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DATE: JUL 20 1970

TO : Mr. [illegible]. Koshland
(Alfred A. Knopf publ.)

FROM : *Joshua Lederberg*

SUBJECT: Andromeda Strain

You may be interested in the enclosure for your own information, and I enclose copies also that I ask be forwarded to Dr. Crichton.

Cordially,

Joshua Lederberg

Z Bibliotics
1969-70
& history

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comparisons should be the grave moral issue in a policy that risks the lives of a world of innocent bystanders. Fortunately, these concerns actually converge with our self-interest in calling for a halt to bacterial warfare before it becomes established in the arms-traffic of the world.

Luria and Max Delbrück (named for the 1969 Nobel prize in medicine).

Basic scientists who have worked in the genetics of bacteria and viruses believe that these discoveries have ever growing importance for the prevention and healing of serious human diseases. We live, in the present era, in an incompletely justified optimism about having "conquered infectious bacterial disease" as the fruit of the development of the antibiotics. However, viruses are in general still beyond the reach of antibiotic therapy. Even bacteria, believed to be under firm control

MY MAIN FEARS ABOUT BW have to do with the side-effects of its proliferation 1) as a technique of aggression by smaller nations and insurgent groups

Reprinted from *Stanford M.D.*, Fall 1969, Vol. 8, No. 4.

A scene from Universal's "The Andromeda Strain"—"The reality of each shot became a passion."

DIRECTORS AT WORK—III

WISE IN HOLLYWOOD

by ARTHUR KNIGHT

The In thing in Hollywood these days, it seems, is to proclaim the death of the big studios, a proposition that is not difficult to sustain when one visits most of the lots out here. The silence, the inactivity, the emptiness are almost oppressive. Several studios have closed their once bustling commissaries. At Paramount, generally you now can park your car on the famous Western street, with its rows of wooden frontier shops and houses, and a man-made mountain hovering in the background. Metro has already auctioned off its treasure-trove of props and costumes; another studio —no one dares guess which—reputedly has had its own inventory appraised with the same purpose in mind. On a clear day, you can almost see buzzards circling in the skies over Los Angeles.

Without question, the next year or so will witness drastic revisions and reorganizations within the motion picture industry. Reshuffling has already begun in the higher echelons, while staffs have been cut to the bone. And further, many independents have taken to searching around outside the industry altogether for their financing, making distribution deals with the majors only after their picture has been completed. Or, more often, they take the studio's money and run—run as far from the lot as possible, in the manner of Dennis Hopper with *Easy Rider* or his forthcoming *The Last Movie,* which he shot in Peru.

Despite all this convincing evidence to the contrary, however, the persistent rumor that the studios are dead is, as they like to say about the theater, premature. There are, and presumably ever will be, some movies that simply could never be made without both the technical facilities and the financial resources of a major studio. To date, and without exception, the independent financing secured outside the industry has been in terms of a half-million dollars and under; the multimillion-dollar movie still requires the underwriting of an established firm that can amortize the considerable risks of a single production over a wide range of films. More importantly, like them or loathe them, these costly spectaculars demand stages, settings, costumes, and sometimes special effects that may well tax the staff and full resources of any major studio, but would be utterly impossible with anything less.

The Andromeda Strain, currently nearing completion at Universal, is such a picture. Actually, as with most studio-based productions today, it might best be described as a semi-independent. Robert Wise, its astute producer-director, discovered Michael Crichton's highly topical science-fiction novel while it was still in galleys, and

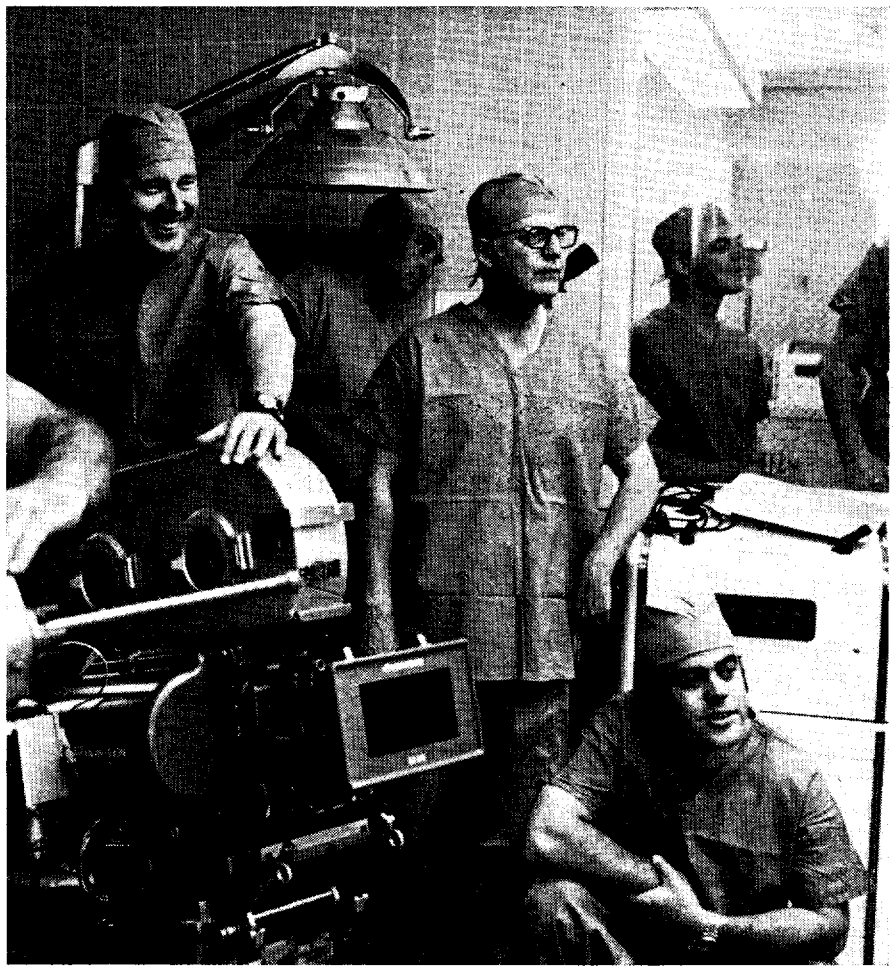
promptly decided that he wanted to do it. Since his previous efforts had been *The Sound of Music* and *The Sand Pebbles*, and he had just finished working on *Star!*, he felt that it was time to break away from a growing identification with costumes and musicals. *The Andromeda Strain* offered a respectable escape route; but the asking price was $350,000 for the rights, and Twentieth Century-Fox, then Wise's home studio, had little confidence in the project. It would be difficult to ascertain whether Universal had any more confidence in Crichton's novel, still unpublished at the time, but they did want Robert Wise. This was before *Airport* had shored up Universal's finances, and the higher echelons at the studio seemed to feel that, at the very least, his presence on the lot might shore up their prestige. Besides, with more than thirty pictures to his credit in almost as many years as a director, he was regarded as a money-maker. He was worth the gamble. Universal purchased the story for his independent company and agreed to back him to the tune of $6-million (which ended up as closer to $6.5-million).

Ensconced in a bungalow suite on the Universal lot, Wise selected Nelson Gidding, who had worked with him on many previous films, to prepare the screenplay on what is known in the trade as a "step deal"—meaning that the writer can be paid off and the entire production canceled after the submission of a treatment, a first draft of the screenplay, or even after the preparation of a final draft. But Gidding's script won the approval of the gentlemen in Universal's "Black Tower," and the full $6-million agreed upon was made available to Wise to proceed with production. Gambling with their money, Wise put together a cast that must have caused the studio considerable consternation, particularly since Universal is known for its aversion to expensive movies without stars. "I wanted my set to be the star," Wise later explained. A stubby, graying man with steady eyes, a straight-line mouth, and a determined set to his jaw, he won his point. While the cast that Wise ultimately assembled, headed by such seasoned performers as Arthur Hill, David Wayne, and Kate Reid, could hardly be termed unknowns, neither are they of the box-office stature normally selected by a studio to carry a multimillion-dollar movie.

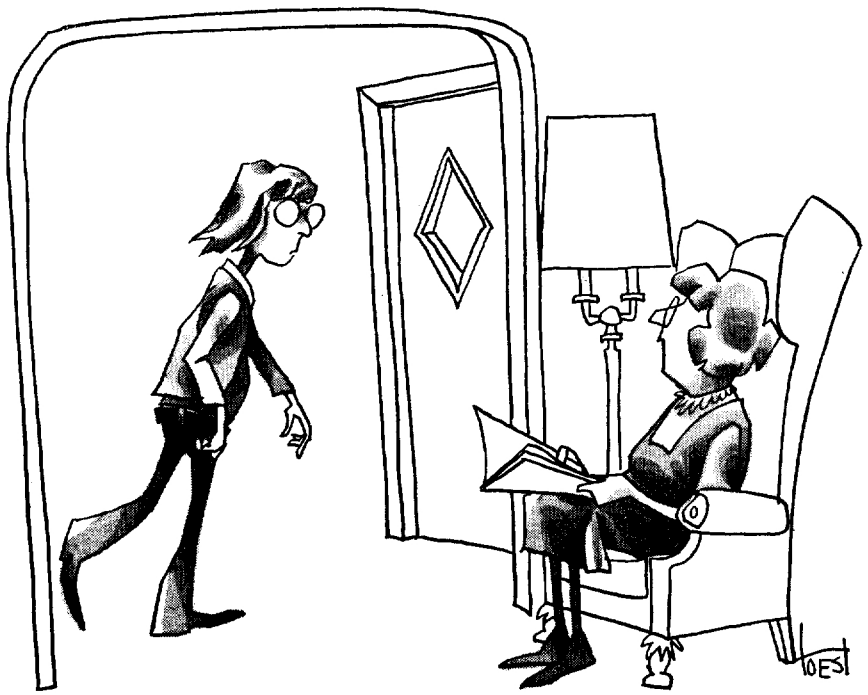
From an artistic standpoint, at least, Wise was completely right. Gidding's script is extremely faithful to Crichton's best-selling novel, which has to do with a team of scientists in a top-secret underground lab and their efforts, dubbed Operation Wildfire, to isolate a pulsating, mutating new germ, brought back from a space probe, that can kill on contact. A few star names could easily throw the team effect out of balance; more seriously, the presence of a number of star faces might well undermine the documentary style that Wise had already envisaged for this science-fiction adventure. To lend a similar authenticity to the installations of Operation Wildfire, so vividly—and, ironically, so easily—described by Crichton in his book, Wise brought in another long-time associate from earlier efforts, designer Boris Leven, a slender, pipe-smoking artist and architect who looks like a cross between Sherlock Holmes and Charlie Butterworth. Leven designed sets and scientific hardware to dress his sets that, before the shooting was over, not only had won the approbation of some of the leading aerospace experts in Southern California but had them trying to incorporate his inventive concepts into their own labs, installations, and equipment.

It is in the physical backup of a production of this kind that the big studio operation is seen at its best. While the script was still approaching its final form and casting had just got under way, scouts were out on a six-state search throughout the Southwest for the ghost town that would stand in for Crichton's Piedmont, New Mexico (they settled for Shafter, Texas, 200 miles southeast of El Paso), and for the uninhabited area around Flatrock, Nevada, where the novel had located the Desert Reclamation Station of the U.S. Department of Agriculture that serves as a "front" for Wildfire's five-story underground installation (Ocotillo Wells, a flat, sun-baked stretch of sand and scrub southwest of California's Salton Sea was finally selected).

Because the Ocotillo Wells location was supposed to suggest agricultural experimentation, early last January—fully five weeks before the start of photography—a Universal crew set out a tremendous network of irrigation pipes across the desert and planted hundreds of acres of corn. When desert winds destroyed the shoots, the crew replanted with barley. In the center of the barley, another team of studio workmen took three weeks to erect the station—three-quarters of a two-story, cream-colored, shingle-roofed struc-



"'I wanted my set to be the star'"—producer-director Robert Wise (wearing glasses) during filming of "The Andromeda Strain."



"Before you have your teach-in, think-in, love-in, or whatever, it's garbage-out!"

ture with a wide, gray porch, looking as if it might at one time have been a comfortable farmhouse. "As it turned out," said Leven, puffing on his inevitable pipe, "most agricultural stations are part of state universities. So after looking at hundreds of photographs, I had to invent one." This building alone cost the studio close to $40,000 to construct. For the shooting, which took place in May (by which time the barley stood perhaps ten inches above the ground), a caravan of ten trucks and eighty-eight crewmen left the studio and spent three days on location. The entire sequence—building and barley—remains on screen for perhaps two minutes.

Meanwhile, back at Universal, the Wildfire sets were beginning to go up. One tends to think of a picture as occupying the whole of a single sound stage. When a setting is finished with, it is struck, and, miraculously, the next one appears there in the morning. Not at all. A major production may tie up numerous stages for weeks on end. *The Andromeda Strain* required three, and for just short of six months. Two were devoted to ingeniously constructed laboratories and their related rooms in the underground installation (with about $3-million worth of authentic scientific equipment on loan from such firms as North American Rockwell and the Jet Propulsion Laboratory). Cavernous Stage 12, one of the largest on the Universal lot, held the heart of the film: the vast, cylindrical, metal-lined core of Operation Wildfire, five stories high, and also the tubular corridor that encircles it. Readers of *The Andromeda Strain* will recall that at each of the five levels the corridor was painted a different color—charcoal, blue, maroon, green, and white in descending order. Since this set alone cost more than $250,000, viewers of the film will, hopefully, forgive Universal for using the same plaster-cast, Masonite-lined corridor—125 feet in diameter—five times and recoloring it with a different metallic lacquer on each occasion.

According to a sign posted near the double doors that lead into Stage 12, it is 200 × 149 feet and measures 50 feet 6 inches from floor to grid. The core set that Boris Leven designed extends one-and-a-half levels *above* the grid, with an exterior elevator to convey cast and crew to almost the very top. (The last ten feet or so requires the portage of cameras, lights—and visitors—over a series of rickety catwalks and ladders that would make a superb finale for a Hitchcock movie.) The set, however, does not extend merely from studio floor to ceiling. For the lowest level of this gray, tubular structure, with its five levels of metal catwalk and a narrow ladder extending its entire height, Universal permitted Wise's company to excavate 15 feet *below* the concrete floor of the studio. (A fair-sized mountain of dirt near the rear entrance to Stage 12 indicates that, once shooting is over, it will all be replaced.) The point is that only a studio working on one of its own productions would authorize such a desecration in the first place.

Again, one of the strengths of an established studio is the well-trained manpower in its many departments. Leven has said that only in Hollywood and England would it be possible to find craftsmen sufficiently skilled to meet the special demands of his designs—and in England, he added, they are far better at creating fancy moldings than the ingenious flats and fittings of his Wildfire settings. Similarly, studio camera departments are constantly experimenting with new lenses, new film stocks, new lights to provide an ever widening range of visual expression for the film-maker. While the diopter lens is not precisely new, certainly it has never before been as intensively used as in *The Andromeda Strain.* Essentially, it is a glass placed over the normal camera lens that magnifies one preselected portion of the image and reproduces the remainder without distortion, thus intensifying the sense of depth or distance within a shot. Richard Kline, the cinematographer on the picture, estimates that one out of every three shots he took was made in this fashion, often with a large head in the foreground while other action, also in sharp focus, took place beyond.

In one setup, photographed from the very top of the Wildfire core while actor James Olson climbs a perilous ladder with real lasers training their green beams upon him and supposedly noxious gases fuming below, Wise fussed about with an extra-large diopter, a rectangle of glass surrounded by a pinewood frame. The shot was lined up, realigned, realigned again. After almost an hour, the shot was declared impossible; there was no way to follow focus as the actor climbed toward the camera that would not reveal the diopter's special trick. "But when you spend three hours setting up the lights," Wise said, just before calling a lunch break, "it would be foolish not to take another half hour or so to try for a really exciting shot"—even though time in the studio averages out to about $10,000 every hour.

Wise, originally a film editor, was literally turned on by the photographic possibilities of *The Andromeda Strain.* When ordinary light failed to reveal with proper intensity the accumulation of corpses in Piedmont, the touchdown site of the space missile, he ordered a second run-through of the scene, this time with the helicopter-borne cameras loaded with infrared film. The whole purpose of building the agricultural station near Ocotillo Wells, with its surrounding field of barley, was to avoid all sense of rear-projection fakery. When, in a corridor shot looking out toward the fields, a tractor featured in the background action fell into a rut, Wise merely said into his walkie-talkie, "Bring out the other tractor." For a scene in which David

Wayne and Kate Reid drive up a deserted road to the installation, he had a door removed from the car and an automatic camera lashed to the side, which Wayne triggered. While Wayne drove, Wise crouched on the floor in the rear, following the script and recording the dialogue with a small, portable Nagra.

The reality of each shot became a passion. For the sequences photographed within Wildfire, with their extended use of sophisticated, closed-circuit television sets, the televised images are not simulated. Ordinarily, such scenes are filmed by an optically printed matte process that invariably gives itself away by revealing a thin white or purple line between the TV set and the picture. Each of the innumerable television sets seen in *The Andromeda Strain* is for real, with all of the images fed into them on live channels. What makes this so extraordinary is the fact that these images include action—the proliferation of the strain itself, to be precise—that, mercifully, does not exist in this world.

For these sequences, the high point of his film, Wise turned to the youthful Douglas Trumbull, who created the memorable space flight effects for the climax of Stanley Kubrick's *2001: A Space Odyssey*. Trumbull's specialty is computerized animation, complicated in the extreme. For a sequence depicting Andromeda's growth, lasting perhaps thirty seconds on the screen, twenty-two hours of continuous computerized shooting was involved—and four months of preparation prior to that. The hexagons representing the nucleus of the strain explode and implode simultaneously, they change color, they increase in volume. Despite the complex data fed into Trumbull's machinery, the sequence still had to be processed and reprocessed six times to produce all of the desired colorations and permutations. Until the animation was successfully completed, two weeks later than scheduled, Wise had to shoot around it, retaining essential sets—and borrowed, expensive equipment—for the moment when they, and it, would play their part in the completed film.

Through it all, Wise remained monumentally unflappable. When word came to Ocotillo Wells that the animation sequences were not quite ready, even though these were the scenes he had planned to shoot on the return to the studio, he calmly laid out other sequences that might take their place. When actors flubbed lines, he quietly paced the set until camera and sound were ready for retakes. Then, in his quiet, patient voice, he would say—for the hundredth time—"Here we go now. Settle down. Action?" The final word was part command, part hope. The only thing that disturbs his equanimity is sheer, almost willful stupidity—a grip whose feet remain in view of the camera after he has been asked to leave the set, a workman who leaves tracks on a newly painted floor. Then he grumbles his dissatisfaction in muttered asides to the assistants who surround him. He never purposely seeks to embarrass the culprit, which in itself is rare in Hollywood.

It takes a major studio to muster the resources that make possible an *Andromeda Strain*. It takes the authority of a major studio to empower one of its minions, on the Ocotillo Wells location, to phone through to Wise, "I'm holding a border patrolman here. Shall I let him through?" (Throughout their three days in this area, shooting was frequently interrupted by motor patrols and Piper Cubs on the lookout for wetbacks.) It takes the staff of a major studio to work out the logistics of support that can keep a large company functioning smoothly throughout four months of principal photography.

Just as *The Andromeda Strain*—both the film and the novel—is locked into the implacable present, with its search for viable ways out for the future of the human race, so is Robert Wise. "He is a fatalist," says Boris Leven, meaning not that Wise looks toward the future with doom-cast eyes, but that he accepts the present as it unquestionably is, and does what he can to make it better. He accepts, for example, the studio system, functions well within it himself, and uses his considerable power and prestige to assist younger men in whom he believes. Last year, for example, he backed the youthful John Flynn in his first production, *The Sergeant*. This year he is responsible for James Bridges's forthcoming *The Baby Maker*. (In both instances, because of his own commitments, Wise turned over the producer reins on these to Richard Goldstone, a friend who had given *him* his first taste of success with *The Set-Up*, more than twenty years ago.)

On *The Andromeda Strain*, Wise surrounded himself with young people. Steven Henschel, a USC undergraduate with a grant from the American Film Institute, served as liaison between Wise and Douglas Trumbull, a chore that Henschel described as "probably the most important break of my life." Keeping track of the extensive paperwork, including the complicated location payrolls, was Walter Dominguez, a trainee sponsored by the Motion Picture Association and the Directors Guild. On his own, Wise added to his payroll Jon Bloom, a student at Antioch College, who functioned as a production assistant as part of his Antioch work-study program. All are in their early twenties, while Trumbull, the computer expert, is a ripe twenty-eight.

Robert Wise believes in young people. He also believes that a place can be found for them within the formerly inhospitable walls of the studios, if those walls don't come tumbling down. Indeed, he feels strongly that the survival of the industry depends upon the encouragement of young people who, like himself, can fashion a *modus vivendi* within the studio system. For the studio system hasn't died. Not yet. It is just awaiting the next blood transfusion from another *Sound of Music*—or, perhaps, an *Andromeda Strain*.

"Where have you been? According to the radio, you were deposed four hours ago."