

## Living in the Lab of Luxury

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The cowboy has his open range, the cop has his beat, and our inveterate mad scientist always has his laboratory. Where else would he be able to conjure up those favorite beasts of ours? So, let us take a look at some of the more interesting labs our mad scientists have been using. And, to be sure, there are plenty of good labs and plenty of bad labs to choose from.

First, we will look at the “best” labs followed by looking at, in my opinion, the “worst” labs from films made in the 20<sup>th</sup> Century (yes, I know this is subjective, but being a scientist myself I feel I do know something about the subject). A list of anything is subjective and I am sure there will be disagreements but nevertheless, here we go. But before we get our flasks and test tubes all in a bunch let me first describe what I mean by best and worst labs. I am neither basing best nor worst lab on the actual film per se but rather, irrespective of the relative merits of the film, on the usefulness of the mad scientist’s lab to achieve the results shown on the screen. (Unfortunately, the apple does not fall far from the tree so many of the worst labs do indeed come from bad cinema. And so it goes...) The key word here is usefulness. Some cinema labs may look great on the screen but is all that lab bling useful?

When films began to be shown in color the idea of a cinemascientist’s lab began to take on entirely different meanings with all sorts of rainbow colored glass containers. By the way, NONE of those pretty colored liquids, though nice to look at and quite suitable “lab candy”, were functional. All of those colors were just for show. Sorry to burst your bubble but those rainbow colors simply do not exist in the real laboratory world; just the reel lab world. In real labs just about all liquids are clear. So, these pretty colored containers really added nothing to the usefulness of a lab or the results shown on the screen. One example that comes readily to mind is the film, DR JEKYLL AND SISTER HYDE, where the lab set had brilliant rainbow colored fluids and none of them were realistic.

### Common pieces of equipment

Before we get to the various films we first need to set up a typical mad cinemascientist’s lab so we know what this is about. Irrespective of what (or who) our scientist is making such as giants, minis, botany creatures, physiology forms, or genetic DNA mutations, etc., there are some common pieces of laboratory apparatus and equipment that they will all need. Then there are those

special requirements such as a cage for a gorilla, large water tank, incubators, surgical suites, etc. that are unique to their individual goals.

Whatever the goals of our cinemascientists they will all need some common pieces of equipment. These primarily consist of a refrigerator, incubator, microscope, centrifuge, spectrophotometer (measures concentrations), freezer, bench, notebook, glassware, gas cylinders, oven, pH meter, and the ever present and always overused and misunderstood Bunsen burner.

Of all of these above mentioned items the single most variable is the microscope. These vary from embarrassingly unusable (such as seen in MESA OF LOST WOMEN) to those that would, by themselves, cost more than the budget of many of our favorite SF films such as seen in either JURASSIC PARK or FROZEN ALIVE.

And of these common pieces of equipment the biggest selection of options is glassware. We have seen all sorts of laboratory glassware in our beloved SF films probably not really understanding their real purpose. Granted, most of this stuff looks wonderful as “lab candy” and/or bench clutter, but most scientists obsess over functionality rather than esthetics. Scientists are concerned if the item does its job and really do not care if it looks good on the lab bench. (After all, bench turf is precious and they don’t want to waste it on something not necessary to the work at hand. Therefore, you never see dust on a working scientist’s bench because everything gets used and discarded when not.) Some common pieces of lab glassware consist of Petri dishes, microscope slides, specimen jars, reagent bottles, beakers, erlenmeyer flasks, boiling flasks, desiccators, dropping bottles, measuring cylinders and measuring pipettes, volumetric flasks, burettes, watch glasses, funnels and separating funnels, and mortars with pestle for grinding and mixing. And each one of these items comes in different sizes, typically in metric volumes (100ml, 250ml, 500ml, 1000ml, etc) so the overall available choices are many and varied. And they all look cool when the monster gets to smash them at the end of each film!

By and large those cinemascientists who work with small molecules such as poisons, toxins, DNA, proteins, various solvents and organic reagents need more glassware than others and their labs should reflect this. Those working with body parts, surgery, and other larger scale creations do not need as much glassware so their labs should be cluttered with other items more suitable to their business at hand. And, of course, none of this matters to our lab set dresser who typically places whatever is available, cheap, and looks good. Does it “work” and is it useful probably never crossed their minds. Which is why, to me, many of these lab sets are most entertaining (often, laughably so) and certainly add to the overall charm of our favorite SF films.

It is interesting to note a change in lab sets in SF films starting from the 1995-2000 time period. Prior to that most lab sets were essentially bench clutter with

emphasis on looking good (such as colored liquids) instead of being functional. With a more sophisticated audience, many now with college degrees and higher, this was no longer acceptable and producers began to have more and more impressive lab sets that did at least begin to nod towards functionality alongside with that “lab cool” factor that has always been in SF cinema. In essence, the need to be contemporary has influenced SF lab sets and they too have kept up and now show labs that very much look and appear as functioning real laboratories. Such verisimilitude always makes for a much better film and therefore a more enjoyable experience.

Finally, there must be a disclaimer here and an explanation. Of course, a lab set in films done in the 1930s and 1940s certainly look crude by today’s standards and lab sets of the last 10 years will look just as crude and primitive in 60-70 years. For the most part each film used what was currently available at the time of production. For example, you can’t discount THE BRIDE OF FRANKENSTEIN for not having disposable plastic syringes! This is where the subjective part factors into the equation and I do take into account when each film was made. Another distinguishing factor that I mentioned above is the appearance of disposable plastic items, such as centrifuge tubes, flasks, pipettes, and syringes in films made after around 1975. Glassware could break (and therefore expensive to replace) and become a liability where someone could get cut or hurt. This obviously does not happen with plastic labware, though the monster still thoroughly enjoys destroying what he can of “modern” plasticware-laden labs!

#### The Bunsen Burner

Always used and mostly misunderstood the Bunsen burner is in just about every SF/horror film with a lab bench. Robert W. Bunsen (1811-1899), a German chemist, invented this device that was named after him. The Bunsen burner is a gas lamp with openings on the sides to admit air to mix with the gas thereby making a very hot flame with minimal luminosity. Open flames always look cool and suggest the cinemascientist is up to something important and significant. (What is that he is really boiling?) The Bunsen burner has even been used as a key plot piece in THE BRAIN EATERS and FRANKENSTEIN’S DAUGHTER. Yes, in labs all over the world the Bunsen burner is often used though for specific reasons and not kept on for long periods of time. And they are never left unattended!

#### The Baker’s Dozen Best Laboratories

Picking the best labs was a challenge because, quite frankly, there were many good ones to choose from. Considering when each one was done here are my top SF cinema labs. (Note: films are discussed in chronological order.)

WEREWOLF OF LONDON (1935). A botanist would have a conservatory as shown which was laid out well and useful for the film’s plot. Since Dr. Glendon was trying to isolate a component of the Mariphasa flower then the items on his

lab bench were all appropriate and useful for his work. For 1935 this lab is quite an amazing set.

HOUSE OF DRACULA (1945). A very nice lab with just about everything one would need to do the work of Dr Edelman. The lab benches are laid out well with easy access and utility. The controlled temperature side chamber is a nice touch and it all blends well together in a warm and inviting way. From the middle 1940s this lab set is quite impressive.

THE WASP WOMAN (1959). Dr. Zinthrop's main job is making wasp jelly enzyme extract and therefore he would need a lot of glassware to do this. The shelves are stocked with appropriate chemicals and the microscope is (barely) adequate. The space is functional and not exorbitant with an insect incubator adjacent to the benches. The lab bench surfaces are very clean and ready for work. The "vivarium" consists of at best three cages and this is nowhere near what would be necessary to properly do the work described in the film. (That's like having the National Football League composed of only three players!)

FROZEN ALIVE (1964). Present is a large and spacious lab full of all sorts of useful equipment, shelves with chemicals, many reagent bottles, all indicative of an active lab setting. Quite authentic looking. For the work they are doing there is way too much glassware visible. However, the centerpiece of the lab, the cryo chamber, is interesting looking and appears functional. To me, the most amazing aspect of the lab scene is the fluorescent microscope shown. For a 1964 film it is unique in SF cinema to see such an instrument. Its cost alone far exceeded many SF film budgets!

THE THING (1982). Unfortunately, we do not get to see lingering scenes of the lab shown but what we do get to see is authentic and appropriate for the work they were doing in the Arctic and all of it contemporary with the time of filming. Since there was some clinical work also going on at their facility these settings also looked good.

RE-ANIMATOR (1984). Those who dressed this lab set must have had much fun. The lab looks very good and certainly has that active feel to it. Every piece has its use and place. The only aspect which marred the overall effect was the presence of so much fluorescent radiator fluid (the green "glowing" liquid) which served as their re-animator fluid.

DARKMAN (1990). In this film we are lucky because we get to see two labs! The first lab is quite professional looking chocked full of everything. However, it is the second makeshift lab of Dr. Westlake that is impressive. This demonstrates that with ingenuity a perfectly functional and useful lab can be made on a very limited budget. Both labs are impressive and add much to the overall enjoyment of the film.

JURASSIC PARK (1993). The labs shown in this film are 5-star all the way. Clearly, they, as the benefactor says repeatedly, “spared no expense” and it shows! I would be very happy working in that lab. All the contemporary computer-assisted lab technology of a cutting-edge genetic engineering lab is on display. The only artistic license taken by the producers was the cryo unit where the frozen ampules of dino DNA were kept. No such device exists. Storage of actual cryo-ampules are kept in completely different storage units.

DEEP RED (1994). The lab set is visually impressive with all the contemporary bench clutter of a real functioning scientist. Shown were computer displays of data on the “reds” which added much to the aura of the lab scenes.

OUTBREAK (1995). Leave it to the army to really “spare no expense”! There are several labs shown in this film, some permanent and some mobile. I would be happy to work in any of them.

PROTEUS (1995). The labs shown within the oil rig are impressive and very much in line with the genetic engineering work they were doing. A lot of attention was paid to detail that very few will appreciate (do you really care if there is a radioactive disposal container in the corner of the lab? A very nice touch!).

SPECIES (1995). This film is an example of creating a lab to serve the function of the plot. The containment structure to house Sil is quite convincing and much attention was given to detail. Film audiences are becoming more sophisticated and lab sets are keeping pace in their upgrades.

THE ISLAND OF DR MOREAU (1996). This lab set more or less had everything. Very thorough and very convincing. My only general comment is the vivarium that housed the results of “Moreau’s work” is much too close to the lab. Who knows what infectious diseases can be readily passed around such close proximity.

Some honorable mentions with interesting lab sets: The Relic, Dark Breed, Komodo vs Cobra, The Man Who Turned to Stone, Last Man on Earth, Terror is a Man, The Andromeda Strain.

Finally, yes, many of the films recently made in the 21<sup>st</sup> Century have wonderful lab sets and I am delighted that they really are too numerous to list at this time. Contemporary audiences are becoming more and more sophisticated and the producers have to keep up.

#### The Dirty Dozen Worst SF Labs

In picking the 12 worst labs the choices, often times painfully and/or laughably so, were much more obvious than in the Best category. Each one has earned its own distinction. (Note: the films are in chronological order.)

THE INVISIBLE MAN (1932) . A table top full of wrong stuff. If you look closely at the items on his lab table you will note a bottle of Milk of Magnesia. Does invisibility give him an upset stomach? If he wanted to make an antidote to monocane then he would need a large amount of glassware and related apparatus. What he had on his lab table would not be very useful. Though it looks interesting what he had would be of no use to him controlling his invisibility problems.

THE DEVIL DOLL (1936). An open kitchen right next to lab and the best way to poison your own food! For the work they were doing, shrinking, they would not need any glassware but, rather, a large amount of electrical equipment to support the shrinking device technology.

MAN MADE MONSTER (1941). Dr. Rigas uses electricity in his work and having lab benches cluttered with the glassware of a chemist is inappropriate. This is essentially the wrong equipment for the results he wants. You got me what an “electrothermostatic table” is though it certainly sounds foreboding.

MESA OF LOST WOMEN (1953). Frankly, one cheesy microscope that is inefficient; it only has one (!) lens (a len!?). The shelves are modestly arranged with chemicals in glass jars and books scattered about like there was active work going on. The various technicians and assistants looked busy and contributed to the overall sense of an active lab with real things going on. However, none of it seemed relevant to the work at hand. An anatomical wall chart and cases of identified insects and arachnids are a nice touch. (Though not specifically stated, Dr Arana is an endocrine entomologist who uses the power of hormones to alter insects.)

BRIDE OF THE MONSTER (1955). Sometimes words fail me. It must be those painted walls and a colander for a skull cap to send electrical pulses into the brain. The only purpose of the glassware is to have something to smash at the end of the film.

GIANT FROM THE UNKNOWN (1957). A geobiologist would have a completely different lab and the one shown was, you guessed it, completely useless. Nothing really served the purpose one way or another.

THE MONSTER THAT CHALLENGED THE WORLD (1957). This film does have much going for it but not the lab. Though it looks nice on screen the lab does not serve the purpose of the film. Even the water tank incubator (hot tub?) is way too small to be functional. In the least, with the size shown, the water would have to be constantly changed because to feed a creature that size would require a substantial network of feeding tubes, side tanks for oxygenation, etc.

THE BRAIN EATERS (1958). The main lab bench shown is ground zero for Dr. Kettering. This guy can do it all. He is a physical scientist, biochemist, biologist, and a physician! And all of this activity is done on one small lab bench that looks more like a high school lecture lab bench than a functioning lab of someone with more degrees than a thermometer.

FRANKENSTEIN'S DAUGHTER (1958). It is always fun to see labs in the homes of our various mad scientists. That of Dr. Morton's is typical with shelves, bottles of chemicals, various glassware, and typical non-useful lab bench clutter. And added to this is an operating table. Neither one supports the use of each other. All of this to create the she/he/it creature. The lit Bunsen burner is used as a plot point late in the film. One nice touch is the presence of clipboards on a wall.

THE ANGRY RED PLANET (1959). There are two labs in this film (lucky us!). You have to laugh about a lab on a rocketship! Without gravity liquids have nowhere to go so you need pumps to move fluids and none were in sight. The second lab, which belongs to the lab base doctors, is too sparsely equipped with an embarrassingly cheesy microscope (bought at a swap meet?). It is something kids can use to look at bugs, strands of hair, or a leaf, etc. but certainly not anything resembling a research microscope. A good magnifying glass would be better! All of this is inappropriate for the necessary work.

THE BRAIN THAT WOULDN'T DIE (1962). To sustain a disembodied head would require a vast array of support equipment and what is shown is not going to be effective. (The film should have been titled, The Brain That Couldn't Live!) Dr. Cortner's life sustaining fluids need to be prepared in a sterile environment otherwise everything would be contaminated in a few hours. A useless lab set for the open body and tissue work being done.

ASTRO-ZOMBIES (1967) . Once again we are lucky to see two labs in this film. The first, Dr. DeMarco's, is loaded with useless electrical equipment, a useless microscope, and storage units for an assortment of organs for transplantation. Nothing in his lab would support this work. The second lab of Petrovitch and Porter also has lots of useless bench clutter, plus the ever present cheesy microscope. The large glass vat serves no obvious purpose.

HORROR OF THE BLOOD MONSTERS (1972). Another lab inside a rocket ship. This one belongs to Dr. Rynning. It's a tossup whether the highlight of such a lab in space is the sink with a faucet or the lit Bunsen burner! In Space!! To me, however, the most mind-numbing jaw-dropping comment came from a crew member who said, after looking at the rocket lab, that it is "brilliantly constructed". I would not be able to do anything in that lab.

And the winners are.

So, after all is said and done what SF film shows the best lab setting and what film has the worst lab? As a scientist I would feel right at home in the lab shown in JURASSIC PARK and I consider that the best shown and most useful one so far in SF cinema. And the worst SF lab (I use the word "lab" very loosely here) has to be that undisputed "brilliantly constructed" lab set in HORROR OF THE BLOOD MONSTERS.

Thank you for reading. It's back to the lab for me. Stay healthy and eat right.