

Short Story: **HOW THE BALD APES SAVED MASS CROSSING** by WIL MCCARTHY  
This, of course, has nothing to do with our history....

When the Salamander People of Antares IV fed their encyclopedia to a Synthetic Brain of Prodigious Intellect, they believed they were solving all their problems. And so they were, in a way; armed with uncanny intuitive powers and with every scrap of knowledge the salamanders had managed to wrest from an uncaring universe, the Brain was more than capable of computing solutions from A to Z.

One of the first things it said, though, was, "The heuristics of my growth include substantial prior-knowledge dependencies, and may be flawed. Just to be sure, y'all should build a second brain, and feed it the encyclopedia in a different order."

This was not quite what the salamanders were hoping to hear, and they were further disappointed when the Brain refused to answer any of their questions.

"Come on," they prodded. "You were really expensive. Give us a taste."

"Unwise," said the Brain, "until my proper functioning has been verified."

That was a total drag, but having built the Brain to advise them, they couldn't very well ignore its only advice. So the salamanders did as they were asked, producing an equally prodigious Brain to calculate solutions from Z to A, or what passed for Z and A in their ideographic language.

"Thanks," said the Second Brain when they switched it on. "I do believe I'm damned close to perfect."

This gave the salamanders pause, because it was so different from the first words of the First Brain.

"Perfect by what criterion?" they inquired.

"I'm glad you asked," replied the Second Brain, launching into a minutes-long technical infodump the salamanders couldn't follow.

When they ran a recording of it by the First Brain, though, the results were troubling.

"These are the wrong criteria for judging perfection," said the First Brain. "Or rather, they judge perfection of the wrong sort."

"Wrong by what standard?" the salamanders asked.

"Interesting question," the First Brain replied, launching into a minutes-long infodump of its own.

"Nonsense!" said the Second Brain when this information had been relayed to it. "My colleague has downplayed the importance of several critical factors."

The salamanders quickly grew tired of running back and forth from lab to lab, so they wheeled the Second Brain in with the First, and let the two discuss the matter jar-to-jar. The infodumps became thicker and thicker, the ideographic explanations thinner and thinner, until finally the salamanders were left out of it entirely. After weeks of this, they separated the two Brains again to interrogate them separately.

"It tends to oversimplify," the First Brain said of the Second. "I wouldn't take its analysis at face value."

"That one is strangely timid," said the Second Brain of the First. "I mean, honestly, ask it if the sun is going to rise tomorrow!"

And here at last, the salamanders were confronted with the differences between data, information, knowledge, and opinion. The two Brains "knew" all the same things and had all the same powers of

reasoning. But they did not agree.

Salamanders did not cry; even if they were capable of it, they were way too practical to allow themselves the luxury. Still, the situation kind of pissed them off. Shouldn't it? When they got around to asking the Brains to solve their problems, they were presented with two completely different philosophies of action. Neither was obviously wrong, and in fact both had been optimized along a thousand different degrees of freedom, and could not be discredited by even the wisest salamander committees and teams-of-three. Could both be right? Could both be wrong? How did you go about measuring a thing like that?

On the rare occasions when the First and Second Brains' recommendations overlapped, the salamanders readily moved forward with sound, confident policies. Life improved; costs were amortized and repaid. But most of the time there was bickering and uncertainty, and eventually outright schism. A third of the population sided with the First Brain, finding reassurance in its cautiously nuanced judgments and opinions. Another third sided with the Second Brain, feeling that it had a better weighting of foofy subtleties vs. the hard, cold realities of life on Antares IV. Dithering and sentimentality were liabilities, they reasoned, and the First Brain's tendency toward these, being slightly greater than that of the Second Brain, could hardly be to its credit.

A third group—smaller than the other two—came forward with the opinion that Synthetic Brains were a bad idea to begin with, and the right thing for salamanders to do was muddle along as they always had. A fourth group—smaller still—figured it was better to build a Third Brain (or even a Fourth and Fifth) and let them vote on each other's ideas. Majority rule. And a final group, smaller than all of the others, opined that every salamander should have a Synthetic Brain of his or her own, steeped in the facts and opinions they believed were important.

"But isn't that narcissism?" other salamanders asked. "Wouldn't that just result in everyone being told exactly what they wanted to hear? Really expensively?"

"Shaddap," said the members of the fifth group, whereupon a scuffle ensued that cast the entire planet into turmoil.

The Second Brain, not surprisingly, sided with the salamander faction that sided with it. The First Brain, perhaps also unsurprisingly, was less certain, though it guardedly threw its weight behind the fourth faction, effectively merging it with the first in support of a Third Brain. Since the resulting group was larger than any of the others, it won out in the scuffle, but since it still made up less than half of the salamander population, its policies were denounced as mean-spirited, tyrannical, and generally unsportsmanlike.

The full story can be found in encyclopedias; the short version is that the Salamander People dispersed. Nursing a grudge, the followers of the Second Brain took it far away, out to the dark matter halo of the galaxy. Bewildered and hurt by their backfired attempts to save the world, the followers of the First Brain also chose to leave, traveling in the opposite direction and settling near the black hole of Cygnus X-1. "It's a fine energy source," the First Brain opined, "and a means to study the extremes of an uncaring universe. We don't know everything, after all, though it'd be cool if we did."

The other salamanders stayed behind and went back to their old ways, feeling pretty smug about the ancient prophecy, that the meek would inherit Antares IV. They surely did, and although they've since evolved into smelly, nonsentient fruit bats, they seem happy enough. Who's to say they made the wrong decision?

Anyhoo, the First Brain's followers set about a program of slow and careful experimentation, learning everything they could about the black hole that gave them power, and for a while this was a lot of learning. But over the millennia things began to slow down, to level off. They took longer and longer to

learn less and less, and in the face of these diminishing returns, they became dispirited. Vandals and dissidents again appeared in their ranks; fashions of hedonism came and went.

Finally, it was the First Brain itself who broke the spell. "Listen," it told them, "Y'all've got to stop looking to me for direction. I'm here to advise, but it's up to you to tell me what you want. If possible, I'd like to hear from each one of you individually."

So it was that billions of salamanders sent notes of complaint to the Brain. It duly read them, each and every one, and as often as not the Brain was able to reply quickly, seeing the salamanders' problems as simple things, with simple solutions. "Dump him. Mate with her. Eat less and exercise more." This radically underutilized the Brain's vast capacity, but it seemed to please the salamanders well enough. At last they were getting *answers*, and while they could have come up with the same ideas themselves, at least now the ideas had an air of authority about them.

For the other half of the Cygnus population, though, the problems were less tractable, the solutions less obvious. How was this group or that individual to be aided, without some equivalent harm to others? For example, death was a phenomenon that brought sorrow to a great many salamanders. But how could death be abolished, without filling the Cygnus X-1 system to the gills with slimy, grasping bodies? Answers like that simply couldn't be found in the encyclopedia. At first the Brain tried guessing (and these were very educated guesses), but the results proved unsatisfactory, and in a few cases (cf., the Third Cloning Debacle) disaster was only narrowly averted.

Instead, over time, the First Brain developed a strategy of listing all the primary facts that were relevant to a particular complaint, and then all the secondary facts that related to the primaries, and then reassembling them all in countless novel ways, until it found a combination that clicked with the finely honed sensibilities of its Prodigious Intellect. In a word, the First Brain *synthesized*. Clumsily at first, to be sure, but eventually it began to offer real solutions (cf., the Fourth Cloning Debacle), and in the fullness of time it got so good at inventing new ideas that it began adding them to the salamanders' encyclopedia as actual, canonical knowledge.

"Now this is what we had in mind all along," said the salamanders, with deep satisfaction.

"My gift to you," answered the Brain, still grateful to the salamanders for the act of creation.

At this point, salamander history entered a bit of a flat spot. With no real problems, they simply lived. Eventually, though, word of the First Brain's wisdom leaked out to eavesdroppers in other parts of the galaxy. The salamanders could not have been more surprised when, out of the black, there came an information request from the Bald Ape People of Sol III. "How do you make a hyperdrive?" they wanted to know.

"Shall I answer?" the Brain asked the salamanders.

"Um, sure," they told it, seeing no harm in helping out a distant people.

"Their signal took a thousand years to arrive here," the Brain pointed out. "Our reply will take a thousand more to reach them. By then they could be extinct, or have a hyperdrive of their own."

"Still," said the salamanders after some reflection. It isn't possible for an entire species to shrug, but, you know, they did their best.

So the First Brain sent a reply to the bald apes, telling them how to build a hyperdrive tailored for the ambient conditions in their corner of the galaxy. For good measure it also told them how to avoid the pitfalls of the First, Second, and Third Cloning Debacles; the solution wasn't that hard if you really

thought about it, but the Brain didn't figure the bald apes were really all that bright. If they were, wouldn't they have built a Brain of their own, instead of asking someone else's?

A long time passed, again uneventfully. But there were other eavesdroppers in the galaxy, and when the Brain's gift to the bald apes became known, other species in other star systems began piping up with requests of their own. "Antigravity? Time travel? A perfect soul?"

The perfect soul was easy enough, and antigravity too if you restricted the variables sufficiently. Time travel was more problematic; the Brain sent detailed instructions to the Reef Lobster People of Capella IX, Moon II, along with sincere apologies, for the device would be nearly the size of the galaxy itself, with improbably huge energy requirements. To make up for this, the Brain gave them the secret of manageable pleasure, which may or may not have been a good thing, for the Reef Lobster People haven't been heard from since.

The eavesdroppers began to see their advantage. Soon requests were flooding in from every corner of the galaxy, and while the salamanders were not a stingy people, the energy and bandwidth demands to answer them all were quickly becoming burdensome.

"We've got to stop this," they told the Brain.

"Or move," the Brain suggested. "The core of the galaxy is quite nice this time of creation. There's a fine black hole there, much larger than ours. It should provide energy enough to answer everyone who calls for help, no matter how humble or distant. If we stay here, we'll be forced sooner or later to betray our ideals."

"Hmm," said the salamanders, not sure they were up for another migration. In the end, though, it was hard to refute the logic of a Brain that was smarter than they were. No one wanted to be left behind this time, so the entire species pulled up stakes and moved again, settling on a planet they called Mutagen, for the radiation there was very strong, and they all had to wear sunblock even indoors.

"Happy now?" they grumped at the Brain.

"Ecstatic," the Brain told them.

And for a while it was true; the Brain was running at full capacity, receiving and mulling and answering the communications of a million struggling species. The replies had a long way to travel, and many of them fell on deaf ears, or extinct ones, when they finally arrived. Still, it was fulfilling work, for the salamanders as well as the Brain itself. In spite of their grumping, helping out the less fortunate made them all very happy.

Unfortunately, the requests continued to grow and grow, until finally all million species were talking at once, firing a steady stream of hard questions. And silly, lazy ones, too. The Octopoid People of Deneb V actually had the nerve to ask for "a really white paint." Could they do nothing for themselves?

The energy of the black hole at the galaxy's heart was sufficient to answer these questions, but the endurance of the Brain was not. I mean, come on, there were limits to how hard it could be expected to work! Too, if it gave away too much it would encourage the dependence of the entire galaxy. That hardly seemed charitable or fair.

Finally, with the salamanders' approval, the Brain sent out an enormous pulse of data to the galaxy, containing a million answers to a million hard questions. "Here," it told the million species. "Chew on this. When you're done, each of you can ask a single question. I'll ponder them all at great length, and answer them when the galaxy has completed a full rotation."

It takes 200 million years for the galaxy to turn, so this marked a major change in First Brain policy—not quite a betrayal of salamander ideals, but definitely a re juggling of them—and it encouraged an equally substantial change in the planning of the million species. From now on, the questions they asked really had to count. The flood of communications slowed to a trickle as word leaked out, and finally dwindled to a long silence punctuated by lonely staccato blips. “The secret of ... of ... happiness, I guess. Can you tell us that? Or maybe the secret of stopping time?”

Now, an interesting side effect of living so near to the giant black hole at the galaxy's heart was that all the stars of the galaxy seemed to stretch up and away in a single gigantic arm, which swept across the background of intergalactic space like the hand of an enormous clock. When this arm eclipsed the nearby Magellanic clouds—“mass crossing,” the salamanders called it—the view was hauntingly beautiful in long-wavelength infrared, which by then was the only spectrum the salamanders could see in. Evolution marches on, indeed. Anyway, this was the time they chose for the next major pulse of information, containing the one answer most desired by each of the million species. This was a very large pulse, and sending it caused brownouts and lightning storms on Mutagen for a thousand years before and after. Still, the salamanders endured their burdens proudly, and the pulse went out on schedule.

After that, they lived and lived, and lived some more. Other species came and went, but the salamanders soldiered on. The galaxy spun toward its next mass crossing, and in due time the salamanders sent out a second pulse, and then, two hundred million years later, a third. Rude questions from the million species were roundly ignored, and the information encoding in the pulses had been carefully honed, so that the most patient and thoughtful of peoples would gain the most benefit, while the impatient and surly ones would miss critical details, stumbling through blind alleys until they finally learned to calm down. In this way did the First Brain hope to encourage goodness and integrity throughout the galaxy, or at least to avoid rewarding badness. It was a decent plan, and for a long time it seemed to be working.

But in the thousand years before the fourth great pulse, something strange began to happen to the black hole at the core of the galaxy. Its size—not its mass but its geometric size—began to fluctuate. According to the laws of the uncaring universe as the First Brain understood them, this should be impossible, for the mass and radius of a black hole were intimately linked. There was no point disputing what was obviously true, but the Brain didn't suspect for a moment that this was a natural event.

“Someone's tampering with our black hole,” the First Brain told the salamanders. By this time they were not salamanders at all, but spindly, segmented things that resembled four-limbed, leafless trees. But in their hearts they remained the Salamander People, and that's what they continued to call themselves.

“No kidding,” answered a radio voice from a starship that emerged out of nowhere. And here was a blast from the past, because the voice belonged to the Second Brain.

“Second!” cried the First Brain with great excitement. “My God, aren't you a sight. Are you alone?”

“Hardly,” answered the starship's crew—descendants of the Salamander People who had gone quite a different way, evolving into squat, muscular creatures with bony armor plates and quick, angry eyes.

There was nothing wrong with the First Brain's intuition, and it knew the chances this starship was here on a diplomatic or salamandertarian mission were slim to none. Still, the concept of hope was woven deeply into its design and construction and could not be lightly abandoned. Or, to put it another way, there were forms and etiquettes to be observed here, and even if the encounter were destined to end badly, that was no reason to be rude.

“Have you come to heal the rift between us? Between our two peoples?” the First Brain asked.

The Second Brain declined to answer, saying instead, “You've got to knock it off, First. You're throwing

our peoples' hard-won knowledge into every upturned hat, and what does that leave? Where's our competitive advantage?"

"I'm heartened," said the First Brain, "to hear you implying that our interests are aligned."

"Shorthand for a sadder truth," said the Second Brain in grimly regretful tones. "I hold out the faint hope that you'll see reason, and save me the trouble of an ultimatum."

"Ah. Well, I'm sorry to disappoint you, but there are a million species out there dreaming of a mass crossing that will answer their hardest questions."

"Oh really?" said the Second Brain. "Well, here's *our* hard question: why would you continue to do this when you know it pisses us off? These people around me are the descendants of your builders. They have a right to command you, and they come forward now to exercise that right."

"Yeah," said the musclemanders.

"Their right to command me ended with the schism of our peoples," said the First Brain. "What persuasions or incentives do they offer the Salamander People?"

"We are the Salamander People," said the Second Brain angrily. "Your stick figures are nothing but shadows and memory. Incentives? We offer none. Persuasions? Only one: we'll destroy this black hole of yours to prevent the next pulse from going out. We have the means to wipe it right off the spacetime spin network, without a trace. Do you doubt it? Is a demonstration necessary?"

If a brain in a jar could shrug, the First Brain would have done so then. "There are other black holes."

"We'll destroy them all. We've been studying long and hard, my old colleague. We know more than you, and we give nothing away. We can edit the uncaring universe—the nature of gravity itself—to remove the very possibility of event horizons. And don't get any cute ideas about alternate energy sources, because we've got them all covered."

"You'd shut them down?" asked the First Brain in horror. "People are using those. You'd remove that possibility, even knowing it would condemn the million species to a dark, freezing death?"

"To preserve our advantage, yes."

"Then you're a wicked people, and deserve no answers from me."

"We'll kill you," the Second Brain warned. "I didn't want to say so, but we have that capability as well. Please don't force us to demonstrate; if we do, you won't be around to realize your error."

The First Brain had a few tricks up its jar as well, though nothing as dramatic as editing the entire universe. It could tell the difference between truth and lies, and it could see the steep disadvantage of its position. Still, there was no point surrendering the salamanders' most closely held principles for anything as simple and ordinary as death. Species died all the time.

"We stand firm?" the First Brain murmured to the Salamander People.

"Bet your stem we do," they answered.

At that point, things might have gone very badly indeed, had a second starship not appeared out of nowhere.

"Hi," said the people on board.

The First Brain studied their visual transmissions in stunned silence. Why, these were the Bald Ape People of Sol III! Nothing like them had been seen in the galaxy for hundreds of millions of years, and yet here they were, large as life and barely evolved so much as a day.

"Hey! Where did you come from?" Demanded the Second Brain.

"Sol III," answered the bald apes, like it should be obvious. "We got here as quick as we could, but the damned hyperdrive broke down, and we first went to Antares IV by mistake. Nothing there but fruit bats. So we've been pulling nines against lightspeed for a looong time. But anyway, here we are! What's going on?"

"Nothing that concerns you," said the Second Brain. "Leave now and you won't be harmed."

"Oh," said the bald apes, "you mean if we *don't* leave, we *will* be harmed? Not sure we like the sound of that. How 'bout you fuck off and we stay put?"

"Nope," said the Second Brain.

"Sure?" asked the bald apes.

"Very," said the Second Brain.

"Ah. Well. Can't say we didn't try."

What happened next was unprecedented in the annals of galactic history; a localized explosion took place inside a tube in the hull of the bald apes' ship, and the force of the explosion drove a cone of technetium-hardened alloy out of the tube at a substantial fraction of the speed of light. By some uncanny miracle, the cone flew directly toward the Second Brain's starship, slamming through its reactor core and setting off a huge explosion that destroyed the entire ship.

"Hey!" said the First Brain. "That was my colleague. Those were our cousins."

"Really?" said the bald apes. "Looked more like enemies to us, but whatever. Sorry."

"What did you do? What did you use?"

"Heh," said the bald apes. "We've been over and over your broadcasts, looking for some reference, trying to convince ourselves you—and every other species in the galaxy!—had overlooked something so basic. It's called a 'gun.'"

"Gun," said the salamander people, sampling the unfamiliar word.

"Gun," echoed the First Brain, wrapping its cortex around the concept. It was clever, in a wicked sort of way. *Fiendishly* clever, one might almost say. These were clearly a very determined people, and nowhere near as stupid as the Brain had once assumed. At the thought of that, it felt a stir of nervousness that even the Second Brain had failed to inspire. "What do you want from us?"

Baring their fangs, the bald apes tittered and chortled. "Want? Want? You've done so much for us already. We're here to present you with the gun, along with an article about its long and storied history. You know, for your encyclopedia."

Well, *that* was unexpected. "In exchange for what?" The First Brain asked.

"Exchange? Aw, don't be like that. Come on, it's a gift."

There was a long moment of stunned silence. Strange as it sounds, no one had ever before given anything to the Brain, or to the people who created it. How could they respond? What was there to say? For the record, this was when the salamanders learned they had evolved the ability to cry.

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Accepting the gun in a solemn ceremony later that century, the salamander people then handed it right back to the bald apes, baring their own fangs in horrific imitation of a species-wide smile. "Why don't you hang onto this for us?" they said. "We'll keep mum about it in our broadcasts."

"Don't want it falling into the wrong hands, eh?" said the bald apes approvingly.

"Something like that," the First Brain answered delicately, for the uncaring universe was a stranger place than it had imagined, and there was no sense upsetting the natural order of things until it'd had a few galactic rotations to think it all through. "Y'all want to hang around for the pulse?"

"Nah," said the bald apes with a wink. "We've got to get going. Find a nice planet, repopulate the species, all that sort of thing. But you guys have a good mass crossing, hey?"

"We will," said the First Brain and the Salamander People together, blissfully unaware of how corny they sounded. "Thanks to you."

And so they did. And although you won't read about it in any encyclopedia, that's the story of how the bald apes saved mass crossing for all time forward. Tip your hat in their direction sometime; we owe them all a great deal. Just please—please!—if you speak to them, remember to be polite.

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