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THE
ANDROMEDA
STRAIN

THE ANDROMEDA STRAIN

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FOREWORD

This book recounts the five-day history of a major American scientific crisis.

As in most crises, the events surrounding the Andromeda Strain were a compound of foresight and foolishness, innocence and ignorance. Nearly everyone involved had moments of great brilliance, and moments of unaccountable stupidity. It is therefore impossible to write about the events without offending some of the participants.

However, I think it is important that the story be told. This country supports the largest scientific establishment in the history of mankind. New discoveries are constantly being made, and many of these discoveries have important political or social overtones. In the near future, we can expect more crises on the pattern of Andromeda. Thus I believe it is useful for the public to be made aware of the way in which scientific crises arise, and are dealt with.

In researching and recounting the history of the Andromeda Strain, I received the generous help of many people who felt as I did, and who encouraged me to tell the story accurately and in detail.

My particular thanks must go to Major General Willis A. Haverford, United States Army; Lieutenant Everett J. Sloane, United States Navy (Ret.); Captain L. S. Waterhouse, United States Air Force (Vandenberg Special Projects Division); Colonel Henley Jackson and Colonel Stanley Friedrich, both of Wright Patterson; and Murray Charles of the Pentagon Press Division.

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Lastly, I wish to thank the participants in the Wildfire Project and the investigation of the -so-called Andromeda Strain. All agreed to see me and, with many, my interviews lasted over a period of days. Furthermore, I was able to draw upon the transcripts of their debriefing, which are stored in Arlington Hall (Substation Seven) and which amounted to more than fifteen thousand pages of typewritten manuscript. This material, stored in twenty volumes, represents the full story of the events at Flatrock, Nevada, as told by each of the participants, and I was thus able to utilize their separate viewpoints in preparing a composite account.

This is a rather technical narrative, centering on complex issues of science. Wherever possible, I have explained the scientific questions, problems, and techniques. I have avoided the temptation to simplify both the issues and the answers, and if the reader must occasionally struggle through an and passage of technical detail, I apologize.

I have also tried to retain the tension and excitement o events in these five days, for there is an inherent drama in the story of Andromeda, and if it is a chronicle of stupid, deadly blunders, it is also a chronicle of heroism and intelligence.

M.C.

Cambridge, Massachusetts

January 1969

DAY 1

Contact

1. The Country of Lost Borders

A man with binoculars. That is how it began: with a man standing by the side of the road, on a crest overlooking a small Arizona town, on a winter night.

Lieutenant Roger Shawn must have found the binoculars difficult. The metal would be cold, and he would be clumsy in his fur parka and heavy gloves. His breath, hissing out into the moonlit air, would have fogged the lenses. He would be forced to pause to wipe them frequently, using a stubby gloved finger.

He could not have known the futility of this action. Binoculars were worthless to see into that town and uncover its secrets. He would have been astonished to learn that the men who finally succeeded used instruments a million times more powerful than binoculars.

There is something sad, foolish, and human in the image of Shawn leading against a boulder, propping his arms on it, and holding the binoculars to his eyes. Though cumbersome, the binoculars would at least feel comfortable and familiar in his hands. It would be one of the last familiar sensations before his death.

We can imagine, and try to reconstruct, what happened from that point on.

Lieutenant Shawn swept over the town slowly and methodically. He could see it was not large, just a half-dozen wooden buildings, set out along a single main street. It was very quiet: no lights, no activity, no sound carried by the gentle wind.

He shifted his attention from the town to the surrounding hills. They were low, dusty, and blunted, with scrubby vegetation and an occasional withered yucca tree crusted in snow. Beyond the hills were more hills, and then the flat expanse of the Mojave Desert, trackless and vast. The Indians called it the Country of Lost Borders.

Lieutenant Shawn found himself shivering in the wind. It was February, the

coldest month, and it was after ten. He walked back up the road toward the Ford Econovan, with the large rotating antenna on top. The motor was idling softly; it was the only sound he could hear. He opened the rear doors and climbed into the back, shutting the doors behind him.

He was enveloped in deep-red light: a night light, so that he would not be blinded when he stepped outside. In the red light the banks of instruments and electronic equipment glowed greenly.

Private Lewis Crane, the electronics technician, was there, also wearing a parka. He was hunched over a map, making calculations with occasional reference to the instruments before him.

Shawn asked Crane if he were certain they had arrived at the place, and Crane confirmed that they had. Both men were tired: they had driven all day from Vandenberg in search of the latest Scoop satellite. Neither knew much about the Scoops, except that they were a series of secret capsules intended to analyze the upper atmosphere and then return. Shawn and Crane had the job of finding the capsules once they had landed.

In order to facilitate recovery, the satellites were fitted with electronic beepers that began to transmit signals when they came down to an altitude of five miles.

That was why the van had so much radio-directional equipment. In essence, it was performing its own triangulation. In Any parlance it was known as single-unit triangulation, and it was highly effective, though slow. The procedure was simple enough: the van stopped and fixed its position, recording the strength and direction of the radio beam from the satellite. Once this was done, it would be driven in the most likely direction of the satellite for a distance of twenty miles. Then it would stop and take new coordinates. In this way, a series of triangulation points could be mapped, and the van could proceed to the satellite by a zigzag path, stopping every twenty miles to correct any error. The method was slower than using two vans, but it was safer-- the Army felt that two vans in an area might arouse suspicion.

For six hours, the van had been closing on the Scoop satellite. Now they were almost there.

Crane tapped the map with a pencil in a nervous way and announced the name of the town at the foot of the hill: Piedmont, Arizona. Population forty-eight; both men laughed over that, though they were both inwardly concerned. The Vandenberg ESA, or Estimated Site of Arrival, had been twelve miles north of Piedmont. Vandenberg computed this site on the basis of radar observations and 1410 computer trajectory projections. The estimates were not usually wrong by more than a few hundred yards.

Yet there was no denying the radio-directional equipment, which located the satellite beeper directly in the center of town. Shawn suggested that someone from the town might have seen it coming down-- it would be glowing with the heat-- and might have retrieved it, bringing it into Piedmont.

This was reasonable, except that a native of Piedmont who happened upon an American satellite fresh from space would have told someone-- reporters, police, NASA, the Army, someone.

But they had heard nothing.

Shawn climbed back down from the van, with Crane scrambling after him, shivering as the cold air struck him. Together, the two men looked out over the town.

It was peaceful, but completely dark. Shawn noticed that the gas station and the motel both had their lights doused. Yet they represented the only gas station and motel for miles.

And then Shawn noticed the birds.

In the light of the full moon he could see them, big birds, gliding in slow circles over the buildings, passing like black shadows across the face of the moon. He wondered why he hadn't noticed them before, and asked Crane what he made of them.

Crane said he didn't make anything of them. As a joke, he added, "Maybe they're buzzards."

"That's what they look like, all right," Shawn said.

Crane laughed nervously, his breath hissing out into the night." But why should there be buzzards here? They only come when something is dead."

Shawn lit a cigarette, cupping his hands around the lighter, protecting the flame from the wind. He said nothing, but looked down at the buildings, the outline of the little town. Then he scanned the town once more with binoculars, but saw no signs of life or movement.

At length, he lowered the binoculars and dropped his cigarette onto the crisp snow, where it sputtered and died.

He turned to Crane and said, "We'd better go down and have a look."

2. Vandenberg

THREE HUNDRED MILES AWAY, IN THE LARGE, square, windowless room that served as Mission Control for Project Scoop, Lieutenant Edgar Comroe sat with his feet on his desk and a stack of scientific-journal articles before him. Comroe was serving as control officer for the night; it was a duty he filled once a month, directing the evening operations of the skeleton crew of twelve. Tonight, the crew was monitoring the progress and reports of the van coded Caper One, now making its way across the Arizona desert.

Comroe disliked this job. The room was gray and lighted with fluorescent lights; the tone was sparsely utilitarian and Comroe found it unpleasant. He never came to Mission Control except during a launch, when the atmosphere was different. Then the room was filled with busy technicians, each at work on a single complex task, each tense with the peculiar cold anticipation that precedes any spacecraft launch.

But nights were dull. Nothing ever happened at night. Comroe took advantage of the time and used it to catch up on reading. By profession he was a cardiovascular physiologist, with special interest in stresses induced at high-G accelerations.

Tonight, Comroe was reviewing a journal article titled "Stoichiometrics of Oxygen-Carrying Capacity and Diffusion Gradients with Increased Arterial Gas Tensions." He found it slow reading, and only moderately interesting. Thus he was willing to be interrupted when the overhead loudspeaker, which carried the

voice transmission from the van of Shawn and Crane, clicked on.

Shawn said, "This is Caper One to Vandal Deca. Caper One to Vandal Deca. Are you reading. Over."

Comroe, feeling amused, replied that he was indeed reading.

"We are about to enter the town of Piedmont and recover the satellite."

"Very good, Caper One. Leave your radio open."

"Roger."

This was a regulation of the recovery technique, as outlined in the Systems Rules Manual of Project Scoop. The SRM was a thick gray paperback that sat at one corner of Comroe's desk, where he could refer to it easily. Comroe knew that conversation between van and base was taped, and later became part of the permanent project file, but he had never understood any good reason for this. In fact, it had always seemed to him a straightforward proposition: the van went out, got the capsule, and came back.

He shrugged and returned to his paper on gas tensions, only half listening to Shawn's voice as it said, "We are now inside the town. We have just passed a gas station and a motel. All quiet here. There is no sign of life. The signals from the satellite are stronger. There is a church half a block ahead. There are no lights or activity of any kind."

Comroe put his journal down. The strained quality of Shawn's voice was unmistakable. Normally Comroe would have been amused at the thought of two grown men made jittery by entering a small, sleepy desert town. But he knew Shawn personally, and he knew that Shawn, whatever other virtues he might have, utterly lacked an imagination. Shawn could fall asleep in a horror movie. He was that kind of man.

Comroe began to listen.

Over the crackling static, he heard the rumbling of the van engine. And he heard the two men in the van talking quietly.

Shawn: "Pretty quiet around here."

Crane: "Yes sir."

There was a pause.

Crane: "Sir?"

Shawn: "Yes?"

Crane: "Did you see that?"

Shawn: "See what?"

Crane: "Back there, on the sidewalk. It looked like a body."

Shawn: "You're imagining things."

Another pause, and then Comroe heard the van come to a halt, brakes squealing.

Shawn: "Judas."

Crane: "It's another one, sir."

Shawn: "Looks dead."

Crane: "Shall I--"

Shawn: "No. Stay in the van."

His voice became louder, more formal, as he ran through the call. "This is Caper One to Vandal Deca. Over."

Comroe picked up the microphone. "Reading you. What's happened?"

Shawn, his voice tight, said, "Sir, we see bodies. Lots of them. They appear to be dead."

"Are you certain, Caper One?"

"For pete's sake," Shawn said. "Of course we're certain."

Comroe said mildly, "Proceed to the capsule, Caper One."

As he did so, he looked around the room. The twelve other men in the skeleton crew were staring at him, their eyes blank, unseeing. They were listening to the transmission.

The van rumbled to life again.

Comroe swung his feet off the desk and punched the red "Security" button on his console. That button automatically isolated the Mission Control room. No one would be allowed in or out without Comroe's permission.

Then he picked up the telephone and said, "Get me Major Manchek. M-A-N-C-H-E-K. This is a stat call. I'll hold."

Manchek was the chief duty officer for the month, the man directly responsible for all Scoop activities during February.

While he waited, he cradled the phone in his shoulder and lit a cigarette. Over the loudspeaker, Shawn could be heard to say, "Do they look dead to you, Crane?"

Crane: "Yes Sir. Kind of peaceful, but dead.'

Shawn: "Somehow they don't really look dead. There's something missing. Something funny ... But they're all over. Must be dozens of them."

Crane: "Like they dropped in their trucks. Stumbled and fallen down dead."

Shawn: "All over the streets, on the sidewalks ..."

Another silence, then Crane: "Sir!"

Shawn: "Judas."