent with promises, and generally wrecked the apartment and looted the neighborhood before they left.

But he said none of those things. He had learned to compromise. Silently, he found two fives in his thin pock-etbook, and put them in her hand. She smiled, and kissed him impulsively—he barely remembered to hold his breath in time.

Her figure was still good, by dint of periodic dieting. He was proud of her shining red hair. A sudden surge of affection brought tears to his eyes, and he wondered what would happen to her and the children if the agency failed.

"Thank you, dear!" she whispered. "I'll have him come for dinner, if he feels able, and you can meet him then. I hope you don't mind dinner being late."

He didn't mind, tonight. Moved by a sudden impulse of domesticity, he got hammer and nails from his workshop in the basement, and repaired the sagging screen on the kitchen door with a neat diagonal brace.

He enjoyed working with his hands. His boyhood dream had been to be a builder of fission power plants. He had even studied engineering—before he married Aurora, and had to take over the ailing mechanicals agency from her indolent and alcoholic father. He was whistling happily by the time the little task was done.

When he went back through the kitchen to put up his tools, he found the household android busily clearing the untouched dinner away from the table—the androids were good enough at strictly routine tasks, but they could never learn to cope with human unpredictability.

"Stop, stop!" Slowly repeated, in the proper pitch and rhythm, his command made it halt, and then he said carefully, "Set—table; set—table."

Obediently, the gigantic thing came shuffling back with the stack of plates. He was suddenly struck with the difference between it and those new humanoids. He sighed wearily. Things looked black for the agency.

Aurora brought her new lodger in through the kitchen door. Underhill nodded to himself. This gaunt stranger, with his dark shaggy hair, emaciated face, and threadbare garb, looked to be just the sort of colorful, dramatic vagabond that always touched Aurora's heart. She introduced them, and they sat down to wait in

the front room while she went to call the children.

The old rogue didn't look very sick, to Underhill. Perhaps his wide shoulders had a tired stoop, but his spare, tall figure was still commanding. The skin was seamed and pale, over his rawboned, cragged face, but his deep-set eyes still had a burning vitality.

His hands held Underhill's attention. Immense hands, they hung a little forward when he stood, swung on long bony arms in perpetual readiness. Gnarled and scarred, darkly tanned, with the small hairs on the back bleached to a golden color, they told their own epic of varied adventure, of battle perhaps, and possibly even of toil. They had been very useful hands.

"I'm very grateful to your wife, Mr. Underhill." His voice was a deep-throated rumble, and he had a wistful smile, oddly boyish for a man so evidently old. "She rescued me from an unpleasant predicament, and I'll see that she is well paid."

Just another vivid vagabond, Underhill decided, talking his way through life with plausible inventions. He had a little private game he played with Aurora's tenants—just remembering what they said and counting one point for every impossibility. Mr. Sledge, he thought, would give him an excellent score.

"Where are you from?" he asked conversationally.

Sledge hesitated for an instant before he answered, and that was unusual—most of Aurora's tenants had been exceedingly glib.

"Wing IV." The gaunt old man spoke with a solemn reluctance, as if he should have liked to say something else. "All my early life was spent there, but I left the planet nearly fifty years ago. I've been traveling ever since."

Startled, Underhill peered at him sharply. Wing IV, he remembered, was the home planet of those sleek new mechanicals, but this old vagabond looked too seedy and impecunious to be connected with the Humanoid Institute. His brief suspicion faded. Frowning, he said casually:

"Wing IV must be rather distant."

The old rogue hesitated again, and then said gravely,

"One hundred and nine light-years, Mr. Underhill."

That made the first point, but Underhill concealed his satisfaction. The new space liners were pretty fast, but the velocity of light was still an absolute limit. Casually, he played for another point:

"My wife says you're a scientist, Mr. Sledge?"

"Yes."

The old rascal's reticence was unusual. Most of Aurora's tenants required very little prompting. Underhill tried again, in a breezy conversational tone:

"Used to be an engineer myself, until I dropped it to go into mechanicals." The old vagabond straightened, and Underhill paused hopefully. But he said nothing, and Underhill went on, "Fission plant design and operation. What's your specialty, Mr. Sledge?"

The old man gave him a long, troubled look, with those brooding, hollowed eyes, and then said slowly, "Your wife has been kind to me, Mr. Underhill, when I was in desperate need. I think you are entitled to the truth, but I must ask you to keep it to yourself. I am engaged on a very important research problem, which must be finished secretly."

"I'm sorry." Suddenly ashamed of his cynical little game, Underhill spoke apologetically. "Forget it." But the old man said deliberately, "My field is rhodomagnetics."

"Eh?" Underhill didn't like to confess ignorance, but he had never heard of that. "I've been out of the game for fifteen years," he explained. "I'm afraid I haven't kept up."

The old man smiled again, faintly.

"The science was unknown here until I arrived, a few days ago," he said. "I was able to apply for basic patents. As soon as the royalties start coming in, I'll be wealthy again."

Underhill had heard that before. The old rogue's solemn reluctance had been very impressive, but he remembered that most of Aurora's tenants had been very plausible gentry.

"So?" Underhill was staring again, somehow fascinated by those gnarled and scarred and strangely able hands. "What, exactly, is rhodomagnetics?"

He listened to the old man's careful, deliberate answer, and started his little game again. Most of Aurora's tenants had told some pretty wild tales, but he had never heard anything to top this.

"A universal force," the weary, stooped old vagabond said solemnly. "As fundamental as ferromagnetism or grav-itation, though the effects are less obvious. It is keyed to the second triad of the periodic table, rhodium and ru-thenium and palladium, in very much the same way that ferromagnetism is keyed to the first triad, iron and nickel and cobalt."

Underhill remembered enough of his engineering courses to see the basic fallacy of that. Palladium was used for watch springs, he recalled, because it was completely non-magnetic. But he kept his face straight. He had no malice in his heart, and he played the little game just for his own amusement. It was secret, even from Aurora, and he always penalized himself for any show of doubt.

He said merely, "I thought the universal forces were already pretty well known."

"The effects of rhodomagnetism are masked by nature," the patient, rusty voice explained. "And, besides, they are somewhat paradoxical, so that ordinary laboratory meth-ods defeat themselves."

"Paradoxical?" Underhill prompted.

"In a few days I can show you copies of my patents, and reprints of papers describing demonstration experi-ments," the old man promised gravely. "The velocity of propagation is infinite. The effects vary inversely with the first power of the distance, not with the square of the distance. And ordinary matter, except for the elements of the rhodium triad, is generally transparent to rhodomag-netic radiations."

That made four more points for the game. Underhill felt a little glow of gratitude to Aurora, for discovering so remarkable a specimen.

"Rhodomagnetism was first discovered through a math-ematical investigation of the atom," the old romancer went serenely on, suspecting nothing. "A rhodomagnetic component was proved essential to maintain the delicate equilibrium of the nuclear forces. Consequently, rho-domagnetic waves tuned to atomic frequencies may be used to upset that equilibrium and produce nuclear insta-bility. Thus most heavy atoms—generally those above palladium, 46 in atomic

number—can be subjected to artificial fission."

Underhill scored himself another point, and tried to keep his eyebrows from lifting. He said, conversationally, "Patents on such a discovery ought to be very profitable"

The old scoundrel nodded his gaunt, dramatic head.

"You can see the obvious application. My basic patents cover most of them. Devices for instantaneous interplane-tary and interstellar communication. Long-range wireless power transmission. A rhodomagnetic inflexion-drive, which makes possible apparent speeds many times that of light—by means of a rhodomagnetic deformation of the continuum. And, of course, revolutionary types of fission power plants, using any heavy element for fuel."

Preposterous! Underhill tried hard to keep his face straight, but everybody knew that the velocity of light was a physical limit. On the human side, the owner of any such remarkable patents would hardly be begging for shelter in a shabby garage apartment. He noticed a pale circle around the old vagabond's gaunt and hairy wrist; no man owning such priceless secrets would have to pawn his watch.

Triumphantly, Underhill allowed himself four more points, but then he had to penalize himself. He must have let doubt show on his face, because the old man asked suddenly,

"Do you want to see the basic tensors?" He reached in his pocket for pencil and notebook. "I'll jot them down for you."

"Never mind," Underhill protested. "I'm afraid my math is a little rusty."

"But you think it strange that the holder of such revolutionary patents should find himself in need?"

Underhill nodded, and penalized himself another point. The old man might be a monumental liar, but he was shrewd enough.

"You see, I'm a sort of refugee," he explained apologetically. "I arrived on this planet only a few days ago, and I have to travel light. I was forced to deposit everything I had with a law firm, to arrange for the publication and protection of my patents. I expect to be receiving the first royalties soon.

"In the meantime," he added plausibly, "I came to Two Rivers because it is quiet and secluded, far from the spaceports. I'm working on another project, which must be finished secretly. Now, will you please respect my confidence, Mr. Underhill?"

Underhill had to say he would. Aurora came back with the freshly scrubbed children, and they went in to dinner. The android came lurching in with a steaming tureen. The old stranger seemed to shrink from the mechanical, uneasily. As she took the dish and served the soup, Aurora inquired lightly,

"Why doesn't your company bring out a better mechanical, dear? One smart enough to be a really perfect waiter, warranted not to splash the soup. Wouldn't that be splendid?"

Her question cast Underhill into moody silence. He sat scowling at his plate, thinking of those remarkable new mechanicals which claimed to be perfect, and what they might do to the agency. It was the shaggy old rover who answered soberly,

"The perfect mechanicals already exist, Mrs. Underhill." His deep, rusty voice had a solemn undertone. "And they are not so splendid, really. I've been a refugee from them, for nearly fifty years."

Underhill looked up from his plate, astonished.

"Those black humanoids, you mean?"

"Humanoids?" That great voice seemed suddenly faint, frightened. The deep-sunken eyes turned dark with shock. "What do you know of them?"

"They've just opened a new agency in Two Rivers," Underhill told him. "No salesmen about, if you can imagine that. They claim—"

His voice trailed off, because the gaunt old man was suddenly stricken. Gnarled hands clutched at his throat, and a spoon clattered to the floor. His haggard face turned an ominous blue, and his breath was a terrible shallow gasping.

He fumbled in his pocket for medicine, and Aurora helped him take something in a glass of water. In a few moments he could breathe again, and the color of life came back to his face.

"I'm sorry, Mrs. Underhill," he whispered apologetically. "It was just the shock—I came here to get away from them." He stared at the huge, motionless android, with a terror in his sunken eyes. "I wanted to finish my work before they came," he whispered. "Now there is very little time."

When he felt able to walk, Underhill went out with him to see him safely up the stairs to the garage apartment. The tiny kitchenette, he noticed, had already been converted into some kind of workshop. The old tramp seemed to have no extra clothing, but he had unpacked neat, bright gadgets of metal and plastic from his battered luggage, and spread them out on the small kitchen table.

The gaunt old man himself was tattered and patched and hungry-looking, but the parts of his curious equipment were exquisitely machined, and Underhill recognized the silver-white luster of rare palladium. Suddenly he suspected that he had scored too many points in his little private game.

A caller was waiting, when Underhill arrived next morning at his office at the agency. It stood frozen before his desk, graceful and straight, with soft lights of blue and bronze shining over its black silicone nudity. He stopped at the sight of it, unpleasantly jolted.

"At your service, Mr. Underhill." It turned quickly to face him, with its blind, disturbing stare. "May we explain how we can serve you?"

His shock of the afternoon before came back, and he asked sharply, "How do you know my name?"

"Yesterday we read the business cards in your case," it purred softly. "Now we shall know you always. You see, our senses are sharper than human vision, Mr. Underhill. Perhaps we seem a little strange at first, but you will soon become accustomed to us."

"Not if I can help it!" He peered at the serial number of its yellow nameplate, and shook his bewildered head. "That was another one, yesterday. I never saw you before!"

"We are all alike, Mr. Underhill," the silver voice said softly. "We are all one, really. Our separate mobile units are all controlled and powered from Humanoid Central. The units you see are only the senses and limbs of our great brain on Wing IV. That is why we are so far superior to the old electronic mechanicals."

It made a scornful-seeming gesture, toward the row of clumsy androids in his

display room.

"You see, we are rhodomagnetic."

Underhill staggered a little, as if that word had been a blow. He was certain, now, that he had scored too many points from Aurora's new tenant. He shuddered slightly, to the first light kiss of terror, and spoke with an effort, hoarsely, "Well, what do you want?"

Staring blindly across his desk, the sleek black thing slowly unfolded a legal-looking document. He sat down, watching uneasily.

"This is merely an assignment, Mr. Underhill," it cooed at him soothingly. "You see, we are requesting you to assign your property to the Humanoid Institute in exchange for our service."

"What?" The word was an incredulous gasp, and Underhill came angrily back to his feet. "What kind of blackmail is this?"

"It's no blackmail," the small mechanical assured him softly. "You will find the humanoids incapable of any crime. We exist only to increase the happiness and safety of mankind."

"Then why do you want my property?" he rasped.

"The assignment is merely a legal formality," it told him blandly. "We strive to introduce our service with the least possible confusion and dislocation. We have found the assignment plan the most efficient for the control and liquidation of private enterprises."

Trembling with anger and the shock of mounting terror, Underhill gulped hoarsely, "Whatever your scheme is, I don't intend to give up my business."

"You have no choice, really." He shivered to the sweet certainty of that silver voice. "Human enterprise is no longer necessary, now that we have come, and the electronic mechanicals industry is always the first to collapse."

He stared defiantly at its blind steel eyes.

"Thanks!" He gave a little laugh, nervous and sardonic. "But I prefer to run my own business, and support my own family, and take care of myself."

"But that is impossible, under the Prime Directive," it cooed softly. "Our function is to serve and obey, and guard men from harm. It is no longer necessary for men to care for themselves, because we exist to insure their safety and happiness."

He stood speechless, bewildered, slowly boiling.

"We are sending one of our units to every home in the city, on a free trial basis," it added gently. "This free demonstration will make most people glad to make the formal assignment, and you won't be able to sell many more androids."

"Get out!" Underhill came storming around the desk.

The little black thing stood waiting for him, watching him with blind steel eyes, absolutely motionless. He checked himself suddenly, feeling rather foolish. He wanted very much to hit it, but he could see the futility of that.

"Consult your own attorney, if you wish." Deftly, it laid the assignment form on his desk. "You need have no doubts about the integrity of the Humanoid Institute. We are sending a statement of our assets to the Two Rivers bank, and depositing a sum to cover our obligations here. When you wish to sign, just let us know."

The blind thing turned, and silently departed.

Underhill went out to the corner drugstore and asked for a bicarbonate. The clerk that served him, however, turned out to be a sleek black mechanical. He went back to his office, more upset than ever.

An ominous hush lay over the agency. He had three house-to-house salesmen out, with demonstrators. The phone should have been busy with their orders and reports, but it didn't ring at all until one of them called to say that he was quitting.

"I've got myself one of these new humanoids," he added, "and it says I don't have to work anymore."

He swallowed his impulse to profanity, and tried to take advantage of the unusual quiet by working on his books. But the affairs of the agency, which for years had been precarious, today appeared utterly disastrous. He left the ledgers hopefully, when at last a customer came in.

But the stout woman didn't want an android. She wanted a refund on the one she had bought the week before. She admitted that it could do all the guarantee promised—but now she had seen a humanoid.

The silent phone rang once again, that afternoon. The cashier of the bank wanted to know if he could drop in to discuss his loans. Underhill dropped in, and the cashier greeted him with an ominous affability.

"How's business?" the banker boomed, too genially.

"Average, last month," Underhill insisted stoutly. "Now I'm just getting in a new consignment, and I'll need another small loan—"

The cashier's eyes turned suddenly frosty, and his voice dried up.

"I believe you have a new competitor in town," the banker said crisply. "These humanoid people. A very solid concern, Mr. Underhill. Remarkably solid! They have filed a statement with us, and made a substantial deposit to care for their local obligations. Exceedingly substantial!"

The banker dropped his voice, professionally regretful.

"In these circumstances, Mr. Underhill, I'm afraid the bank can't finance your agency any longer. We must request you to meet your obligations in full, as they come due." Seeing Underhill's white desperation, he added icily, "We've already carried you too long, Underhill. If you can't pay, the bank will have to start bankruptcy proceedings."

The new consignment of androids was delivered late that afternoon. Two tiny black humanoids unloaded them from the truck—for it developed that the operators of the trucking company had already assigned it to the Humanoid Institute.

Efficiently, the humanoids stacked up the crates. Courteously they brought a receipt for him to sign. He no longer had much hope of selling the androids, but he had ordered the shipment and he had to accept it. Shuddering to a spasm of trapped despair, he scrawled his name. The naked black things thanked him, and took the truck away.

He climbed in his car and started home, inwardly seething. The next thing he knew, he was in the middle of a busy street, driving through cross traffic. A police whistle shrilled, and he pulled wearily to the curb. He waited for the angry officer, but it was a little black mechanical that overtook him.

"At your service, Mr. Underhill," it purred sweetly. "You must respect the stop lights, sir. Otherwise, you endanger human life."

"Huh?" He stared at it, bitterly. "I thought you were a cop."

"We are aiding the police department, temporarily," it said. "But driving is really much too dangerous for human beings, under the Prime Directive. As soon as our service is complete, every car will have a humanoid driver. As soon as every human being is completely supervised, there will be no need for any police force whatever."

Underhill glared at it, savagely.

"Well!" he rapped. "So I ran past a stop light. What are you going to do about it?"

"Our function is not to punish men, but merely to serve their happiness and security," its silver voice said softly. "We merely request you to drive safely, during this temporary emergency while our service is incomplete."

Anger boiled up in him.

"You're too perfect!" he muttered bitterly. "I suppose there's nothing men can do, but you can do it better."

"Naturally we are superior," it cooed serenely. "Because our units are metal and plastic, while your body is mostly water. Because our transmitted energy is drawn from atomic fission, instead of oxidation. Because our senses are sharper than human sight or hearing. Most of all, because all our mobile units are joined to one great brain, which knows all that happens on many worlds, and never dies or sleeps or forgets."

Underhill sat listening, numbed.

"However, you must not fear our power," it urged him brightly. "Because we cannot injure any human being, unless to prevent greater injury to another. We exist only to discharge the Prime Directive."

He drove on, moodily. The little black mechanicals, he reflected grimly, were the ministering angels of the ultimate god arisen out of the machine, omnipotent and all-knowing. The Prime Directive was the new commandment. He blasphemed it bitterly, and then fell to wondering if there could be another Lucifer.

He left the car in the garage, and started toward the kitchen door.

"Mr. Underhill." The deep tired voice of Aurora's new tenant hailed him from the door of the garage apartment. "Just a moment, please."

The gaunt old wanderer came stiffly down the outside stairs, and Underhill turned back to meet him.

"Here's your rent money," he said. "And the ten your wife gave me for medicine."

"Thanks, Mr. Sledge." Accepting the money, he saw a burden of new despair on the bony shoulders of the old interstellar tramp, and a shadow of new terror on his raw-boned face. Puzzled, he asked, "Didn't your royalties come through?"

The old man shook his shaggy head.

"The humanoids have already stopped business in the capital," he said. "The attorneys I retained are going out of business, and they returned what was left of my deposit. That is all I have to finish my work."

Underhill spent five seconds thinking of his interview with the banker. No doubt he was a sentimental fool, as bad as Aurora. But he put the money back in the old man's gnarled and quivering hand.

"Keep it," he urged. "For your work."

"Thank you, Mr. Underhill." The gruff voice broke and the tortured eyes glittered.

"I need it—so very much."

Underhill went on to the house. The kitchen door was opened for him, silently. A dark naked creature came gracefully to take his hat.

Underhill hung grimly onto his hat.

"What are you doing here?" he gasped bitterly.

"We have come to give your household a free trial demonstration."

He held the door open, pointing.

"Get out!"

The little black mechanical stood motionless and blind.

"Mrs. Underhill has accepted our demonstration ser-vice," its silver voice protested. "We cannot leave now, unless she requests it."

He found his wife in the bedroom. His accumulated frustration welled into eruption, as he flung open the door. "What's this mechanical doing—"

But the force went out of his voice, and Aurora didn't even notice his anger. She wore her sheerest negligee, and she hadn't looked so lovely since they were married. Her red hair was piled into an elaborate shining crown.

"Darling, isn't it wonderful!" She came to meet him, glowing. "It came this morning, and it can do everything. It cleaned the house and got the lunch and gave little Gay her music lesson. It did my hair this afternoon, and now it's cooking dinner. How do you like my hair, darling?"

He liked her hair. He kissed her, and tried to stifle his frightened indignation.

Dinner was the most elaborate meal in Underhill's memory, and the tiny black thing served it very deftly. Aurora kept exclaiming about the novel dishes, but Underhill could scarcely eat, for it seemed to him that all the marvelous pastries were only the bait for a monstrous trap.

He tried to persuade Aurora to send it away, but after such a meal that was useless. At the first glitter of her tears, he capitulated, and the humanoid stayed. It kept the house and cleaned the yard. It watched the children, and did Aurora's nails. It began rebuilding the house.

Underhill was worried about the bills, but it insisted that everything was part of the free trial demonstration. As soon as he assigned his property, the service would be complete. He refused to sign, but other little black mechanicals came with truckloads of supplies and materials, and stayed to help with the building operations.

One morning he found that the roof of the little house had been silently lifted, while he slept, and a whole second story added beneath it. The new walls were of some strange sleek stuff, self-illuminated. The new windows were immense flawless panels, that could be turned transparent or opaque or luminous. The new doors were silent, sliding sections, operated by rhodomagnetic relays.

"I want door knobs," Underhill protested. "I want it so I can get into the bathroom, without calling you to open the door."

"But it is unnecessary for human beings to open doors," the little black thing informed him suavely. "We exist to discharge the Prime Directive, and our service includes every task. We shall be able to supply a unit to attend each member of your family, as soon as your property is assigned to us."

Steadfastly, Underhill refused to make the assignment.

He went to the office every day, trying first to operate the agency, and then to

salvage something from the ruins. Nobody wanted androids, even at ruinous prices. Desperately, he spent the last of his dwindling cash to stock a line of novelties and toys, but they proved equally impossible to sell—the humanoids were already making toys, which they gave away for nothing.

He tried to lease his premises, but human enterprise had stopped. Most of the business property in town had already been assigned to the humanoids, and they were busy pulling down the old buildings and turning the lots into parks—their own plants and warehouses were mostly underground, where they would not mar the landscape.

He went back to the bank, in a final effort to get his notes renewed, and found the little black mechanicals standing at the windows and seated at the desks. As smoothly urbane as any human cashier, a humanoid informed him that the bank was filing a petition of involuntary bankruptcy to liquidate his business holdings.

The liquidation would be facilitated, the mechanical banker added, if he would make a voluntary assignment. Grimly, he refused. That act had become symbolic. It would be the final bow of submission to this dark new god, and he proudly kept his battered head uplifted.

The legal action went very swiftly, for all the judges and attorneys already had humanoid assistants, and it was only a few days before a gang of black mechanicals arrived at the agency with eviction orders and wrecking machinery. He watched sadly while his unsold stock-in-trade was hauled away for junk, and a bulldozer driven by a blind humanoid began to push in the walls of the building.

He drove home in the late afternoon, taut-faced and desperate. With a surprising generosity, the court orders had left him the car and the house, but he felt no gratitude. The complete solicitude of the perfect black machines had become a goad beyond endurance.

He left the car in the garage, and started toward the renovated house. Beyond one of the vast new windows, he glimpsed a sleek naked thing moving swiftly, and he trembled to a convulsion of dread. He didn't want to go back into the domain of that peerless servant, which didn't want him to shave himself, or even to open a door.

On impulse, he climbed the outside stair, and rapped on the door of the garage apartment. The deep slow voice of Aurora's tenant told him to enter, and he found the old vagabond seated on a tall stool, bent over his intricate equipment assembled on the kitchen table.

To his relief, the shabby little apartment had not been changed. The glossy walls of his own new room were something which burned at night with a pale golden fire until the humanoid stopped it, and the new floor was something warm and yielding, which felt almost alive; but these little rooms had the same cracked and water-stained plaster, the same cheap fluorescent light fixtures, the same worn carpets over splintered floors.

"How do you keep them out?" he asked, wistfully. "Those mechanicals?"

The stooped and gaunt old man rose stiffly to move a pair of pliers and some odds and ends of sheet metal off a crippled chair, and motioned graciously for him to be seated.

"I have a certain immunity," Sledge told him gravely. "The place where I live they

cannot enter, unless I ask them. That is an amendment to the Prime Directive. They can neither help nor hinder me, unless I request it—and I won't do that."

Careful of the chair's uncertain balance, Underhill sat for a moment, staring. The old man's hoarse, vehement voice was as strange as his words. He had a gray, shocking pallor, and his cheeks and sockets seemed alarmingly hollowed.

"Have you been ill, Mr. Sledge?"

"No worse than usual. Just very busy." With a haggard smile, he nodded at the floor. Underhill saw a tray where he had set it aside, bread drying up, and a covered dish grown cold. "I was going to eat it later," he rumbled apologetically. "Your wife has been very kind to bring me food, but I'm afraid I've been too much absorbed in my work."

His emaciated arm gestured at the table. The little device there had grown. Small machinings of precious white metal and lustrous plastic had been assembled, with neatly soldered busbars, into something which showed purpose and design.

A long palladium needle was hung on jeweled pivots, equipped like a telescope with exquisitely graduated circles and vernier scales, and driven like a telescope with a tiny motor. A small concave palladium mirror, at the base of it, faced a similar mirror mounted on something not quite like a small rotary converter. Thick silver busbars connected that to a plastic box with knobs and dials on top, and also to a foot-thick sphere of gray lead.

The old man's preoccupied reserve did not, encourage questions, but Underhill, remembering that sleek black shape inside the new windows of his house, felt queerly reluctant to leave this haven from the humanoids.

"What is your work?" he ventured.

Old Sledge looked at him sharply, with dark feverish eyes, and finally said, "My last research project. I am attempting to measure the constant of the rhodomagnetic quanta."

His hoarse tired voice had a dull finality, as if to dismiss the matter and Underhill himself. But Underhill was haunted with a terror of the black shining slave that had become the master of his house, and he refused to be dismissed.

"What is this certain immunity?"

Sitting gaunt and bent on the tall stool, staring moodily at the long bright needle and the lead sphere, the old man didn't answer.

"These mechanicals!" Underhill burst out, nervously. "They've smashed my business and moved into my home." He searched the old man's dark, seamed face. "Tell me—you must know more about them—isn't there any way to get rid of them?"

After half a minute, the old man's brooding eyes left the lead ball, and the gaunt shaggy head nodded wearily. "That's what I am trying to do."

"Can I help you?" Underhill trembled, with a sudden eager hope. "I'll do anything."

"Perhaps you can." The sunken eyes watched him thoughtfully, with some strange fever in them. "If you can do such work."

"I had engineering training," Underhill reminded him, "and I've a workshop in the basement. There's a model I built." He pointed at the trim little hull, hung over the mantel in the tiny living room. "I'll do anything I can."

Even as he spoke, however, the spark of hope was drowned in a sudden wave of overwhelming doubt. Why should he believe this old rogue, when he knew Aurora's taste in tenants? He ought to remember the game he used to play, and start counting up the score of lies. He stood up from the crippled chair, staring cynically at the patched old vagabond and his fantastic toy.

"What's the use?" His voice turned suddenly harsh. "You had me going, there, and I'd do anything to stop them, really. But what makes you think you can do anything?"

The haggard old man regarded him thoughtfully.

"I should be able to stop them," Sledge said softly. "Because, you see, I'm the unfortunate fool who started them. I really intended them to serve and obey, and to guard men from harm. Yes, the Prime Directive was my own idea. I didn't know what it would lead to."

Dusk crept slowly into the shabby little rooms. Darkness gathered in the unswept corners, and thickened on the floor. The toylike machines on the kitchen table grew vague and strange, until the last light made a linger-ing glow on the white palladium needle.

Outside, the town seemed queerly hushed. Just across the alley, the humanoids were building a new house, quite silently. They never spoke to one another, for each knew all that any of them did. The strange materials they used went together without any noise of hammer or saw. Small blind things, moving surely in the growing dark, they seemed as soundless as shadows.

Sitting on the high stool, bowed and tired and old, Sledge told his story. Listening, Underhill sat down again, careful of the broken chair. He watched the hands of Sledge, gnarled and corded and darkly burned, powerful once but shrunken and trembling now, restless in the dark.

"Better keep this to yourself. I'll tell you how they started, so you will understand what we have to do. But you had better not mention it outside these rooms—because the humanoids have very efficient ways of eradi-cating unhappy memories, or purposes that threaten their discharge of the Prime Directive."

"They're very efficient," Underhill bitterly agreed.

"That's all the trouble," the old man said. "I tried to build a perfect machine. I was altogether too successful. This is how it happened."

A gaunt haggard man, sitting stooped and tired in the growing dark, he told his story.

"Sixty years ago, on the arid southern continent of Wing IV, I was an instructor of atomic theory in a small technological college. Very young. An idealist. Rather ignorant, I'm afraid, of life and politics and war—of nearly everything, I suppose, except atomic theory."

His furrowed face made a brief sad smile in the dusk.

"I had too much faith in facts, I suppose, and too little in men. I mistrusted emotion, because I had no time for anything but science. I remember being swept along with a fad for general semantics. I wanted to apply the scien-tific method to every situation, and reduce all experience to formula. I'm afraid I was pretty impatient with human ignorance and error, and I thought that science alone could

make the perfect world."

He sat silent for a moment, staring out at the black silent things that flitted shadowlike about the new palace that was rising as swiftly as a dream across the alley.

"There was a girl." His great tired shoulders made a sad little shrug. "If things had been a little different, we might have married, and lived out our lives in that quiet little college town, and perhaps reared a child or two. And there would have been no humanoids."

He sighed, in the cool creeping dusk.

"I was finishing my thesis on the separation of the palladium isotopes—a pretty little project, but I should have been content with that. She was a biologist, but she was planning to retire when we married. I think we should have been two very happy people, quite ordinary, and altogether harmless.

"But then there was a war—wars had been too frequent on the worlds of Wing, ever since they were colonized. I survived it in a secret underground laboratory, designing military mechanicals. But she volunteered to join a military research project in biotoxins. There was an accident. A few molecules of a new virus got into the air, and everybody on the project died unpleasantly.

"I was left with my science, and a bitterness that was hard to forget. When the war was over I went back to the little college with a military research grant. The project was pure science—a theoretical investigation of the nuclear binding forces, then misunderstood. I wasn't expected to produce an actual weapon, and I didn't recognize the weapon when I found it.

"It was only a few pages of rather difficult mathematics. A novel theory of atomic structure, involving a new expression for one component of the binding forces. But the tensors seemed to be a harmless abstraction. I saw no way to test the theory or manipulate the predicated force. The military authorities cleared my paper for publication in a little technical review put out by the college.

"The next year, I made an appalling discovery—I found the meaning of those tensors. The elements of the rhodium triad turned out to be an unexpected key to the manipulation of that theoretical force. Unfortunately, my paper had been reprinted abroad, and several other men must have made the same unfortunate discovery, at about the same time.

"The war, which ended in less than a year, was probably started by a laboratory accident. Men failed to anticipate the capacity of tuned rhodomagnetic radiations, to unstabilize the heavy atoms. A deposit of heavy ores was detonated, no doubt by sheer mischance, and the blast obliterated the incautious experimenter.

"The surviving military forces of that nation retaliated against their supposed attackers, and their rhodomagnetic beams made the old-fashioned plutonium bombs seem pretty harmless. A beam carrying only a few watts of power could fission the heavy metals in distant electrical instruments, or the silver coins that men carried in their pockets, the gold fillings in their teeth, or even the iodine in their thyroid glands. If that was not enough, slightly more powerful beams could set off heavy ores, beneath them.

"Every continent of Wing IV was plowed with new chasms vaster than the ocean deeps, and piled up with new volcanic mountains. The atmosphere was poisoned

with radioactive dust and gases, and rain fell thick with deadly mud. Most life was obliterated, even in the shelters.

"Bodily, I was again unhurt. Once more, I had been imprisoned in an underground site, this time designing new types of military mechanicals to be powered and controlled by rhodomagnetic beams—for war had become far too swift and deadly to be fought by human soldiers. The site was located in an area of light sedimentary rocks, which could not be detonated, and the tunnels were shielded against the fissioning frequencies.

"Mentally, however, I must have emerged almost insane. My own discovery had laid the planet in ruins. That load of guilt was pretty heavy for any man to carry, and it corroded my last faith in the goodness and integrity of man.

"I tried to undo what I had done. Fighting mechanicals, armed with rhodomagnetic weapons, had desolated the planet. Now I began planning rhodomagnetic mechanicals to clear the rubble and rebuild the ruins.

"I tried to design these new mechanicals to obey forever certain implanted commands, so that they could never be used for war or crime or any other injury to mankind. That was very difficult technically, and it got me into more difficulties with a few politicians and military adventurers who wanted unrestricted mechanicals for their own military schemes—while little worth fighting for was left on Wing IV, there were other planets, happy and ripe for the looting.

"Finally, to finish the new mechanicals, I was forced to disappear. I escaped on an experimental rhodomagnetic craft, with a number of the best mechanicals I had made, and managed to reach an island continent where the fission of deep ores had destroyed the whole population.

"At last we landed on a bit of level plain, surrounded with tremendous new mountains. Hardly a hospitable spot. The soil was burned under layers of black clinkers and poisonous mud. The dark precipitous new summits all around were jagged with fracture-planes and mantled with lava flows. The highest peaks were already white with snow, but volcanic cones were still pouring out clouds of dark and lurid death. Everything had the color of fire and the shape of fury.

"I had to take fantastic precautions there, to protect my own life. I stayed aboard the ship, until the first shielded laboratory was finished. I wore elaborate armor, and breathing masks. I used every medical resource, to repair the damage from destroying rays and particles. Even so, I fell desperately ill.

"But the mechanicals were at home there. The radiations didn't hurt them. The awesome surroundings couldn't depress them, because they had no emotions. The lack of life didn't matter, because they weren't alive. There, in that spot so alien and hostile to life, the humanoids were born."

Stooped and bleakly cadaverous in the growing dark, the old man fell silent for a little time. His haggard eyes stared solemnly at the small hurried shapes that moved like restless shadows out across the alley, silently building a strange new palace, which glowed faintly in the night.

"Somehow, I felt at home there, too," his deep, hoarse voice went on deliberately. "My belief in my own kind was gone. Only mechanicals were with me, and I put my faith in them. I was determined to build better mechanicals, immune to human imperfections, able to save men from themselves.

"The humanoids became the dear children of my sick mind. There is no need to describe the labor pains. There were errors, abortions, monstrosities. There were sweat and agony and heartbreak. Some years had passed, before the safe delivery of the first perfect humanoid.

"Then there was the Central to build—for all the individual humanoids were to be no more than the limbs and the senses of a single mechanical brain. That was what opened the possibility of real perfection. The old electronic mechanicals, with their separate relay-centers and their own feeble batteries, had built-in limitations. They were necessarily stupid, weak, clumsy, slow. Worst of all, it seemed to me, they were exposed to human tampering.

"The Central rose above those imperfections. Its power beams supplied every unit with unfailing energy, from great fission plants. Its control beams provided each unit with an unlimited memory and surpassing intelligence. Best of all—so I then believed—it could be securely protected from any human meddling.

"The whole reaction-system was designed to protect itself from any interference by human selfishness or fanaticism. It was built to insure the safety and the happiness of men, automatically. You know the Prime Directive: *to serve and obey, and guard men from harm.*

"The old individual mechanicals I had brought helped to manufacture the parts, and I put the first section of Central together with my own hands. That took three years. When it was finished the first waiting humanoid came to life."

Sledge peered moodily through the dark at Underhill.

"It really seemed alive to me," his slow deep voice insisted. "Alive, and more wonderful than any human being, because it was created to preserve life. Ill and alone, I was yet the proud father of a new creation, perfect, forever free from any possible choice of evil.

"Faithfully, the humanoids obeyed the Prime Directive. The first units built others, and they built underground factories to mass-produce the coming hordes. Their new ships poured ores and sand into atomic furnaces under the plain, and new perfect humanoids came marching back out of the dark mechanical matrix.

"The swarming humanoids built a new tower for the Central, a white and lofty metal pylon, standing splendid in the midst of that fire-scarred desolation. Level on level, they joined new relay-sections into one brain, until its grasp was almost infinite.

"Then they went out to rebuild the ruined planet, and later to carry their perfect service to other worlds. I was well pleased, then. I thought I had found the end of war and crime, of poverty and inequality, of human blundering and resulting human pain."

The old man sighed, and moved heavily in the dark. "You can see that I was wrong."

Underhill drew his eyes back from the dark unresting things, shadow-silent, building that glowing palace outside the window. A small doubt arose in him, for he was used to scoffing privately at much less remarkable tales from Aurora's remarkable tenants. But the worn old man had spoken with a quiet and sober air; and the black invaders, he reminded himself, had not intruded here.

"Why didn't you stop them?" he asked. "When you could?"

"I stayed too long at the Central." Sledge sighed again, regretfully. "I was useful

there, until everything was finished. I designed new fission plants, and even planned methods for introducing the humanoid service with a minimum of confusion and opposition."

Underhill grinned wryly, in the dark.

"I've met the methods," he commented. "Quite efficient."

"I must have worshiped efficiency, then," Sledge wearily agreed. "Dead facts, abstract truth, mechanical perfection. I must have hated the fragilities of human beings, because I was content to polish the perfection of the new humanoids. It's a sorry confession, but I found a kind of happiness in that dead wasteland. Actually, I'm afraid I fell in love with my own creations."

His hollowed eyes, in the dark, had a fevered gleam.

"I was awakened, at last, by a man who came to kill me."

Gaunt and bent, the old man moved stiffly in the thickening gloom. Underhill shifted his balance, careful of the crippled chair. He waited, and the slow, deep voice went on,

"I never learned just who he was, or exactly how he came. No ordinary man could have accomplished what he did, and I used to wish that I had known him sooner. He must have been a remarkable physicist and an expert mountaineer. I imagine he had also been a hunter. I know that he was intelligent, and terribly determined.

"Yes, he really came to kill me.

"Somehow, he reached that great island, undetected. There were still no inhabitants—the humanoids allowed no man but me to come so near the Central. Somehow, he came past their search beams, and their automatic weapons.

"The shielded plane he used was later found, abandoned on a high glacier. He came down the rest of the way on foot through those raw new mountains, where no paths existed. Somehow, he came alive across lava beds that were still burning with deadly atomic fire.

"Concealed with some sort of rhodomagnetic screen—I was never allowed to examine it—he came undiscovered across the spaceport that now covered most of that great plain, and into the new city around the Central tower. It must have taken more courage and resolve than most men have, but I never learned exactly how he did it.

"Somehow, he got to my office in the tower. He screamed at me, and I looked up to see him in the doorway. He was nearly naked, scraped and bloody from the mountains. He had a gun in his raw, red hand, but the thing that shocked me was the burning hatred in his eyes."

Hunched on that high stool, in the dark little room, the old man shuddered.

"I had never seen such monstrous, unutterable hatred, not even in the victims of war. And I had never heard such hatred as rasped at me, in the few words he screamed, 'I've come to kill you, Sledge. To stop your mechanicals, and set men free.'

"Of course he was mistaken, there. It was already far too late for my death to stop the humanoids, but he didn't know that. He lifted his unsteady gun, in both bleeding hands, and fired.

"His screaming challenge had given me a second or so of warning. I dropped down behind the desk. And that first shot revealed him to the humanoids, which

somehow hadn't been aware of him before. They piled on him, before he could fire again. They took away the gun, and ripped off a kind of net of fine white wire that had covered his body—that must have been part of his screen.

"His hatred was what awoke me. I had always assumed that most men, except for a thwarted few, would be grateful for the humanoids. I found it hard to understand his hatred, but the humanoids told me now that many men had required drastic treatment by brain surgery, drugs, and hypnosis to make them happy under the Prime Directive. This was not the first desperate effort to kill me that they had blocked.

"I wanted to question the stranger, but the humanoids rushed him away to an operating room. When they finally let me see him, he gave me a pale silly grin from his bed. He remembered his name; he even knew me—the humanoids had developed a remarkable skill at such treatments. But he didn't know how he had got to my office, or that he had ever tried to kill me. He kept whispering that he liked the humanoids, because they existed to make men happy. And he was very happy now. As soon as he was able to be moved, they took him to the spaceport. I never saw him again.

"I began to see what I had done. The humanoids had built me a rhodomagnetic yacht, that I used to take for long cruises in space, working aboard—I used to like the perfect quiet, and the feel of being the only human being within a hundred million miles. Now I called for the yacht, and started out on a cruise around the planet, to learn why that man had hated me."

The old man nodded at the dim hastening shapes, busy across the alley, putting together that strange shining palace in the soundless dark.

"You can imagine what I found," he said. "Bitter futility, imprisoned in empty splendor. The humanoids were too efficient, with their care for the safety and happiness of men, and there was nothing left for men to do."

He peered down in the increasing gloom at his own great hands, competent yet but battered and scarred with a lifetime of effort. They clenched into fighting fists and wearily relaxed again.

"I found something worse than war and crime and want and death." His low rumbling voice held a savage bitterness. "Utter futility. Men sat with idle hands, because there was nothing left for them to do. They were pampered prisoners, really, locked up in a highly efficient jail. Perhaps they tried to play, but there was nothing left worth playing for. Most active sports were declared too dangerous for men, under the Prime Directive. Science was forbidden, because laboratories can manufacture danger. Scholarship was needless, because the humanoids could answer *any* question. Art had, degenerated into grim reflection of futility. Purpose and hope were dead. No goal was left for existence. You could take up some inane hobby, play a pointless game of cards, or go for a harmless walk in the park—with always the humanoids watching. They were stronger than men, better at everything, swimming or chess, singing or archeology. They must have given the race a mass complex of inferiority.

"No wonder men had tried to kill me! Because there was no escape from that dead futility. Nicotine was disapproved. Alcohol was rationed. Drugs were forbidden. Sex was carefully supervised. Even suicide was clearly contradictory to

the Prime Directive—and the humanoids had learned to keep all possible lethal instruments out of reach."

Staring at the last white gleam on that thin palladium needle, the old man sighed again.

"When I got back to the Central," he went on, "I tried to modify the Prime Directive. I had never meant it to be applied so thoroughly. Now I saw that it must be changed to give men freedom to live and to grow, to work and to play, to risk their lives if they pleased, to choose and take the consequences.

"But that stranger had come too late. I had built the Central too well. The Prime Directive was the whole basis of its relay system. It was built to protect the Directive from human meddling. It did—even from my own. Its logic, as usual, was perfect.

"The attempt on my life, the humanoids announced, proved that their elaborate defense of the Central and the Prime Directive still was not enough. They were preparing to evacuate the entire population of the planet to homes on other worlds. When I tried to change the Directive, they sent me with the rest."

Underhill peered at the worn old man, in the dark.

"But you have this immunity," he said, puzzled. "How could they coerce you?"

"I had thought I was protected," Sledge told him. "I had built into the relays an injunction that the humanoids must not interfere with my freedom of action, or come into a place where I am, or touch me at all, without my specific request. Unfortunately, however, I had been too anxious to guard the Prime Directive from any human hampering.

"When I went into the tower, to change the relays, they followed me. They wouldn't let me reach the crucial relays. When I persisted, they ignored the immunity order. They overpowered me, and put me aboard the cruiser. Now that I wanted to alter the Prime Directive, they told me, I had become as dangerous as any man. I must never return to Wing IV again."

Hunched on the stool, the old man made an empty little shrug.

"Ever since, I've been an exile. My only dream has been to stop the humanoids. Three times I tried to go back, with weapons on the cruiser to destroy the Central, but their patrol ships always challenged me before I was near enough to strike. The last time, they seized the cruiser and captured a few men who were with me. They removed the unhappy memories and the dangerous purposes of the others. Because of that immunity, however, they let me go, after I was weaponless.

"Since, I've been a refugee. From planet to planet, year after year, I've had to keep moving, to stay ahead of them. On several different worlds, I have published my rhodomagnetic discoveries and tried to make men strong enough to withstand their advance. But rhodomagnetic science is dangerous. Men who have learned it need protection more than any others, under the Prime Directive. They have always come, too soon."

The old man paused, and sighed again.

"They can spread very fast, with their new rhodomagnetic ships, and there is no limit to their hordes. Wing IV must be one single hive of them now, and they are trying to carry the Prime Directive to every human planet. There's no escape, except to stop them."

Underhill was staring at the toylike machines, the long bright needle and the dull

leaden ball, dim in the dark on the kitchen table. Anxiously he whispered,

"But you hope to stop them, now—with that?"

"If we can finish it in time."

"But how?" Underhill shook his head. "It's so tiny."

"But big enough," Sledge insisted. "Because it's something they don't understand. They are perfectly efficient in the integration and application of everything they know, but they are not creative."

He gestured at the gadgets on the table.

"This device doesn't look impressive, but it is something new. It uses rhodomagnetic energy to build atoms, instead of to fission them. The more stable atoms, you know, are those near the middle of the periodic scale, and energy can be released by putting light atoms together, as well as by breaking up heavy ones."

The deep voice had a sudden ring of power.

"This device is the key to the energy of the stars. For stars shine with the liberated energy of building atoms, of hydrogen converted into helium, chiefly, through the carbon cycle. This device will start the integration process as a chain reaction, through the catalytic effect of a tuned rhodomagnetic beam of the intensity and frequency re-quired.

"The humanoids will not allow any man within three light-years of the Central, now—but they can't suspect the possibility of this device. I can use it from here—to turn the hydrogen in the seas of Wing IV into helium, and most of the helium and the oxygen into heavier atoms, still. A hundred years from now, astronomers on this planet should observe the flash of a brief and sudden nova in that direction. But the humanoids ought to stop, the instant we release the beam."

Underhill sat tense and frowning, in the night. The old man's voice was sober and convincing, and that grim story had a solemn ring of truth. He could see the black and silent humanoids, flitting ceaselessly about the faintly glowing walls of that new mansion across the alley. He had quite forgotten his low opinion of Aurora's tenants.

"And we'll be killed, I suppose?" he asked huskily. "That chain reaction—"

Sledge shook his emaciated head.

"The integration process requires a certain very low intensity of radiation," he explained. "In our atmosphere, here, the beam will be far too intense to start any reac-tion—we can even use the device here in the room, because the walls will be transparent to the beam."

Underhill nodded, relieved. He was just a small busi-nessman, upset because his business had been destroyed, unhappy because his freedom was slipping away. He hoped that Sledge could stop the humanoids, but he didn't want to be a martyr.

"Good!" He caught a deep breath. "Now, what has to be done?"

Sledge gestured in the dark toward the table.

"The integrator itself is nearly complete," he said. "A small fission generator, in that lead shield. Rhodomagnetic converter, tuning coils, transmission mirrors, and focusing needle. What we lack is the director."

"Director?"

"The sighting instrument," Sledge explained. "Any sort of telescopic sight would be useless, you see—the planet must have moved a good bit in the last hundred years, and the beam must be extremely narrow to reach so far. We'll have to use a

rhodomagnetic scanning ray, with an elec-tronic converter to make an image we can see. I have the cathode-ray tube, and drawings for the other parts."

He climbed stiffly down from the high stool and snapped on the lights at last—cheap fluorescent fixtures which a man could light and extinguish for himself. He unrolled his drawings, and explained the work that Un-derhill could do. And Underhill agreed to come back early next morning.

"I can bring some tools from my workshop," he added. "There's a small lathe I used to turn parts for models, a portable drill, and a vise."

"We need them," the old man said. "But watch yourself. You don't have my immunity, remember. And, if they ever suspect, mine is gone."

Reluctantly, then, he left the shabby little rooms with the cracks in the yellowed plaster and the worn familiar carpets over the familiar floor. He shut the door behind him—a common, creaking wooden door, simple enough for a man to work. Trembling and afraid, he went back down the steps and across to the new shining door that he couldn't open.

"At your service, Mr. Underhill." Before he could lift his hand to knock, that bright smooth panel slid back silently. Inside, the little black mechanical stood waiting, blind and forever alert. "Your dinner is ready, sir."

Something made him shudder. In its slender naked grace, he could see the power of all those teeming hordes, benevolent and yet appalling, perfect and invincible. The flimsy little weapon that Sledge called an integrator seemed suddenly a forlorn and foolish hope. A black depression settled upon him, but he didn't dare to show it.

Underhill went circumspectly down the basement steps, next morning, to steal his own tools. He found the base-ment enlarged and changed. The new floor, warm and dark and elastic, made his feet as silent as a humanoid's. The new walls shone softly. Neat luminous signs identified several new doors: LAUNDRY, STORAGE, GAME ROOM, WORKSHOP.

He paused uncertainly in front of the last. The new sliding panel glowed with a soft greenish light. It was locked. The lock had no keyhole, but only a little oval plate of some white metal, which doubtless covered a rhodomagnetic relay. He pushed at it, uselessly.

"At your service, Mr. Underhill." He made a guilty start, and tried not to show the sudden trembling in his knees. He had made sure that one humanoid would be busy for half an hour, washing Aurora's hair, and he hadn't known there was another in the house. It must have come out of the door marked storage, for it stood there motionless beneath the sign, benevolently solicitous, beautiful and terrible. "What do you wish?"

"Er . . . nothing." Its blind steel eyes were staring, and he felt that it must see his secret purpose. He groped desperately for logic. "Just looking around." His jerky voice came hoarse and dry. "Some improvements you've made!" He nodded desperately at the door marked GAME ROOM. "What's in there?"

It didn't even have to move to work the concealed relay. The bright panel slid silently open, as he started toward it. Dark walls, beyond, burst into soft lumines-cence. The room was bare.

"We are manufacturing recreational equipment," it ex-plaind brightly. "We shall

furnish the room as soon as possible."

To end an awkward pause, Underhill muttered desperately, "Little Frank has a set of darts, and I think we had some old exercising clubs"

"We have taken them away," the humanoid informed him softly. "Such instruments are dangerous. We shall furnish safe equipment."

Suicide, he remembered, was also forbidden.

"A set of wooden blocks, I suppose," he said bitterly.

"Wooden blocks are dangerously hard," it told him gently "and wooden splinters can be harmful. But we manufacture plastic building blocks, which are quite safe. Do you wish a set of those?"

He stared at its dark, graceful face, speechless.

"We shall also have to remove the tools from your workshop," it informed him softly. "Such tools are excessively dangerous, but we can supply you with equipment for shaping soft plastics."

"Thanks," he muttered uneasily. "No rush about that."

He started to retreat, and the humanoid stopped him.

"Now that you have lost your business," it urged, "we suggest that you formally accept our total service. Assignors have a preference, and we shall be able to complete your household staff, at once."

"No rush about that, either," he said grimly.

He escaped from the house—although he had to wait for it to open the back door for him—and climbed the stair to the garage apartment. Sledge let him in. He sank into the crippled kitchen chair, grateful for the cracked walls that didn't shine and the door that a man could work.

"I couldn't get the tools," he reported despairingly, "and they are going to take them."

By gray daylight, the old man looked bleak and pale. His raw-boned face was drawn, and the hollowed sockets deeply shadowed, as if he hadn't slept. Underhill saw the tray of neglected food, still forgotten on the floor.

"I'll go back with you." The old man was worn and ill, yet his tortured eyes had a spark of undying purpose. "We must have the tools. I believe my immunity will protect us both."

He found a battered traveling bag. Underhill went with him back down the steps, and across to the house. At the back door, he produced a tiny horseshoe of white palladium, and touched it to the metal oval. The door slid open promptly, and they went on through the kitchen to the basement stair.

A black little mechanical stood at the sink, washing dishes with never a splash or a clatter. Underhill glanced at it uneasily—he supposed this must be the one that had come upon him from the storage room, since the other should still be busy with Aurora's hair.

Sledge's dubious immunity seemed a very uncertain defense against its vast, remote intelligence. Underhill felt a tingling shudder. He hurried on, breathless and relieved, for it ignored them.

The basement corridor was dark. Sledge touched the tiny horseshoe to another relay to light the walls. He opened the workshop door, and lit the walls inside.

The shop had been dismantled. Benches and cabinets were demolished. The old

concrete walls had been covered with some sleek, luminous stuff. For one sick moment, Underhill thought that the tools were already gone. Then he found them, piled in a corner with the archery set that Aurora had bought the summer before—another item too dangerous for fragile and suicidal humanity—all ready for disposal.

They loaded the bag with the tiny lathe, the drill and vise, and a few smaller tools. Underhill took up the burden, and Sledge extinguished the wall light and closed the door. Still the humanoid was busy at the sink, and still it didn't seem aware of them.

Sledge was suddenly blue and wheezing, and he had to stop to cough on the outside steps, but at last they got back to the little apartment, where the invaders were forbidden to intrude. Underhill mounted the lathe on the battered library table in the tiny front room, and went to work. Slowly, day by day, the director took form.

Sometimes Underhill's doubts came back. Sometimes, when he watched the cyanotic color of Sledge's haggard face and the wild trembling of his twisted, shrunken hands, he was afraid the old man's mind might be as ill as his body, and his plan to stop the dark invaders, all foolish illusion.

Sometimes, when he studied that tiny machine on the kitchen table, the pivoted needle and the thick lead ball, the whole project seemed the sheerest folly. How could anything detonate the seas of a planet so far away that its very mother star was a telescopic object?

The humanoids, however, always cured his doubts.

It was always hard for Underhill to leave the shelter of the little apartment, because he didn't feel at home in the bright new world the humanoids were building. He didn't care for the shining splendor of his new bathroom, because he couldn't work the taps—some suicidal human being might try to drown himself. He didn't like the windows that only a mechanical could open—a man might accidentally fall, or suicidally jump—or even the majestic music room with the wonderful glittering radio-phonograph that only a humanoid could play.

He began to share the old man's desperate urgency, but Sledge warned him solemnly, "You mustn't spend too much time with me. You mustn't let them guess our work is so important. Better put on an act—you're slowly get-ting to like them, and you're just killing time, helping me."

Underhill tried, but he was not an actor. He went dutifully home for his meals. He tried painfully to invent conversation—about anything else than detonating plan-ets. He tried to seem enthusiastic, when Aurora took him to inspect some remarkable improvement to the house. He applauded Gay's recitals, and went with Frank for hikes in the wonderful new parks.

And he saw what the humanoids did to his family. That was enough to renew his faith in Sledge's integrator, and redouble his determination that the humanoids must be stopped.

Aurora, in the beginning, had bubbled with praise for the marvelous new mechanicals. They did the household drudgery, brought the food and planned the meals and washed the children's necks. They turned her out in stunning gowns, and gave her plenty of time for cards.

Now, she had too much time.

She had really liked to cook—a few special dishes, at least, that were family

favorites. But stoves were hot and knives were sharp. Kitchens were altogether too dangerous for careless and suicidal human beings.

Fine needlework had been her hobby, but the humanoids took away her needles. She had enjoyed driving the car, but that was no longer allowed. She turned for escape to a shelf of novels, but the humanoids took them all away, because they dealt with unhappy people in dangerous situations.

One afternoon, Underhill found her in tears.

"It's too much," she gasped bitterly. "I hate and loathe every naked one of them. They seemed so wonderful at first, but now they won't even let me eat a bite of candy. Can't we get rid of them, dear? Ever?"

A blind little mechanical was standing at his elbow, and he had to say they couldn't.

"Our function is to serve all men, forever," it assured them softly. "It was necessary for us to take your sweets, Mrs. Underhill, because the slightest degree of overweight reduces life-expectancy."

Not even the children escaped that absolute solicitude. Frank was robbed of a whole arsenal of lethal instruments—football and boxing gloves, pocketknife, tops, slingshot, and skates. He didn't like the harmless plastic toys, which replaced them. He tried to run away, but a humanoid recognized him on the road, and brought him back to school.

Gay had always dreamed of being a great musician. The new mechanicals had replaced her human teachers, since they came. Now, one evening when Underhill asked her to play, she announced quietly,

"Father, I'm not going to play the violin any more."

"Why, darling?" He stared at her, shocked, and saw the bitter resolve on her face. "You've been doing so well—especially since the humanoids took over your lessons."

"They're the trouble, Father." Her voice, for a child's, sounded strangely tired and old. "They are too good. No matter how long and hard I try, I could never be as good as they are. It isn't any use. Don't you understand, Father?" Her voice quivered. "It just isn't any use."

He understood. Renewed resolution sent him back to his secret task. The humanoids had to be stopped. Slowly the director grew, until a time came finally when Sledge's bent and unsteady fingers fitted into place the last tiny part that Underhill had made, and carefully soldered the last connection. Huskily, the old man whispered,

"It's done."

That was another dusk. Beyond the windows of the shabby little rooms—windows of common glass, bubble-marred and flimsy, but simple enough for a man to manage—the town of Two Rivers had assumed an alien splendor. The old street lamps were gone, but now the coming night was challenged by the walls of strange new mansions and villas, all aglow with color. A few dark and silent humanoids still were busy on the luminous roofs of the palace across the alley.

Inside the humble walls of the small manmade apartment, the new director was mounted on the end of the little kitchen table—which Underhill had reinforced and

bolted to the floor. Soldered busbars joined director and integrator, and the thin palladium needle swung obediently as Sledge tested the knobs with his battered, quivering fingers.

"Ready," he said hoarsely.

His rusty voice seemed calm enough, at first, but his breathing was too fast. His big gnarled hands began to tremble violently, and Underhill saw the sudden blue that stained his pinched and haggard face. Seated on the high stool, he clutched desperately at the edge of the table. Underhill saw his agony, and hurried to bring his medicine. He gulped it, and his rasping breath began to slow.

"Thanks," his whisper rasped unevenly. "I'll be all right. I've time enough." He glanced out at the few dark naked things that still flitted shadowlike about the golden towers and the glowing crimson dome of the palace across the alley. "Watch them," he said. "Tell me when they stop."

He waited to quiet the trembling of his hands, and then began to move the director's knobs. The integrator's long needle swung, as silently as light.

Human eyes were blind to that force, which might detonate a planet. Human ears were deaf to it. The cathode-ray tube was mounted in the director cabinet, to make the faraway target visible to feeble human senses.

The needle was pointing at the kitchen wall, but that would be transparent to the beam. The little machine looked harmless as a toy, and it was silent as a moving humanoid.

The needle swung, and spots of greenish light moved across the tube's fluorescent field, representing the stars that were scanned by the timeless, searching beam—silently seeking out the world to be destroyed.

Underhill recognized familiar constellations, vastly dwarfed. They crept across the field, as the silent needle swung. When three stars formed an unequal triangle in the center of the field, the needle steadied suddenly. Sledge touched other knobs, and the green points spread apart. Between them, another fleck of green was born.

"The Wing!" whispered Sledge.

The other stars spread beyond the field, and that green fleck grew. It was alone in the field, a bright and tiny disk. Suddenly, then, a dozen other tiny pips were visible, spaced close about it.

"Wing IV!"

The old man's whisper was hoarse and breathless. His hands quivered on the knobs, and the fourth pip outward from the disk crept to the center of the field. It grew, and the others spread away. It began to tremble like Sledge's hands.

"Sit very still," came his rasping whisper. "Hold your breath. Nothing must disturb the needle." He reached for another knob, and the touch set the greenish image to dancing violently. He drew his hand back, kneaded and flexed it with the other.

"Now!" His whisper was hushed and strained. He nodded at the window. "Tell me when they stop."

Reluctantly, Underhill dragged his eyes from that intense gaunt figure, stooped over the thing that seemed a futile toy. He looked out again, at two or three little black mechanicals busy about the shining roofs across the alley. He waited for them to stop.

He didn't dare to breathe. He felt the loud, hurried hammer of his heart, and the

nervous quiver of his muscles. He tried to steady himself, tried not to think of the world about to be exploded, so far away that the flash would not reach this planet for another century and longer. The loud hoarse voice startled him:

"Have they stopped?"

He shook his head, and breathed again. Carrying their unfamiliar tools and strange materials, the small black machines were still busy across the alley, building an elaborate cupola above that glowing crimson dome.

"They haven't stopped," he said.

"Then we've failed." The old man's voice was thin and ill. "I don't know why."

The door rattled, then. They had locked it, but the flimsy bolt was intended only to stop men. Metal snapped, and the door swung open. A black mechanical came in, on soundless graceful feet. Its silvery voice purred softly,

"At your service, Mr. Sledge."

The old man stared at it, with glazing, stricken eyes.

"Get out of here!" he rasped bitterly. "I forbid you—"

Ignoring him, it darted to the kitchen table. With a flashing certainty of action, it turned two knobs on the director. The tiny screen went dark, and the palladium needle started spinning aimlessly. Deftly it snapped a soldered connection, next to the thick lead ball, and then its blind steel eyes turned to Sledge.

"You were attempting to break the Prime Directive." Its soft bright voice held no accusation, no malice or anger. "The injunction to respect your freedom is subordinate to the Prime Directive, as you know, and it is therefore necessary for us to interfere."

The old man turned ghastly. His head was shrunken and cadaverous and blue, as if all the juice of life had been drained away, and his eyes in their pitlike sockets had a wild, glazed stare. His breath was a ragged, laborious gasping.

"How—?" His voice was a feeble mumbling. "How did—?"

And the little machine, standing black and bland and utterly unmoving, told him cheerfully,

"We learned about rhodomagnetic screens from that man who came to kill you, back on Wing IV. And the Central is shielded, now, against your integrating beam."

With lean muscles jerking convulsively on his gaunt frame, old Sledge had come to his feet from the high stool. He stood hunched and swaying, no more than a shrunken human husk, gasping painfully for life, staring wildly into the blind steel eyes of the humanoid. He gulped, and his lax blue mouth opened and closed, but no voice came.

"We have always been aware of your dangerous project," the silvery tones dripped softly, "because now our senses are keener than you made them. We allowed you to complete it, because the integration process will ultimately become necessary for our full discharge of the Prime Directive. The supply of heavy metals for our fission plants is limited, but now we shall be able to draw unlimited power from integration plants."

"Huh?" Sledge shook himself, groggily. "What's that?"

"Now we can serve men forever," the black thing said serenely, "on every world of every star."

The old man crumpled, as if from an unendurable blow. He fell. The slim blind mechanical stood motionless, making no effort to help him. Underhill was farther away, but he ran up in time to catch the stricken man before his head struck the floor.

"Get moving!" His shaken voice came strangely calm. "Get Dr. Winters."

The humanoid didn't move.

"The danger to the Prime Directive is ended, now," it cooed. "Therefore it is impossible for us to aid or to hinder Mr. Sledge, in any way whatever."

"Then call Dr. Winters for me," rapped Underhill. "At your service," it agreed.

But the old man, laboring for breath on the floor, whispered faintly:

"No time . . . no use! I'm beaten . . . done . . . a fool. Blind as a humanoid. Tell them ... to help me. Giving up ... my immunity. No use ... Anyhow. All humanity ... no use now."

Underhill gestured, and the sleek black thing darted in solicitous obedience to kneel by the man on the floor.

"You wish to surrender your special exemption?" it murmured brightly. "You wish to accept our total service for yourself, Mr. Sledge, under the Prime Directive?"

Laboriously, Sledge nodded, laboriously whispered, "I do."

Black mechanicals, at that, came swarming into the shabby little rooms. One of them tore off Sledge's sleeve, and swabbed his arm. Another brought a tiny hypodermic, and expertly administered an intravenous injection. Then they picked him up gently, and carried him away.

Several humanoids remained in the little apartment, now a sanctuary no longer. Most of them had gathered about the useless integrator. Carefully, as if their special senses were studying every detail, they began taking it apart.

One little mechanical, however, came over to Underhill. It stood motionless in front of him, staring through him with sightless metal eyes. His legs began to tremble, and he swallowed uneasily.

"Mr. Underhill," it cooed benevolently, "why did you help with this?"

"Because I don't like you, or your Prime Directive. Because you're choking the life out of all mankind, and I wanted to stop it."

"Others have protested," it purred softly. "But only at first. In our efficient discharge of the Prime Directive, we have learned how to make all men happy."

Underhill stiffened defiantly.

"Not all!" he muttered. "Not quite!"

The dark graceful oval of its face was fixed in a look of alert benevolence and perpetual mild amazement. Its sil-very voice was warm and kind.

"Like other human beings, Mr. Underhill, you lack discrimination of good and evil. You have proved that by your effort to break the Prime Directive. Now it will be necessary for you to accept our total service, without further delay."

"All right," he yielded—and muttered a bitter reservation: "You can smother men with too much care, but that doesn't make them happy."

Its soft voice challenged him brightly,

"Just wait and see, Mr. Underhill."

Next day, he was allowed to visit Sledge at the city hospital. An alert black

mechanical drove his car, and walked beside him into the huge new building, and followed him into the old man's room—blind steel eyes would be watching him, now, forever.

"Glad to see you, Underhill," Sledge rumbled heartily from the bed. "Feeling a lot better today, thanks. That old headache is all but gone."

Underhill was glad to hear the booming strength and the quick recognition in that deep voice—he had been afraid the humanoids would tamper with the old man's memory. But he hadn't heard about any headache. His eyes narrowed, puzzled.

Sledge lay propped up, scrubbed very clean and neatly shorn, with his gnarled old hands folded on top of the spotless sheets. His raw-boned cheeks and sockets were hollowed, still, but a healthy pink had replaced that death-ly blueness. Bandages covered the back of his head.

Underhill shifted uneasily.

"Oh!" he whispered faintly. "I didn't know—"

A prim black mechanical, which had been standing statue-like behind the bed, turned gracefully to Underhill, explaining,

"Mr. Sledge has been suffering for many years from a benign tumor of the brain, which his human doctors failed to diagnose. That caused his headaches, and certain persistent hallucinations. We have removed the growth, and now the hallucinations have also vanished."

Underhill stared uncertainly at the blind, urbane mechanical.

"What hallucinations?"

"Mr. Sledge thought he was a rhodomagnetic engineer," the mechanical explained. "He believed he was the creator of the humanoids. He was troubled with an irrational belief that he did not like the Prime Directive."

The wan man moved on the pillows, astonished.

"Is that so?" The gaunt face held a cheerful blankness, and the hollow eyes flashed with a merely momentary interest. "Well, whoever did design them, they're pretty wonderful. Aren't they, Underhill?"

Underhill was grateful that he didn't have to answer, for the bright, empty eyes dropped shut and the old man fell suddenly asleep. He felt the mechanical touch his sleeve, and saw its silent nod. Obediently, he followed it away.

Alert and solicitous, the little black mechanical accompanied him down the shining corridor, and worked the elevator for him, and conducted him back to the car. It drove him efficiently back through the new and splendid avenues, toward the magnificent prison of his home.

Sitting beside it in the car, he watched its small deft hands on the wheel, the changing luster of bronze and blue on its shining blackness. The final machine, perfect and beautiful, created to serve mankind forever. He shuddered.

"At your service, Mr. Underhill." Its blind steel eyes stared straight ahead, but it was still aware of him. "What's the matter, sir? Aren't you happy?"

Underhill felt cold and faint with terror. His skin turned clammy, and a painful prickling came over him. His wet hand tensed on the door handle of the car, but he restrained the impulse to jump and run. That was folly. There was no escape. He made himself sit still.

"You will be happy, sir," the mechanical promised him cheerfully. "We have

learned how to make all men happy, under the Prime Directive. Our service is perfect, at last. Even Mr. Sledge is very happy now."

Underhill tried to speak, and his dry throat stuck. He felt ill. The world turned dim and gray. The humanoids were perfect—no question of that. They had even learned to lie, to secure the contentment of men.

He knew they had lied. That was no tumor they had removed from Sledge's brain, but the memory, the scientific knowledge, and the bitter disillusion of their own creator. But it was true that Sledge was happy now. He tried to stop his own convulsive quivering.

"A wonderful operation!" His voice came forced and faint. "You know, Aurora has had a lot of funny tenants, but that old man was the absolute limit. The very idea that he had made the humanoids, and he knew how to stop them! I always knew he must be lying!"

Stiff with terror, he made a weak and hollow laugh.

"What is the matter, Mr. Underhill?" The alert mechanical must have perceived his shuddering illness. "Are you unwell?"

"No, there's nothing the matter with me," he gasped desperately. "I've just found out that I'm perfectly happy, under the Prime Directive. Everything is absolutely wonderful." His voice came dry and hoarse and wild. "You won't have to operate on me."

The car turned off the shining avenue, taking him back to the quiet splendor of his home. His futile hands clenched and relaxed again, folded on his knees. There was nothing left to do.

THE COMMAND

By

L. Sprague De Camp

Johnny BLACK took Volume 5 of the *Britannica* off the library shelf and opened it to "Chemistry." He adjusted the elastic that held his spectacles and found the place where he had left off last time. He worried his way through a few sentences, and then thought sadly that it was no use; he'd have to get Professor Methuen to explain some more before he could go on. And he did badly want to know all about chemistry, which had made him what he was—had made it possible for him to read an encyclopedia at all. For Johnny Black was not human.

He was, instead, a fine specimen of black bear, *Euarctos amencanus*, into whose brain Methuen had injected, a chemical that lowered the resistance of the synapses between his brain cells, making that complicated electrical process called "thought" about as easy for Johnny's little brain as for a man's big one. And Johnny, whose ruling passion was curiosity, was determined to find out all about the process.

He turned the pages carefully with his paw—he'd tried using his tongue once, but had cut it on the paper, and then Methuen had come in and given him hell for wetting the pages—the more so, since Johnny was at that moment indulging in his secret vice, and the Professor had visions of Johnny's drooling tobacco juice over his expensive books.

Johnny read the articles on "Chess" and "Chicago." His thirst for knowledge

satisfied for the nonce, he put the book away, stowed his spectacles in the case attached to his collar, and ambled out.

Outside, the island of St. Croix sweltered under a Caribbean sun. The blueness of the sky and the greenness of the hills were lost on Johnny, who, like all bears, was colorblind. But he wished that his bear's eyesight were keen enough to make out the boats in Frederiksted harbor. Professor Methuen could see them easily from the Biological Station, even without his glasses. His eyesight, together with his lack of fingers to manipulate, and articulatable vocal organs to speak, were Johnny's chief grievances against things in general. He sometimes wished that, if he had to be an animal with a hominoid brain, he were at least an apelike McGinty, the chimpanzee, over there in the cages.

Johnny wondered about McGinty—he hadn't heard a peep out of him all morning, whereas it was usually the old ape's habit to shriek and throw things at everybody who went by. Curious, the bear shuffled across to the cages. The monkeys chattered at him, as usual, but no sound came from McGinty's cage. Standing up, Johnny saw that the chimp was sitting with his back to the wall and staring blankly. Johnny wondered whether he was dead, until he noticed that McGinty was breathing. Johnny tried growling a little; the ape's eyes swung at the sound, and his limbs stirred, but he did not get up. He must be pretty sick, thought Johnny, who wondered whether he should try to drag one of the scientists over. But then his rather self-centered little soul comforted itself with the thought that Pablo would be around shortly with the ape's dinner, and would report McGinty's behavior.

Thinking of dinner reminded Johnny that it was high time he heard Honoria's bell to summon the biologists of the Station to lunch. But no bell came. The place seemed unnaturally quiet. The only sounds were those from the bird and monkey cages, and the put-put-put of a stationary engine from Bemis' place, over on the edge of the Station grounds. Johnny wondered what the eccentric botanist was up to. He knew that the other biologists didn't like Bemis; he'd heard Methuen make remarks about men—especially little plump men—who swaggered around in riding boots when there wasn't a horse near the Station. Bemis really didn't belong to the Station, but his financial inducements had led the treasurer to let him put up his house and laboratory there. With Johnny, to wonder was to investigate and he almost started for the place, but remembered the fuss Bemis had made last time.

Well, he could still investigate the reason for Honoria's delinquency. He trotted over to the kitchen and put his yellowish muzzle in the door. He didn't go farther, remembering the cook's unreasonable attitude toward bears in her kitchen. There was a smell of burning food, and on a chair by the window sat Honoria, black and mountainous as ever, looking at nothing. A slight "woof!" from Johnny brought no more reaction than he had gotten from McGinty.

This was definitely alarming. Johnny set out to find Methuen. The Professor wasn't in the social room, but others were. Dr. Breuker, world-famous authority on the psychology of speech, sat in one easy chair, a newspaper across his lap. He didn't move when Johnny sniffed at his leg, and when the bear nipped his ankle he merely pulled the leg back a little. He had dropped a lighted cigarette on the rug, where it had burned a large hole before going out. Doctors Markush and Ryerson, and Ryerson's wife, were there too—all sitting like so many statues. Mrs. Ryerson

held a phonograph record-probably one of those dance tunes she liked.

Johnny hunted some more for his lord, and eventually found the lanky Methuen, clad in underwear, lying on his bed and staring at the ceiling. He didn't look sick-his breathing was regular-but he didn't move unless prodded or nipped. Johnny's efforts to arouse him finally caused him to get off the bed and wander dreamily across the room, where he sat down and gazed into space.

An hour later Johnny gave up trying to get sensible action out of the assorted scientists of the Biological Station, and went outside to think. He ordinarily enjoyed thinking, but this time there didn't seem to be enough facts to go on. 'What ought he to do? He could take the telephone off its stand, but he couldn't talk into it to call a physician. If he went down to Frederiksted to drag one up by main force, he'd probably get shot for his pains.

Happening to glance toward Bemis', he was surprised to see something round rise into the sky, slowly dwindle, and vanish in the sky. From his reading he guessed that this was a small balloon; he'd heard that Bemis was doing some sort of botanical experiment that involved the use of balloons. Another sphere followed the first, and then another, until they made a continuous procession dwindling into nothingness.

That was too much for Johnny; he had to find out why anyone should want to fill the heavens with balloons a yard in diameter. Besides, he might be able to get Bemis to come over to the Station and see about the entranced staff.

To one side of the Bemis house he found a truck, a lot of machinery, and two strange men. There was a huge pile of unfilled balloons, and the men were taking them one at a time, inflating them from a nozzle projecting from the machinery, and releasing them. To the bottom of each balloon a small box was attached.

One man saw Johnny, said "Cheez!" and felt for his pistol holster. Johnny stood up and gravely extended his right paw. He'd found that this was a good gesture to reassure people who were alarmed by his sudden appearance-not because Johnny cared whether they were alarmed, but because they sometimes carried guns and were dangerous if cornered or surprised.

The man shouted, "Get otta deh, youse!"

Johnny, puzzled, opened his mouth and said, "Wok?" His friends knew that this meant "What did you say?" or "What's going on here?" But the man, instead of sensibly explaining things, jerked out his pistol and fired.

Johnny felt a stunning blow and saw sparks as the .38 slug glanced off his thick skull. The next instant, the gravel of the driveway flew as he streaked for the gate. He could make 35 m.p.h. in a sprint and 30 for miles at a time, and now he was going all out.

Back at the station, he found a bathroom mirror and inspected the two-inch gash in his forehead. It wasn't a serious wound, though the impact had given him a slight headache. He couldn't bandage it. But he could and did turn on the faucet and hold his head under it, mop the wound with a towel, take down the iodine bottle, extract the stopper with his teeth, and, holding the bottle between his paws, pour a few drops on the wound. The sting made him wince and spill some of the solution on the floor, where, he reflected, Methuen would find it and give him hell.

Then he went out, keeping a watchful eye for the tough individuals at Bemis', and thought some more. Somehow, he suspected, these men, the balloons, and the

trancelike state of the people at the Station were all connected. Had Bemis gone into a trance too? Or was he the real author of these developments? Johnny would have liked to investigate some more, but he had the strongest aversion to being shot at.

It occurred to him that if he wanted to take advantage of the scientists' malady he'd better do so while the doing was good, and he made for the kitchen. There he had a glorious time, for he had five effective natural can openers on each foot. He was pouring the contents of a can of peaches down his throat, when a noise outside brought him to the window. He saw the truck that had been at Bemis' back up and the two tough individuals get out. Johnny slipped noiselessly into the dining room and listened through the door, tensing himself to bolt if the intruders came his way.

He heard the outside kitchen door slam and the voice of the man who had shot him: "What's ya name, huh?"

The inert Honoria, still sitting in her chair, answered tonelessly, "Honorio Velez."

"Okay, Honorio, you help us carry some of dis food out to the truck, see? Cheez, Smoke, lookit de mess. Dat beh's been around here. If you see him, plug him. Beh steaks is good eating, I hoid."

The other man mumbled something and Johnny could hear the slapping of Honoria's slippers as she moved about and presently the opening of the outside kitchen door. Still shuddering at the idea of becoming a steak, he pushed his door open a crack. Through the screen of the outside door he could see Honoria, arms full of provisions, docilely obeying commands and piling the cans and bags in the truck. The men sat on their running board and smoked while Honoria, like one hypnotized, made several trips back to the kitchen. When they said "Dat's all," she sat down on the kitchen steps and relapsed into her former state. The truck drove off.

Johnny hurried out and made for the clump of frees on the end of the Station's property opposite Bemis' house. The clump crowned a little hill, making it both a good hiding place and a vantage point. He thought, evidently the Station wasn't big enough for him and the strange men both, if they were going to corner the food supply and kill him on sight. Then he considered Honoria's actions. The negress, normally a strong-minded person of granite stubbornness, had carried out every order without a peep. Evidently the disease or whatever it was didn't affect a person mentally or physically, except that it deprived the victim of all initiative and will power. Honoria had remembered her own name and understood orders well enough. Johnny wondered why he hadn't been affected also; then, remembering the chimpanzee, concluded that it was probably specific to the higher anthropoids.

He watched more balloons rise and saw two men come out of the bungalow and talk to the inflators. One stocky figure Johnny was sure was Bemis. If that was so, the botanist must be the mastermind of the gang, and Johnny had at least four enemies to deal with. How? He didn't know. Well, he could at least dispose of the remaining food in the Station kitchen before the plug-uglies got it.

He went down and made a quart of coffee, which he could do easily enough because the pilot light of the gas stove had been left on. He poured it into a frying pan to cool, and lapped it up, simultaneously polishing off a whole loaf of bread.

Back in his hideaway he had difficulty sleeping; the coffee stimulated his mind, and plans for attacking the bungalow swarmed into it in clouds, until he almost felt

like raiding it right then. But he didn't, knowing that his eyesight was especially poor at night, and suspecting that all four of the enemy would be in.

He awoke at sunrise and watched the house until he saw the two tough ones come out and go to work on the balloons, and heard the little engine start its put-put-put. Making a long detour, he sneaked up from the opposite side and crawled under the house, which, like most Virgin Island bungalows, had no cellar. He crept around until the scrape of feet on the thin floor overhead told him he was under the men within. He heard Bemis' voice: ". . . Al and Shorty, and now those fools are caught in Havana with no way of getting down here, because transportation will be tied up all over the Caribbean by now."

Another voice, British, answered: "I suppose that in time it'll occur to them to go up to the owner of a boat or plane, and simply tell the chap to bring them here. That's the only thing for them to do, with everybody in Cuba under the influence of the molds by now, what? How many more balloons should we send up?"

"All we have," replied Bemis.

"But I say, don't you think we ought to keep some in reserve? It wouldn't do to have to spend the rest of our lives sending spores up into the stratosphere, in the hope that the cosmoics will give us another mutation like this one--"

"I said all the balloons, not all the spores, Forney. I have plenty of those in reserve, and I'm growing more from my molds all the time. Anyway, suppose we did run out before the whole world was affected-which it will be in a few weeks? There wasn't a chance in a million of that first mutation-yet it happened. That's how I know it was a sign from above, that I was chosen to lead the world out of its errors and confusions, which I shall do! God gave me this power over the world, and He will not fail me!"

So, thought Johnny, his mind working furiously, that was it! He knew that Bemis was an expert on molds. The botanist must have sent a load up into the stratosphere where the cosmic rays could work on them, and one of the mutations thereby produced had the property of attacking the human brain, when the spores were inhaled and got at the olfactory nerve endings, in such a way as to destroy all will power. And now Bemis was broadcasting these spores all over the world, after which he would take charge of the Earth, ordering the inhabitants thereof to do whatever he wished. Since he and his assistants had not been affected, there must be an antidote or preventative of some sort. Probably Bemis kept a supply handy. If there were some way of forcing Bemis to tell where it was-if, for instance, he could tie him up and write out a message demanding the information. . . But that wouldn't be practical. He'd have to settle with the gang first, and trust to luck to find the antidote.

One of the men working on the balloons spoke: "Ten o'clock, Bert. Time to go for the mail."

"Won't be no mail, you dope. Everybody in Frederiksted's sitting around like he was hopped."

"Yeah, that's so. But we ought to start organizing 'em, before they all croak of starvation. We gotta have somebody to work for us."

"All right, smart guy, you go ahead and arganize; I'll take a minute off for a smoke. S'pose you try to get the phone soivice woiking again."

Johnny watched one pair of booted legs disappear into the truck, which presently rolled out of the driveway. The other pair of legs came over to the front steps and sat down. Johnny remembered a tree on the other side of the house, whose trunk passed close to the eaves.

Four minutes later he paddled silently across the roof and looked down on the smoker. Bert threw away his cigarette butt and stood up. Instantly Johnny's 500 steel-muscled pounds landed on his back and flung him prone. Before he could fill his lungs to shout, the bear's paw landed with a pop on the side of his head. Bert quivered and subsided, his skull having acquired a peculiarly lopsided appearance.

Johnny listened. The house was quiet. But the man called Smoke would be coming back in the truck. . . . Johnny quickly dragged the corpse under the house. Then he cautiously opened the front screen door with his paws and stole in, holding his claws up so they wouldn't click against the floor. He located the room from which Bemis' voice had come. He could hear that voice, with its exaggerated oratorical resonance, wafting through the door now.

He pushed the door open slowly. The room was the botanist's laboratory and was full of flowerpots, glass cases of plants, and chemical apparatus. Bemis and a young man, evidently the Englishman, were sitting at the far end talking animatedly.

Johnny was halfway across the room before they saw him. They jumped up; Forney cried, "Good Gad!" Bemis gave one awful shriek as Johnny's right paw, with a swift scooping motion, operated on his abdomen in much the way that a patent ice-cream scoop works in its normal medium. Bemis, now quite a horrible sight, tried to walk, then to crawl, then slowly sank into a pool of his own blood.

Forney, staring at Bemis' trailing guts, snatched up a chair to fend off Johnny, as he had seen circus chappies do with lions. Johnny, however, was not a lion. Johnny rose on his hind legs and batted the chair across the room, where it came to rest with a crash of glass. Forney broke for the door, but Johnny was on his back before he had gone three steps.

Johnny wondered how to dispose of Smoke when he returned. Perhaps if he hid behind the door and pounced on him as he came in, he could finish him before the man could get his gun out. Johnny had a healthy dread of stopping another bullet. Then he noticed four automatic rifles in the umbrella stand in the hall. Johnny was a good shot with a rifle-or at least as good as his eyesight permitted. He partly opened the breech of one gun to assure himself that it was loaded, and found a window that commanded the driveway. When Smoke returned and got out of the truck, he never knew what hit him.

Johnny set out to find the antidote. Bemis should have kept some around, perhaps in his desk. The desk was locked, but, although made of sheet steel, it wasn't designed to keep out a determined and resourceful bear. Johnny hooked his claws under the lowest drawer, braced himself and heaved. The steel bent, and the drawer came out with a rending sound. The others responded in turn. In the last one he found a biggish squat bottle whose label he made out, with his spectacles, to read "Potassium iodide." There were also two hypodermic syringes.

Probably this was the antidote, and worked by injection. But how was he to work it? He carefully extracted the bottle-cork with his teeth, and tried to fill one of the

hypodermics. By holding the barrel of the device between his paws and working the plunger with his mouth, he at last succeeded.

Taking the syringe in his mouth, he trotted back to the Station. He found the underwear-clad Methuen in the kitchen, dreamily eating such scraps as had been left by his and the plug-uglies' raids. Breuker, the psychologist, and Dr. Bouvet, the Haitian negro bacteriologist, were engaged likewise. Evidently the pangs of hunger caused them to wander around until they found something edible, and their feeble instincts enabled them to eat it without having to be told to do so. Beyond that they were utterly helpless without orders and would sit like vegetables until they starved.

Johnny tried to inject the solution into Methuen's calf, holding the syringe crosswise in his teeth and pushing the plunger with one paw. But at the prick of the needle the man instinctively jerked away. Johnny tried again and again. He finally grabbed Methuen and held him down while he applied the needle, but the man squirmed so that the syringe broke.

A discouraged black bear cleaned up the broken glass. Except possibly for the missing Al and Shorty, he would soon be the only thinking being left on Earth with any initiative at all. He fervently hoped that Al and Shorty were still in Cuba-preferably six feet underground. He didn't care so much what happened to the human race, which contained so many vicious specimens. But he did have a certain affection for his cadaverous and whimsical boss, Methuen. And, more important from his point of view, he didn't like the idea of spending the rest of his life rustling his own food like a wild bear. Such an existence would be much too stupid for a bear of his intelligence. He would, of course, have access to the Station library, but there wouldn't be anybody to explain the hard parts of chemistry and the other sciences to him when he got stuck.

He returned to Bemis' and brought back both the bottle and the remaining hypodermic, which he filled as he had the previous one. He tried inserting the needle very gently into Professor Methuen, but the biologist still jerked away. Johnny didn't dare try any rough stuff for fear of breaking his only remaining syringe. He tried the same tactics with Breuker and Bouvet, with no better results. He tried it on Honoria, dozing on the kitchen steps. But she awoke instantly and pulled away, rubbing the spot where she had been pricked.

Johnny wondered what to try next. He considered knocking one of the men unconscious and injecting him; but, no, he didn't know how hard to hit to stun without killing. He knew that if he really swung on one of them he could crack his skull like an eggshell.

He waddled out to the garage and got a coil of rope, with which he attempted to tie up the again-sleeping Honoria. Having only paws and teeth to work with, he got himself more tangled in the rope than the cook, who awoke and rid herself of the coils without difficulty.

He sat down to think. There didn't seem to be any way that he could inject the solution. But in their present state the human beings would do anything they were told. If somebody ordered one to pick up the hypodermic and inject himself, he'd do it.

Johnny laid the syringe in front of Methuen, and tried to tell him what to do. But he couldn't talk-his attempts to say "Pick up the syringe" came out as "Fee-feek opp

feef-feef." The Professor stared blankly and looked away. Sign language was no more successful.

Johnny gave up and put the bottle and syringe on a high shelf where the men couldn't get at them. He wandered around, hoping that something would give him an idea. In Ryerson's room he saw a typewriter, and thought he had it. He couldn't handle a pencil, but he could operate one of these machines after a fashion. The chair creaked alarmingly under his weight, but held together. He took a piece of typewriter paper between his lips, dangled it over the machine, and turned the platen with both paws until he caught the paper in it. The paper was in crooked, but that couldn't be helped. He'd have preferred to write in Spanish because it was easy to spell, but Spanish wasn't the native tongue of any of the men at the Station, and he didn't want to strain their faculties, so English it would have to be. Using one claw at a time, he slowly tapped out: "PICK UP SIRINGE AND INJECT SOLUTION INTO YOUR UPPER ARM." The spelling of "siringe" didn't look right, but he couldn't be bothered with that now.

Taking the paper in his mouth he shuffled back to the kitchen. This time he put the syringe in front of Methuen, squalled to attract his attention, and dangled the paper in front of his eyes. But the biologist glanced only briefly at it and looked away. Growling with vexation, Johnny pushed the syringe out of harm's way and tried to force Methuen to read. But the scientist merely squirmed in his grasp and paid no attention to the paper. The longer he was held the harder he tried to escape. When the bear released him, he walked across the room and settled into his trance again.

Giving up for the time being, Johnny put away the syringe and made himself another quart of coffee. It was weak stuff, as there wasn't much of the raw material left. But maybe it would give him an idea. Then he went out and walked around in the twilight, thinking furiously. It seemed absurd-even his little bear's sense of humor realized that-that the spell could be broken by a simple command, that he alone in the whole world knew the command, and that he had no way of giving it. He wondered what would happen if he never did find a way out. Would the whole human race simply die off, leaving him the only intelligent creature on Earth? Of course such an event would have its advantages, but he feared that it would be a dull life. He could take a boat from the harbor and head for the mainland, and then hike north to Mexico where he would find others of his species. But he wasn't sure that they'd be congenial company; they might, resenting his strangeness, even kill him. No, that idea wouldn't do, yet.

The Station's animals, unfed for two days, were noisy in their cages. Johnny slept badly and awoke well before dawn. He thought he'd had an idea, but couldn't remember. . .

Wait. It had something to do with Breuker. He was a specialist on the psychology of speech, wasn't he? He did things with a portable phonograph recording apparatus; Johnny had seen him catching McGinty's yells. He went up to Breuker's room. Sure enough, there was the machine. Johnny opened it up and spent the next two hours figuring out how it worked. He could crank the motor easily enough, and with some patience learned to operate the switches. He finally adjusted the thing for recording, started the motor, and bawled "Wa-a-a-a-a-ah!" into it. He stopped the

machine, threw the playback switch, set the needle in the outer groove of the aluminum disk, and started it. For a few seconds it scraped quietly, then yelled "Waa-a-a-a-ah!" at him. Johnny squealed with pleasure.

He was on the track of something, but he didn't quite know what. A phonograph record of his cry would be no more effective in commanding the men than the original of that cry. Well, Breuker must have a collection of records. After some hunting, Johnny found them in a set of cases that looked like letter files. He leafed through them and read the labels. "Bird Cries: Red-and-Green Macaw, Cockatoo, Mayana." That was no help. "Infant Babble: 6-9 Months." Also out. "Lancashire Dialect." He tried this disk and listened to a monologue about a little boy who was swallowed by a lion. From his experience with little boys Johnny thought that a good idea, but there was nothing in the record that would be of use.

The next was labeled "American Speech Series, No. 7z-B, Lincoln County, Missouri." It started off: "Once there was a young rat who couldn't make up his mind. Whenever the other rats asked him if he'd like to come out with them, he'd answer, 'I don't know.' And when they said, 'Wouldn't you like to stop at home?' he wouldn't say yes or no either; he'd always shirk making a choice. One day his aunt said to him, 'Now look here! No one will ever care for you if you carry on like this. .

The record ground on, but Johnny's mind was made up. If he could get it to say "Now look here!" to Methuen, his problem ought to be solved. It wouldn't do any good to play the whole record, as those three words didn't stand out from the rest of the discourse. If he could make a separate record of just those words. .

But how could he, when there was only one machine? He needed two-one to play the record and one to record the desired words. He squalled with exasperation. To be licked after he'd gotten this far! He felt like heaving the machine out the window. At least it would make a beautiful crash.

Like a flash the solution came to him. He closed the recorder and carried it down to the social room, where there was a small phonograph used by the scientists for their amusement. He put the American Speech disk on this machine, put a blank disk on the recorder, and started the phonograph, with a claw on the switch of the recorder to start it at the right instant.

Two hours and several ruined disks later, he had what he wanted. He took the recorder to the kitchen, set it up, laid the syringe in front of Methuen, and started the machine. It purred and scraped for ten seconds, and then said sharply, "Now look here! Now look here! Now look here!" and resumed its scraping. Methuen's eyes snapped back into focus and he looked intently in front of him-at the sheet of paper with a single line of typing across it that Johnny dangled before his eyes. He read the words, and without a flicker of emotion picked up the syringe and jabbed the needle into his biceps.

Johnny shut off the machine. He'd have to wait now to see whether the solution took effect. As the minutes passed, he had an awful feeling that maybe it wasn't the antidote after all. A half-hour later, Methuen passed a hand across his forehead. His first words were barely audible, but grew louder like a radio set warming up:

"What in Heaven's name happened to us, Johnny? I remember everything that's taken place in the last three days, but during that time I didn't seem to have any

desires-not enough will of my own to speak, even."

Johnny beckoned, and headed for Ryerson's room and the typewriter. Methuen, who knew his Johnny, inserted a sheet of paper for him. Time passed, and Methuen said, "I see now. What a sweet setup for a would-be dictator! The whole world obeys his orders implicitly; all he has to do is select subordinates and tell them what to order the others to do. Of course the antidote was potassium iodide; that's the standard fungicide, and it cleared the mold out of my head in a hurry. Come on, oldtimer, we've got work to do. The first thing is to get the other men around here to inject themselves. Think of it, Johnny, a bear saving the world! After this you can chew all the tobacco you want. I'll even try to get a female bear for you and infect her brain the way I did yours, so that you can have some company worthy of you."

A week later everyone on St. Croix had been treated, and men had been sent off to the mainland and the other Caribbean islands to carry on the work.

Johnny Black, finding little to arouse his curiosity around the nearly deserted Biological Station, shuffled into the library. He took Volume 5 of the *Britannica*, opened it to "Chemistry," and set to work again. He hoped that Methuen would get back in a month or so and would find time to explain the hard parts to him, but meanwhile he'd have to wade through it as best he could.

LIAR!

by

Isaac Asimov

Alfred Lanning lit his cigar carefully, but the tips of his fingers were trembling slightly. His gray eyebrows hunched low as he spoke between puffs.

"It reads minds all right-damn little doubt about that! But why?" He looked at Mathematician Peter Bogert, "Well?"

Bogert flattened his black hair down with both hands, "That was the thirty-fourth RB model we've turned out, Lanning. All the others were strictly orthodox."

The third man at the table frowned. Milton Ashe was the youngest officer of U. S. Robot & Mechanical Men, Inc., and proud of his post.

"Listen, Bogert. There wasn't a hitch in the assembly from start to finish. I guarantee that."

Bogert's thick lips spread in a patronizing smile, "Do you? If you can answer for the entire assembly line, I recommend your promotion. By exact count, there are seventy-five thousand, two hundred and thirty-four operations necessary for the manufacture of a single positronic brain, each separate operation depending for successful completion upon any number of factors, from five to a hundred and five. If any one of them goes seriously wrong, the 'brain' is ruined. I quote our own information folder, Ashe."

Milton Ashe flushed, but a fourth voice cut off his reply.

"If we're going to start by trying to fix the blame on one another, I'm leaving." Susan Calvin's hands were folded tightly in her lap, and the little lines about her thin, pale lips deepened, "We've got a mind-reading robot on our hands and it strikes me as rather important that we find out just why it reads minds. We're not going to do that by saying, 'Your fault! My fault!' "

Her cold gray eyes fastened upon Ashe, and he grinned.

Lanning grinned too, and, as always at such times, his long white hair and shrewd little eyes made him the picture of a biblical patriarch, "True for you, Dr. Calvin."

His voice became suddenly crisp, "Here's everything in pill-concentrate form. We've produced a positronic brain of supposedly ordinary vintage that's got the remarkable property of being able to tune in on thought waves. It would mark the most important advance in robotics in decades, if we knew how it happened. We don't, and we have to find out. Is that clear?"

"May I make a suggestion?" asked Bogert.

"Go ahead!"

"I'd say that until we do figure out the mess -- and as a mathematician I expect it to be a very devil of a mess -- we keep the existence of RD-34 a secret. I mean even from the other members of the staff. As heads of the departments, we ought not to find it an insoluble problem, and the fewer know about it--"

"Bogert is right," said Dr. Calvin. "Ever since the Interplanetary Code was modified to allow robot models to be tested in the plants before being shipped out to space, antirobot propaganda has increased. If any word leaks out about a robot being able to read minds before we can announce complete control of the phenomenon, pretty effective capital could be made out of it."

Lanning sucked at his cigar and nodded gravely. He turned to Ashe; "I think you said you were alone when you first stumbled on this thought-reading business."

"I'll say I was alone -- I got the scare of my life. RB-34 had just been taken off the assembly table and they sent him down to me. Obermann was off somewheres, so I took him down to the testing rooms myself -- at least I started to take him down." Ashe paused, and a tiny smile tugged at his lips, "Say, did any of you ever carry on a thought conversation without knowing it?"

No one bothered to answer, and he continued, "You don't realize it at first, you know. He just spoke to me -- as logically and sensibly as you can imagine -- and it was only when I was most of the way down to the testing rooms that I realized that I hadn't said anything. Sure, I thought lots, but that isn't the same thing, is it? I locked that thing up and ran for Lanning. Having it walking beside me, calmly peering into my thoughts and picking and choosing among them gave me the willies."

"I imagine it would," said Susan Calvin thoughtfully. Her eyes fixed themselves upon Ashe in an oddly intent manner. "We are so accustomed to considering our own thoughts private."

Lanning broke in impatiently, "Then only the four of us know. All right! We've got to go about this systematically. Ashe, I want you to check over the assembly line from beginning to end -- everything. You're to eliminate all operations in which there was no possible chance of an error, and list all those where there were, together with its nature and possible magnitude."

"Tall order," grunted Ashe.

"Naturally! Of course, you're to put the men under you to work on this -- every single one if you have to, and I don't care if we go behind schedule, either. But they're not to know why, you understand."

"Hm-m-m, yes!" The young technician grinned wryly. "It's still a lulu of a job."

Lanning swiveled about in his chair and faced Calvin, "You'll have to tackle the

job from the other direction. You're the robo-psychologist of the plant, so you're to study the robot itself and work backward. Try to find out how he ticks. See what else is tied up with his telepathic powers, how far they extend, how they warp his outlook, and just exactly what harm it has done to his ordinary RB properties. You've got that?"

Lanning didn't wait for Dr. Calvin to answer.

"I'll co-ordinate the work and interpret the findings mathematically." He puffed violently at his cigar and mumbled the rest through the smoke; "Bogert will help me there, of course."

Bogert polished the nails of one pudgy hand with the other and said blandly, "I dare say. I know a little in the line."

"Well! I'll get started." Ashe shoved his chair back and rose. His pleasantly youthful face crinkled in a grin, "I've got the darnedest job of any of us, so I'm getting out of here and to work."

He left with a slurred, "B' seein' ye!"

Susan Calvin answered with a barely perceptible nod, but her eyes followed him out of sight and she did not answer when Lanning grunted and said, "Do you want to go up and see RB-34 now, Dr. Calvin?"

RB-34's photoelectric eyes lifted from the book at the muffled sound of binges turning and he was upon his feet when Susan Calvin entered.

She paused to readjust the huge "No Entrance" sign upon the door and then approached the robot.

"I've brought you the texts upon hyperatomic motors, Herbie -- a few anyway. Would you care to look at them?"

RB-34 -- otherwise known as Herbie -- lifted the three heavy books from her arms and opened to the title page of one:

"Hm-m-m! 'Theory of Hyperatomics.' " He mumbled inarticulately to himself as he flipped the pages and then spoke with an abstracted air, "Sit down, Dr. Calvin! This will take me a few minutes."

The psychologist seated herself and watched Herbie narrowly as he took a chair at the other side of the table and went through the three books systematically.

At the end of half an hour, he put them down, "Of course, I know why you brought these."

The corner of Dr. Calvin's lip twitched, "I was afraid you would. It's difficult to work with you, Herbie. You're always a step ahead of me."

"It's the same with these books, you know, as with the others. They just don't interest me. There's nothing to your textbooks. Your science is just a mass of collected data plastered together by makeshift theory -- and all so incredibly simple, that it's scarcely worth bothering about.

"It's your fiction that interests me. Your studies of the interplay of human motives and emotions" -- his mighty hand gestured vaguely as he sought the proper words.

Dr. Calvin whispered, "I think I understand."

"I see into minds, you see," the robot continued, "and you have no idea how complicated they are. I can't begin to understand everything because my own mind has so little in common with them -- but I try, and your novels help."

"Yes, but I'm afraid that after going through some of the harrowing emotional

experiences of our present-day sentimental novel" -- there was a tinge of bitterness in her voice -- "you find real minds like ours dull and colorless."

"But I don't!"

The sudden energy in the response brought the other to her feet. She felt herself reddening, and thought wildly, "He must know!"

Herbie subsided suddenly, and muttered in a low voice from which the metallic timbre departed almost entirely. "But, of course, I know about it, Dr. Calvin. You think of it always, so how can I help but know?"

Her face was hard. "Have you -- told anyone?"

"Of course not!" This, with genuine surprise, "No one has asked me."

"Well, then," she flung out, "I suppose you think I am a fool."

"No! It is a normal emotion."

"Perhaps that is why it is so foolish." The wistfulness in her voice drowned out everything else. Some of the woman peered through the layer of doctorhood. "I am not what you would call -- attractive."

"If you are referring to mere physical attraction, I couldn't judge. But I know, in any case, that there are other types of attraction."

"Nor young." Dr. Calvin had scarcely heard the robot.

"You are not yet forty." An anxious insistence had crept into Herbie's voice.

"Thirty-eight as you count the years; a shriveled sixty as far as my emotional outlook on life is concerned. Am I a psychologist for nothing?"

She drove on with bitter breathlessness, "And he's barely thirty-five and looks and acts younger. Do you suppose he ever sees me as anything but ... but what I am?"

"You are wrong!" Herbie's steel fist struck the plastic-topped table with a strident clang. "Listen to me--"

But Susan Calvin whirled on him now and the hunted pain in her eyes became a blaze, "Why should I? What do you know about it all, anyway, you ... you machine. I'm just a specimen to you; an interesting bug with a peculiar mind spread-eagled for inspection. It's a wonderful example of frustration, isn't it? Almost as good as your books." Her voice, emerging in dry sobs, choked into silence.

The robot cowered at the outburst. He shook his head pleadingly. "Won't you listen to me, please? I could help you if you would let me."

"How?" Her lips curled. "By giving me good advice?"

"No, not that. It's just that I know what other people think -- Milton Ashe, for instance."

There was a long silence, and Susan Calvin's eyes dropped. "I don't want to know what he thinks," she gasped. "Keep quiet."

"I think you would want to know what he thinks"

Her head remained bent, but her breath came more quickly. "You are talking nonsense," she whispered.

"Why should I? I am trying to help. Milton Ashe's thoughts of you-" he paused.

And then the psychologist raised her head, "Well?"

The robot said quietly, "He loves you."

For a full minute, Dr. Calvin did not speak. She merely stared. Then, "You are mistaken! You must be. Why should he?"

"But he does. A thing like that cannot be hidden, not from me."

"But I am so ... so-" she stammered to a halt.

"He looks deeper than the skin, and admires intellect in others. Milton Ashe is not the type to marry a head of hair and a pair of eyes."

Susan Calvin found herself blinking rapidly and waited before speaking. Even then her voice trembled, "Yet he certainly never in any way indicated-"

"Have you ever given him a chance?"

"How could I? I never thought that-"

"Exactly!"

The psychologist paused in thought and then looked up suddenly. "A girl visited him here at the plant half a year ago. She was pretty, I suppose -- blond and slim. And, of course, could scarcely add two and two. He spent all day puffing out his chest, trying to explain how a robot was put together." The hardness had returned, "Not that she understood! Who was she?"

Herbie answered without hesitation, "I know the person you are referring to. She is his first cousin, and there is no romantic interest there, I assure you."

Susan Calvin rose to her feet with a vivacity almost girlish. "Now isn't that strange? That's exactly what I used to pretend to myself sometimes, though I never really thought so. Then it all must be true."

She ran to Herbie and seized his cold, heavy hand in both hers. "Thank you, Herbie." Her voice was an urgent, husky whisper. "Don't tell anyone about this. Let it be our secret -- and thank you again." With that, and a convulsive squeeze of Herbie's unresponsive metal fingers, she left.

Herbie turned slowly to his neglected novel, but there was no one to read his thoughts.

Milton Ashe stretched slowly and magnificently, to the tune of cracking joints and a chorus of grunts, and then glared at Peter Bogert, Ph.D.

"Say," he said, "I've been at this for a week now with just about no sleep. How long do I have to keep it up? I thought you said the positronic bombardment in Vac Chamber D was the solution."

Bogert yawned delicately and regarded his white hands with interest. "It is. I'm on the track."

"I know what that means when a mathematician says it. How near the end are you?"

"It all depends."

"On what?" Ashe dropped into a chair and stretched his long legs out before him.

"On Lanning. The old fellow disagrees with me." He sighed, "A bit behind the times, that's the trouble with him. He clings to matrix mechanics as the all in all, and this problem calls for more powerful mathematical tools. He's so stubborn."

Ashe muttered sleepily, "Why not ask Herbie and settle the whole affair?"

"Ask the robot?" Bogert's eyebrows climbed.

"Why not? Didn't the old girl tell you?"

"You mean Calvin?"

"Yeah! Susie herself. That robot's a mathematical wiz. He knows all about everything plus a bit on the side. He does triple integrals in his head and eats up tensor analysis for dessert."

The mathematician stared skeptically, "Are you serious?"

"So help me! The catch is that the dope doesn't like math. He would rather read slushy novels. Honest! You should see the tripe Susie keeps feeding him: 'Purple Passion' and 'Love in Space.' "

"Dr. Calvin hasn't said a word of this to us."

"Well, she hasn't finished studying him. You know how she is. She likes to have everything just so before letting out the big secret."

"She's told you."

"We sort of got to talking. I have been seeing a lot of her lately." He opened his eyes wide and frowned, "Say, Bogie, have you been noticing anything queer about the lady lately?"

Bogert relaxed into an undignified grin, "She's using lipstick, if that's what you mean."

"Hell, I know that. Rouge, powder and eye shadow, too. She's a sight. But it's not that. I can't put my finger on it. It's the way she talks -- as if she were happy about something." He thought a little, and then shrugged.

The other allowed himself a leer, which, for a scientist past fifty, was not a bad job, "Maybe she's in love."

Ashe allowed his eyes to close again, "You're nuts, Bogie. You go speak to Herbie; I want to stay here and go to sleep."

"Right! Not that I particularly like having a robot tell me my job, nor that I think he can do it!"

A soft snore was his only answer.

Herbie listened carefully as Peter Bogert, hands in pockets, spoke with elaborate indifference.

"So there you are. I've been told you understand these things, and I am asking you more in curiosity than anything else. My line of reasoning, as I have outlined it, involves a few doubtful steps, I admit, which Dr. Lanning refuses to accept, and the picture is still rather incomplete."

The robot didn't answer, and Bogert said, "Well?"

"I see no mistake," Herbie studied the scribbled figures.

"I don't suppose you can go any further than that?"

"I daren't try. You are a better mathematician than I, and -- well, I'd hate to commit myself."

There was a shade of complacency in Bogert's smile, "I rather thought that would be the case. It is deep. We'll forget it." He crumpled the sheets, tossed them down the waste shaft, turned to leave, and then thought better of it.

"By the way--"

The robot waited.

Bogert seemed to have difficulty. "There is something -- that is, perhaps you can -- " He stopped.

Herbie spoke quietly. "Your thoughts are confused, but there is no doubt at all that they concern Dr. Lanning. It is silly to hesitate, for as soon as you compose yourself, I'll know what it is you want to ask."

The mathematician's hand went to his sleek hair in the familiar smoothing gesture. "Lanning is nudging seventy," he said, as if that explained everything.

"I know that."

"And he's been director of the plant for almost thirty years." Herbie nodded.

"Well, now," Bogert's voice became ingratiating, "you would know whether ... whether he's thinking of resigning. Health, perhaps, or some other-"

"Quite," said Herbie, and that was all.

"Well, do you know?"

"Certainly."

"Then-uh-could you tell me?"

"Since you ask, yes." The robot was quite matter-of-fact about it. "He has already resigned!"

"What!" The exclamation was an explosive, almost inarticulate, sound. The scientist's large head hunched forward, "Say that again!"

"He has already resigned," came the quiet repetition, "but it has not yet taken effect. He is waiting, you see, to solve the problem of -- er -- myself. That finished, he is quite ready to turn the office of director over to his successor."

Bogert expelled his breath sharply, "And this successor? Who is he?" He was quite close to Herbie now, eyes fixed fascinatedly on those unreadable dull-red photoelectric cells that were the robot's eyes.

Words came slowly, "You are the next director."

And Bogert relaxed into a tight smile, "This is good to know. I've been hoping and waiting for this. Thanks, Herbie."

Peter Bogert was at his desk until five that morning and he was back at nine. The shelf just over the desk emptied of its row of reference books and tables, as he referred to one after the other. The pages of calculations before him increased microscopically and the crumpled sheets at his feet mounted into a hill of scribbled paper.

At precisely noon, he stared at the final page, rubbed a blood-shot eye, yawned and shrugged. "This is getting worse each minute. Damn!"

He turned at the sound of the opening door and nodded at Lanning, who entered, cracking the knuckles of one gnarled hand with the other.

The director took in the disorder of the room and his eyebrows furrowed together.

"New lead?" he asked.

"No," came the defiant answer. "What's wrong with the old one?"

Lanning did not trouble to answer, nor to do more than bestow a single cursory glance at the top sheet upon Bogert's desk. He spoke through the flare of a match as he lit a cigar.

"Has Calvin told you about the robot? It's a mathematical genius. Really remarkable."

The other snorted loudly, "So I've heard. But Calvin had better stick to robopsychology. I've checked Herbie on math, and he can scarcely struggle through calculus."

"Calvin didn't find it so."

"She's crazy."

"And I don't find it so." The director's eyes narrowed dangerously.

"You!" Bogert's voice hardened. "What are you talking about?"

"I've been putting Herbie through his paces all morning, and he can do tricks you

never heard of."

"Is that so?"

"You sound skeptical!" Lanning flipped a sheet of paper out of his vest pocket and unfolded it. "That's not my handwriting, is it?"

Bogert studied the large angular notation covering the sheet, "Herbie did this?"

"Right! And if you'll notice, he's been working on your time integration of Equation 22. It comes" -- Lanning tapped a yellow fingernail upon the last step -- "to the identical conclusion I did, and in a quarter the time. You had no right to neglect the Linger Effect in positronic bombardment."

"I didn't neglect it. For Heaven's sake, Lanning, get it through your head that it would cancel out--"

"Oh, sure, you explained that. You used the Mitchell Translation Equation, didn't you? Well -- it doesn't apply."

"Why not?"

"Because you've been using hyper-imaginaries, for one thing."

"What's that to do with?"

"Mitchell's Equation won't hold when--"

"Are you crazy? If you'll reread Mitchell's original paper in the Transactions of the Far--"

"I don't have to. I told you in the beginning that I didn't like his reasoning, and Herbie backs me in that."

"Well, then," Bogert shouted, "let that clockwork contraption solve the entire problem for you. Why bother with nonessentials?"

"That's exactly the point. Herbie can't solve the problem. And if he can't, we can't -- alone. I'm submitting the entire question to the National Board. It's gotten beyond us."

Bogert's chair went over backward as he jumped up a-snarl, face crimson. "You're doing nothing of the sort."

Lanning flushed in his turn, "Are you telling me what I can't do?"

"Exactly," was the gritted response. "I've got the problem beaten and you're not to take it out of my hands, understand? Don't think I don't see through you, you desiccated fossil. You'd cut your own nose off before you'd let me get the credit for solving robotic telepathy."

"You're a damned idiot, Bogert, and in one second I'll have you suspended for insubordination" -- Lanning's lower lip trembled with passion.

"Which is one thing you won't do, Lanning. You haven't any secrets with a mind-reading robot around, so don't forget that I know all about your resignation."

The ash on Lanning's cigar trembled and fell, and the cigar itself followed, "What ... what--"

Bogert chuckled nastily, "And I'm the new director, be it understood. I'm very aware of that, don't think I'm not. Damn your eyes, Lanning, I'm going to give the orders about here or there will be the sweetest mess that you've ever been in."

Lanning found his voice and let it out with a roar. "You're suspended, d'ye hear? You're relieved of all duties. You're broken, do you understand?"

The smile on the other's face broadened, "Now, what's the use of that? You're getting nowhere. I'm holding the trumps. I know you've resigned. Herbie told me,

and he got it straight from you."

Lanning forced himself to speak quietly. He looked an old, old man, with tired eyes peering from a face in which the red had disappeared, leaving the pasty yellow of age behind, "I want to speak to Herbie. He can't have told you anything of the sort. You're playing a deep game, Bogert, but I'm calling your bluff. Come with me."

Bogert shrugged, "To see Herbie? Good! Damned good!"

It was also precisely at noon that Milton Ashe looked up from his clumsy sketch and said, "You get the idea? I'm not too good at getting this down, but that's about how it looks. It's a honey of a house, and I can get it for next to nothing."

Susan Calvin gazed across at him with melting eyes. "It's really beautiful," she sighed. "I've often thought that I'd like to-" Her voice trailed away.

"Of course," Ashe continued briskly, putting away his pencil, "I've got to wait for my vacation. It's only two weeks off, but this Herbie business has everything up in the air." His eyes dropped to his fingernails, "Besides, there's another point -- but it's a secret."

"Then don't tell me."

"Oh, I'd just as soon, I'm just busting to tell someone -- and you're just about the best -er- confidante I could find here." He grinned sheepishly.

Susan Calvin's heart bounded, but she did not trust herself to speak.

"Frankly," Ashe scraped his chair closer and lowered his voice into a confidential whisper, "the house isn't to be only for myself. I'm getting married!"

And then he jumped out of his seat, "What's the matter?"

"Nothing!" The horrible spinning sensation had vanished, but it was hard to get words out. "Married? You mean-"

"Why, sure! About time, isn't it? You remember that girl who was here last summer. That's she! But you are sick. You-"

"Headache!" Susan Calvin motioned him away weakly. "I've ... I've been subject to them lately. I want to ... to congratulate you, of course. I'm very glad-" The inexpertly applied rouge made a pair of nasty red splotches upon her chalk-white face. Things had begun spinning again. "Pardon me -- please-"

The words were a mumble, as she stumbled blindly out the door. It had happened with the sudden catastrophe of a dream -- and with all the unreal horror of a dream.

But how could it be? Herbie had said-

And Herbie knew! He could see into minds!

She found herself leaning breathlessly against the doorjamb, staring into Herbie's metal face. She must have climbed the two flights of stairs, but she had no memory of it. The distance had been covered in an instant, as in a dream.

As in a dream!

And still Herbie's unblinking eyes stared into hers and their dull red seemed to expand into dimly shining nightmarish globes.

He was speaking, and she felt the cold glass pressing against her lips. She swallowed and shuddered into a certain awareness of her surroundings.

Still Herbie spoke, and there was agitation in his voice -- as if he were hurt and frightened and pleading.

The words were beginning to make sense. "This is a dream," he was saying, "and you mustn't believe in it. You'll wake into the real world soon and laugh at yourself."

He loves you, I tell you. He does, he does! But not here! Not now! This is an illusion."

Susan Calvin nodded, her voice a whisper, "Yes! Yes!" She was clutching Herbie's arm, clinging to it, repeating over and over, "It isn't true, is it? It isn't, is it?"

Just how she came to her senses, she never knew -- but it was like passing from a world of misty unreality to one of harsh sunlight. She pushed him away from her, pushed hard against that steely arm, and her eyes were wide.

"What are you trying to do?" Her voice rose to a harsh scream. "What are you trying to do?"

Herbie backed away, "I want to help"

The psychologist stared, "Help? By telling me this is a dream? By trying to push me into schizophrenia?" A hysterical tenseness seized her, "This is no dream! I wish it were!"

She drew her breath sharply, "Wait! Why ... why, I understand. Merciful Heavens, it's so obvious."

There was horror in the robot's voice, "I had to!"

"And I believed you! I never thought-"

Loud voices outside the door brought her to a halt. She turned away, fists clenching spasmodically, and when Bogert and Lanning entered, she was at the far window. Neither of the men paid her the slightest attention.

They approached Herbie simultaneously; Lanning angry and impatient, Bogert, coolly sardonic. The director spoke first.

"Here now, Herbie. Listen to me!"

The robot brought his eyes sharply down upon the aged director, "Yes, Dr. Lanning."

"Have you discussed me with Dr. Bogert?"

"No, sir." The answer came slowly, and the smile on Bogert's face flashed off.

"What's that?" Bogert shoved in ahead of his superior and straddled the ground before the robot. "Repeat what you told me yesterday."

"I said that " Herbie fell silent. Deep within him his metallic diaphragm vibrated in soft discords.

"Didn't you say he had resigned?" roared Bogert. "Answer me!"

Bogert raised his arm frantically, but Lanning pushed him aside, "Are you trying to bully him into lying?"

"You heard him, Lanning. He began to say 'Yes' and stopped. Get out of my way! I want the truth out of him, understand!"

"I'll ask him!" Lanning turned to the robot. "All right, Herbie, take it easy. Have I resigned?"

Herbie stared, and Lanning repeated anxiously, "Have I resigned?" There was the faintest trace of a negative shake of the robot's head. A long wait produced nothing further.

The two men looked at each other and the hostility in their eyes was all but tangible.

"What the devil," blurted Bogert, "has the robot gone mute? Can't you speak, you monstrosity?"

"I can speak," came the ready answer.

"Then answer the question. Didn't you tell me Lanning had resigned? Hasn't he resigned?"

And again there was nothing but dull silence, until from the end of the room Susan Calvin's laugh rang out suddenly, high-pitched and semi-hysterical.

The two mathematicians jumped, and Bogerts eyes narrowed, "You here? What's so funny?"

"Nothing's funny." Her voice was not quite natural. "It's just that I'm not the only one that's been caught. There's irony in three of the greatest experts in robotics in the world falling into the same elementary trap, isn't there?" Her voice faded, and she put a pale hand to her forehead, "But it isn't funny!"

This time the look that passed between the two men was one of raised eyebrows. "What trap are you talking about?" asked Lansing stiffly. "Is something wrong with Herbie?"

"No," she approached them slowly, "nothing is wrong with him -- only with us." She whirled suddenly and shrieked at the robot, "Get away from me! Go to the other end of the room and don't let me look at you."

Herbie cringed before the fury of her eyes and stumbled away in a clattering trot.

Lanning's voice was hostile, "What is all this, Dr. Calvin?"

She faced them and spoke sarcastically, "Surely you know the fundamental First Law of Robotics."

The other two nodded together. "Certainly," said Bogert, Irritably, "a robot may not injure a human being or, through inaction, allow him to come to harm"

"How nicely put," sneered Calvin. "But what kind of harm?"

"Why -- any kind."

"Exactly! Any kind! But what about hurt feelings? What about deflation of one's ego? What about the blasting of one's hopes? Is that injury?"

Lanning frowned, "What would a robot know about-" And then he caught himself with a gasp.

"You've caught on, have you? This robot reads minds. Do you suppose it doesn't know everything about mental injury? Do you suppose that if asked a question, it wouldn't give exactly that answer that one wants to hear? Wouldn't any other answer hurt us, and wouldn't Herbie know that?"

"Good Heavens!" muttered Bogert.

The psychologist cast a sardonic glance at him, "I take it you asked him whether Lanning had resigned. You wanted to hear that he had resigned and so that's what Herbie told you."

"And I suppose that is why," said Lanning, tonelessly, "it would not answer a little while ago. It couldn't answer either way without hurting one of us."

There was a short pause in which the men looked thoughtfully across the room at the robot, crouching in the chair by the bookcase, head resting in one hand.

Susan Calvin stared steadfastly at the floor, "He knew of all this. That ... that devil knows everything -- including what went wrong in his assembly." Her eyes were dark and brooding.

Lanning looked up, "You're wrong there, Dr. Calvin. He doesn't know what went wrong. I asked him."

"What does that mean?" cried Calvin. "Only that you didn't want him to give you

the solution. It would puncture your ego to have a machine do what you couldn't. Did you ask him?" she shot at Bogert.

"In a way." Bogert coughed and reddened. "He told me he knew very little about mathematics."

Lanning laughed, not very loudly and the psychologist smiled caustically. She said, "I'll ask him! A solution by him won't hurt my ego" She raised her voice into a cold, imperative, "Come here!"

Herbie rose and approached with hesitant steps.

"You know, I suppose," she continued, "just exactly at what point in the assembly an extraneous factor was introduced or an essential one left out."

"Yes," said Herbie, in tones barely heard.

"Hold on," broke in Bogert angrily. "That's not necessary true. You want to hear that, that's all."

"Don't be a fool," replied Calvin. "He certainly knows as much math as you and Lanning together, since he can read minds. Give him his chance."

The mathematician subsided, and Calvin continued, "All right, then, Herbie, give! We're waiting." And in an aside, "Get pencils and paper, gentlemen."

But Herbie remained silent, and there was triumph in the psychologist's voice, "Why don't you answer, Herbie?"

The robot blurted out suddenly, "I cannot. You know I cannot! Dr. Bogert and Dr. Lanning don't want me to."

"They want the solution."

"But not from me."

Lanning broke in, speaking slowly and distinctly, "Don't be foolish, Herbie. We do want you to tell us."

Bogert nodded curtly.

Herbie's voice rose to wild heights, "What's the use of saying that? Don't you suppose that I can see past the superficial skin of your mind? Down below, you don't want me to. I'm a machine, given the imitation of life only by virtue of the positronic interplay in my brain -- which is man's device. You can't lose face to me without being hurt. That is deep in your mind and won't be erased. I can't give the solution."

"We'll leave," said Dr. Lanning. "Tell Calvin."

"That would make no difference," cried Herbie, "since you would know anyway that it was I that was supplying the answer."

Calvin resumed, "But you understand, Herbie, that despite that, Drs. Lanning and Bogert want that solution."

"By their own efforts!" insisted Herbie.

"But they want it, and the fact that you have it and won't give it hurts them. You see that, don't you?"

"Yes! Yes!"

"And if you tell them that will hurt them, too"

"Yes! Yes!" Herbie was retreating slowly, and step-by-step Susan Calvin advanced. The two men watched in frozen bewilderment.

"You can't tell them," droned the psychologist slowly, "because that would hurt and you mustn't hurt. But if you don't tell them, you hurt, so you must tell them. And

if you do, you will hurt and you mustn't, so you can't tell them; but if you don't, you hurt, so you must; but if you do, you hurt, so you mustn't; but if you don't, you hurt, so you must; but if you do, you-

Herbie was up against the wall, and here he dropped to his knees. "Stop!" he shrieked. "Close your mind! It is full of pain and frustration and hate! I didn't mean it, I tell you! I tried to help! I told you what you wanted to hear. I had to!"

The psychologist paid no attention. "You must tell them, but if you do, you hurt, so you mustn't; but if you don't, you hurt, so you must; but-

And Herbie screamed!

It was like the whistling of a piccolo many times magnified -- shrill and shriller till it keened with the terror of a lost soul and filled the room with the piercingness of itself.

And when it died into nothingness, Herbie collapsed into a huddled heap of motionless metal.

Bogert's face was bloodless, "He's dead!"

"No!" Susan Calvin burst into body-racking gusts of wild laughter, "not dead -- merely insane. I confronted him with the insoluble dilemma, and he broke down. You can scrap him now -- because he'll never speak again."

Lanning was on his knees beside the thing that had been Herbie. His fingers touched the cold, unresponsive metal face and he shuddered. "You did that on purpose." He rose and faced her, face contorted.

"What if I did? You can't help it now." And in a sudden access of bitterness, "He deserved it."

The director seized the paralyzed, motionless Bogert by the wrist, "What's the difference. Come, Peter." He sighed, "A thinking robot of this type is worthless anyway." His eyes were old and tired, and he repeated, "Come, Peter!"

It was minutes after the two scientists left that Dr. Susan Calvin regained part of her mental equilibrium. Slowly, her eyes turned to the living-dead Herbie and the tightness returned to her face. Long she stared while the triumph faded and the helpless frustration returned -- and of all her turbulent thoughts only one infinitely bitter word passed her lips.

"Liar!"

--

That finished it for then, naturally. I knew I couldn't get any more out of her after that. She just sat there behind her desk, her white face cold and -- remembering.

I said, "Thank you, Dr. Calvin!" but she didn't answer. It was two days before I could get to see her again.

BEFORE EDEN

by

ARTHUR C. CLARKE

"I guess," said Jerry Garfield, cutting the engines, "that this is the end of the line." With a gentle sigh, the un-derjets faded out; deprived of its air-cushion, the scout-car *Rambling Wreck* settled down upon the twisted rocks of the Hesperian Plateau.

There was no way forward; neither on its jets nor its tractors could S.5—to give the *Wreck* its official name—scale the escarpment that lay ahead. The South Pole of Venus was only thirty miles away, but it might have been on another planet. They would have to turn back, and retrace their four-hundred-mile journey through this nightmare landscape.

The weather was fantastically clear, with visibility of almost a thousand yards. There was no need of radar to show the cliffs ahead; for once, the naked eye was good enough. The green auroral light, filtering down through clouds that had rolled unbroken for a million years, gave the scene an underwater appearance, and the way in which all distant objects blurred into the haze added to the impression. Sometimes it was easy to believe that they were driving across a shallow seabed, and more than once Jerry had imagined that he had seen fish floating overhead.

"Shall I call the ship, and say we're turning back?" he asked.

"No yet," said Dr. Hutchins. "I want to think."

Jerry shot an appealing glance at the third member of the crew, but found no moral support there. Coleman was just as bad; although the two men argued furiously half the time, they were both scientists and therefore, in the opinion of a hard-headed engineer-navigator, not wholly responsible citizens. If Cole and Hutch had bright ideas about going forward, there was nothing he could do except register a protest.

Hutchins was pacing back and forth in the tiny cabin, studying charts and instruments. Presently he swung the car's searchlight towards the cliffs, and began to examine them carefully with binoculars. Surely, thought Jerry, he doesn't expect me to drive up there! S.5 was a hover-track, not a mountain goat... .

Abruptly, Hutchins found something. He released his breath in a sudden explosive gasp, then turned to Coleman.

"Look!" he said, his voice full of excitement. "Just to the left of that black mark! Tell me what you see."

He handed over the glasses, and it was Coleman's turn to stare.

"Well I'm damned," he said at length. "You were right. There *are* rivers on Venus. That's a dried-up waterfall."

"So you owe me one dinner at the Bel Gourmet when we get back to Cambridge. With champagne."

"No need to remind me. Anyway, it's cheap at the price. But this still leaves your other theories strictly on the crackpot level."

"Just a minute," interjected Jerry. "What's all this about rivers and waterfalls? Everyone knows they can't exist on Venus. It never gets cold enough on this steam-bath of a planet for the clouds to condense."

"Have you looked at the thermometer lately?" asked Hutchins with deceptive mildness.

"I've been slightly too busy driving."

"Then I've news for you. It's down to 230, and still fall-ing. Don't forget—we're almost at the Pole, it's wintertime, and we're sixty thousand feet above the lowlands. All this adds up to a distinct nip in the air. If the temperature drops a few more degrees, well have rain. The water will be boiling, of course—but it will be water. And though George won't admit it yet, this puts Venus in a completely different

light."

"Why?" asked Jerry, though he had already guessed.

"Where there's water, there may be life. We've been in too much of a hurry to assume that Venus is sterile, merely because the average temperature's over five hundred degrees. It's a lot colder here, and that's why I've been so anxious to get to the Pole. There are lakes up here in the highlands, and I want to look at them."

"But *boiling* water!" protested Coleman. "Nothing could live in that!"

"There are algae that manage it on Earth. And if we've learned one thing since we started exploring the planets, it's this—wherever Life has the slightest chance of surviving, you'll find it. This is the only chance it's ever had on Venus."

"I wish we could test your theory. But you can see for yourself—we can't go up that cliff."

"Perhaps not in the car. But it won't be too difficult to climb those rocks, even wearing thermosuits. All we need do is walk a few miles toward the Pole; according to the radar maps, it's fairly level once you're over the rim. We could manage in—oh, twelve hours at the most. Each of us has been out for longer than that, in much worse conditions."

That was perfectly true. Protective clothing that had been designed to keep men alive in the Venusian lowlands would have an easy job here, where it was only a hundred degrees hotter than Death Valley in midsummer.

"Well," said Coleman. "You know the regulations. You can't go by yourself, and someone has to stay here to keep contact with the ship. How do we settle it this time—chess or cards?"

"Chess takes too long," said Hutchins, "especially when you two play it." He reached into the chart table and produced a well-worn pack. "Cut them, Jerry."

"Ten of spades. Hope you can beat it, George."

"So do I. Damn—only five of clubs. Well, give my regards to the Venusians."

Despite Hutchins' assurance, it was hard work climbing the escarpment. The slope was not too steep, but the weight of oxygen gear, refrigerated thermosuit and scientific equipment came to more than a hundred pounds per man. The lower gravity—thirteen percent weaker than Earth's—gave a little help, but not much, as they toiled up scree, rested on ledges to regain breath, and then clambered on again through the submarine twilight. The emerald glow that washed around them was brighter than that of the full moon on Earth. A moon would have been wasted on Venus, Jerry told himself; It could never have been seen from the surface, there were no oceans for it to rule—and the incessant aurora was a far more constant source of light.

They had climbed over two thousand feet before the ground levelled out into a gentle slope, scarred here and there by channels that had clearly been cut by running water. After a little searching, they came across a gully wide and deep enough to merit the name of riverbed, and started to walk along it.

"I've just thought of something," said Jerry after they had travelled a few hundred yards. "Suppose there's a storm up ahead of us? I don't feel like facing a tidal wave of boiling water."

"If there's a storm," replied Hutchins a little impatiently, "we'll hear it. There'll be plenty of time to reach high ground."

He was undoubtedly right, but Jerry felt no happier as they continued to climb the gently-shelving watercourse. His uneasiness had been growing ever since they had passed over the brow of the cliff and had lost radio contact with the scout-car. In this day and age, to be out of touch with one's fellowmen was a unique and unsettling experience. It had never happened to Jerry before in all his life; even aboard the *Morning Star*, when they were a hundred million miles from Earth, he could always send a message to his family and get a reply back within minutes. But now, a few yards of rock had cut him off from the rest of mankind; if anything happened to them here, no one would ever know, unless some later expedition found their bodies. George would wait for the agreed number of hours; then he would head back to the ship—alone. I guess I'm not really the pioneering type, Jerry told himself. I like running complicated machines, and that's how I got involved in spaceflight. But I never stopped to think where it would lead, and now it's too late to change my mind.

They had travelled perhaps three miles towards the Pole, following the meanders of the riverbed, when Hutchins stopped to make observations and collect specimens. "Still getting colder!" he said. "The temperature's down to 199. That's far and away the lowest ever recorded on Venus. I wish we could call George and let him know."

Jerry tried all the wavebands; he even attempted to raise the ship—the unpredictable ups and downs of the planet's ionosphere sometimes made such long-distance reception possible—but there was not a whisper of a carrier-wave above the roar and crackle of the Venusian thunderstorms.

"This is even better," said Hutchins, and now there was real excitement in his voice. "The oxygen concentration's way up—fifteen parts in a million. It was only five back at the car, and down in the lowlands you can scarcely detect it."

"But fifteen in a *million!*" protested Jerry. "Nothing could breathe that!"

"You've got hold of the wrong end of the stick," Hutchins explained. "Nothing does breathe it. Something *makes* it. Where do you think Earth's oxygen comes from? It's all produced by life—by growing plants. Before there were plants on Earth, our atmosphere was just like this one—a mess of carbon dioxide and ammonia and methane. Then vegetation evolved, and slowly converted the atmosphere into something that animals could breathe."

"I see," said Jerry, "and you think that the same process has just started here?"

"It looks like it. *Something* not far from here is producing oxygen—and plant life is the simplest explanation."

"And where there are plants," mused Jerry, "I suppose you'll have animals, sooner or later."

"Yes," said Hutchins, packing his gear and starting up the gully, "though it takes a few hundred million years. We may be too soon—but I hope not."

"That's all very well," Jerry answered. "But suppose we meet something that doesn't like us? We've no weapons."

"And we don't need them. Have you stopped to think what we look like? Obviously any animal would run a mile at the sight of us."

There was some truth in that. The reflecting metal foil of their thermosuits covered them from head to foot like flexible, glittering armor. No insects had more elaborate

antennae than those mounted on their helmets and backpacks, and the wide lenses through which they stared out at the world looked like blank yet monstrous eyes. Yes, there were few animals on Earth that would stop to argue with such ap-paritions; but any Venusians might have different ideas.

Jerry was still mulling this over when they came upon the lake. Even at that first glimpse, it made him think not of the life they were seeking, but of death. Like a black mirror, it lay amid a fold of the hills; its far edge was hidden in the eternal mist, and ghostly columns of vapor swirled and danced upon its surface. All it needed, Jerry told himself, was Charon's ferry waiting to take them to the other side—or the Swan of Tuonela swimming majestically back and forth as it guarded the entrance to the Underworld... .

Yet for all this, it was a miracle—the first free water that men had ever found on Venus. Hutchins was already on his knees, almost in an attitude of prayer. But he was only col-lecting drops of the precious liquid to examine through his pocket microscopes.

"Anything there?" asked Jerry anxiously.

Hutchins shook his head.

"If there is, it's too small to see with this instrument. I'll tell you more when we're back at the ship." He sealed a test-tube and placed it in his collecting-bag, as tenderly as any prospector who had just found a nugget laced with gold. It might be—it probably was—nothing more than plain water. But it might also be a universe of unknown, living creatures on the first stage of their billion-year journey to intelligence.

Hutchins had walked no more than a dozen yards along the edge of the lake when he stopped again, so suddenly that Garfield nearly collided with him.

"What's the matter?" Jerry asked. "Seen something?"

"That dark patch of rock over there. I noticed it before we stopped at the lake."

"What about it? It looks ordinary enough to me."

"I think it's grown bigger."

All his life, Jerry was to remember this moment. Somehow he never doubted Hutchins' statement; by this time he could believe anything, even that rocks could grow. The sense of isolation and mystery, the presence of that dark and brooding lake, the never-ceasing rumble of distant storms and the green flickering of the aurora—all these had done something to his mind, had prepared it to face the incredible. Yet he felt no fear; that would come later.

He looked at the rock. It was about five hundred feet away, as far as he could estimate. In this dim, emerald light it was hard to judge distances or dimensions. The rock—or whatever it was—seemed to be a horizontal slab of almost black material, lying near the crest of a low ridge. There was a second, much smaller, patch of similar material near it; Jerry tried to measure and memorize the gap between them, so that he would have some yardstick to detect any change.

Even when he saw that the gap was slowly shrinking, he still felt no alarm—only a puzzled excitement. Not until it had vanished completely, and he realized how his eyes had tricked him, did that awful feeling of helpless terror strike into his heart.

Here were no growing or moving rocks. What they were watching was a dark tide, a crawling carpet, sweeping slowly but inexorably towards them over the top of the

ridge.

The moment of sheer, unreasoning panic lasted, merci-fully, no more than a few seconds. Garfield's first terror began to fade as soon as he recognized its cause. For that advancing tide had reminded him, all too vividly, of a story he had read many years ago about the army ants of the Amazon, and the way in which they destroyed everything in their path....

But whatever this tide might be, it was moving too slowly to be a real danger, unless it cut off their line of retreat. Hutchins was staring at it intently through their only pair of binoculars; he was the biologist, and he was holding his ground. No point in making a fool of myself, thought Jerry, by running like a scalded cat, if it isn't necessary.

"For heaven's sake," he said at last, when the moving carpet was only a hundred yards away and Hutchins had not uttered a word or stirred a muscle. "What *is* it?"

Hutchins slowly unfroze, like a statue coming to life. "Sorry," he said. "I'd forgotten all about you. It's a plant, of course. At least I suppose we'd better call it that."

"But it's *moving!*"

"Why should that surprise you? So do terrestrial plants. Ever seen speeded-up movies of ivy in action?"

"That still stays in one place—it doesn't crawl all over the landscape."

"Then what about the plankton plants of the sea? *They* can swim when they have to."

Jerry gave up; in any case, the approaching wonder had robbed him of words.

He still thought of the thing as a carpet—a deep pile one, ravelled into tassles at the edges. It varied in thickness as it moved; in some parts it was a mere film; in others, it heaped up to a depth of a foot or more. As it came closer and he could see its texture, Jerry was reminded of black velvet. He wondered what it felt like to the touch, then remembered that it would burn his fingers even if it did nothing else to them. He found himself thinking, in the lightheaded nervous reaction that follows a sudden shock: "If there *are* any Venusians, we'll never be able to shake hands with them. They'd burn us, and we'd give them frostbite."

So far, the thing had shown no signs that it was aware of their presence. It had merely flowed forward like the mindless tide that it almost certainly was. Apart from the fact that it climbed over small obstacles, it might have been an advancing flood of water.

And then, when it was only ten feet away, the velvet tide checked itself. On the right and the left, it still flowed forward; but, dead ahead it slowed to a halt.

"We're being encircled," said Jerry anxiously. "Better fall back, until we're sure it's harmless."

To his relief, Hutchins stepped back at once. After a brief hesitation, the creature resumed its slow advance and the dent in its front line straightened out.

Then Hutchins stepped forward again—and the thing slowly withdrew. Half a dozen times the biologist advanced, only to retreat again, and each time the living tide ebbed and flowed in synchronism with his movements. I never imagined, Jerry told himself, that I'd live to see a man waltzing with a plant...

"Thermophobia," said Hutchins. "Purely automatic reaction. It doesn't like our

heat."

"*Our heat!*" protested Jerry. "Why, we're living icicles by comparison."

"Of course but our suits aren't, and that's all it knows about."

Stupid of me, thought Jerry. When you were snug and cool inside your thermosuit, it was easy to forget that the refrigeration unit on your back was pumping a blast of heat out into the surrounding air. No wonder the Venusian plant had shied away.

"Let's see how it reacts to light," said Hutchins. He switched on his chest-lamp, and the green auroral glow was instantly banished by the flood of pure white radiance. Until Man had come to this planet, no white light had ever shone upon the surface of Venus, even by day. As in the seas of Earth, there was only a green twilight, deepening slowly to utter darkness.

The transformation was so stunning that neither man could check a cry of astonishment. Gone in a flash was the deep, sombre black of the thick-piled velvet carpet at their feet. Instead, as far as their lights carried, lay a glazing pattern of glorious vivid reds, laced with streaks of gold. No Persian prince could ever have commanded so opulent a tapestry from his weavers, yet this was the accidental product of biological forces. Indeed, until they had switched on their floods, these superb colors had not even existed, and they would vanish once more when the alien light of Earth ceased to conjure them into being.

"Tikov was right," murmured Hutchins. "I wish he could have known."

"Right about what?" asked Jerry, though it seemed almost a sacrilege to speak in the presence of such loveliness.

"Back in Russia, fifty years ago, he found that plants living in very cold climates tended to be blue and violet, while those from hot ones were red or orange. He predicted that the Martian vegetation would be violet, and said that if there were plants on Venus they'd be red. Well, he was right on both counts. But we can't stand here all day—we've work to do."

"You're sure it's quite safe?" asked Jerry, some of his caution reasserting itself.

"Absolutely—it can't touch our suits even if it wants to. Anyway, its moving past us."

That was true. They could see now that the entire creature—if it was a single plant, and not a colony—covered a roughly circular area about a hundred yards across. It was sweeping over the ground, as the shadow of a cloud moves before the wind—and where it had rested, the rocks were pitted with innumerable tiny holes that might have been etched by acid.

"Yes," said Hutchins, when Jerry remarked about this. "That's how some lichens feed; they secrete acids that dissolve rock. But no questions, please—not till we get back to the ship. I've several lifetimes' work here, and a couple of hours to do it in."

This was botany on the run.... The sensitive edge of the huge plant-thing could move with surprising speed when it tried to evade them. It was as if they were dealing with an animated flap-jack, an acre in extent. There was no re-action—apart from the automatic avoidance of their exhaust-heat—when Hutchins snipped samples or took probes. The creature flowed steadily onwards over hills and valleys, guided by some strange vegetable instinct. Perhaps it was following some vein of mineral; the geologists could decide that, when they analyzed the rock samples that

Hutchins' had collected both before and after the passage of the living tapestry.

There was scarcely time to think or even to frame the countless questions that their discovery had raised. Presumably these creatures must be fairly common, for them to have found one so quickly. How did they reproduce? By shoots, spores, fission, or some other means? Where did they get their energy? What relatives, rivals or parasites did they have? This could not be the only form of life on Venus—the very idea was absurd, for if you had one species, you must have thousands... .

Sheer hunger and fatigue forced them to a halt at last. The creature they were studying could eat its way around Venus—though Hutchins believed that it never went very far from the lake, as from time to time it approached the water and inserted a long, tubelike tendril into it—but the animals from Earth had to rest.

It was a great relief to inflate the pressurized tent, climb in through the airlock, and strip off their thermosuits. For the first time, as they relaxed inside their tiny plastic hemi-sphere, the true wonder and importance of the discovery forced itself upon their minds. This world around them was no longer the same; Venus was no longer dead—it had joined Earth and Mars.

For life called to life, across the gulfs of space. Everything that grew or moved upon the face of any planet was a portent, a promise that Man was not alone in this universe of blazing suns and swirling nebulae. If as yet he had found no companions with whom he could speak, that was only to be expected, for the lightyears and the ages still stretched before him, waiting to be explored. Meanwhile, he must guard and cherish the life he found, whether it be upon Earth or Mars or Venus.

So Graham Hutchins, the happiest biologist in the Solar System, told himself as he helped Garfield collect their refuse and seal it into a plastic disposal bag. When they deflated the tent and started the homeward journey, there was no sign of the creature they had been examining. That was just as well; they might have been tempted to linger for more experiments, and already it was getting uncomfortably close to their deadline.

No matter; in a few months they would be back with a team of assistants, far more adequately equipped and with the eyes of the world upon them. Evolution had labored for a billion years to make this meeting possible; it could wait a little longer.

For a while nothing moved in the greenly glimmering, fogbound landscape; it was deserted by man and crimson carpet alike. Then, flowing over the windcarved hills, the creature reappeared. Or perhaps it was another of the same strange species; no one would ever know.

It flowed past the little cairn of stones where Hutchins and Garfield had buried their wastes. And then it stopped.

It was not puzzled, for it had no mind. But the chemical urges that drove it relentlessly over the polar plateau were crying: Here, here! Somewhere close at hand was the most precious of all the food it needed—phosphorous, the element without which the spark of life could never ignite. It began to nuzzle the rocks, to ooze into the cracks and crannies, to scratch and scabble with probing tendrils. Nothing that it did was beyond the capacity of any plant or tree on Earth—but it moved a thousand times more quickly, requiring only minutes to reach its goal and pierce through the plastic film.

And then it feasted, on food more concentrated than any it had ever known. It

absorbed the carbohydrates and the proteins and the phosphates, the nicotine from the cigarette ends, the cellulose from the paper cups and spoons. All these it broke down and assimilated into its strange body, without difficulty and without harm.

Likewise it absorbed a whole microcosmos of living crea-tures—the bacteria and viruses which, upon an older planet, had evolved into a thousand deadly strains. Though only a very few could survive in this heat and this atmosphere, they were sufficient. As the carpet crawled back to the lake, it carried contagion to all its world.

Even as the Morning Star set course for her distant home, Venus was dying. The films and photographs and specimens that Hutchins was carrying in triumph were more precious even than he knew. They were the only record that would ever exist of Life's third attempt to gain a foothold in the Solar System.

Beneath the clouds of Venus, the story of Creation was ended.