Colin Kapp's second contribution to our pages is as fascinating in plot detail as his first one—"Life Plan" in the November 1958 issue—and introduces a philosopher who specializes in survival problems being involved with scientists who are attempting to break through into another dimension.

SURVIVAL PROBLEM

By Colin Kapp

Fort Athlan was seventeen square miles of scrubland and desert set in the midst of the thwarted, windswept, wilderness. Its nucleus was a small, enclosed, temporary town of concrete huts and portable buildings straddled with random poles carrying power and telephone cables. Around the town was a double perimeter of barbed wire.

Mike Conyers regarded the fence with vague apprehension. He was no stranger to barbed-wire fences and all they symbolized in man's treatment of man. Despite the fact that his enclosure was entirely voluntary he could not help but recall other less happy confinements. Stuffing his hands deeply into his pockets and turning his back on the cold wind he ambled slowly over to the Director's office.

The Director greeted him with mixed feelings.

"Glad you could make it, Mike. It's almost like old times."

"Is it?" asked Conyers doubtfully. "I was afraid of that. I don't recall having much love for the old times."

Nye eyed him speculatively for a moment.

" Perhaps not, but this is different. We're on to something big, here, Mike, but we don't know how big. That's why the Controller figured we could use a consultant philosopher on the team."

" One thing nobody ever wants advice on is their philosophy," said Conyers. "Why did you ask for me in particular?"

Nye shrugged.

" Sooner the devil we know than the one we don't. I'll admit we haven't always hit it off in the past, but there's always a first time. As a problem it's right in your line."

" Sounds interesting. Suppose you give me the facts, and don't make them too technical."

" Very well. Does the Housemann-Crane Discontinuity Theorem mean anything to you ?"

" A little. It's a mathematical hole of some sort."

" Briefly, yes. The equations deal with a discontinuity in the law of probability when applied to a certain series of four-dimensional terms. It's a curious little hole in the structure of numbers—a basic flaw in the system we use for looking at things. But there's one snag about it."

" And that is ?"

" We discovered the flaw is not in the system but in the nature of things themselves. Theoretically, given the right set of conditions, an area could be created in which the normal physics of three-dimensional space would cease to apply."

" Go on," said Conyers.

" The next part of the trick is how to translate the theory into practice. That's a tough job but we have it licked on paper at least. Using a system of stressed fields it should now be possible to reproduce physically the conditions of the mathematical discontinuity. It also leaves us with one hell of a problem."

" How so ?"

" Consider the facts. We're certain we now have a method whereby we can stress a flaw in the fabric of the universe as we know it. This will give us a discontinuity, a hole if you like, which leads right out of our notions of time and space. But a hole to where ? What lies on the other side ?"

For several seconds the silence was broken only by the heavy ticking of the clock on the wall.

" Very neat !" said Conyers at last. " Very neat indeed !"

" I thought you'd appreciate it. We have reason to suspect that through the D-gate we shall come across a set of conditions roughly comparable to those existing somewhere in the known universe ; but we have no right to believe that this will be so. If we should happen to hit something that is both abstract and impossible perhaps we also need a specialist in abstract impossibilities. Your department, I think."

" I thought there was a catch," said Conyers. " Every time I get a scientific liaison job I fall in the dirt. That's what comes of being a specialist, I suppose."

" It was your speciality that brought you here, Mike. As a philosopher you specialize in survival problems. Our little experiment may prove to be just that."

" As you said," remarked Conyers, " it's rather like old times. Is that why you chose Fort Athlan as a test site ?"

" Yes, except for the team working on the apparatus the entire area will be cleared. That way any major disaster up to and including an atomic blow-up will only harm a limited number of people."

Conyers withdrew a crumpled sheet of paper from his shirt pocket and straightened it on the desk.

" You realise that in calling in a survival specialist you have declared this project potentially hazardous ? Under our charter that gives me some pretty wide powers. Do you accept these conditions ?"

" Under protest," said Nye. " It was the Controller's decision to call you in, not mine. You know how I feel on this subject."

" Aye !" said Conyers without malice. " I still have the scars from the last time."

Nearly five years had elapsed since the last guided missile had winged its deadly way from Fort Athlan. The site had later been prepared in readiness for the stock-piling of thermo-nuclear weapons, but the weapons never came to the dusty underground galleries. Instead Nye and his research team had filled the concrete caves with power cables and electronic gadgetry. In the old firing-control vault, the deepest part of the installation, they had established the enigmatic ' bomb,' the gateway to the universe beyond.

The bomb was a horizontal cylinder of chrome steel with a two-inch wall, being about a foot in diameter and the same in length. Thick plates of ground- and polished-quartz were

clamped across the ends of the cylinder, with a yoke forming an elaborate pressure seal. The sole support for the assembly was a heavy metal tube which passed up through the field coils to a supporting girder and then dipped down again to the vacuum apparatus.

" You really are expecting trouble," said Conyers with quick understanding. " I assume you intend to make the breakthrough within the confines of the bomb ?"

Nye nodded. " It's extremely foolish to go poking holes into things unless you know roughly what's on the other side. We decided to use the bomb method so that if, on breakthrough, something decided to come our way we have a slight chance to contain it."

" Slight chance ?"

" There is a limit to what even a chrome-steel bomb can contain. This merely represents a statistical compromise between what we are likely to need and what we have to observe. If you consider the extremes of temperature, pressure and density that exist even in the known universe you get some pretty staggering figures. Then imagine taking a blindfold sample on a completely random basis.

" You stand the most chance of finding yourself with a bit of first-grade vacuum, but you might be unlucky and grab a hunk from the centre of a sun or a neat slice off a dwarf star. The vacuum you could handle if you had it in a proper can. Catch one of the others and you're really in trouble."

Gottwald, the mathematician, was writing notes at the console of the computer. As they approached he looked up with just a faint hint of amusement in his dark germanic eyes.

" Don't let this optimist give you a false sense of security. Those are merely the least of our worries."

" You mean," asked Conyers, " that this gadget is capable of even more lethal tricks than filling the room with radioactive helium at a few hundred-million degrees Celsius ?"

Gottwald nodded. " Just so ! For myself I don't believe we shall get that far. Our bomb contains one of the best vacuums we are able to produce but, by the nature of things, it still contains a great many molecules of gas. On breakthrough we stand a very real chance of inserting at least a few of those molecules very neatly into the atomic structure of whatever lies beyond."

" So what do we get, a new chemical compound ?"

" More likely a new type of nuclear reaction, I think."

Gottwald laughed shortly, with his peculiar twisted grin. But Conyers sensed the fear beneath the calm.

" How does the computer fit into this," Conyers asked.

" Simply," said Nye, " because we have to locate the critical point in the equation and set up an analogous pattern of stressed fields. Since the fields modify each other by interaction and capacitance effects we cannot calculate exactly where the critical point will fall. To get around this we intend to couple the computer to the field tuning mechanisms and run through the entire series. With a twenty-three hour sweep on the computer we must pass through the critical point at least once in that period of time."

" Does the computer stop at criticality ?"

" No. It merely records and passes on. If our estimation of gate width is correct we should make break-through and be past it in about ten to the minus-eleventh seconds."

" Surely you can't make any observations at such short duration ?"

" No." Nye paused and lit a cigarette. " It depends on what there is to observe. If the other side of our window happens to be situated in the centre of a sun, for instance, observation is not over-wise. We have the bomb monitored for every known physical phenomena, potentially dangerous and otherwise. If we detect nothing we will repeatedly drop the sweep speed by a suitable factor until something does record."

" I see."

" When we read something positive we can stop and analyse our position before going further. Assuming nothing lethal we can continue with reduced sweep speeds until we can build up a picture of what things are like on the other side."

He stopped and glanced coyly at Conyers through the haze of cigarette smoke drifting toward the ventilators.

" I think," he added, " that you are going to be hard put to find exercise for your speciality."

But Conyers was lost in thought, staring at things unseen, a trace of bitterness on his face.

" Who's the new boy ?" asked Baring.

Nye swore lightly. " A so-called survival specialist from the Philosophical Bureau, of all places."

" Jupiter ! What's that ?"

" It's a private organisation which does research work on semantics and paraphysics for the government. They have plenty of influence higher up so they do pretty much as they please."

" What's his interest here then ?"

" Obvious, I think, Harry. Is there anyone in the world who wouldn't be interested if they knew what we were up to ?"

" I suppose not. He looks a bit of a rum sort, though."

" Very, and there's something queer about this whole set up. The Controller's signed a contract giving him emergency powers here. From what I know of the Old Man they'd have to squeeze mighty hard to make him sign a thing like that. The fact that Conyers has such powers on my project is galling enough, but what puzzles me is why he bothered to ask for them in the first place."

" Perhaps he just likes to throw his weight around."

" I'm not so sure. I've tangled with these philosophical chaps before and they usually have good reasons for everything."

" We could always chuck him out," supplied Baring.

Nye looked up sharply. " I don't advise you to try if you value your neck. Mike Conyers is a pretty tough nut."

" Even tough nuts crack with a little scientific leverage."

" Boy !" said Nye." Never try to apply any sort of leverage to a survival specialist, because he won't be the one who cracks."

The hut assigned to Conyers was near the north perimeter at a point reasonably distant from those occupied by the bulk of the scientific and engineering staffs. This not entirely coincidental arrangement suited him well, for there were things to be done which were better done quietly and away from curious eyes. During the afternoon a military truck had delivered a load of his equipment, and the large grey instrument cases from the Philosophical Bureau Technological Division had already attracted too much attention.

He inspected the building and the immediate environment carefully and set up several mass-change proximity detectors to give advance warning of anyone approaching the hut. Then he sat by the window and read for the last time the letter which had brought him to Fort Athlan.

Office of the Director,
Philosophical Bureau.

Dear Mike,

I warned you that one day I would toss you a problem in which the chance of personal survival was a theoretical nil. This is it ! I need hardly tell you that the idiot savants have over-reached themselves at last. Since you know of our work on the Housemann-Crane theorem you will appreciate the pure irony in their requesting a survival specialist. Indeed, the situation would be funny if it were not so heavily underscored with potential tragedy.

As a problem it is as subtle and deadly as anything you could wish. Since you have developed so consistent a knack of refusing to accept the inevitable I am, in a strictly academic sense, interested in seeing how the hell you manage to get out of this one. If it is of any consolation to you, remember that the devil looks after his own.

Seroia Passover.

The special paper left no ash. The destruction of the note was second-nature to a specialist like Conyers, but he smiled wryly in realising that one is seldom so scrupulous about the fate of one's own death warrant.

As a philosopher his department was the technique of human survival under all forms of stress and danger. This was a rugged and practical field involving not only actual and simulated contra-survival problems but also scientific liaison on projects where the hazards were yet unknown. His unparalleled knowledge of the strengths and weaknesses of man made him a handy person to have around when potential danger loomed ahead.

He spent the rest of the evening in an apparently aimless exploration of Fort Athlan, an activity which was by no means as casual as it appeared. He paid special attention to the layout of the telephone lines and the communicator system, and established that there was only one radio-link with the base town of Sao Bernard, some hundred and twenty miles away. The telephone system boiled down to a single multiplexed line strung away across the desert on poles.

Soon after midnight he returned to his hut with the plan of Fort Athlan firmly in his mind together with the advisable routes to follow with the minimum risk of detection after dark. As yet he had little use for this information, but com-

munication and movement are vital factors in the functioning of any organised group, and Conyers had a job to do.

He rose early the next morning and set about unpacking the instrument cases. Two of the cases contained specialized electronic equipment, transceiver, recorders and miscellaneous gear. The third and fourth cases held component parts of a large device the mere thought of which made the hair rise on the back of his neck. It was not so much that he was afraid of death—he was trained to be afraid and ply his trade in the face of that fear—no, it was the sheer inevitability which overwhelmed him. Death comes in many forms but few as surely as that which a survival specialist deals to himself with his own hands.

The scientific staff had a separate dining hall to the military and engineering teams. This was necessary inasmuch as a great deal of scientific shop was invariably exchanged across the dining tables. The peculiar sickness of the age which confused scientific endeavour with the Official Secrets Acts was rampant among the assembled company and he felt the hum of conversation die as he, an unknown quantity, entered the door. He flipped his pass to the receptionist and was escorted to a reserved table near the head of the room.

He sat for a few minutes unable to determine whether he was regarded as a pariah or a V.I.P. His doubts were resolved when he was joined by the Director himself.

" Brother !" said Nye. " Do you mind telling me what you've got holed-up in that hut of yours ?"

Conyers' heart missed a beat. That was the last question he intended to answer.

" Specifically, why ?" he asked guardedly.

" Because it's playing hell with our radiation monitors. The background count is completely shot to pieces. What are you doing up there, refining uranium ?"

" Something like that," agreed Conyers. " There's a couple of radiation sources I use for checking some of my instruments. I expect you're reading them. They're a bit hot but well below tolerance."

" Not exactly a healthy thing to keep under your bed."

Conyers shrugged. " What else should I standardize on, faith, hope and charity ?"

" Please yourself, but you'd better have the medics watch your blood-count. I don't want you growing another head while you're on my territory."

" What's eating you, anyway ?"

Nye checked himself and smiled wearily. " The uncertainty, I guess. I've spent five years on this project and at a few days from zero hour I still haven't the faintest idea of what we're up against."

" What made you start all this anyway ?"

" What ever motivates a man ? Power, pride, position—you tell me. The whole world is grasping for advantage. Power and resources mean life and stability. Successful nations survive ; the others go to the wall. It's the modern law of the jungle."

" And the D-gate promises such an advantage ?"

" Don't you think so ? Whatever lies beyond the D-gate must be of some use to us. Perhaps a new science or a new way to the stars. Perhaps a new material or a perfect vacuum or a limitless source of hydrogen for power or synthesis."

" Or a new way to die ?"

Nye looked at him curiously.

" Or a new way to die," he said. He paused for a moment. " You know, sometimes I get the idea that you philosophers don't exactly approve of science."

Conyers shrugged. " Knowledge is power, and power is neutral in the affairs of men. It's like a bar of iron, you can use it as a tool or a weapon. Our concern is not with the knowledge but with the end to which the knowledge is applied. It's a question of responsibility."

" And you don't think that a scientist is sufficiently responsible to control the products of science ?"

Conyers, who had walked in the shadows of atomic nightmare, bit his lip.

" Do you ?"

" Surely the responsibility rests with society not with the scientist ?"

" Does it ? Think about it for a while. If a man gives a gun to a child does he bear no responsibility when the child turns the gun on this brother ?"

" This is beyond me," said Nye stiffly. " I only work here. Since you're a philosopher I'll leave the ethics to you."

The bomb vault was well suited for its job. In its original conception, as a control room for guided atomic weapons, seals had been provided so that it could function for several days in spite of radioactive contamination of the desert above.

These same seals would now perform the reverse role of preventing the spread of contamination in the unlikely event of the D-gate meeting with some peculiar and untimely end. An air plant could maintain a reasonable atmosphere for a week, independent of outside supply.

The lift went only as far as the lower galleries. From there to the vault one descended by stairs and corridors through a series of pressure doors. Most of the cable shafts ran parallel to the walkway and communicated at various levels with the galleries which held the modulators and gadgetry associated with the D-gate apparatus.

Conyers noted these details with a trained eye as he made frequent detours along galleries and passages carefully examining various aspects of the fantastic honeycomb structure of concrete and steel now snaked about with random cables and hot with the scent of transformer oil. He was especially interested in the routing of the control and the communicator wiring from the vault. In this he was aided by the logical coding of junction and relay boxes.

He found Gottwald still busy in the vault running computer checks.

"How goes it?"

Gottwald's skin showed yellow under the fluorescent lamps.

"How would you have it go? If you're intent on suicide a few decimal places more or less don't really count."

"You don't appear to have much faith in the bomb," said Conyers, selecting a chair.

"I have every faith in the bomb—as an instrument of destruction. The statistical odds of our breaking the threshold unharmed are so small I think they fall off the graph."

"Nye doesn't think so."

"Everyone is entitled to his own opinion."

"You think that breakthrough will result in an explosion?"

"I am almost certain of it. All my calculations point to that probability. A few molecules are all that would be required."

"Why are you telling me this?"

"Because you are the only one who has the sense to be truly afraid of what we are doing. Also you are not what you seem."

"How do you figure that?"

"You are a survival specialist, no? I understand that is your trade. You are here to ensure survival, yes—but not *our* survival."

" What makes you say that ?"

Gottwald looked up, his dark eyes haunted with memories.

" Perhaps I have seen too many men whose eyes bear the knowledge of certain death."

Conyers searched the index of his mind. " You were in the concentration camp at Brilla, were you not ?"

" Just so ! For three years. That is where I learned to read the faces of men who have no future."

" You could be mistaken."

" So I could. I'm getting old and my health is not what it was—thanks to Brilla. I sense I am getting near the end of the line. I find in you a kindred spirit."

" Perhaps !" said Conyers. " Why don't you get out of this ?"

" Why ? Because there's another war coming and I've had enough of war. Truly I'm scared of death but even more am I sick of living. This is my epitaph. It runs : ' Your geiger-counter reads the remains of Wolfgang Gottwald, who died as he had never lived—in a blaze of magnificent glory '."

Conyers got up and circled the bomb cautiously.

" You give up hope too easily."

Gottwald coughed a little. " I gave up such futilities a long while ago."

" Never mind," said Conyers, " where I come from they've hope enough for all of us."

As he traversed the higher levels he pondered on the significance of this conversation. Gottwald had guessed a good half-truth about his mission with an insight little short of miraculous. Either Gottwald was genuine or he had been trained in human-reactions by a master of the craft. If the second case was true there was more to the little German doctor than appeared at the surface. But how much more ?

On a hunch he returned to his hut, coded a signal to the Philosophical Bureau and sent it out over the transceiver.

Throughout the rest of that day and all the next he continued to familiarize himself with details of the project. Having satisfied his curiousity on the main mechanisms he contacted Baring who was responsible for the instrumentation. With some pride Baring exhibited the detectors and safety monitors assembled round the bomb.

Conyers was not impressed, and said as much.

" You appear," said Baring with scarcely concealed anger, " to have a very poor opinion of our chances."

" Frankly, I don't give us better than one chance in a million give or take half a dozen. And that's a conservative estimate."

" So much for the philosophy of pessimism ! Fortunately I don't have to agree. For myself I'd say about even chances. Remember we can detect trouble long before it reaches dangerous proportions."

" Famous last words," commented Conyers drily. " You are too easily blinded by science."

" Dazzled, perhaps, but not blinded. We planned our monitors in a very logical way. In consultation with the Medical Council we tabulated all those factors known or considered likely to prove dangerous. We have provided sensitive instruments which can detect any of those factors for intensities and durations well below tolerance level. With the added protection of the bomb and the ultra-short exposure time provided by the computer sweep I really can't see anything to worry about."

" No," said Conyers, " I didn't think you would. You'd put your head in a lion's mouth trying to measure the carbon dioxide content of its breath. Look at this problem another way. Two hundred years ago ninety percent of your instruments didn't exist for the adequate reason that the phenomena they're designed to measure was either unknown or imperfectly understood. Can you seriously maintain that in two hundred years hence the number of critical instruments wouldn't need to be increased by a similar percentage and for similar reasons ?"

" No, but . . . "

" From which we can draw the point that we cannot yet define all the hazards which may exist in our own universe, let alone those present beyond it."

" True, but from the individual standpoint . . . "

" Individual nothings ! You don't begin to grasp the magnitude or the subtlety of the task you have attempted. How do you recognise what constitutes a survival hazard anyway ? Is it a physical factor or is it a set of circumstances?"

Baring thought about this for a moment, then smiled resignedly.

" I begin to see why they called you in."

" I'm sorry for riding you like that," said Conyers, " but survival is a problem which permits no errors to the individual.

Even species must bow before it and adapt themselves or die. It is the business end of natural selection and the driving force behind evolution."

"I'm convinced," said Baring, suddenly without rancour. "But what can we do about it? We have taken all available steps to minimise the danger to others. Those of us who remain here do so with full knowledge of the possible consequences."

"I wonder," said Conyers quietly, "just how accurate your idea of the consequences will be." He walked thoughtfully around the bomb examining the complex field devices. "By the way, how do you limit the size of the D-gate field?"

"Edge cancellation. We neutralize the unwanted portion of the field flux with a secondary flux that's ninety degrees out of phase. The small coils at the end of the reactors are there for that purpose."

"I see. And over what limiting dimensions could you control the D-field if you wished?"

"Down to about one micron, and up to about one metre in diameter I should think. The bottom limit is determined by Housemann's constant and the top limit by the instability of the D-field itself. Does that help?"

"A little. Have you any spare cable-pairs up to the second gallery?"

"I think so." He consulted the master wiring layout. "Yes, three spare pairs. Do you want them?"

"Please. There's some extra stuff I'd like to install up there, but I need a control this side of the vault seals."

"As you wish," said Baring. "Would it be too much to ask what you're up to?"

"Frankly," said Conyers, "you wouldn't believe me if I told you."

The latter phrase was nothing more than the truth. Even Conyers himself found difficulty in fully comprehending the device which he now prepared to place in the second-level gallery.

In its original conception the device had been sufficiently awe-inspiring, but the labours of the bureau technologists had further transformed it into eleven hundredweights of crated complexity without apparent function or beauty. It took the philosopher and three technicians two and a half sweating,

straining hours to mount the two halves of the device one on the other in a vertical position. Even then Conyers was the only one who had any idea of what had been accomplished. A further seven hectic hours passed before the device stood gleaming and malignant in the depths of the gallery.

He dismissed the technicians and completed all the wiring with his own hands. Into the vault end of the circuits he put his own locked switches, and only the patterns of three small keys stood between an inquisitive tinkerer and an untimely end.

As he emerged from the main shaft the auto-caller wristlet on his arm began to tingle. He hurried to his hut and reached for the transceiver, but as he did so the telltale signals of the detectors caught his eye. The delicate mass-capitance balance of the area around the hut had been crudely upset since he had last reset his electronic watchdogs. The pens had straggled a ragged climbing trail across the recorder graphs.

The wristlet vibrated insistently, reminding him that the transceiver call awaited urgently. He flipped the switch.

" Conyers in Athlan."

" Come in, Mike ! Stand by for a tape from Philosophical H.Q., subject : Dr. Gottwald."

" Roll it, and then close out fast. I don't want this picked up elsewhere."

" Check ! This is it. Coming to you on a tight beam."

Conyers listened to the tape with growing interest. It was a plain-language communication, which was unusual in Bureau transmissions and served to indicate the extreme pressure exerted in obtaining and collating the information it contained. The incoming carrier ceased abruptly as the last word died away. But sufficient had already been said.

The lock on the door had been opened—expertly. Inside the hut he detected traces of a careful and unhurried search of his belongings. Nothing, however, remained to give a clue as to the identity of the intruder. Cursing wildly for not having foreseen the need for a concealed trip-camera, he tried the only approach left to him.

He went outside and walked around in a wide circle, returning to examine the new graphs of his own movement and to compare them with those already traced. Then using the old graphs with his own trace to guide him he carefully calculated the path by which the intruder had left.

He made frequent trips outside to verify his triangulation, comparing traces, measuring and calculating until the pattern became clear. Then it was easier. The trail led circuitously away from his hut, crossed the main fairway at an angle and then disappeared between the sheltering bulks of the hut line opposite. Here the trace was almost obliterated by the static mass of the storehouses but faintly, in slight leaps of the pen, the progress of a man who had moved beyond the huts was deftly betrayed.

One . . . two . . . a careful count down the line to the point where the pen had no longer moved. He was using a magnifying glass now to examine the minute deviations on the graph. Did the man stop there or had the distance and complexity of the task gone beyond the sensitivity of his instrument? He took a stroll in the direction indicated and then checked the result. His heart jumped a beat. He could trace his own progress two huts further than the trail of the intruder. At last he knew his man!

In the back of his mind a faint idea crystallized into a plan of action. He checked his stock of instruments and puzzled out a few details. Experimentally he set up a few circuits, tested them, then rewired with growing enthusiasm.

Working without schematics he marshalled the circuitry in his brain and translated it straight into an improvised haywire gadget of trailing wires and interconnected parts. He tested as thoroughly as time permitted and was gratified to find that, with a few minor adjustments, all was functioning as he had hoped.

The guard changed at midnight. Conyers waited patiently until the old guard had returned and dismissed, then stole like a shadow across the fairway and into the shelter of the huts beyond. Counting off from memory he moved down the lines taking great care to attract no attention from the watchmen.

The door offered no resistance to the picklock and he was inside the hut before Gottwald woke.

"Who is it? What do you want?"

"Conyers. I want to talk to you."

Gottwald moved up in the bed and fumbled for the bedside switch. Conyers, with eyes accustomed to the dark, knocked up his arm.

"No lights. I want this conversation private."

Gottwald pulled a cover round his shoulders. " What do you want ?" he repeated.

" I want to know by what unholy pact they let you out of Brilla ?"

" God ! There was no pact, I swear it. They released me because I was too old and too ill."

" I have information which says otherwise. They kept your wife and daughter there. Was that not to ensure you kept a certain bargain ?"

" I don't know what you mean."

" I think you do. You came here to spy. As a refugee your hatred of the new regime was unquestionable. As a noted scientist your services were much required. That much was easy. So they kept your family in order that you could buy their continued health by sending back details of the projects on which you worked."

Gottwald's dim face was a mask of pain and fear.

" Go away, madman ! I was cleared by Security, anyone will tell you that. If you don't go I will call the patrol."

" Do," said Conyers evenly. " I'll provide you with a one-way ticket to the firing squad. Now stop trying to bluff me and start talking sense."

The elderly doctor collapsed back onto the bed.

" Very well, what do you want with me ?"

" I want you to know just how you have been dealt with by the scorpions to whom you sold your soul. Your wife and daughter died within a month of your release from Brilla."

" You lie ! I have letters from them."

" Clever forgeries to keep you on the hook."

" You can't prove what you say."

" I don't need to. You know it's true. I think you've known it for a long time."

For a long moment Gottwald said nothing, but buried his face in a pillow. Then :

" Perhaps it's better this way. At least they can suffer no more. Now tell me why you come to torment me at midnight. Tomorrow I will come with you to the police."

" I didn't come for that. I came to make you an offer."

" Have I not had enough of offers and ungodly alliances ?"

" Don't judge me too hastily. I offer you a chance to redeem your soul."

" What do you mean ?"

" Since you have lost your allegiance to your late masters I want you to work with me. As you have been to so much trouble this afternoon to verify that I am not quite what I claim you will more easily understand what I intend to do."

" I know what you intend to do. I was looking for the reason why it had to be done."

" Then," said Conyers, " if you will listen I will tell you."

September the ninth got off to a bad start. The dark hours were shattered by a storm, driving from the west, which burst directly overhead with a sound like the crack of doom. The snarling thunder and the blinding shafts of lightning sliding into the hills only emphasized the terrifying prospect of the day ahead.

At one o'clock Conyers slipped from his hut and made for a spot on the perimeter fence well clear of the guard gate. Here the barbed strands were well ravaged by rust and corrosion and it was but a few moments work for one well versed in the foibles of fences to gain an unauthorized exit.

Crawling on the soaking ground until he was clear of the range of the perimeter lights he waited until a particularly brilliant flash illuminated his objective. Then he made off with a low shambling run out into the darkness of the night.

An hour later he re-entered Athlan by the same route. He closed the wire as best he could, swearing softly as a barb raked his knuckles, drawing blood. The venture had cost him more than he had reckoned. An ugly bruise was forming on his chest, and skin and trouser alike had been scraped from one knee. Nevertheless he had completed the first part of his task undiscovered, and that was sufficient compensation.

Climbing to the roof of the communications building was no happier task especially since the storm might have roused the night radio-operator from his usual half-eyed vigil. The slates were treacherous with moss and lubricated with rain. One false step would have precipitated his fall to the ground with, at best, a broken limb and half Fort Athlan in attendance. Also his fingers were numb with the cold and clumsy with continued immersion.

Somehow he groped his way through the telephone wires, sorting pairs from memory and clipping prepared leads between certain circuits to establish new paths for a different purpose. A dry cell and a miniature headphone served to check the new connections and he was greatly relieved when

the dry electric scratching in his ears signified that the job was done. Thankfully he crept quietly back to his hut for a hot shower and a few hours sleep.

Dawn brought a recession as the storm passed east, but the morning was marred by incessant rain and the sullen clouds brooding in the skies overhead. Fort Athlan woke with a sense of urgency ; with hurried breakfasts and the roar of engines as the last of the military and civil staff prepared to decamp. As the last truck moved out across the desert Conyers emerged from his lair and took final stock of his surroundings.

Four men remained in the bounds of Athlan. Their nearest neighbours were speeding away to safety to Sao Bernard, one hundred and twenty miles away. Four men. Three to one with the devil in between them, thought Conyers. Perhaps the odds weren't so bad at that !

He called at the Director's office but Nye had already left. He finally caught up with him in the communications building where Nye was having an agitated radio-telephone conversation with Control at Sao Bernard.

" All correct ?" asked Conyers at last.

" Like hell ! The land line's gone dead."

" Won't affect the test, will it ?"

" Not really. We were going to use the line on a direct link between the vault and Sao Bernard so that they could record our progress. This throws us back on a radio link instead."

" That sounds fair enough."

Nye gave him a curious smile. " Suppose the radio goes too ? We should be in a rather queer position if something goes wrong today."

" You've got the jumps," said Conyers. " The transmitter is a pair in tandem. You know the odds against complete failure on a set like that."

" Perhaps !" Nye got up and stared moodily from the window. " You know, Mike, I've an uneasy feeling about that land-line. The timing was a nice piece of coincidence. Off-hand I'd say somebody did a neat sabotage job on it. Somebody rather professional."

" Meaning me ?"

" Frankly, yes. I've seen you philosophers at work before. I don't pretend to know how you operate or why, but I get the feeling that you're playing a deep game of your own."

" I have a contract," said Conyers, " which declares that I shall act as I see fit to mitigate the dangers of this project. If that necessitates a spot of wire cutting I shall cut every wire in the place if I choose. Remember that the survival specialist has supreme authority where a hazard is involved. I hereby declare a hazard."

Nye bit his lip in anger.

" Are you going to inform Sao Bernard ?"

" No, that would only complicate the issue."

" As you wish. But why cut the wire ?"

" It could be," said Conyers slowly, " that when you stand too close to a problem you can't see it in perspective anymore."

Nye turned to face him, bemused with a sudden idea.

" Mike, do you *know* what we're going to find today ?"

" Not exactly. The bureau analysed the Housemann-Crane theorem some time ago. They came up with a pretty staggering idea as to what lay beyond the D-gate. I'm here just in case they're correct."

" Then what are you expecting ?"

" I can't tell you. Suffice it to say that if the bureau prediction is correct then you are about to uncover something so potent that no bomb you can ever devise can contain it. Even the isolation of Fort Athlan can scarcely slow its impact on the world."

" Why didn't you say something before ?"

" No point in it. As you yourself told me, you only work here. You don't accept the responsibility for your discoveries. The matter is already out of your hands."

" Very well," said Nye. " I respect your position. What do you want me to do ?"

" Carry on as though this conversation had never existed."

Nye looked at him helplessly for a moment or two and then shrugged.

" I still don't understand you, Mike, but then I never did. If I didn't know you I'd say you were either a liar or just plain crazy. As it is I don't know what to think."

" Nobody's asking you to think. Remember, I didn't have to come down here and tell you this."

" Then why did you ?"

" Because I think you're a nice quiet idiot who's going to come in for some very nasty shocks. I just wanted this to be one shock the less."

" That's a queer sort of comfort, I must say."

" I'm not here to offer comfort. I was sent here to ensure that your souped-up crystal set doesn't devastate half the continent. The way things are I wonder if I should have bothered."

" Why, what's the matter now ?"

" Early morning news release. War in the Kashmir. Atomic war. Half a million poor devils blasted because ' I only work here ' and another million dying because ' it's not my responsibility.' The idiot child has just turned the gun on his brother and we don't have enough decency left to compose an original epitaph !"

" Aren't you being a little hard on the scientists ?"

" Man !" said Conyers. " Have you any idea of the I.Q. of the collective psychology of modern society ?"

The war news was verified by the time the four had assembled in the bomb vault. The depression which had started with the storm deepened into a deadening resignation. Only Conyers, watching through quiet eyes, escaped the overwhelming sense of fatalism as the great doors sealed the vault from the world outside.

Nye took the communicator and called Sao Bernard, waited for acknowledgment, then fed in the holding signal which would stall the distant recorders until there was something worthwhile to note. Gottwald charged the necessary tapes into the computer console and signalled his readiness to start. Baring brought his vacuum pumps into chattering life and busied himself with valves and gauges.

The main board flooded with lights as the time controls switched on the supplies and modulators in the deserted galleries.

" Let it roll !" said Nye.

The main contactors fell home with a solid thud and the air grew loud with the surge of power. Then the computer came into play, and the slow dials on the console began their inexorable searching for the universe beyond.

Once they were thus committed the air of despondency grew thin and was replaced by a mounting tension and excitement. Nye broke the holding signal and radioed periodic reports to Sao Bernard, while Gottwald and Baring took turns to watch the oscillator board. Seven hours sped by without discernable effect save for the temperature steadily rising despite the

efforts of the air-conditioning plant. Jackets were shed and tempers became a bit ragged at the edges.

Baring was hard-put to re-zero his instruments in the face of the rapid temperature rise, and Conyers stepped in to give him a hand.

" How much longer ?"

Baring, the sweat glistening on his face, shrugged.

" Impossible to say. If the damn thing doesn't kick over soon we shall have to stop to let things cool off. Man ! The heat does crazy things to some of these meters. Whoever designed this conditioning plant ought to be buried with it."

" I doubt if he foresaw anyone wanting to dissipate a hundred kilowatts of radio-heat down here," observed Conyers, " to say nothing of the magnets."

Scarcely had he spoken than Gottwald gave the warning signal.

" Power-factor dropping on numbers two and ten reactors."

" This is it," said Nye. " Better hold on to your hats."

Suddenly all was activity. The communicator was set live recording Nye's commentary against a background of chortling instrument signals. Baring deftly isolated the bomb from the vacuum system and took final pressure readings.

" Bomb ready for service."

Nye took the microphone to the oscillator board and discoursed wildly as he strove to trim the errant oscillators.

" Power within limits."

Then silence save for the hum of power and Gottwald reciting the purely arbitary power-factor readings to provide an audible indication of progress.

" Zero point six three."

Baring glanced at Conyers. " One minute twenty seconds left."

" Time to start praying," said Conyers. " You know the odds."

" Zero point five seven."

" Evens," said Baring.

" No, a million to one against."

" Zero point three five."

Conyers, maintaining a philosophical calm, inserted three small keys into his locked switches.

" Zero point two nine."

All eyes save Gottwalds' turned towards the bomb, fear and hope mixed in unequal proportions.

" Zero point two two."

Conyers turned a key. *First safety off* !

" Zero point one six."

The meters fell with tantalizing restraint as some ill-understood phase advancement spread mysterious fingers around the reactor coils.

" Zero point zero nine."

Now the power was falling rapidly down some fantastic exponential curve—toward what ?

" Zero point four . . . three . . . two . . . "

The power kicked wildly. The meters jumped and fell back to begin the slow rise to normality. Conyers reached and turned another switch. *Timers started. Next time it's for keeps* !

" We made it !" said Nye, his voice strained with relief. " We actually made a break-through."

Baring was already checking his instruments. " Pressure change nil. Short radiations group nil. Gravitic effects nil. Magnetic effects change one point—probable error. Long radiations group nil . . . "

Against the background recitation Nye called to Conyers. " Nothing lethal there in small doses. You could be wrong, you know."

But Conyers did not answer. How do you recognise what constitutes a survival hazard anyway ? Is it a physical factor or is it a set of circumstances ?

Then the real work began. With the final co-ordinates wrestled from the computer Nye dropped the sweep speed by a factor of ten. This was accomplished without giving any additional information. At ten to the minus-ninth seconds Baring reported a slight change in the order of vacuum in the bomb but the mass spectograph, pre-focussed for hydrogen, failed to give positive evidence of this.

But with a further reduction in sweep speed the data began to come in fast. Excitement was running high despite the ever-rising temperature. Nye took off his shirt and wrestled with a slide rule, trying to extrapolate the information to form an advance picture of out-world conditions. Baring sweated like an overseer in hell, comparing and measuring, a handkerchief round his forehead to divert the moisture from his eyes.

When the gate duration was one microsecond feelings assumed a curious mixture of anticlimax and elation. No

problem of power or complexity appeared to loom beyond the D-gate but there was something—and that something was beginning to make a practical kind of sense.

The heat was now so intense that Baring, who had already been forced to dispense with most of his transistorised equipment, was having difficulty in making measurements on even the less temperature-sensitive gear. Worse still he had to make difficult measurements and adjustments in the face of increasing lassitude.

Stripped to the waist, Conyers waited, drinking in the sounds of the fantastic battle and intent on conserving his energy. When he judged the moment ripe he reached the console and tapped Gottwald on the shoulder. The mathematician nodded and fingered the controls carefully. The sweep was halted in the centre of its swing and locked against drift. Then Conyers fingers felt for the third key and turned it slowly in the switch. *The die was cast.*

" What the hell !" said Nye.

" I offer you," said Conyers, " the answer to the enigma. Look on it well, for it contains the power that mankind has no ability to resist. Against it we have no defence ; no bomb, no tract of desert, no vault however sealed could hope to mitigate its consequences."

He moved to the bomb and stared with quiet fascination at the phenomena within. Behind him Baring pushed forward and looked, not fully comprehending, reading an entirely different meaning into the gentle shimmering circle of light. Nye pushed his way through, half agonised with the dawning truth. Then Gottwald, hypnotised by the incredible.

" So that's it !" said Nye.

" I don't understand," complained Baring.

But Conyers didn't answer. Nye had a revolver pointed directly at his heart.

" One move, philosopher, and I'll drop you where you stand. You're a neat operator, but you played this one a little too obviously. I don't quite know what you intended but I'm a little uneasy at the way you're running this show."

" You're also a little out of line," said Conyers, a trace of bitterness in his voice. " Don't you realise this project is under survival orders ?"

" Yes," said Nye, " but it's only just occurred to me where the survival hazard was. It's up on the second gallery. At

a guess I'd say it was a Rothwell Mark-four nuclear missile warhead, but it's been so modified that you'd never recognise it unless you knew what to look for. It had me puzzled because I didn't realise its significance."

"Very clever," said Conyers, "but you've left it a little late to alter matters now."

"I don't think I have. Harry, call up Sao Bernard and tell them we need some help in a heck of a hurry. About six men in a 'copter. Then get those door seals open as quick as you can."

Baring moved swiftly to do as he was bid. Soon he was back, his face white and strained.

"The door won't move. The automatic is dead and something's jamming the manual."

"Then tell Sao Bernard to send some engineers as well."

"Don't bother," said Conyers. "They couldn't make it in time. Big brother on the second gallery is going off in just forty-seven minutes time. You can't reach it and nothing you can do will stop it. This project is on its way out with a bang."

"Would it be too much to ask why?"

"Not really. I have a job to do and this was the quickest and cleanest way of doing it."

"What job, sabotage and murder?"

"No, survival! I'm the man who stops people giving guns to idiot children. I have to ensure that no word of what lies beyond the D-gate ever reaches the outside world."

"And for that you would kill the three of us and yourself?"

"For that I would kill a great many things."

"You're insane."

"Not so. Desperate perhaps, and a little afraid but then this is that sort of assignment."

"Then by what right do you take such decisions on yourself?"

Conyers smiled softly. "Have you any idea what that sort of prize could do to a world like ours? Power politics is a delicate balance of advantage over disadvantage. Conflicts are localized by the dictates of expediency. At the moment nobody has a decided edge over anybody. But what if somebody had? It's there, you know, beyond the bomb—waiting."

"So somebody wins? That somebody would be us."

" Not so. It would trigger a conflict that nobody dare lose. There would be no winner. It wouldn't be that sort of a war. Don't you see, the hazard of the D-gate lies not in the bomb but is inherent in the nature of man himself."

" No," said Nye, " I won't buy that."

" Then you don't know man's capacity for self-destruction."

" There will be no destruction if it remains the undisputed secret of one nation."

" How naive can you get," said Conyers in disgust. " The philosophers knew what you were doing. Others knew it also. Even Gottwald is a spy."

For an instant the gun point wavered as Nye looked toward Gottwald for verification. The instant was sufficient. Conyers beat the gun from his hand and kicked it out of reach. Gottwald retrieved it and covered Nye and Baring from a safe distance.

" Is that true ?" asked Nye, white with anger. " Is Gottwald a spy ?"

" It was true, but he's changed sides in the interim. He didn't give them much information but certainly enough to arouse curiosity about the practical end of the Housemann-Crane paradox."

" Then at least he'll give them no clue as to our findings."

" Nor need he. While even the paradox remains somebody is going to try to solve it. Whoever forces the D-gate, the result will be the same. That's a risk I can't afford to take. The paradox has to be resolved for once and for all—I intend to manufacture an answer."

" A nuclear explosion ?"

" Precisely. Gottwald informed his former confederates of today's tests ; some of them are doubtless out there on the desert now, watching and waiting. I even gave them the chance to monitor the radio too, hence the broken land line. The whole world is watching Athlan for some sign of what we find. So I shall provide them with a sign—the appalling mushroom of man's crowning folly. I don't think many will attempt to follow in our footsteps."

" Now who's being naive ?" said Nye. " Fall out can be analysed. The results will look decidedly phoney."

" Not this time. The warhead has been modified, remember. I am assured that nobody has ever seen a fall-out quite as dirty and with so many unlikely trace-elements as this one will provide."

Nye played his last card. " But you did forget one thing. The secret is already out. The communicator is live. This conversation is already on tape at Sao Bernard."

" No," said Conyers, " I didn't forget. I merely re-arranged the set up. Your signal from here goes to the recorders in my hut. From there it goes back to the transmitter—but with a slight difference. It's running two hours late. The warhead is synchronized to explode when Gottwald's voice finishes the count-down. So far as Sao Bernard is concerned this conversation never existed."

" So there's no hope at all for us ?"

Baring drew to Nye's side with something more than resignation in his eyes.

" Ask him," he said, " about the one chance in a million."

With awe-inspiring majesty the fireball rose out of the desert, spreading its lethal pall of heat and radiation far beyond the dead land where Athlan ceased to be. Then up, a pillar of boiling cataclysmic fury billowing and turning to shape the most poisonous mushroom in the history of mankind.

The click of a switch brought the last moments of the inferno to a foreshortened end, and the screen went blank as the room lights flickered on. Seroia Passover, Senior Philosopher of the Bureau, looked at the projector, then at the silvery screen and finally at the analytical data spread on the dark table.

" There's no possible doubt," he said at last. " It was our device which blasted Athlan. That proves our original predictions were correct. I think this solves the paradox rather neatly."

The technician was puzzled.

" I still don't see, Seroia, how you could make such a prediction from the mere analysis of a set of figures."

" Nor could we do it. When we examined Nye's stressed-field method for the breakthrough the only thing we noted was the mutual dependency of the gravitic component on each side of the equation. Our maths boys decided that either an equal gravitational potential was available on the other side of the D-gate or else there was a serious flaw in the original theorem."

" It's still a long way from a gravitational potential to the necessity to blast ten-million pounds of government project out of the desert."

"Very true," said Passover. "By itself that evidence wouldn't have warranted the destruction of a half-crown Christmas tree. Confirmation came from a very peculiar source. You might say we had the answer before we discovered the problem."

Sensing a tit-bit the technician selected a chair and sat down.

"You may remember," said Passover, "that about five years ago we lent three of our Tech. division boys to the Radar Research Station at Mathsai. R.R.S. had got a bit snarled up on a new accelerated radar system using a magnetic-flux scanning system which was not limited to the speed of light. Sometimes it worked and sometimes the results were damned improbable. Our boys sorted out the bugs and came back with a curious by-product—the ability to bounce a radar beam off of a surface which didn't exist. Soon they were bouncing whole pictures off a terrain which didn't exist either."

"I bet that had you worried."

"It did indeed. The pictures were of a very beautiful earth-type world with plenty of vegetation and some small animal life. It wasn't until we heard of the Athlan project that we began to get the faintest idea of where the pictures did come from. Then we really had a dilemma. We couldn't reveal what we knew and we couldn't ask for the Athlan project to be abandoned without giving the game away. Finally we gave it to Mike Conyers as a survival problem."

"I'm a bit worried," said the technician. "I belong to a democracy and I'm just gullible enough to believe in it. Blasting a big project like Athlan doesn't quite equate with batting for the home team."

"Doesn't it?" Passover leaned back in his chair. "You know as well as I that if that information had got out of Athlan it's a pretty fair chance that by now a stick of cobalt bombs would have been laid right down the centre of the British Isles. The world next door is an advantage that nobody dare miss and nobody can afford to allow to another. Now go and look out of the window and tell me which side you're batting for."

"I see what you mean. I guess Mike was a patriot too."

"Perhaps! Let's just say that philosophers have a larger allegiance."

The technician collected the analytical data from the table and sorted it into order.

" Oh ! there was one other detail. The sound laboratory ran an analysis on the transmissions from Fort Athlan. They think there may have been an earlier fault in the communications system. Part of the holding signal appears to have been produced by a different generator."

Passover was on his feet in an instant.

" For what duration ?"

" About two hours, I think."

" Then," said Passover, " it's just possible that Conyers did get out !"

" I don't see how. He may have delayed the transmissions but he would never have left the vault."

" True, but if Mike delayed the transmission he must have had an equivalent time between the initial breakthrough and the time of the blast."

" That still doesn't give him a way out."

" I think it does," said Passover slowly. " It's been staring at us all the time. Mike would have had no necessity to blast the project unless the data on the world next door suggested at least the superficial appearance of habitability."

" You mean . . . "

" That he went through the D-gate. He may even have taken the others with him."

The technician was thoughtful. " You could be right, at that. Assuming it's true how are we going to get him out again ?"

" We can't, because if he comes back from the dead we have destroyed our own answer to the paradox."

" But you can't leave four men alone on an alien world and expect them to survive. Every single action would constitute a survival hazard. The problems of food, shelter and defence alone might well prove insuperable, to say nothing of the biological hazards."

" It would take us a year," said Passover, " to duplicate the D-gate. Roughly how would you estimate the odds against their survival for that period ?"

The technician rubbed his brow.

" It's the classic survival problem, I'm afraid. To survive you manipulate known advantage against known or foreseen hazards. What then happens when both your advantages and your hazards are completely unknown qualities ? The most ambitious survival rating would not be higher than one chance in a million."

" Very well," said Passover, " start building. I give you twelve months from this day to build me a gateway to the world next door."

" Then you are going to get him out ?"

" No," said Passover softly, " if he survives those odds I've an even bigger job awaiting him."

" Such as ?"

" Setting up the nucleus of a new civilisation based on sound philosophical tenets. A new conception of man and a brand new world to hold him. I think that should work out rather well. It's the answer to our greatest survival problem.

Colin Kapp

THE LITERARY LINE-UP

Globe-trotting American author Harry Harrison is now (temporarily) back in New York and has presented us with next month's lead story—" I See You," a rare type of robot story wherein his central character is a human being at bay against a robotic world. It will make you wonder just how mechanised we dare get !

Philip High presents " Project—Stall," an outstanding story of the discovery of Martian artifacts and the vain attempts to interpret them ; Francis G. Rayer makes a welcome return with " Searchpoint," the meeting of alien and human on a neutral world ; while " The Outstretched Hand " by Arthur Sellings traces the ' if ' lines in a man's destiny. And, of course, there is the final gripping climax of Maine's serial " Count-Down " with the remnants of the scientific team fighting the mysterious interloper.

Ratings for No. 78 were :

1.	A Man Called Destiny - - -	Lan Wright
2.	Another Word For Man - -	Robert Presslie
3.	The Still Waters - - - -	Lester del Rey
4.	Incentive - - - - -	Brian W. Aldiss
	Signora Profiria - - - -	John W. Ashton