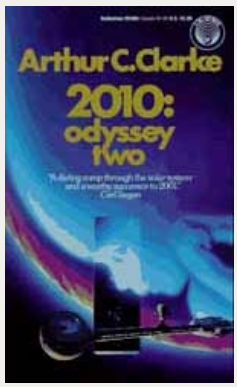
A Jovian chance . . .

Posted on February 27th, 2009 by earleholland

Let's hope that Arthur C. Clarke was wrong.

"All these worlds are yours – except Europa. Attempt no landings there."



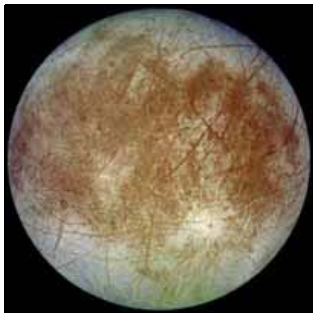
That was the warning sent back to Earth. In the second book of his *Space Odyssey* series, Clarke, one of the world's most prolific science fiction authors, in effect, declared Jupiter's moon Europa as off-limits to mankind. He envisioned it as younger incubator of life than was Earth.

It was a place that humans should simply avoid.

While obviously fiction, Clarke's message rebounded again into memory last week when NASA announced its plans to send a spacecraft to the Jovian moon sometime around the year 2020, a decade later than the fictional encounter humans had with Europa in Clarke's book *2010: Odyssey Two*.

The NASA mission, in conjunction with the European Space Agency, would send a pair of spacecraft toward the solar system's largest planet to survey both Jupiter and its biggest moons at a level of detail unmatched to date.

While Io, Callisto and Ganymede all present their own potentially enticing mysteries, it is Europa that drives human curiosity more. Covered with what we believe is a thick surface of ice, scientists hope that there are oceans of liquid water beneath that shell which might harbor some form of life.



Many believe that if life was is to be found outside Earth in our solar system, then Europa is the most likely host.

It's not as wild a prediction as some might have thought. Just this month, scientists proclaimed that life abounds prolifically in both the Arctic and Antarctic Oceans on Earth. Identical species by the hundreds thrive in these frigid environments, often capped by thick layers of ice.

If the intensely cold Ross, Barents and Beaufort seas are teeming with life, then why not the vast Europan Ocean, assuming it is actually as we predict it to be.

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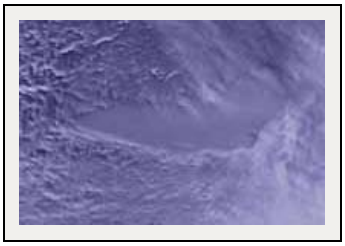
In Clarke's novel, whatever power ignited Jupiter, transforming it into a second sun, and sent that cryptic warning back toward Earth, clearly wasn't bluffing. Humans would disobey at their own peril. But that was fiction, unlike NASA's plans.

What is troubling, however, is that humans do have a history of mucking things up, leaping headlong into situations without adequate planning. A future mission bent on landing on Europa's surface and even, perhaps, tapping into that moon's oceans, raises the risk of contamination.

On Earth, 13,000 feet under a Russian research station in Antarctica, there is a freshwater lake the size of Lake Ontario. Plans to sample the lake's water for life that might date back millions of years, thankfully, are on hold. We simply do not know how to insure that no contamination will be transferred from the surface.



So if we can't guarantee the safeguarding of Lake Vostok's waters, how can we protect Europan oceans, and the life that might exist there?

The good news is, however, that we have time to solve such problems. The launch of the probes to Europa and its neighbors are a decade away and the trip alone will add another half-dozen years. Any planned lander mission would be even later, so apparently, there is time.

That is, of course, unless a giant monolith appears. In that case, all bets are off.__*Earle Holland*

Tags: Researchers, Science policy, Space //

7 Comments »

7 Responses to "A Jovian chance . . ."

Michael Payday // Feb 27, 2009 at 1:48 pm

What exactly do you mean by risk of contamination? Would exploring the lake under the ice in the arctic cause mass extinctions or something?

It seems odd to me that science and technology managed to place a man on the moon to explore, yet we still cannot explore all the regions of our own planet. I think it would be fascinating to see what is in that lake, but I guess we're just not at a point where we can find out without disrupting things.

earleholland // Feb 27, 2009 at 1:54 pm

Michael, the "risk of contamination" refers to the fact that while we can physically drill down to the buried Lake Vostock, we can't break through

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the boundary of the pocket that forms it without carrying some of the microbial matter from the surface. If that happens, the lake water is contaminated. That's why someone was smart enough to halt the work until that important problem was solved.__EMH

Michael Payday // Mar 2, 2009 at 2:02 pm

So what would happen if the lake water was contaminated with surface microbial matter? Would it drastically alter the ecosystem? I'm not well versed on the subject at all, but it seems to me the purpose of going down there to study the life would be to learn more about evolution and the history of life on this planet. At some point I would think that would require transoporting life forms to the surface to appropriate places of study. If surface contaminants would do a lot to affect life down there, then I would think moving life from the lake to the surface to study would be even worse. If that's the case, I would assume it's going to be a long, long time until we see what's down there. What do you think?

earleholland // Mar 2, 2009 at 2:13 pm

The assumption is that now, with no penetration into the lake as yet, that the environment is preserved in its natural state. Until we can insure that no microbes from the surface can be transported down, we shouldn't "break the seal." If we did, we couldn't tell if any life in the lake was preserved from years past, or was modern contamination. And one assumes that we wouldn't venture into the lake until we could capture safely uncontaminated samples.__EMH

repair 360 // Mar 3, 2009 at 5:26 am

That was one of the most interesting articles I've read in a long time, thank you.

Bad credit Loans // May 1, 2009 at 1:54 am

I found lots of interesting information on researchnews.osu.edu. The post was professionally written and I feel like the author has extensive knowledge in the subject. researchnews.osu.edu keep it that way.

KattyBlackyard // Jun 14, 2009 at 8:48 pm

The article is usefull for me. I'll be coming back to your blog.

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