

Out of Many Scattered Things

cleanwhiteroom

Epistolaric Empiricism

Dear Dr. Gottlieb,

My name is Newton Geiszler, and I am a professor of Chemical and Biological Engineering at MIT. I understand from a mutual acquaintance (Dr. Katerina 'call me Kat or I'll end you' Meyer) that you have recently completed your doctorate at the Berlin Institute of Technology. Congratulations! I hope that you will forgive an unsolicited letter from a non-physicist that's about to take a left-hand turn straight from pleasantries into science, but I felt compelled to write to you in light of what happened last month [editorial aside: here read a horrible, xenobiological tragedy with all appropriate empathetic catch-phrases duly attached]. Are you aware that your recent *Science* paper regarding particle annihilation and small-scale energy fluctuations in space-time turbulence at the subatomic level might have outrageously practical implications when it comes to understanding the transdimensional breach that's opened at the bottom of the Pacific? [Unscientific aside: don't tell me you're one of those multiverse apologists. I say call a spade a spade, and call a transdimensional rift a transdimensional rift, am I right? I'm right. You love it. I hope you love it.] Anyway, tell me that you've realized this. Tell me that you've been thinking about it. Tell me your thoughts on the mechanism by which a transdimensional rift might be produced and perpetuated, because I find that I reeeaaaaaally want to know and you seem like the guy to ask. Do you think that these kinds of rifts open spontaneously from time to time when D-branes become a little too contiguous within the bulk? Is this a natural, stochastic phenomenon? Every educated bone in my body says yes, absolutely, stochasticity is a property of existence as we understand it and underlies most of the cruelties of a biological existence. And yet. Aaaaand yet. I want your thoughts, all your thoughts, but especially your thoughts on the probability of this kind of event happening spontaneously. If you want to know the truth, I'm cursing the day that I chose biology over quantum mechanics, except no, I'm not, because I think that I might possibly get the chance to be part of the governmental task force that analyzes pieces of whatever it was that came through from wherever it is that it came *from*. [Nomenclature aside: the scientific community seems to be settling on 'kaiju' vis-à-vis 'Kaiju'. I am, as one might colloquially put it, a 'fan' of this emerging paradigm.] Anyway, I haven't been able to find a physicist that will talk to me about this in an intelligent manner. That's a lie a little bit but I think, out of all existing work on the quantum foam, yours is likely the most relevant. I'm in the process of giving myself the background to

follow your paper so come back at me with your A-game despite my ostensibly biochemical credentials. I can take it.

Tell me.

What do you think?

Sincerely,

Newton Geiszler, PhD

Dear Dr. Geiszler,

You must pardon the indecorous enthusiasm of the response you are about to read but I must confess I was thrilled to receive your letter. I cannot tell you how frustrated I have been, trying to communicate the relevancies of my model to a pedestrian academic hierarchy of an indentured faculty who seems to distrust applicability purely on principle. That statement is, of course, unfair. Nevertheless, the point stands that I have run into an undue amount of resistance when conjecturing regarding what I feel to be obvious practical extensions of my studies in quantum-field topology. The only parties taking me seriously are a subset of string theorists whose work seems to border on the metaphysical and, frankly, this is not improving my outlook. There are times when I feel as though I have lost my grip on rational discourse when I publicly draw a parallel between my thesis work and that which may or may not be sitting at the bottom of the Pacific. It is, of course, difficult to stop myself from discussing it with my colleagues because of the overwhelming urgency and relevancy of the question— is 'the breach' a quantum-mechanical phenomenon manifesting itself on the macro scale, or is it something else entirely? The limited data available precludes a definitive answer, but I will outline my argument for you in a colloquial manner within the text of this email and also attach a document with a more mathematically technical version of the same. Depending on your background it may or may not be comprehensible to you—I confess that in its current form it contains some conceptual shorthand that will likely strike you as somewhat recherché.

Let me preface my argument with the following comment. It is a common assumption in the popular press that the very existence of Trespasser is sufficient evidence for some kind of continuity between the Pacific Ocean and an extraterrestrial location. This is not technically true. There are a host of alternative explanations that cannot be logically excluded—each more ridiculous than the last and none of which deserve real credence (though I would be curious as to your thoughts on this, as I would imagine, from what you've said of your background, that this is more your area of expertise). The point I am attempting to make is that any arguments that are kaiju-centric ought to be discounted

entirely from the paired questions of: A) does 'the breach' actually exist (constantly or periodically), and B) if it exists, what then, is its nature?

In practice, these questions have turned out to be inextricable. The central problem, as I see it, in establishing the unequivocal existence of 'the breach' is that it requires one to hypothesize about its nature first, and then look for evidence to support said hypothesis, if only because it did not overtly announce itself as anything particularly notable to global seismic, atmospheric, or oceanic monitoring systems. (Correct?) It was only retrospective analysis of geological data that allowed detection of anything at all that would support the existence of something unusual in the fabric of spacetime, and (even taking into account the report from the Japanese seismology group that was published in Nature—you must have seen this if you're thinking along quantum mechanical lines, as, evidently, you are) a strange seismic pattern does not a spacetime tear make, no matter how notable the observed pattern. It, like the *kaiju* itself, is only suggestive. Circumstantial.

The theory I favor, which you have doubtless already surmised based on the content of your letter, is that 'the breach' is a local apposition of two branes of the multiverse, allowing either unidirectional or bidirectional travel for an unknown period of time between two separate but closely apposed universes, possibly with different physical laws. An alternate possibility would be an extant Einstein-Rosen bridge. Considering the second proposal first—quantum field theory posits that there could, within the quantum foam, exist certain regions of space with a negative energy density (the Casimir Effect) that might allow for a transient spontaneous bridge. It is also possible that a sufficiently advanced civilization(??) might construct such a bridge out of exotic materials. I consider all of this unlikely, primarily because there has been no detection of exotic matter and no evidence of time dilation from any of the deep-sea teams that have been combing the bottom of the Pacific with every array of instrumentation that humanity's collective ingenuity can bring to bear. So, while an Einstein-Rosen bridge is not impossible, I do not consider it likely. [See pages 4-10 of the attached file for a more detailed explanation.] This brings us back to the idea of D-brane apposition.

The mechanism you so charmingly described as, "D-branes becom[ing] a little too contiguous within the bulk," is not precisely what I proposed in my paper. Your wording bears more similarity to the conceptual underpinnings of detecting D-brane/D-brane collisions using temperature variations in cosmic background radiation (a proposal for testing the validity of the multiverse that has yet to be empirically demonstrated). In any case, I believe that you're thinking about the problem correctly, in that your word choice communicates you are interested in learning more about a process, any process, that might conceivably create a dimensional rift large enough to transit the thing that laid

waste to San Francisco. My paper does not formally demonstrate but strongly implies waveform continuity between two D-branes on the level of quantum-scale spacetime turbulence at ground state energy in a vacuum. [See pages 16-28 of the attached file for a more detailed explanation.] What does this mean when translated to the macro scale? Unequivocally? Frankly, I'm not certain.

However, I confess I have been deeply troubled for a month now regarding the exact questions you posed to me in your email. "Is this a natural, stochastic phenomenon?" If so, what is its empirical frequency, its empirical scale? And the counter question you did not pose, but only implied—does the existence of this rift, does its collection of inherent properties, preclude a natural phenomenon? And if so—what then are the consequences of that particularly poisonous realization? Unfortunately, Sir, I cannot give you definitive answers to those questions. I suspect however that this phenomenon is not purely natural—if only because of the sheer scale of the thing that came through. I am the first to admit I have an imperfect understanding of quantum phenomena, but this—this is something else again entirely. The ideas proposed in my paper explain how such a rift could arise spontaneously—on the quantum level, but they do not explain how such a rift could be extended, expanded, and made stable (if indeed it is stable). I am very much anticipating the results of the group from Caltech; they have been combing the ocean floor with the kind of high-grade electromagnetic detection equipment humanity usually points into space. I am hopeful that there will shortly be evidence, if not of an extant rift, at least of some indication of an anomalous EM signature that could be further studied.

On a personal note, may I also add that I found your "unsolicited email" to be an enormous conceptual relief. At times I have felt like I am the only person who genuinely takes this connection between quantum mechanics and the appearance of Trespasser seriously and has not returned to business as usual post the events this past August. Perhaps it is because San Francisco is half a world away from Berlin, perhaps it is because theoretical physics is a somewhat insular discipline, but I confess to feeling misunderstood by my colleagues, who seem to be of the opinion that I am unnecessarily perseverating on a link between my work and what will certainly end up being one of the defining events of the century. I do not feel as though I am being taken seriously. Indeed, I am not. It is not as though they are not interested, just not interested enough to arrest their current pursuits in order to spend time, mental energy, and financial resources redirecting the avenue of their intellectual pursuits. There has been much discussion here regarding my ideas, the relevancy of my paper—but very little material departmental support, and I am being continuously advised not to hitch my career to understanding a single, if cataclysmic, empirical event. Perhaps because it was an isolated incident in

another country? Perhaps because, like so many other things, it may fall outside the purview of theoretical physics? I am certain that my Doktorvater [in America you say, "thesis advisor?"] has my best interests at heart, but it is frustrating to be continually encouraged in the opposite direction of one's scientific instincts. Maddening, really. I have had a terrible day. There is no excuse for this paragraph. I should probably delete it, but I will leave it in, if only to contextualize what is an unforgivably long missive with an unforgivably dense attachment. Suffice it to say that I found your email perceptive and—how to put this—well...it restored some of my wavering faith in my own ideas, I suppose.

I do find it notable that your scientific interests apparently range so widely—I must confess I have never met a biologist with the inclination or training to read primary physics literature. In fact, it's unusual to find anyone reading outside his or her discipline of choice these days. I am the first to admit that I wouldn't know the first thing about "Chemical and Biological Engineering;" but, then again, I am quite up to date with what has been discovered regarding the biochemistry of Trespasser, though, granted, I have obtained most of my information from the kaiju-centric issue of Nature, which admittedly includes summary reviews at the non-specialist level. So perhaps that is the connection—an interest in what happened in August that sparked your interest in quantum mechanics and mine in xenobiology? In any case, I am curious as to how you came across my paper. Did you encounter it by chance in your review of the literature? Did Dr. Meyer point it out? I'd very much like to know.

Sincerely,

Hermann Gottlieb, PhD

Dear Dr. Gottlieb,

Indecorousness pardoned now and forever. In fact, I actively encourage indecorousness at every opportunity. That sounded unpardonably lascivious; allow me to rephrase. The turnaround time on the exquisitely worded 'missive' you just sent was *unbelievable*. It's actually going to take me a few days (years?) to navigate myself through your document—I do not math the way you math, I don't think. But with some supplementary...er, *everything* maybe I'll at least marginally appreciate the way you're (obviously) doing the conceptual equivalent of bridge building. I'm getting the gestalt but not the details, and that VEXES me, Sir, I will have you know. [Inquisitive aside: I'm going to be able to make it through this document of yours with college level P-chem, right? I can teach myself quantum field theory, yes? Yes. No problem. This...could...actually be a problem. The quantum vacuum state is Lorentz invariant, right? I'm losing you when you renormalize for thermal fluctuations...or at least that's where I

THINK I'm losing you. I'm dying. I'm a *biologist*, man, not a quantum physicist. (Help me.)]

The point of the above paragraph, in case it wasn't clear, is that I need a few days to collect my thoughts. I did, however, want to expeditiously email you and say the following:

One. Thank you. This is an amazing piece of work. It's also shockingly laudable that you'd just—*send* me this without any caveats or reservations or swearing me to secrecy—in short, without *knowing* me at all. You realize this is a little bit brashly badass? Don't send your groundbreaking thoughts to potential competitors. You *know* this, right? Someone has *told* you this? At some point? Send them to your *friends* and colleagues and *then* let your competitors read them *after* publication and grind their teeth. Not that *I'm* your competitor, but Dr. Meyer could potentially be considered your competitor. And, well, the point is just—well, way to do science like it's *supposed* to go, buddy, and not like it *actually* goes. In case you're regretting sending me this in a fit of intellectual nihilism because no one is listening to you—rest assured I will not show this to anyone.

Two. Oh my GOD, *yes*, okay, just *yes*. I love this with a passionately voyeuristic kind of love. 'Passionately' because of passion; 'voyeuristic' because of voyeurism—this pure and secret math isn't really the kind of thing I run across every day and it makes me feel very scientifically cosmopolitan to be checking out the quantitative ground floor of something that would have eventually turned into a lovely and concise paper in *Quantum Physics Letters* but will now probably turn into something even more concise with a sort of eau d' demolition in an even better journal given the inevitable practical applications of what you're discussing.

Three. I think you're *so right* by the way. Just to be clear, I *already* thought you were right when I emailed you; I just didn't know if YOU knew how right you were, but it seems like you *definitely* do, so congratulations there (ha). I liked your laid-out argument, though I submit to you that given the results of the paper *I* am attaching, which has been submitted to my superfriends at *Nature* [Accuracy aside: the editorial board of *Nature* may actually deeply, genuinely despise me because I argued with them so much about a paper on cellular senescence I submitted eighteen months ago or so...I'm not sure they've forgiven me yet; but they will. Eventually. I can be *very* charming. But in a totally above-the-board, ethical way. Full disclosure. Too much disclosure], the kaiju, having a biochemical makeup incongruous with *terrestrial* biochemistry [Accuracy aside: by which I mean the existence of nucleic acid

monomers that differ markedly from our local walking, talking collections of organized primordial ooze] in and of itself comprises a piece of evidence that is no longer circumstantial. For example, the, er, *optimistic* people who search for the Loch Ness monster might tell you that the oceans are full of waiting carnage, but principle of parsimony-wise, no *terrestrial* ocean is going to be full of waiting *xenocarnage* unless there's some alien continuity.

Four. With regards to everyone patting your head and saying 'nice job' as you communicate civilization-altering hypotheses; dude, this is an uber-common feature of la vie en académie as a young scientist, except (in your case) writ large as unbelievably high stakes meet your relatively junior position. People aren't supposed to care about the hierarchy, and, to some extent in academia we're freer [grammatical aside: that's a word, right? Free-er?] of this proclivity than other fields are, but honestly it's never going to be the non-issue it should be. Speaking of positions and optimizing them, what are you *doing* right now, by the way? Finishing up more quantum-foam thinking? Looking for a post-doc? Working this giant document you sent me into a paper? That's what *I'd* do if I were you; it's almost like...a mathematical opinion piece that's going to make you look like an outrageous quantum mechanical savant if you publish it *before* the empirical data that everyone's waiting on and like a prepared mathematical badass if you *wait*. You should probably wait. [Enthusiastic aside: don't wait! Responsible aside: wait.] Honestly though, if you wanted to step into the position of quantum savant I have *no idea* where you'd send such a thing. If you'd *already won* the Nobel Prize (or something) then you'd have the leverage to get yourself a platform, but as a relatively unknown, recently minted doctorate, yup, I think the reality is you're going to need to wait for more factual parameters to hit the published literature before you take this thing into the public sphere, especially considering how much attention [editorial aside: here read 'negative attention'] you're likely to get when you publish. I guess the point I'm trying to make here is when another one of those things crawls out of the Pacific I bet your quantum mechanical clout will only increase, which is not exactly a *happy* thought, but it's a *progressive* thought. That's the thing about science, am I right? You keep saying the correct thing over and over and people will eventually notice, and you'll be able to accrue more resources as they do. So hang in there.

As for the question of how I came across your paper—it was indeed during a literature search. Even as I type this I feel like it makes me sound like a little bit of a crackpot, quantitative dilettante. But I typed it anyway. YOLO. I've been following every rational scientific throughline pertaining to what the heck *happened* in August because, full disclosure, as I mentioned in my original email I'd *really* like to jump ship and switch

fields to exobiology. *Reallyreally*. A lot. I'm obsessed [confessional aside: probably not an exaggeration] with where that thing *came from* and what it *is*. Anyway, I found your paper and took it to Kat, who is my go-to quantum person for these sorts of things, meaning that I met her at a really boring and really mandatory training session at MIT (we both joined the faculty at the same time and hit it off within the impersonal nightmarish milieu of 'setting up a lab') Anyway, the point is that she's willing to humor my new quantum mechanical interests, and we went through your paper. She mentioned that she *knew* you and I asked her if she knew you well enough for me to cold-call you, as it were, and she said yes, and so here we are. Honestly, I would have contacted you anyway. I've been writing intermittently to other quantum people, but no one has so much 'written back to me' as 'ignored me.' Not that I necessarily *blamethem*; if some quantum physicist tried to get my attention regarding nucleic acids, I'll be honest, I'd look at them in a way most mildly described as 'askance.' So I get it, but at the same time? Come on. This is awesome.

Sincerely,

Newton Geiszler, PhD

P.S. Can I just...kind of send you back your document with notes attached, where by 'notes' I actually just mean brackets next to question marks annotated with the words: 'what IS this even.'

P.P.S. What if you sent me your entire thesis. Not even an impertinent suggestion—just an uncensored thought? I can read German.

P.P.P.S. Did you see commentary on abnormal plate tectonics that came out in *Geology Today*? Soooo not my area, but some of the synthesized geological data might be of interest to you.

P.P.P.P.S. I hope you're having a better day [time zone corrected: night] than you were yesterday [time zone corrected: last night].

Dear Dr. Geiszler,

I confess I was somewhat preoccupied the morning after sending you my initial communication because you are correct—I did, essentially, write you in a fit of "intellectual nihilism." Consequently, I was more personally forthcoming than was, perhaps, advisable. You are very kind to have responded as you did to my lapse in decorum. Rest assured, I will be more considered with my comments in the future. This being said, I am grateful to have been on the receiving end of your thoughts. I very much appreciate your points on the social architecture of my academic frustrations. I surmise from your comments that

you must have at least some experience with the struggle to be taken seriously. I took the liberty of looking up your h-index (I hope you don't mind) and it seems that whatever your past struggles might have been you have more than 'arrived' in an academic sense. Should you feel inclined to soliloquize further on the fine points of institutional politics, you would have an interested listener in me. I have more ostensible 'mentors' than I know what to do with, but as they are all affiliated with my home institution or related to me by blood (my father has quite definite ideas about my career trajectory) I am not sure I can genuinely consider them free from bias.

To address your third post script first, I did not see the article you mentioned in Geology Today, but I did see the raw data on which their analysis was based. Were you aware that there is an international repository of geologic data felt to be pertinent to the breach? (The appropriate link is pasted beneath my signature.) It was created using open source software by a graduate student based in Tokyo. I've found it to be extremely useful for various computational modeling projects, though the elegance of the interface leaves something to be desired. I mention it to you only because I am uncertain as to where your interests and skill sets lie, and I think I might be remiss in assuming that they are confined to your stated areas of expertise.

Thank you for sending me your as-yet unpublished manuscript. I assure you that I will treat it with the same level of confidentiality that you have so thoughtfully displayed towards my unpublished work. I must confess that some of the finer points of your experimental technique are lost on me, but I believe I have understood the main conceptual thrust of the thing—which is that you have identified six nucleotides, all of which are silicon-based, correct? And therefore clearly distinct from terrestrial nucleic acids? (I believe you implied as much in your last email, but you occasionally break into a German style with English words and I confess it is not the easiest task to follow the throughline of your thoughts.) This has all the markings of a seminal paper and I do not doubt it will provide the leverage you're looking for in order to gain a foothold in a new field.

Please feel free to annotate the file I sent and return it to me with notes attached. I will clarify where I can. It would be helpful for me to know what kind of experience you've had in higher mathematics (if any) so that my comments can be more helpful. I have attached my graduate thesis for your eventual perusal. It has been described as 'dense' by members of the faculty at UT Berlin, so if you find it entirely uninterpretable you will be in good company.

Again, my apologies for my somewhat unprofessional message, I assure you it will not happen again.

Sincerely,

Hermann Gottlieb, PhD

Dear Dr. Gottlieb,

YOU apologize? How about I apologize. For the thing that I am attaching to this email. It's my comments on the document you sent. I am so sorry. Don't say I didn't warn you. I'm going to ignore all your questions about my mathematical background and just... send you this thing. Respond how you will, when you will. My notes are probably best described as 'extensive.'

Sincerely,

Newton Geiszler, PhD

P.S. I'm not great with *rocks* but thank you for the database link.

P.P.S. Yes, your thesis *is* uninterpretable.

P.P.P.S. But not for long.

P.P.P.P.S. That's a lie.

P.P.P.P.P.S. With regards to the xenobiochemistry I sent your way...you've got it, buddy. If the book of one's life is written in silicon, then, categorically, one did not arise from the local (carbon) sludge. Ergo, alien monsters are alien. Quod erat demonstrandum.

P.P.P.P.P.P.S. Excuse me but my English is flawless, clear, and well explicated. Every time.

Dear Dr. Geiszler,

Your credentials are extremely misleading. This is not what I was expecting.

Sincerely,

Hermann Gottlieb, PhD

Dear Dr. Gottlieb,

I'm not sure how to interpret your most recent email. Are you appalled by my mathematical illiteracy? [Reality check aside: I'm a *biologist* you realize.] Are you messing with me? Either way, keep in mind that I DID apologize in advance.

-Newton

Dear Dr. Geiszler,

You grossly misrepresented yourself to me—this is not the commentary of a biologist who is having trouble recalling his college-level physical chemistry. Your understanding of quantum field theory is passable, which is—well, suffice it to say that I do not understand how this came to be the case. You very much owe me an explanation. I insist. In fact, I insist upon it before I return your notes to you with further notes. You have had at least a moderate level of training in quantum mechanics. Did you begin in the physical sciences and then switch fields? I hope you did, but I suspect you did not—because of the unconventional terminology/notation you are using to express yourself. Are you, possibly, something of an autodidact when it comes to applied quantum mechanics? This is the explanation I favor, though it seems somewhat implausible to me given the fact that your days are likely quite taken up with business of biochemistry or whatever it is that you particularly specialize in—I made a real effort to determine this by looking at your list of publications and could not easily do it—were you publishing in neuroscience circa 2006? Were you publishing in bioethics before this? Is there another scientist who shares your name?

To formally answer your question, I am neither appalled by your mathematical literacy nor purposefully being obstructive. I am entirely delighted to encounter an askew mathematical twist upon a too-familiar problem, and I am impressed at the extent to which you are able to follow my work. Your grasp of quantum field theory is sounder than it has any right to be, I find your notation to be entirely charming, and I await a delineation of your mathematical/quantum mechanical credentials with much anticipation.

Sincerely,

Hermann Gottlieb, PhD

Dear Dr. Gottlieb,

Whew. Okay. GREAT.

First. I can't believe that you're *ransoming* your thoughts for details on my mathematical history. I *literally* cannot believe that. It's making my day.

Second. If you're going to be ransoming thoughts, at least hold out for something slightly better. There's got to be something else you want to know. My favorite color is all of them. My favorite day is Tuesday because people forget about Tuesday all the

time and I anthropomorphize things too much, including days of the week so I end up feeling sympathy for Tuesday for poorly explained reasons. My favorite philosopher is Nietzsche. My favorite book is much too embarrassing for me to report to you at this juncture so don't even ask me, stop it, stop it right now, okay fine, we'll compromise; I'll tell you if you guess it. Did you guess *20,000 Leagues Under The Sea*? You did? You're wrong. Too topical these days. Did you guess *Frankenstein*? You're also wrong. Did you guess *Jurassic Park*? Excuse me, but I have better taste than that. Or do I? Yes, I do.

Third. My mathematical history is *really* not very exciting, I'm sorry to report. I have (since you're apparently intent upon wresting the details out of me) picked up the typical array of college level mathematics along my adventures in higher education...multivariable calculus, differential equations, linear algebra, and more statistics than one could shake a stick at. That's pretty much it for pure and applied math. As for the physical chemistry side of things—I have taken both undergrad and graduate level P-Chem, so I was a little bit disingenuous about *that*. Ultimately, though, I can follow the throughline of your math because I've spent the past month obsessively spending all of my free time trying to understand the available literature on string theory, dimensional rifts, dimensional transit, and the topology of the quantum foam. I give Kat a lot of credit for holding my hand for several weeks (accuracy aside: again, to be clear, I did *not* show her your unpublished theorizing). Long story short, I'm just *interested* in this sort of thing and possessed of a lot of raw processing power when it comes to my cerebral cortex.

Fourth. My publication history is a little all over the map; it's true. I did switch fields from neuroscience to biomedical engineering and before that, yes, I did dabble in bioethics/philosophy just a bit, but certainly my most substantial work has been in the field of tissue regeneration, and that's where I've been publishing (last-author style) for about four years or so. In terms of understanding *me*, as a scientist, you should probably just look at the spread of years from 2007 to present, because that spans the last two years of my PhD. I've been a PI for four years now (to anticipate and avoid your next question—I didn't do a post-doc because my funding situation worked out). In order to answer your implied question, technically speaking, the main thrust of my lab is breaking the limits of cellular senescence while avoiding neoplastic transformation. We work in cell lines. It's...less exciting than exobiology. And so. Here we are.

Fifth. Charming? Because there's more where that came from. More science charm, that is. I have an endless supply. Send me those notes!

-Newton

Science Charm

Dear Dr. Geiszler,

*At times I feel as though you may have a firmer grasp on the conceptual underpinnings of quantum physics than many of my colleagues, though I am certain this cannot truly be the case. Perhaps a better way to put this is that you are a reductionist who presents himself inductively. By this I mean that while I can, occasionally, trace the evolution of your train of thought via your explicitly annotated questions, your observations strike me as having an intuitive quality just by virtue of your failure to annotate logical leaps that must appear obvious to you(?). It is quite striking. There is something of an established arithmetical aesthetic when it comes to ascertaining which steps to skip and which to subject to meticulous detailing. I am not certain I would describe your apparent predilection for a minimalist style as hubris exactly, but there is certainly an element of intellectual glamor in your transcription of your thoughts. Abstracting to more general grounds, I suspect the mystique of the conceptual leap stems from the occasionally maddening study of mathematical history—the sketchy outline of group theory contained in a letter, Fermat's margin notes, et cetera. Do you take an interest in such things? I tend to find accounts from the history of science to be a source of intellectual companionship—like Machiavelli in exile, who would sit down each evening in his most formal clothing and, alone, interrogate texts of the past—I occasionally spend my evenings examining the thoughts of other mathematicians. I would not describe this as a common pastime amongst my colleagues, but it is not altogether rare, either. There is something about mathematics particularly that invites it, I think, especially when applicability is lacking. I would imagine that applicability is something with which you never need to struggle, working in the life sciences. Does it bring you any particular satisfaction to read works by Darwin, for example? Do you read works by Darwin? Most likely, you do nothing of the kind. I can't imagine when you'd find the time. I am, and have always been, an avid reader in spite of the vague—how to put this—disapproval that extra-scientific pursuits seem to elicit from driven colleagues. I have less time for reading now than I once did, but I find it psychologically helpful in uncertain times. The end of this summer has been nothing if not an incredibly uncertain span of months. I have just begun *History of The Peloponnesian War* by Thucydides because it strikes me as topical, because I have a fondness for exiled authors, and because I have always wanted to read it. I am somewhat concerned that my projected reading time may be shorter than what average German life expectancies might indicate.*

Apologies for the wandering dark of the previous paragraph. I confess it is, again, quite late here, and I have spent the last six hours responding to your notes on my manuscript while drinking Oettinger (lest you form a mistaken impression, this is entirely a matter of economy and not reflective of the sophistication of my palate). Reading your notes, I cannot help but wonder how long it took you to work through what I sent. It doesn't appear that you completed it all in one sitting. Tell me it was longer than six hours; if it wasn't, I am resolved to throw away my academic prospects, give up on them entirely, and pursue an alternate career. (A practical one. One with enough financial compensation that I will no longer feel compelled to drink Oettinger for god's sake.) Frustrated hyperbole aside, I have very much enjoyed this entire exchange. Please feel free to send back another round of comments if any of my explanations are unclear, or fall outside your realms of mathematical familiarity. I tried to pitch them based on your revised (though still not entirely forthcoming) disclosure of your mathematical background. There is no reason to minimize your qualifications to any extent; or, perhaps I should clarify—there is no reason to minimize your qualifications to any extent within the confines of this particular set of correspondences. I cannot speak to the intellectual climate you might encounter on the eastern seaboard of the United States. Socially, I am familiar with the concept of academic minimization. If I have to attend one more family gathering at which I am asked whether I am 'still in school' I refuse to be held responsible for my actions. I hear that on your side of the Atlantic the anti-intellectual sentiment is more extreme than it is here. I'm not certain how true this might be—it seems that we are always hearing such things about the state of American science; perhaps it is just a story we tell ourselves to maintain a sense of psychological superiority. At the very least, funding for the basic sciences is more available in Germany; that I do know for certain. I have heard, however, that the NSF has just received a large allocation from the U.S. Congress to fund xenobiological research and to establish a new governmental branch dedicated to specimen collection, disposal, and cleanup. Have you heard anything about this?

And along these same lines, I am incredibly interested to hear your take on what is known regarding the physiologic effects of kaiju blood. There has been nothing but yellow journalism here regarding the topic—primarily, I suspect, because all of the scientists who attempted to collect samples perished in the attempt. I am certain you've thought extensively on the subject. It is at least peripherally related to your area of expertise. Do you know if even basic epidemiological data are available? I can't imagine the stories related by the popular press are true. For instance, the claim that aerosolized blood can permeate a filter-based respirator. Is this actually the case?

I shall leave off my rambling here and resign myself to another fruitless appeal for material funding tomorrow. Think stochastically favorable thoughts in my direction at 03:00 EST if you are awake.

Sincerely,

Hermann Gottlieb, PhD

Dear Dr. Gottlieb,

I talk a good game it's true, but I think I think a better one. You, on the other hand seem to mean what you say and say what you think and so am terribly flattered by your analysis of my analysis, or, rather, your analysis of my analytical style. Allow me to say: right back at ya, but inverted. Somewhat. I'm not going to call your thought processes inherently 'inductive' because that would be *terribly* impolite science etiquette [personal aside: I forgive you, by the way, for dressing up my annotative laziness as inductive reasoning, that's a *very* polite phraseology you've chosen—'sloppy' might be more accurate], but I *will* whip out and dust off the overused label of 'intuitive' to describe your jury-rigged levering of quantum mechanics into a geophysics-shaped box. I *very* much enjoyed trying to follow *your* conceptual leaps, which are more interesting and wider than you make them out to be. To answer your question—you do not need to give up your academic pursuits. Going through your document took medays. My graduate students thought I'd died. [Accuracy aside: not actually true, but I did cancel a day of (mostly) superfluous meetings to go over the thing, plus the addition of, er, about four nights or so. I also needed to help myself out a little bit with *Physical Chemistry: A Molecular Approach*, so *all* things included, full disclosure, it took me about forty hours. We'll round up to forty-two and that gives you and I a quantum mechanics annotation disparity of seven to one. I'd say you should stay in business.]

There may be a certain amount of impropriety in what I'm about to admit, but I'm a little bit of an impromptizer [editorial aside: Yes, Dr. Gottlieb, that *is*, for sure, an American word, no need to look it up]. You are *ridiculously* satisfying as a correspondent, I cannot even tell you. Are you seriously a graduate student? You do not seem like a graduate student to me—and I've mentored about [accuracy aside: where 'about'=exactly] twelve of them by this point, so I speak with a reasonable amount of experience here. It's not a raw intelligence thing (because obviously *that's* no surrogate endpoint when it comes to successfully running a lab); it's your attitude. You seem like a guy who should be allocating vast quantities of resources, not giving job talks. Is there a back-story here? Did you go straight through the German education system in the typical way? [Congratulatory aside: I can't believe you implied that I'm full of academic hubris; do

you have *any idea* how *blazingly correct* you are in that assessment? You don't even know me.] And while I'm on the topic of impropriety, I will *also* admit to drinking whilst typing. Alas, I cannot claim to be doing anything as civilized as reading Thucydides [inquisitive aside: are you serious? You're serious.] I'm at a faux dive bar in Cambridge called *Camera Obscura*. I say 'faux' dive bar because while it disingenuously *looks* like a dive bar, it's actually just full of people pursuing or sporting post-grad degrees and looking for a decently cutting edge music scene. I'm listening to *sincerely:sam* sing about the heat death of the universe. Their stage-lighting is red(shifted). It's a nice touch. Don't be jealous. I—listen to nerd rock a little bit. Not all the time. A little bit. 'Nerd rock' is a really disingenuous name. Let me guess. You are less into Nerd Rock as a genre than you are into people who were writing music in the 1700s. That's the vibe I get. [Explanatory aside: the *Thucydides* may have something to do with me receiving that vibe, I think.]

I am drinking tequila. Oh GOD this email is going to be long. Part of the reason for that is: full disclosure, I'm currently out on the town, at a bar, with Kat, as, like, a confused wingman, of sorts? I didn't *realize* that was going to be part of the deal? I'm here under false pretenses. I've definitely been turned into an accessory to Kat's attempt at trying to get it on with the hottest little number in the Department of Biochemistry (here read: a newly tenured faculty member with attractive hair and notably fashionable shoes). Consequently, I am now responding at length to a very important "work email" while Kat and Liz stare deeply into one another's eyes and talk about the broader cultural influence of *Radiohead*. It's going well. Kat says to say hi, by the way. She says you have notable hair. What's notable hair? Don't ignore this question. I *really* want to know.

Do I read Darwin. Well, short answer: yes. Long answer: no. Here's the thing. I read *The Origin of Species* out of a sense of professional obligation, and I liked it—I remember especially liking the chapter involving bees and hexagonal honeycombing? Honestly though, it's not the kind of thing that really yanks my extracurricular chain, if that's not incomprehensibly idiomized. There are two reasons for this. If I'm reading for science, I like my science to be crisp and contemporary. If I'm *not* reading for science then I prefer to be not reading for science. I tend to gravitate toward tales of existential torment, so for highbrow I go with Nietzsche, for middlebrow I go with Lovecraft, Stephenson, and Philip K. Dick, and for lowbrow, I go with...well, no need to go *there* at this point. I am embarrassingly well versed in manga. I have taken a strange interest (that I cannot explain to you) in scientists screwed over by their contemporaries and historical figures who have been scooped/screwed by bigger-name scientists. Rosalind Franklin, Alfred Russell Wallace, Lise Meitner, Gottfried Leibniz. The list goes

on. I wish I could give you a psychological explanation for this, but, alas, I can't. I'm neither particularly worried about being scientifically cast aside nor about misappropriating the quantitative/empirical spotlight. I just—*feel badly* for them is the bottom line. Like you and your exiled authors? Maybe. I don't mean to presume.

Now that I've found myself pointed back in a vaguely science-ward direction—Kaiju Blue. Capitalize that Proper Noun. That's the way to go. The stuff terrifies me; I'm not going to lie. I'll lay out what's available in the current literature, which is almost nothing, so don't get excited.

One. Yes. Aerosolized Blue can pass through standard issue respirators. There was some speculation early on that it wasn't passing *through*, that it was actually an organic solvent that could permeate human skin, but ah, you remember the PI from UCSF who took his lab out to collect samples? Well, after they died, a lab in the same department retrieved their personal protective equipment, hermetically sealed it, and sent it to the CDC, where it was re-opened in a biolevel four lab. I'll send you the paper in which they describe this. Anyway, Blue was found *within* the filter. No one's been able to perform chromatography or mass spec on this stuff yet, but it's got an interesting chemistry to its aeorsolization. You need a mask with a *ridiculously small* filter size prevent breathing the stuff in. But industry has stepped up and started producing the things. You can already buy them from two companies. For research. And for cleanup. It's going to be hard to do arduous work in them because if there's any particulate matter in the air those small pore-sizes are going to clog and make it impossible to breathe.

Two. The epidemiology data are just—really depressing.

Three. The epidemiology data are unequivocal. Uniform lethality with time to fatality directly proportional to extent of exposure. [An anecdote: the bass player in my band was interviewing for a post-doc at Berkeley during the *Trespasser* attack. He was exposed to Kaiju Blue and didn't make it. Awfulness. Just, total awfulness. He emailed me a first-hand account, called me a few times. I think mainly out of a desire to make his death contribute to an understanding of the interaction between an exobiological toxin and human tissues and I seemed like the go-to guy at the time? We weren't *extremely* close, more like science buddies with similar musical tastes, who rocked out once per week, but *god* it was distressing. It would have been distressing if I hadn't known him at all. Anyway, *verylong* (and overly personal) story short...I ended up passing the entire thing on to a colleague who's an MD. He wrote it up as a case report. So ultimately, my friend absolutely *did* contribute to science, but god, I mean really I mean *god*.]

Four. I'll keep you posted, because as unsettled as I was by the whole thing, it's kind of my area. Or, it will be. It is. I'm already doing it. I'm not—well, I'm just not going to work on Blue (specifically) right *now*, primarily because I don't think I could handle it if one of my graduate students died. Like they did *not* sign up for that level of shit. They signed up for preventing neoplastic transformation.

It's raining outside, and it's three in the morning here. All my vibes are stochastically favorable and Berlin-directed, Sir. Good luck with your funding pitch and I will shortly send you another round on your notes re: my notes re: your notes. I am slightly too intoxicated to be mathing in the immediate present, but certainly not intoxicated enough to be late for a nine AM thesis defense. Good vibes to graduate students, every one.

Oh. And for the love of secular humanism will you please address me as,
-Newton

Dear Dr. Geiszler,

Much though I appreciate your Berlin-ward vectored well-wishes, I regret to inform you that they were insufficient to persuade my department that I should be granted a year of discretionary funding in order to pursue a project on the mechanics of the rift at the bottom of the Pacific. The objections to my proposal seemed to center around two themes. The first was the lack of sufficient evidence that there is any distortion of space-time at the site in question. I suppose this is a germane point. I attempted to combat it not with data (all of which I had already presented), but with a cost/benefit analysis of pursuing the project. This did not avail me very well, I regretfully admit. The second objection was that the intellectual course I am attempting to set for myself is potentially unrelated to my field of inquiry and therefore a possible dead-end when it comes to my career (and a sizable allotment of available 'crush' funding—that is the best translation I can come up with; it is somewhat peculiar to our particular department—but it is meant as a bridge to support transitioning investigators). I countered that, as no extant scientific fields can currently explain the events of last month, such an argument would preclude all research into an extremely topical natural disaster. The meeting lasted three hours, prolonged due to my stubborn refusal to let them out of the room and their strange reluctance to go until they had convinced me of the error of my ways. Suffice it to say, they were unsuccessful in this. Should I wish to continue pursing my present course, my academic options at TU Berlin appear to be limited.

You asked about my personal history. I assure you it is a nearly conventional story. I say nearly because my attendance at a Mathematisch-Naturwissenschaftliches Gymnasium was, perhaps, briefer than one might expect due to childhood illness combined with accelerated private tutoring. I matriculated early at University and then spent a year between University and my graduate studies pursuing an alternate career pathway that was ultimately not a viable choice for me due to physical requirements I was unable to meet. I ultimately settled on the pursuit of mathematics. As you can see, my personal history is not particularly notable. My presentation of myself in text to an American scientist that I've never met may be significantly more unencumbered by the trappings of institutional hierarchy than my exterior comportment in reality. If only you were making funding decisions at TU Berlin. Ah well.

So you are not a reader of Thucydides. Possibly you should be. I do not know quite how to express myself without sounding overly familiar or overly melodramatic, neither of which appeal to me. Nevertheless, I will proceed. It struck me that there was a palpable sense of unrest in your last message; I will elaborate no further, I will only say that I, too, have felt extremely unsettled in a personal, societal, and philosophic sense by the appearance of Tresspasser. I take no comfort in the specious, vacuous, wandering suppositions posed by media pundits. However, I very much appreciate sharing the narratives of those who faced similar levels of uncertainty with an equanimity I would like to emulate. As an illustration, I include this passage, which resonates with some of my darker thoughts of late:

"In other respects also Athens owed to the plague the beginnings of a state of unprecedented lawlessness. Seeing how quick and abrupt were the changes of fortune which came to the rich who suddenly died and to those who had been penniless but now inherited their wealth, people now began openly to venture on acts of self-indulgence which before they used to keep dark. Thus they resolved to spend their money quickly and to spend it on pleasure, since money and life alike seemed equally ephemeral. As for what is called honour, no one showed himself willing to abide by its laws, so doubtful was it whether one would survive to enjoy the name for it. It was generally agreed that what was both honourable and valuable was the pleasure of the moment and everything that might conceivably contribute to that pleasure. No fear of god or law of man had a restraining influence. As for the gods, it seemed to be the same thing whether one worshipped them or not, when one saw the good and the bad dying indiscriminately. As for offences against human law, no one expected to live long enough to be brought to trial and punished: instead everyone felt that already a far heavier sentence had been passed on him and was hanging over him, and that before the time for its execution arrived it was

only natural to get some pleasure out of life. This, then, was the calamity that fell upon Athens, and the times were hard indeed, with men dying inside the city and the land outside being laid waste."

You can see why I sent you this, I'm sure. While this is an excerpt from Book 2, I am finding the entire account to be acutely, painfully, counterintuitively relevant. It is a clear-eyed view of a flawed city that an exiled man so clearly loved. It's a story of stochastic disasters, the misappropriation of resources, of deeply flawed, charismatic leaders. If you find yourself in the mood to engage with such a thing at present, I suspect it might strike a chord for you. What particular chord variant it might strike I can't say, because I don't genuinely know you (at present). In any case, should you be inclined to elaborate regarding your experiences during and in the aftermath of Trespasser's landfall, please feel free. I assume you were in Massachusetts at the time? I spent most of the attack watching international coverage, like nearly everyone on the planet. I will never forget my labmate's tone of voice when she looked up from the screen in her hand and said: "something's come out of the ocean."

Give all my best to Dr. Meyer, and also tell her I'll thank her to stop maligning my perfectly respectable hair.

*Sincerely,
Hermann*

Dear Hermann,

I'm dropping your title even though you didn't drop mine...apologies. I suspect that you might be waiting for me to drop your title before you drop *my* title because you view me as a step (or two) up on some invisible, international, cross-discipline Science Hierarchy, but, full disclosure, I'm not a hierarchical guy. That's not my lifestyle. I can do the formal address (I suppose) if you feel strongly about it, but if you're going to send me long passages penned by dead Athenian exiles you're going to need to justify a continuing preference for the use of honorifics (if such a preference exists) because those two things seem mutually exclusive to me.

I am outrageously, just *outrageously*, irritated on your behalf. Not *surprised*, alas. Here's my question for you though—why are you applying for money from your department *at all*? Why aren't you applying directly for an external grant? Ideally, a transitional award of some kind? You've defended, correct? Wrap up whatever remains of your doctoral work and go. Do a postdoc, *don't* do a postdoc; *someone* will, *for sure*, fund you to do this stuff. If not within academia [discursive aside:

someone/somewhere within academia most certainly *will*, by the way] then outside it. Ugh. As I think about this—what you've said, what I'm saying—as I'm thinking about the entire thing *critically*? I'm getting the definite vibe that there's something *else* going on here; some other subtext of which I'm unaware. So. Spill. [Obligatory aside: if you'd like to spill.] If I were to speculate I would say that you're tethered in some way either to TU Berlin, to your department, or to your particular thesis advisor and that tie is personal in nature. Because if it weren't, there's no reason to persist in courting a department that isn't taking you seriously. I'm sure I don't need to tell you that; in fact I should probably delete this entire trail of speculation but I won't, only because I'm somewhat concerned that there's something—professionally untoward going on, and there are a lot of barriers to discussing that sort of thing within academia, not the least of which is it's essentially an apprenticeship-based system of education with unequal power dynamics that can be and are exacerbated in a multiplicity of ways by the occasional dick/creeper of a feudal science overlord (PI). Okay, I'm done now. But details. *Details*. Let's have it.

This email took some time for me to put together, apologies for making you wait. I struggled with how to word a personal account of August tenth through August sixteenth, and I never did come up with a variant I was satisfied with. Ask me again down the road. For now, suffice it to say that when *Trespasser* actually made landfall I was most of the way through proctoring a tissue engineering final. Turns out, because of the somewhat insular bubble of academia, I didn't actually *hear* about what happened until maybe an hour later, while giving my typical spiel on the Geiszler Lab to my department's new grad students. I was halfway through outlining the novel signaling pathway we'd just identified when one of them said something like, "holy shit," and I said something along the lines of, "I *know*, right?" but she was less talking about my science and more about what was happening online. She said, "something is attacking San Francisco," and I said, "something? Some *thing* is attacking San Francisco?" and then she said, "yes—like—a sea monster?" I then said: "A plus for attitude and interest sets; D minus for topical relevance; monsters are cool, it's important to have hobbies, but a little more focus please." At that point though, everyone else had started checking their phones, and pretty soon we were all watching the thing live on my laptop. Me and a room full of terrified baby academics trying to take the whole thing like champs, practicing professionalism to varying degrees. It was awful. Two out of eight of them were from California, including the kid who'd interrupted my lecture. Apparently she'd been texted by a family member in Pasadena. Her twin brother, who was at Caltech. He died the second day. She's

rotating in my lab. Her name is Lisa. This is why I'm not telling you the whole thing. It's a little too soon and I feel uncomfortable with what happened, uncomfortable with the coexistence of my personal academic passion [politically incorrect aside: that thing was, biologically speaking, *amazing*] and the horrible social sequelae of the aftermath of K-day.

As for Thucydides, you've won me over. *He's* winning me over as well. I liked him right from the beginning. I'm up to Pericles' Funeral Oration: "...the man who can most truly be accounted brave is he who best knows the meaning of what is sweet in life and of what is terrible, and then goes out undeterred to meet what is to come." I don't feel like I even need to annotate that one. It stands on its own.

Attached you will find the next round of my notes on your notes on my notes on your draft. Happy Quantum Field Tuesday; you have been science charm'd.

You had better address me as,
-Newton

Dear Newton,

I feel the need to provide some sort of explanation for the document I am attaching. You have now sent me two rounds of extensive comments and I feel that I am beginning to gain an understanding of the seat of your approach. You are relying on a limited knowledge of certain properties of quantum field theory (derived from your experience in physical chemistry and also, no doubt, from your conversations with Dr. Meyer), but you are trying to fill in certain gaps in your understanding by extrapolating from what you know of classical field theory. Entirely understandable! There is also no need to remedy this, as I can see what you are attempting to convey. However, it occurred to me that you might want to extend your knowledge base. It also occurred to me that extending your knowledge base might open a few conceptual doors. I have, therefore, provided a short (by some standards) introduction by adapting a set of four lectures I developed for the Masterstudiengänge at the Physikalische Institute. I have tailored it to your specific skill level and interests, but I think it should provide you with a grounding that is significantly more broad than your conceptual array appears to be at present. Feel free to read it or not, according to your time and interest level. It is certainly not necessary; I will continue to read any future comments with interest. Also, do not take this as a negative judgment on your proficiency level. You are not a quantum physicist, but you might have been one. It is extraordinary.

As for your speculations regarding my current situation at TU Berlin—you are correct, or you are, at least, an approximation of correct. My current difficulties stem from a family situation. My father is a prominent scientist with a position of some import within the Bundesministerium für Bildung und Forschung (BMBF). [I have been meaning to ask you—you stated you could read German—are you a native speaker? Because if you are, I would prefer to be conversing in German.] He wields considerable influence at TU Berlin, and while he is extremely interested in the biology and physical origins of Trespasser he is disinclined to see me hitch my personal career to an aberrant, sensationalistic event. He and I came to an agreement, of sorts, when I was seventeen. He agreed to financially support me while I pursued my choice of profession to the extent I was able to do so, sans any interference; but should I fail we agreed that I would attend TU Berlin. As I mentioned, I was ultimately rejected from the experimental aviation program I began at age seventeen, and so, true to my word, I enrolled at TU Berlin, where I have, thus far, been very well mentored by my thesis advisor who also happens to be a close friend of my father's. It is only now that I am running into professional difficulty because of this association. I should have known better, but I must admit to not thinking entirely clearly at the time I matriculated at TU Berlin. So when I say that I am being opposed by my department, I do mean this, in as far as it goes, but I also mean that my department is in large part funded by a governmental branch that contains a member of my own family who has, ostensibly, my best wishes at heart and an unfortunate proclivity for interfering in my affairs. I will spare you a quarter century of detail on this count. Enough of this entirely.

I have never had any particular interest in biology. I think this comes in part because of the lack of quantitative rigor within the life sciences, and also because I have a personal dislike for the medical establishment, having interacted with them far too many times at an impressionable age. However, I have been inspired by your notes on my manuscript to look a bit further into your corpus of academic work if only because I am curious as to where you've been expending your intellectual resources, if not the field of quantum mechanics. I have confined myself thus far to your work in tissue regeneration, specifically focusing on your paper from 2010, which is the paper that contains the first description of the novel biochemical pathway you mentioned in passing in your last email. The experimental complexity and sophistication of your paper makes me relieved at my choice of mathematics; it seems though that you are not unique in this—I picked up a copy of Cell yesterday and nearly every article seems to have the idea density of a post-modern novel and require the GDP of a small nation. It is not that the reading in my field lacks density—far from it; I had just, underestimated the sophistication of cutting edge life science. In addition, I have been specifically looking for commentary upon your work

within the broader scientific community and it seems that it has been quite well received; well, this is certainly an understatement—I had no idea you were so prominent. Were you aware that there is an editorial in Science this week, written by the staff of the journal that outlines a set of personnel recommendations for the soon-to-be-assembled Joint Exobiology Task Force? Were you aware that you are their second-choice pick for Chief Scientific Advisor? I'm certain you must know. Do you know the woman who is their top choice? She appears to be a direct competitor of yours. I suppose what I am trying to say with this series of rhetorical questions is that I would not say no to some elaboration on these topics. (By which I mean your work, your professional milieu, and your future plans.)

*Sincerely,
Hermann*

Dear Hermann,

Soooo, just to be clear:

One—you wrote me a personalized textbook by hand.

Two—your original career plan was to be a test pilot for experimental aircraft?

Three—your *father*, the German *Cabinet Minister* is the one who's been brain-blocking you??

This is too much for me to take, you have to prepare me for these things, you can't just drop them like rocks, I'm somewhat excitable,

-Newton

Dear Newton,

One—you are grossly misrepresenting my notes.

Two—yes.

Three—yes.

Please explain your email in an expeditious manner,

Hermann

Dear Hermann,

Will you give me *five seconds*? I'm writing expeditiously, Sir. Also? No, I will *not* chat in real time with you, so don't you dare ever, ever ask me. Not ever. You'll ruin my life. Get out of my inbox and go to bed; it's three AM in Berlin.

-Newton

Dear Newton,

Duly noted.

-Hermann

Dear Hermann,

One. You're going to have to parse this whole thing with your father and your department a little bit further for me because it's extremely interesting and I am tempted to say all sorts of things that I will not *actually* say at this point, unenlightened as I am regarding the context in which all of this is taking place. I *will* say that this makes *so much sense to me*, and I will guess that you thought you might be able to tap into your department's discretionary funding and circumvent a doomed grant proposal that no one will put their name on with you because of fear of political reprisal? From your *father*, no less? That sounds terrifying. That sounds like a really difficult position. That sounds like a total mess. That sounds like a thing that's not your fault. Are you sure this whole situation can't be torqued to your advantage? It's probably too soon for me to be metaphorically machinating in your general direction, but you've got a giant personal fulcrum; you've just got to reverse the direction of leveraging, if that makes sense. I will stop talking about this now. I suppose I'm just surprised that *this* is the nature of the weirdness you're encountering, because your description of departmental stagnation sounded so much more pedestrian at a first level of approximation. Your father politically trying to influence your science career is *less* pedestrian. That's the thing about first level approximating, am I right? [Editorial aside: I'm right.] The weirdest part about this (in my opinion) is that your father seems to be trying to shove you in a theoretical pure math/pure physics direction, rather than toward a practical real world application. That seems...almost, *nice* of him? I suppose I wouldn't want my biological offspring to go after sea monsters? [Accuracy aside: that's a lie. Yes I absolutely would be so proud if Little Sally became Captain Nemo. (Um, I do not have a child. If I had a child, I would not name it Sally.) Although I would deeply question my parenting skills if Sally became unreasoningly obsessed with living at the bottom of the sea and acquired some anti-Imperialist tendencies that were so extreme that...wait, now that I've put it this way, it seems like I was a *great* parent. Rock on Sally. I'm getting off topic. So, Sally can wait. She knows it's too late as we're walking on by. Her soul slides away; don't look back in anger I heard you say. (I just

quoted *Oasis* lyrics at you re: my hypothetical and monomaniacal daughter; I am so ashamed; but I also know what I'm singing tomorrow when Dr. Meyer and her new girlfriend drag me to karaoke.)] In any case, I'm glad your PI isn't behaving like an absolute dick and you're not in some kind of indentured science servitude. This is disorganized. Tell me more and I'll tell you more.

Two. Experimental test pilot. Experimental *test pilot*? Do you realize—like, I seriously have the urge to yell in your face: 'do you understand how *dangerous* that is?' But I'm assuming you've heard this multiple times so I won't do it. It's hard for me. I'm always dispensing unnecessary life advice to graduate students. I will suppress the urge. This career option, aside from being ridiculously lethal also has a streak of badassery the width of a light year? I feel like I'm having a hard time putting together a complete picture that encompasses you, Thucydides, your uber-suave quantum field theorizing, and the experimental test pilot thing; who *are* you even? I don't understand how you can get more interesting all the time; you'll have to tell me how to do that; I, like almost all humans, definitely become *less* interesting with time; literally everyone agrees. Your mystique trajectory is skyrocketing. All this commentary probably seems wildly insensitive given the outcome of your initial career plans. I'm so sorry. I'm sorry that you had some kind of physical limitation placed on your personal/professional goals; that is the *worst*, that is so unfair, that should not be allowed, I hate being trapped by my genes on the level of the individual, the group, the society, the species. It's such a striking biological insult; that locking of the conscious mind to a transient arrangement of carbon. Striking like a work of art, striking like a slap in the face. Like getting turned into sea foam as a consolation prize in the original version of *The Little Mermaid*. I can empathize. I can sympathize. I can feel your position at least a little bit. [Explanatory aside: my stupid brain has the habit of locking me into certain psychological states that may or may not be professionally and personally advantageous.] No one wants details, but gestalts are always pretty, with that smooth slide of a generalized edge; so, in that vein, sorry about the epic suckage of life, man; I resonate right on that frequency, I really do.

Three. I'm probably not conversant enough to switch to German—or, put another way, I'm not as capable of expressing myself in German as you are in English. I lived in Berlin and spoke exclusively German until about age seven, at which point it became very apparent that I was not jiving well with German primary school education. I went stateside, where my mother managed to pull some strings to sort out an educational situation for me that was a bit better suited to my personality and skillsets. So, my spoken German is respectable; but my technical vocabulary is lacking. I do not, for

example, know how to say 'Quantum Field Theory' in German. [Editorial aside: this is part of what is taking me so long to get through your thesis. In a year or so I may actually have the technical vocab amassed to swap away from English.] On the subject of families; I do not have the closest relationship with mine. My mother is actually a little bit of a celebrity depending on the circles that you run in. Her name is Monica Schwartz. Google her. I've spoken to her about twenty times over the course of my life; she likes the *idea* of me (most of the time), and I like the idea of *her* (most of the time), but that's about as far as it goes. I know my dad a bit better—he was less of an intermittent global enabler than a more frequent local enabler; but it was really my uncle who raised me. This is because at the time I was born both my parents were married to other people (not each other). That was awkward for them. My uncle stepped up to the plate for reasons that I've never entirely understood; I think he may just have an overactive sense of responsibility. That, or I was really adorable before the point that I started speaking. Anyway, he's the guy who gets a call from me on holidays, not my biological parents.

Four. I feel like I have lost track of so many conversational threads. I have been meaning to mention JET Force to you, but I'm going to defer this discussion for now because it will be more meaningful to talk about it a few weeks when all the bureaucracy that's in the air has had time to crash to the ground and the subsequent dust to settle. In the meantime I will say that yes, I did see that article, it was, in fact, tacked to my office door by someone in my lab with 'don't you dare' written in red sharpie with all caps. I don't think my lab fears me like they ought to. I'm always trying and failing to inspire fear, Machiavelli style. [Accuracy aside: that is an absolute lie; I'm just bitter right now because I took them paintballing a week ago and they all turned on me in some kind of preconceived plan; my clothes were ruined, and my lab manager had to drive me home because not all my joints were working anymore; how dare they issue me ultimatums after that kind of thing, I ask you.] I *do* know Dr. Anderson. Yes, she is my principal competitor and she likes to go after me with casual ad hominem within our group of collective peers; which I haaaaate. There are different kinds of science-styles but the one she's using has got to be my least favorite. She does good work (I *guess*); sometimes our results don't perfectly jive, but that's the nature of the empirical beast, and the field will hammer it out as it paves down the current paradigm; I just happen to not appreciate the attitude she brings to bear towards *me* specifically. I think she's a little bit afraid of me and so she's trying to cast me as someone who'll be a great scientist in ten years or so when it's time for her to retire but that's just her personal spin on the reality of the situation, which is that I am,

at worst, her peer, and at best, peerless (ha). [Editorial aside: I'm a little bit arrogant; so sorry about *that*.] This would bother me *less* except for the part where she's the number one JET Force pick, probably partially *because* of Geiszler-directed condescension. People internalize that garbage and it is just. Maddening. She's trying to get the larger cell biology community to think of me as a rising star with a lot of potential, which is annoying because sure, that's true as far as it goes, but I'm also kind of in my prime *already*.

I am excited to read your Quantum Field Bedtime Story.

Very
Newton

Sincerely,

P.S. Seriously though, 'notable hair'? What is it? I already tried to google you like a creeper and you must be social-media averse or have everything locked down because I cannot find anything, though I didn't look very hard.

P.P.S. If you were an aspiring pilot are you, by any chance, a gamer?

P.P.P.S. The Athenians are about to launch the Sicilian Expedition and I have a bad feeling about this. I have a *great* feeling about Alcibiades though. Love that guy. I'm sure nothing will go wrong when *he's* involved.

P.P.P.P.S. I'm feeling really nostalgic about Nonexistent Sally right about now.

Dear Newton,

Do you know that I own a recording of Puccini's Tosca from 2004 with your mother on the cover? I am looking at it right now. It was given to me by my sister Karla, who saw her perform a decade ago, in London. Several messages ago you speculated that I would prefer music written in the 1700s. Puccini, however, was not born until 1850, so you'll need to modify the bounds of your estimation. I do, admittedly, prefer classical to contemporary music. I am particularly fond of early twentieth century composers—Stravinsky, Debussy, Ravel. I am terribly curious—did you inherit any of your mother's innate musical talents? You very briefly mentioned that you have a band several messages back. What is it that you play? I have always greatly admired musical skill because I never possessed it myself. I was a mediocre violinist for years before I finally gave it up. I don't lack discipline, but practicing failed to hold my interest and willpower is a currency I considered best applied elsewhere (in my case).

Are you genuinely interested in the details of my relationship with my father? I can't imagine that you are, and yet, I find myself terribly curious about the minutiae of your

personal history, if only because I find your observations to be compelling; not only when it comes to quantum field theory, but universally. You have an unusual way of looking at the world. You must know this about yourself. I hope that you know this about yourself. If you still want a second approximation of detail regarding my father and his habit of exerting unwanted influence on my career trajectory, I will give it to you. But, as you've been rather sparse on the particulars of your own personal life I'd rather not overstep the bounds of familiarity. Because, were I to describe the entire situation with the level of detail you seem to be requesting, you'd likely receive something of an abbreviated biography given that so many of my life experiences are tied up in my relationship with my family.

The piloting of experimental aircraft is much easier to explain. Yes, of course it would have been dangerous, but no more dangerous than hands-on-exobiology (specifically JET Force) is likely to be. I enjoy the idea of pushing exploratory boundaries. This is, of course, the connection between cutting edge aircraft and cutting edge mathematics. There is nothing so mysterious about any of it. I am simply a lonely wanderer of the outer edge of humanity's purview, keeping myself company with like-minded others who happen to have lived hundreds of years ago. Hence, the Thucydides. All of it is logically consistent when viewed through such a lens.

Speaking of Thucydides, tonight I finished the book. It is beginning to feel like autumn here; the odd precocious Linden tree has begun to turn yellow and the nights are growing cold. For the first time in months I had to close a window. In the immediate aftermath of finishing Thucydides' account I find myself possessed of a bit more mental equanimity. His city fell, but it is remembered all the same. Humanity as a whole has endured things of great scale and scope. We lose what we had in gaining what we are. Given that loss is a requisite part of change, even so, some of us remember Pericles.

Sincerely,

Hermann

P.S. For the last time, my hair is not notable.

P.P.S. I am not sure that I know what you mean by 'gamer.'

Kingmaker

Caitlin Lightcap stands in a small and underutilized ladies room, head bowed, arms crossed, touching nothing, staring down at her shoes. She waits here with herself because it is not yet time to go. She is never early. She is never late. If one is early, then one is not punctual. She is punctual. It's important to her. Punctuality. So what. It's not a big deal. It doesn't *mean* anything. It doesn't mean anything in general and it doesn't mean anything *now*; it's just who she is. It's just how she is. Those Protestants. It's their fault. Maybe it's not their fault. She'll have to ask her father about that one. The Calvinists, maybe. Or maybe just the person who first invented an accurate timepiece. Other eras had other problems.

Lightcap wishes she was a sailor, tackling the problem of arc seconds of longitude.

Or a pirate maybe. She probably would have had to be a pirate's whore. That's depressing. Maybe not. Maybe not if she was good enough with a sword. She is pretty *fucking* sure she would have been good enough with a sword. *Mutiny!* she thinks bizarrely. *The captain's wench hath taken up a cutlass! All must fall in line or be consigned to a watery grave!*

Her phone vibrates in her hand.

It's time to go.

She stands there.

It's time to go.

Time to go. Time to go, Lightcap, Caity, angel-child, darling, most brilliant, last of her line, first in her family, the prettiest, the bravest, the smartest, the best, the best, *always* the best, even in closets, even in corners, even under desks, even in bathrooms, staring at her shoes.

There have been times, of course, times in her life, when this would not have been possible.

But it is possible now.

It is.

She knows it's possible because she's here. She's here already. The record plays on. The disc hasn't yet skipped. And it won't. She's not caught in a track. She's playing the album. Right through to the end. Track one: Cait Awake. Track two: Lightcap More Like

Showercap Am I Right. Track three: Exit Definitely Does Exist. Track four: Water Leaves Hair/Hair Leaves Apartment. Track five: Farewell to Cat. Track six: Alive on I-495. Track seven: Metal Detector.

That's an album that's shaping up pretty well. It's no *Abbey Road*. It's no *The Rise and Fall of Ziggy Stardust*. It's no *Nevermind*. But it's a weird little gem in the garbage of recent days and weeks. Oh look, there's some fused volcanic glass in this post-eruption ash pile. Oh look, there's a little album by a little band that she found by happenstance inside a computer apportioned to her by an ex-lover.

Superconduct, she thinks. And supercollide. One two three four. Two two three four, three two three four, four two three four, go. One two three four, two two three four, three two three four, four two three four, go. One two three four, two two three four, three two three four, four two three four, go. One two three four, two two three four, three two three four, four two three four, go. One two three four, two two three four, three two three four, four two three four, fucking go, Lightcap go go just go. Just go. She's better than this. She's better than this. She's better than this. She's better than this she is; she's better.

She's afraid.

Erase that thought. Count to four, erase it, and get another chance. Count to four and get another chance. Count to four and see.

One two three four.

She's not "afraid," she wouldn't know fear if she felt it and so that's not what *this* is; this is something else. Categorically, it's not fear because fear is not a thing she feels. She jumps straight into the teeth of anything that might consume her and so this thing, this thing that she feels, well, this is excitement, this is pressure, this is a hyperbaric chamber of the consciousness, this is familiar, this is appropriate. This is so important and that is why she needs to go. She needs to go and she *will* go.

She won't get stuck on track nine: Bathroom Pep Talk Slash Inappropriate Pirate Fantasy.

Lifting her head, she looks at herself in the mirror and she is beautiful; as beautiful as she gets and she gets very beautiful. Her hair is tight back against her head and her glasses are clean and there is no lipstick on her teeth and there are no lines in her unfamiliar new suit. The love child of Eris and Aphrodite, skating on a shell, playing only Chell—

She can't do this.

She'll fail.

Thinking of failure *is* failure.

No it's not. Erase it.

Count to four and make another chance.

Count to four and *take* another chance.

On the fifth four she'll go.

One two three four, two two three four, three two three four, four to three four.

She goes.

Lightcap dries her hands, straightens her spine, pulls herself to her full height and strides out of the ladies room, her black stilettos cracking against the floor like the measured, repetitive cracks of a measured, repetitive cracking thing. Glaciers calving on a timer. A pencil snapping metronome. This will not be the hardest thing she has ever done but it will be hard.

It will be hard.

Things that matter can be like this, she remembers her mother whispering, beautiful nails combing through Lightcap's hair in the dark. *I won't say that they should be like this, but they can. You can let them be this way. It means you care, baby. That's all. It means you care. That's all we have really; the caring about things. That's what makes us all the same. That's what makes us all a part of God.*

When she wears heels she walks in a line, pushing off, swinging her back foot out and around in an arc to land in front of the new back foot. It's lucky. It's lucky to do it that way. To walk in a line. In high heels, walking a line looks right. The higher the heel, the righter it looks. The arcs of her steps slow her down, make her look better in a skirt. Comportment isn't everything but comportment is something. It must be; attractive people have a better lot in life, everyone loves to stare down a double-helix, and Lightcap owns the phone she owns because she finds it beautiful. Medium and message. Her shirt is pale pink but her jacket is black and her skirt is black and her shoes are black and her bag is black. She wears no jewelry and her nails are bare.

Crack crack crack, her shoes against the floor.

Crack crack crack, toward a nearing door.

You can do this, Cait, Jasper had said, weeks ago, over the phone. *No one can do this but you. No one. No one but you.* She had been standing in her kitchen in bare feet, a spoon of peanut butter in her mouth, her cat half wound around her left ankle, her

phone in her hand and her gaze directed out, across the Potomac, towards the center of the city. Yes, she had said, swallowing peanut butter. *You might be right about that.*

She counts her final four steps to clean the slate in her head.

With a lifted hand and a well-timed step she blows through the doors like cyclone, making an entrance, making heads turn, making conversations waver. She smiles into this entrance that she's made; it's who she is, how she feels comfortable, a way to drive a crowbar underneath a waiting weight. She's the last to arrive and she scans the room rapidly, identifying her seat in a fraction of a second just as Jasper says, "Cait," like she's a long lost friend, an academic rockstar, and the most important person he knows not the person who had screamed at him in the middle of his ten AM Tuesday morning lab meeting two years ago. That's great. Jasper can do things like that. Things like forgive people and forgive himself and work on repair jobs just as assiduously as he can swing a wrecking ball. Lightcap isn't like that. She doesn't have the eye or the hands or the time for fixing little broken things so they can have a purpose. Generally speaking, she rips them apart and builds anew from scratch.

An array of uniformed shoulders shift to take her in as she rounds the table with its warm wood paneling, its built-in lights.

"You magnificent bastard," Lightcap says, extending a hand to Jasper so that he can't hug her. "So this is all it takes to get you to DC, then? A disaster of apocalyptic proportions?"

"Gentlemen," Jasper says, "Dr. Lightcap. Dr. Lightcap, gentlemen."

"Hello room," Lightcap says, addressing them all with a dry brusqueness, pulling her tablet out of her purse. "I hear you're looking for non-nuclear anti-xenobiological options; shall we get right to it?"

They don't let her start immediately but she's won them over all the same. She keeps their attention, interjecting commentary into introductions, into the setting of the afternoon's agenda, into the discussion of the merits of the Defense Department's coffee, because she is taking risks, she is swinging straight for the outfield; if she comes back from this it's going to be victorious or on her own shield; they'll love her or they'll hate her attempt to *makethem* love her but she has to try. Her science is sound but that doesn't mean she doesn't have to sell the idea, sell her certainty, sell the ethos, sell the passion; but that's not right at all—there's no *selling* here, there's only giving. They've given her half a day and in return she will give them everything she has, everything she is, all that she can and might be, because there's no point in holding back, this is her one shot, and everything, *everything* depends on this. So she *shows*

them who she is, she makes her witty asides and she makes her emotional appeal and she talks quickly and clearly about the state of robotics as it is, and the state of robotics as it *could be* with a massive influx of funding, and she makes herself into all that she will have to be to pull this off. She holds her best self together and, in the end, she strips it of everything except her pure, fiery certainty that she will make her vision real.

Tell me about a time you've failed, Caitlin, they'd said to her when she'd interviewed at DARPA. And she said to them, *I've never failed.* And it had been true because they hadn't asked her about pain, about what she paid for a perfect track record.

It's like in the book, her mother had said to her, sitting in the closet, knee-to-knee with Lightcap. *It's not your fault. It's just part of life for you. It's like how in The Neverending Story Bastian can change things but every time he does he forgets a little bit of his life. It's not his fault that he forgets and there's nothing he can do about it. It's just a thing that happens as he makes wishes. It's part of the package. He has to do his best anyway. Like you. Do you know what I mean, little bug?*

She runs ninety minutes overtime, fielding questions. They like the idea of robotics. They like the idea of the Jaegers. They like *her*. They are concerned about the limits of the human nervous system, but only because *she* is concerned. They understand what she can already see—the towering outline of a machine that could combat a xenobiological lifeform on its own terms, without nuclear fallout, without risk to existing military investments.

When the silences between interjections begin to grow longer and thicker she says, "If there are no more questions, I'd like to say one more thing before this meeting adjourns."

No one speaks, and she feels the weight of their collective attention focus to a new frequency. She rests her hands on the cool, planar surface of the table and leans forward. In her head she runs a quick and quiet four count.

"A Jaeger is a mechanized solution to an organic threat," she begins, holding their attention with the roving magnet of her gaze. "It takes its form from the nature of that which it's designed to oppose. It tests the limits of human ingenuity. Human ingenuity that has not yet failed our species. It's fitting. It's right. It will work. It's a direct and proportional answer to a novel problem. It's worthy of our collective resources. Worthy of our sustained effort." She drops her eyes then looks back up. "That's all," she says.

She collects her belongings in a single sweep, and strides out of the room without looking back at the table, without waiting for permission to leave. She passes through

the doors, leaving a silent room behind her, counting the deliberate double-beat of her own steps, the strike of her heel and toe in near simultaneity.

One two three four, two two three four, the corridor stretches long and lonely and abandoned ahead of her, a dystopian tunnel in a five sided building with wide hallways and fluorescent lights, three two three four, four two three four, five two three four, twenty steps gone and no one has called her back. She wants to run, she wants run out of this building and across the parking lot, get her car and drive home to her cat and her music and her four walls that don't judge her and to a shower that will peel off a layer of her skin and to a new bar of soap and a dark room and a bottle of wine she'll drop on her floor and not by accident; she doesn't want it to end imperfectly, she wants the end she wants; is that so wrong? There's nothing wrong with that. *Nothing.* Nothing. Six two three four, seven two three four, eight two three four, nine two three four, ten two three four; forty steps. Forty more and she'll be at the security station.

I understand that you can't let it go, her mother had said, but just—try anyway. Try a little bit. And even if you can't let it go, it's okay. It's okay if you can't. We all live with who we are.

She's twenty steps out, maybe nineteen, maybe eighteen, when she hears someone she doesn't know call her name.

"Dr. Lightcap."

It's strange, it's not a question, it's not a command, it's delivered in a rising tone of warning that makes the back of her neck prickle with some kind of portent—propitious or ominous; it's impossible to say. It's a man who speaks, and the way he speaks gives the impression that he's about to append something to her titled surname. "You forgot your keys," perhaps, or "you're going the wrong way," or, worst of all, "you haven't been dismissed."

But her keys are in her bag.

She never goes the wrong way.

And she has never waited for dismissal.

So she stops walking. She doesn't half turn and continue, modifying a purposeful vector with a bend of acquiescence. She stops entirely and then she turns one hundred and eighty degrees, gathering the full force of her personality to—

"Whoa," the man says.

He's nearly crashed into her.

He'd been behind her for sets of steps, matching her stride for stride, the sound of his footfalls subsumed beneath the snapping of her shoes.

Lightcap regards him with a neutral expression. He's a few inches taller than she is, but he's broad. Physically powerful, imposing by virtue of the space he occupies and by the weight of his gaze. Lightcap *likes* that density of presence; Jasper had it, Jasper had *always* had it; it makes her feel at home. It makes her feel like she's not frightening.

They lock eyes and battle it out, hot and silent and intent and she *knows*, she knows absolutely that he didn't leave that room of identical uniforms to come out here to hand her forgotten keys or to call her back. He's come to *her*. He wants something. It's a dark vortex beneath the calm neutrality of his expression, but it seeps unconcealed right into the shared air between them. In that moment Lightcap feels like she can give him anything he wants, anything he asks for, because all that she is burns so hot and so fierce through the resistors of her selfhood that it will melt every circuit board that makes her up if she doesn't find places to ground.

"Yes?" she says, not crisp and cool but quiet and conspiring, as if he's already said to her, *Cait I have a secret; Cait I need your help*.

"I—" he starts, off balance.

She waits for him.

"My name is Stacker Pentecost," he says quietly, so quietly that the security guard could not hear him if he tried.

"What can I do for you?"

"I'd like to speak with you privately," he says, "regarding your proposal."

Lightcap hesitates. For two reasons. One, his British accent has caught her attention as being out of place in a meeting and institution as thoroughly and overwhelmingly American as this one. Two, his word-choice suggests *aterrible* pick-up line and that would be so deeply, *deeply* disappointing that she is certain it would take her *days* to recover. But it might *not* be that; it might be something else because there's an unmistakable gravitas to this man that doesn't come from his height or his uniform but that comes straight from his eyes, his bearing, his quiet steps in a long hallway.

"Strictly professionally," he adds, as if sensing her concern. "Just—not in this building."

She nods.

He pulls out a business card, which is notably sparse on details of rank and affiliation, writes a mobile number on its reverse side, hands it to her, and says "anytime tonight after twenty-one hundred hours. Call. We'll meet where you like."

"I'll call you at ten," she says. "Exactly at ten."

She spins again and walks away, feeling lighter, like she's set aside the weight of her own thoughts in the aftermath of her talk, her quiet conversation. In this moment, nothing threatens her bright and sliding sense of self. She doesn't feel the need to count her slate to clean.

She drives across up the west bank of the Potomac, past the lights reflecting on twilight water on her right and the huge swath of cemetery on her left, because she likes going that way. Between the water and the dead. She crosses the Lincoln Memorial Bridge and drives north through the city until she comes to Adams Morgan and its little labyrinth of streets around a triangular park. She circles, scouring the streets for parking until she finds a spot.

She kills her engine and watches the last of the sunset; the spectacular red disk that looks like a glowing communion wafer. It's the pollution that does it; the shit in the air that blocks the shorter wavelengths of light, that's warming the planet, that's screwing up the ice caps, that's giving kids asthma in inner cities, that's making the turn of the planet so god damn pretty right now.

"We did that to you," Lightcap whispers to the sun. "How do you like your new outfit?"

She hears the subtle vibration of her phone and she pulls it out of her bag in the passenger's seat. She checks the caller ID.

Jasper Schoenfeld.

Even now, even after the long shattering break and the longer shellac of a repair job, seeing his name makes her mouth go dry. She gives herself a fast little count, just for the momentum she needs, completes a rapid, mental set of four, and picks up.

"Hello?" she says, even though she knows it's him.

"Cait," Jasper says. "Hi. You disappeared after your presentation."

Maybe he doesn't mean anything by it.

It irks her all the same.

"I didn't see a reason to stay and gladhand the room," she says sweetly. "That's your forte, not mine."

"Thanks," Jasper says, with a dry twist in response to her backhanded compliment. "Anyway, I just called to let you know that you did a phenomenal job."

"I know," she says, watching the last sliver of red sun sink beneath the obscured line of the distant horizon.

"Well," Jasper says, at a loss. "Good. They'll tell us their answer in a few days, I think."

"Let me know as soon as you hear anything."

"I will," Jasper says.

There is an awkward silence.

"Great," Lightcap says.

At the same time Jasper asks, "Are you doing okay?"

"I'm fine," she says like someone who is entirely, genuinely, absolutely fine. Like she's never been the person who cried with a stormy righteousness in a Pittsburgh laboratory years ago. That's not her. That person is dead somewhere inside her, wisteria creeping over her lonely little grave, replaced by Lightcap Version 4.0. Her product reviews get better with every round of upgrades.

"You don't need anyone to talk you through—things? Your evening?"

Oh the things that she would *love* to say to that. *Fuck you*, comes to mind. *How dare you speak to me as if you're my friend? As if you've ever been my friend, you disingenuous piece of shit*, also presents itself as a possibility. *Let's keep things professional*, Dr. Schoenfeld, seems too kind. *Yes, please come over; please come to my apartment and do everything that you used to do in exactly the same way that you used to do it, keeping me company and understanding that all of what you see is a just a part of me, that it can only be modified so far, that I can't stop it entirely even though I wish I could, that it's the thing that I have had to ride and tame for my entire life and the thing that will never be quite banished by pharmacology and reason, the shadow that I struggle with for all of my days. Please come. Please come every day and never leave me and we will talk about science and art while I keep a silent count of little things and you will cook and I will clean and we will be together, together always, the way that we should have been together right from the beginning. And where you die I will die, and there I will be buried. The Lord do so to me, and more also if aught but death part thee and me.* But that isn't going to happen; she doesn't speak for the empty husks of her dead selves.

"That's a kind offer, Jasper," Lightcap says, and she can feel pressure in the bones of her face, but she can't hear it in her tone, "and I'm grateful for your efforts to maintain

our current collegial relationship, but I'd prefer it if you never said anything like that again."

She can hear him sigh over the line before he says, "Okay. I'm sorry. I just—"

"Goodnight," she says.

She ends the call and stares at her phone for a moment. She should have told him that she was meeting someone in the tradition of 90s conspiracy movies; a man named Pentecost. Acts. Chapter 2. Verses one through six. *And when the day of Pentecost was fully come, they were all with one accord in one place.* It's propitious. She likes it. It's a great name. She doesn't think she's in any kind of danger. She feels like she's leaning forward, her fingertips on the track, her feet braced against starting blocks, her eyes fixed on the finish line, waiting for someone, somewhere, to fire a gun.

She has hours to kill. Hours to assassinate. Hours to coldly and precisely put down in the tradition of business-suited badasses real and fictional. She spends it walking the streets of Adams Morgan in uncomfortable shoes, taking herself out to dinner, and listening to the newest song by her favorite obscure band, whoever they are. *One day*, she promises this absolute bastard who thinks he's so witty, singing about string theory and kaiju and breaking bridges. *One of these days. I'll meet someone who knows your name.*

She listens to the new song over and over and over again in four point three-minute increments until it's time to call Stacker Pentecost. She tells him where to meet her and heads to her favorite bar, a place where lights are low, the clientele is quiet, where the cocktails are overengineered and named after chemical compounds.

After twenty minutes he walks through the door.

His uniform is gone. He's wearing a blazer, left casually unbuttoned, and he's carrying a leather-bound folder in one hand. So he's attractive. So he's incredibly attractive. So he's probably the most attractive man she's seen for—well, hmm. Three years? Five? Her entire life? Ignoring this would be shortsighted and pointless. No reason not to enjoy that spark of enchantment at the base of her brain. It's fun. It won't last. What will last is the ocean. And what might come out of it. Cut rings. Fucked up strings. What they transit. The way the suspension cables of the Golden Gate Bridge had snapped. The way they had just snapped. Like that. She remembers the sound. She remembers how they looked as the tension they were under was released. The terrible wildness of the rebound. Everyone remembers. That's what people say. When she asks them. Everyone remembers the bridge. The snapping. The look of it. And the sound.

She stands and extends her hand.

Pentecost glances at it as if he *knows* and then looks at her as if asking for permission. But her permission is inherent in the extension of her hand and it isn't fear of physical contamination that makes her wash her hands; she managed to work through aspects of that long ago. It's fear of what she's done, thoughts she's had, and even though this is a night that's sitting at a crisis point, she's riding the cresting wave of her time. She's okay. She's been okay for years. She counted for the meeting, but that's okay. Sometimes she needs to count. It's just a part of it. That's okay.

"Dr. Lightcap," he says, taking her hand.

"Please call me Cait," she says.

"Stacker," he replies.

They sit. He looks down at his menu, then up at her, his expression amused and tired and skeptical all at once.

"The Dopamine Dream is particularly good," Lightcap says, smiling at him. "Packs quite the punch though, in terms of alcohol content, so be forewarned."

"Can one just get a whisky here?" he asks her.

"Back page," Lightcap says, "if you're dead set on being boring."

"I can't pronounce half of these," Pentecost says, amused. He gives her an assessing look, likely trying to determine if she's flirting with him.

"And I can't tell a general from a sergeant," she says, pulling back, her tone turning in the direction of brusque. "Yet."

He turns his menu around and points at a cocktail that's second from the bottom.

"Salicylated Sorrow," Lightcap says. "Just tell them you want 'The Painkiller'."

"Right then," he replies, dry and self contained.

They struggle fairly well through small talk about the city and the bar and the weather until they've ordered their drinks, at which point Lightcap finally says, "I can't help but noticing that you're British. And, while DC is a melting pot in one of the better traditions of a nation with an admittedly hit-or-miss collection of traditions—it strikes me as *extremely* unusual to encounter you behind closed doors in the five-sided heart of the American military hierarchy."

He smiles, this time with a brief, bright flash of teeth.

"American interests are a part of what I represent," he replies. "But only a part."

Lightcap takes a sip of iced tap water while reconsidering her preconceptions. She had assumed that she was speaking to a relatively junior member of the collection of brass-adorned people in the room, because he looked younger than most, and because his uniform had not been ostentatiously decorated when compared with others she had seen. But, thinking back, she's not sure he'd been wearing an *American* uniform at all. What he had just said implied he spoke on behalf of an international organization of some kind.

"Well. You certainly have my attention," she says, setting her water down on the table.

"I work on behalf of an organization that won't be publicly unveiled for several weeks. This puts me at somewhat of a disadvantage while speaking with you. I'm not at liberty to tell you all of what I'd like to tell you."

"Why is it that we're speaking at all?" Lightcap asks him.

"We're speaking because of logistics that I can't share with you. We're speaking because I believe in your proposal. Because I believe in *you*. Because I believe that even your tremendous vision—the creation of a colossal machine—is not great enough in scope."

"Not great enough in scope?" Lightcap echoes, astounded. "*That's* your criticism? Insufficiency of *scope*?"

"You don't need *one* machine, Cait," Pentecost says. "You need as many as can be built."

"The resources for a project of that magnitude would be—" Lightcap begins.

"Global," Pentecost interjects before she can finish. "*Global*. It's not just America that has a stake in what might be coming."

"I know," Lightcap says.

In the ensuing silence, a waitress brings their drinks.

"I want you to leave your job at DARPA," Pentecost says. "I want you to come work for the organization I represent. I want you to come immediately. I want to leave tonight, if you can. I want to help you modify your proposal and I want you to present it again, this time in New York City. At the UN. To a group of representatives I can't describe to you until you've been formally employed by the organization I represent."

Lightcap sips her drink. "I'm not signing my life away to an unnamed group with an unnamed ethos," she says.

But she may do just that. Already she can feel it. She trusts this man. The weight of his gaze. The weight of his words.

"The non-disclosure clause is only until the organization goes public," Pentecost says. "A few more weeks. Then you can tell anyone you like. You won't be able to keep it quiet. You'll be on the front page of every newspaper in the world. You'll hire whomever you like. You'll have as many resources as the world can bring to bear in as short a time as can be managed."

"Me?" Lightcap asks.

"You," Pentecost says.

"But *why*? Why not Jasper? He's more senior than I am. He has a longer track record. Technically this is *his* proposal."

"Technically," Pentecost agrees, the word a good-natured condemnation.

Lightcap can't help smiling at that, a twist of her mouth that she tries to straighten but can't. *One two three four*, she thinks.

She wants this. She wants to surf the leading wave into whatever is coming. She wants the means to turn her vision into something she can touch with her hands, something she can feel with her mind. She wants to trust this man, the weight of his gaze, the sorrow in his chosen cocktail. She wants to assemble a team to build machines, to fuse the fire of Prometheus to the mind of the man to whom he gave it, she wants to find a person who will stitch the torn threads of string theory back together, she wants not only machines, she wants a holistic approach: robotics and neuroscience, computer scientists and biologists; Jaeger Tech, Kaiju Science, she wants everything she can have so that she can give it all that she is; take it into herself and reform it into something that makes other people feel safe at night.

"I have no experience organizing something of this magnitude," she says, low and tight and abruptly too fierce for a trendy little bar. Like it's an accusation. She needs him to answer fully for all the ways his choice is wrongheaded. "I can build you the machines you need—but what you're talking about—that's more than science. That's administration. Distribution. *Industry*."

"You'd run our Jaeger Division. You'll literally build the things, Cait. You'll build as many of them as you can with every resource we can muster for you. You'll get them to work. Anything you don't know how to do, you hire someone to do for you. The main thrust of the thing is exactly what you've been doing at DARPA, just scaled up."

"Scaled up," Lightcap repeats. "You've seen my projections. And you want—you want to scale that *up*? What if there's never another K-day? You'd distort global industry and commerce for decades to build a collection of these things; have you *thought* of all of this?"

"We have," Pentecost says.

"Well," Lightcap says, momentarily at a loss.

"You feel the stakes," Pentecost says, like it's an explanation. "Just like I do. That's another reason I wanted you instead of Dr. Schoenfeld. You can feel the reality of the stakes and, in the face of enormous risk, you're prepared to go all-in."

"The pilot who died," Lightcap snaps, abrupt and filterless, thinking of the news, of a beautiful woman with a serious face, a warm smile, the sidewinder missile, and the red hair and the green eyes of her friend who had been flying alongside her; the way she had cried on CNN, and the way she had said, high pitched and nearly unintelligible, *I tried. I tried to tell her but she had already committed to the run. It was who she was.* "Luna Pentecost."

"My sister," he confirms.

"I'm sorry," Lightcap says, and she puts her elbows on the table and reaches out towards him, opening her hands. When he takes them, she closes her fingers and squeezes his hands once in silent solidarity, then lets him go.

He nods at her.

"She wasn't just brave," Lightcap says, forcing her throat to relax. "She was inventive."

"A born dragon slayer," Pentecost says dry-voiced, wet-eyed.

"And you?" Lightcap asks.

Pentecost shakes his head.

"A made dragon slayer then," Lightcap replies. "The most lethal kind."

"That's the idea," Pentecost says. "I'd feel more optimistic if you'd sign on to build me some armor."

She looks at him and drums the short edges of her bare nails on the wood of the table in one quick sweep of four. Then another. *So they want you*, she thinks at herself. *You and not Jasper. Do they know? Do they know that you're better? Do they know that you slept with him? Do they mean to reach out a bureaucratic hand and pull you from beneath him? Do they have any idea who you are? Do they know all they need to know? Because there are things, Caity, baby-doll, sweetheart, angel-face, genius girl, that they*

need to know. Things that they'll feel you owed them in disclosure. Things that maybe, in good conscience, you do owe. Not to them, necessarily. But to the world you'll claim in claiming this offer.

Another sweep of four.

And Stacker does not say, 'tell me what you're thinking,' he just waits.

He waits for Cait.

Waitin' for Caitlin.

Everyone dies, she thinks. Everyone dies. Everyone dies and how are you going to do it, Lightcap? You have nothing but who you are, the work you've done, your parents who love you, and Jasper who loved you but never enough. That's not so many weights to tie you down. You could watch this unfold from the sidelines in front of your DC TV with your cat and a jar of peanut butter crying vicarious tears for distant and growing rents in your culture or you could grab what you can and hold the tapestry of the only existence you know with your own hands and with other hands, different hands, hands that you will build but that will still be yours. But if you step up, you can't hit pause. You can't. But it might take you anyway, that endless groove of the non-progressing needle it's not a thing you can perfectly control. It's not a thing you can repress. They will need to understand. They will need to help you help yourself.

"I have OCD," Lightcap says, throwing three words and three letters down in perfect neutrality. *Algorithmically banish all your guilt*, she thinks.

"I know that," Pentecost replies, not lying to her. "It's part of your classified file."

"But you'd choose me anyway," Lightcap says.

"Your record speaks for itself," Pentecost says.

And the four-month leave of absence I took in the spring, Lightcap thinks. *Does that speak for itself as well?*

"It's currently controlled, but anxiety, frustration—they may exacerbate things. I'll need people around me who could step up in the event that my performance were to be compromised in any way. Everyone will need to know. It's not a thing that can be held against me on an institutional level. Do you understand what I mean by that?"

"I think I do," Pentecost replies, and takes a sip of his drink.

"Do you?" Lightcap says. "I'm an extremely difficult person to work with. I'm nearly impossible to work *for*. I have high standards. I'm a perfectionist to the point of genuine pathology. I can be mercurial. My work ethic has been most kindly described

as 'grueling'. I have achieved what I have achieved by force of will and it shows in my personal leadership style."

"Are you trying to convince me *not* to offer you this opportunity?" Pentecost says, not smiling, asking a genuine question. "I can't think of a more stressful job on the entire planet than the one I'm proposing you take. If you don't want to take it, if you don't think you can, in good conscience, take it, we'll make an offer to Dr. Schoenfeld."

Lightcap could ride a horse naked through the out he's offering her in the style of Lady Godiva.

"I want it," she says, her voice low and fierce. "I can do it. I just want you to know what it will be like if you choose me rather than Jasper. We are very different. Very."

"Thanks for the warning," Pentecost says, and slides the folder over the wood of the table.

"I like your style, Stacker," Lightcap says, pulling a pen out of her bag and flipping open the folder. "You'd better buy me another round and turn less cryptic once you've got your documents signed."

"We'll talk on the way," Pentecost says. "There's a military jet waiting."

Lightcap raises her eyebrows. "You weren't kidding about resource allocation."

"No, I was not," Pentecost says dryly.

"I have a cat," Lightcap says, her pen hovering above the page. "I'm bringing that cat. This is non-negotiable."

"You can keep your cat," Pentecost says.

"Non-negotiable," Lightcap repeats.

"You can bring your cat to work for the rest of your life for all we care," Pentecost says, with an amused aggravation that hints at the personality beneath the professional exterior. "It can ride on your shoulder. The cat is a non-issue. We can literally go get your cat right now."

"I love that cat," Lightcap informs him with maximum poise, uncapping her pen.

She begins scanning and signing, scanning and signing, with a flourished L and a wild cross of the t in her surname. Across the tops of the pages, the words 'Pan-Pacific Defense Corps' appear over and over again.

When they leave the bar and step outside, Lightcap looks up, past the haze of light pollution, toward the distant stars.

"Penny for your thoughts," Pentecost says.

"It's ours, you know. All of it. Every problem. Every piece of garbage. Every work of art. We've claimed this planet in our hubris. We'll defend it with the full force of our collected civilization."

Pentecost smiles, understated, unreadable.

"Penny for *your* thoughts," Lightcap says.

"Ask me again some day," Pentecost replies. "After we've built our Jaegers."

"Jaegers. Plural. Ours. I like the sound of that, Stacker, I really do," Lightcap says, flashing a grin at him.

"Me too," he says.

"Well let's get going." She threads her arm through his. "My car is this way. Did you drive or take a cab?"

They walk into crisping air of a September night, Pentecost matching her strides, Lightcap counting silently in her head in time with her steps, not in stylized neutralization but just for luck, the chords of an obscure band playing in her head, her shoes clicking against the pavement, already planning the call she'll make to Tendo Choi, what she will say, how she will say it; already adjusting the flow of her presentation, scaling things up, growing them organically from already overwhelming beginnings—she'll now need quantum physicists to study the anomalies in the Pacific and she'll need biologists to study *Trespasser* and whatever else might come through, and she'll need Jaeger pilots; people ready to look death straight in the face on behalf of their species.

Maybe she'll get to do it herself.

She swallows the fierce longing that accompanies that thought and refocuses on the present, one stilettoed shoe in front of the other; push-off, swing, land, repeat. One, she must get in her car. Two, she must pack up her life and her cat. Three, she must win her right to her resources, and four she must begin to build her Jaegers. As easy as that. One, two, three, four; then reset and take on more.

Lady Stardust

Inside a close room with bright lights and dark metal walls, Lightcap kneels, her eyes fixed on the contacts adherent to D'onofrio's exposed left calf. Tiny electrodes penetrate the tibial and common peroneal nerves. Her knees burn and her back aches, deep and heavy. She spends too much time torqueing herself around setups rather than levering her setups around herself. She needs to stop doing that. Soon. Soon she'll stop doing that. She widens her crouch, ducking her head to track the course of the most distal electrode.

Everything looks correct.

But everything had looked correct last time and it hadn't been.

It hadn't been.

Still crouching, she stabilizes herself with a tripod of fingertips, kicks a foot out, plants it, and shifts her weight sideways to check the other leg.

"How do you *do* that?" D'onofrio asks the air.

When Tendo doesn't answer, Lightcap realizes his question was directed at her.

"Do what," Lightcap echoes, not looking up, tracing the silver trail of electrodes with her eyes. The alignment in the right leg looks good. Looks right. Ha. If this works, she'll make it easier to set up. She'll make a *suit*, where misalignment is impossible. If this *doesn't* work, well, maybe she'll *also* make a suit. Because this is a pain in the ass. Literally. She'll start it this afternoon. No, this afternoon won't work—that's J-tech time. Tonight. Tonight, after the data analysis from today's run is done. Right after she makes sure the newest PPDC recruit's fancy genetic sequencer is going to get her before he does. And after she goes over her first formal progress report with Stacker. Maybe tomorrow then. After the half-day site visit. In the afternoon.

"Don't move," Tendo snaps abruptly at D'onofrio. "You can talk, Serge, just don't move your head."

"Got it, got it," D'onofrio says, good-natured and patient. Then, "you're just really good with those things," D'onofrio says.

"Microelectrodes?" Lightcap says dryly. "I should hope so."

"Prrrrrettttitty sure he means the *shoes*, Cait," Tendo says with an effortful neutrality that rubs Lightcap the wrong way. The wwwrrrrooonnnnggg fucking way.

"Oh," Lightcap says, looking down at her stilettos—black, closed toe, high, narrow, with a bright red sole—and then looking up at D'onofrio with narrowed eyes.

She has a twin urge to snap a humorless, "watch it," and to stand, lift her right foot, and plant it directly on his thigh, while saying "*these* shoes?" But the guy doesn't deserve either response. He walks a mostly respectable line, right on the border of friendship and flirtation, admiration and attraction. He's never called her a bitch. Admittedly, this is not a high bar. He's got a cute face, a smile that's as transmissible as a biolevel three pathogen, he's built like a stack of bricks, but—honestly? If she didn't spend so much of her day obsessing on the complex topic of *keeping him the fuck alive*, she'd probably find him forgettable. Well, that isn't *quite* fair. There is one thing about him that she deeply, wholly admires: his good natured panache in the face of a substantial risk of death.

"It's just impressive," D'onofrio continues, not moving his head. "Physically. As a physical feat. That's all. I mean, don't *you* think it's impressive, Tendo?"

"The stiletto squat?" Tendo asks, a tiny pair of calipers between his teeth.

"We are *not* calling it that," Lightcap says. "That is *not* its name, assholes. It doesn't *have* a name."

"Spinal alignment confirmed," Tendo says, straightening up, pulling the calipers out of his mouth and dropping them into a pocket. "And, for the record, I have absolutely zero opinion regarding Cait's footwear. I don't even see it. Heels? What heels? I see only science. Speaking of which, I think we are good to go. I'm going to head to the booth and check over the software one last time."

"Page Jasper if he's not in there already," Lightcap says, as Tendo heads for the door.

"I'm here," Jasper's voice comes, echoing over the in-room speakers.

"Creepy," D'onofrio murmurs.

Lightcap grins where he can't see her, a full-wattage smile right at D'onofrio's boot.

"Not creepy," Jasper's disembodied voice replies. "Safe."

The door shuts hollowly behind Tendo.

"I think everyone agrees that was a *clearly* creepy moment," D'onofrio says, louder this time.

Lightcap stands, her eyes sweeping the room—the shining walls, the shining floorspace, the dark window that separates the lab from the waiting bulk of the still

skeletal Jaeger frame waiting for human neural input, and, finally, the forbidding silhouette of her first rig, folded like a spider several feet away.

It had killed Adam Casey a month ago.

It wasn't the rig, Cait, Tendo had said after it had happened, his eyes shut, some can of hellshit beer pressed against his forehead even though it had been cold in the room, cold in the bar, cold in the city, cold in the state, cold for huge arc minutes of degrees everywhere around them. *The alignment was good. It was something else. His brain couldn't take it. Synchronized waves of current. There was some oscillation there. Some kind of standing wave of—I don't know. Charge? And then—*

Lightcap had been crying, her tears coming hot and trailing cold over her face in little clusters of four, falling into her gin and onto the insides of her glasses. *It was the rig*, she'd said. *It was. I know it was. And the thing—the thing I—I built it and I still don't know—what's wrong with it. We only have one data point. I can't fix it from that—I can't know. I can't know what happened. We need more neuro people. Better neuro people. Or, just one. Someone like you.*

And look where I got us, Tendo had whispered, his eyes shut.

No, Lightcap had said, her voice cracking and sending another river of salt water out of her face. *This has to be on me. Not you. That's how it works.*

"Hey," D'onofrio says, "Dr. L."

She snaps her eyes away from the first rig, its dead trail of abandoned electrodes, the too-new helmet, the awful emptiness of the seat. She'd been the one to restore it after Casey died. The one who had cleaned it off as if nothing had happened. The one to dip the electrodes into a decon solution, the one to drape them in a loop over the dark metal frame.

"I got this," he says, not able to see her without turning his head, but knowing, somehow, what she's likely looking at. What she's likely to be thinking. "No problem."

Lightcap turns and walks into his line of sight, crouching in front of him, eye to eye, shallow sea to clearest sky.

"Don't push," she says. "Do *not* push. Just—withstand. Okay? Don't try to actually *do* anything. This is your first time. We just—want to get some readings and jack back out."

"You need to demonstrate viability," he returns, way too earnest, just a little bit defiant.

I wouldn't choose D'onofrio if I were you. Jasper had said. There's something about him that I don't like. Don't trust. It's almost that I like him too much. He's too willing to throw everything away, his entire life, like it's nothing. There's something behind that. Something problematic.

"Captain," she snaps. "Don't. Do not."

"Yeah yeah," he says quietly. "I got ya."

She looks at him like a level and he looks back at her like a lathe. "Are you afraid?" Lightcap asks, because if he is, he doesn't carry it on his face.

"I have enough brains for that, at least," D'onofrio whispers, like he's letting her in on a secret.

"Oh yes?" Lightcap asks, smiling.

"Don't tell anyone," he says.

"Serge, I like your taste, brother," Tendo says over the in-room speakers.

Lightcap looks up expectantly, just as the opening track of *The Rise and Fall of Ziggy Stardust* begins to play.

"Nice pick," Tendo says over the speaker system. "Topical."

"Morbid." Jasper sounds distant like he's speaking over Tendo's shoulder.

"Love it," Lightcap mouths at D'onofrio.

"You told me once," he replies quietly, spine and skull held unnaturally aligned by the rig, "that you can never go wrong with Bowie."

"So true," Lightcap whispers.

She stays, hands on knees, half-bent over, her eyes ceiling-ward, until the chorus comes.

We've got five years, stuck on my eyes

Five years, what a surprise

We've got five years, my brain hurts a lot

Five years, that's all we've got.

"Think I can negotiate for ten?" she asks.

"You?" D'onofrio says. "Oh yeah."

"You good?" Lightcap asks. "Feel okay?"

"I'm good. I'm ready," D'onofrio replies. "Let's get this show on the road."

"You heard the man," Tendo says, his voice coming from everywhere, from the ambient air. "Get up here, Cait."

She winks at D'onofrio, straightens, walks out of the room, down a short span of hall, and rounds a corner, her heels clicking quietly against the floor. She wipes damp palms on black dress pants, climbs a set of steps, and throws open the door to the cramped control room. More booth than room and more closet than booth, it's small and dark and smells maddeningly like Tendo's coffee. She slides into place next to Tendo in front of the control console as *Five Years* transitions to *Soul Love*. Jasper is already there, leaning against the back wall of the room, a handheld drill clipped to his belt like a weapon, his arms crossed over his chest. When she looks back over her shoulder, he gives her what is likely supposed to be a smile of encouragement, but looks more like a smile of commiseration over a deep and horrible shared anxiety.

"Ready?" Lightcap asks him.

Jasper pats the drill on his hip with one hand, evidently prepared to begin the unbolting process at the first sign of neurological or mechanical trouble. "I have to admit that I do like his style," he says, his eyes tracking to the control console where *Soul Love* plays over the open channel.

"Doesn't everyone?" Lightcap asks, her voice dry, her mouth dry, a thin sheen of sweat beginning to form at her temples and along her spine. *One two three four*, she thinks to herself. *One two three four*.

"I heard that," D'onofrio says, his voice distorted only slightly in its transmission to electronic signal and back.

"Well don't let it go to you your head," Lightcap replies, short and sharp, scanning the screens in front of her for any indication of potential trouble. There's the EEG on her left, D'onofrio's brainwaves fluxing and shifting in noisy lines of green and purple and blue. There's the video feed on the skeleton of the prototype. There's the bright screen of resistance, current, voltage throughout the rig, throughout the Jaeger. There's the waiting interface protocol, yellow-on-black text waiting for Tendo's input.

"We're green across the board," Tendo says.

"Let's get it on," D'onofrio says. "I've been dying to meet this lady you've told me so much about."

"Dying?" Jasper says over the open channel. "You didn't just say that, D'onofrio."

"Shut up," Lightcap snaps, as *Soul Love* turns to *Moonage Daydream*. If anything goes wrong, Lightcap will never be able to listen to David Bowie again. And that will be a crime. So it's not allowed to happen.

"My count, kids," Lightcap says, her throat tight. "It'll be: one, two, three, go."

"Keep your 'lectric eye on me babe. Put your raygun to my head," D'onofrio sings, along with the album.

Lightcap listens for the beat and counts, *One two three four, two two three four, three two three four, four two three four—*

"One, two, three, go," Lightcap says, not breaking her internal rhythm, jacking him in right as the guitar solo starts. Because, when she has the choice? She prefers to do things with style.

Tendo flicks switches on his side of the board as Lightcap starts her manual, analogue slow fade of resistance. *Just a little current*, she thinks. *Just a very little current, sliding into the right places, sliding in at the right time.*

"How we doin' brother?" Tendo asks.

"This guitar solo is killer," D'onofrio replies, his voice full of strain.

"Please stop making death puns," Jasper says, leaning over Lightcap's shoulder.

"You people. No sense of fun. Terminally boring. Lethally dull. Such killjoys."

"Serge," Jasper says, conversationally, his eyes glued to the EEG over Lightcap's left shoulder. "Seriously. What thehell is wrong with you?"

"So many things," Serge replies.

"Stop," Lightcap says quietly to Tendo, "we'll hold it here."

The dissonant opening of *Starman* plays over the open channel. Lightcap clears her throat and says, "sit tight for a minute, D'onofrio. We're holding it right here."

"Why? What's wrong?" he asks, a hint of impatience making him sound like a guy who's just been told he can't tailgate before the Sunday afternoon football game.

"Nothing's wrong," Lightcap says, trying to sound calm and controlled and truthful, because she *is* all of those things. "Nothing's wrong. We're just easing into it, is all. A slow ramp. Relax. Listen to David Bowie's album about killer aliens, ya weird kid."

Jasper gives her a pointed look, and then turns back to the EEG. "What?" Lightcap demands, the word entirely silent.

"Nothing," he mouths back.

Lightcap gives him a stormy glare that he might or might not deserve and that is wholly wasted on the eyeless side of his leadlined, impenetrable skull. She tightens down savagely on her own focus and follows the line of Jasper's sight to watch D'onofrio's EEG, which is a reassuring scramble of lines waving their jagged way across a dark screen.

"I can almost feel her," D'onofrio says, quiet and revelatory over the open channel.

"You can?" Lightcap asks, surprised.

"I think so," he confirms.

"Describe it," Jasper says, leaning over Lightcap's shoulder, like he's trying to climb into the mic. "Try to describe what you're feeling, if you can."

"It's er—it's hard to put into words. When I'm talking to you I feel a strange sort of resistance to moving my mouth. As if—as if there's something *in between* wanting to move and the movement itself. Does that make any sense? There's some kind of barrier where no barrier was. I think that might be her. I guess it could also be my brain struggling, but I think it's her."

"It's possible," Lightcap says, hearing a note of awe in her own voice. "Your brain may be feeling the electrical resistance between your circuits and hers and trying to turn it into something you can understand. We don't really know how the mind is going to interpret a lot of this input."

"How do you feel otherwise?" Tendo asks.

"Fine. A little bit of a headache. A little bit of an ache in my hands and feet."

"Not bad," Jasper whispers.

"Another minute, I think" Tendo murmurs, glancing over at Lightcap.

She nods.

"We're going to hang out here for another minute, Serge" Tendo says, full volume.

"Keep recording. You tell us if anything changes."

"Sure," D'onofrio replies.

Lightcap scans every screen, left to right across the entire dark and bright expanse of the console. She hooks one heel around the rung of her chair, fighting to keep her mind busy, to keep out the intrusive negative thoughts she can feel gathering the way they *always* gather. *Go away*, she thinks at them. *Live in exile and die there.*

"So how about that local hockey team, huh?" D'onofrio says into the heavy silence. "Am I right?"

No one replies.

"There's a local hockey team?" Lightcap asks finally.

"You people," Serge says. "You're hopeless."

"We're not hopeless," Tendo replies, toggling between screens. "We're focused."

"Focused. Sure. That's one word for it," D'onofrio says. "So, speaking of the work half of the work-work balance you guys have going on, what's the story with the new K-science hire. Dr. Anderson? When's she coming?"

"Can we talk about this later?" Lightcap snaps.

"Can we *not*?" D'onofrio shoots back. "I'm trying *not* to freak out about hooking up my brain to a giant metal machine. Do you think she's a decent poker player? I'm tired of dominating Shatterdome Hold'em."

"*Dominating* seems like an optimistic way of describing it," Tendo says.

Lightcap sighs. "She's not."

"Dr. L. How could you do this to me. I told you that you needed to hire someone with a decent poker game."

"No—I mean she's not coming. At all."

"What?" D'onofrio says. "Since when?"

Lightcap sighs. Jasper grasps her shoulder and gives it a single supportive shake.

I can't be involved with the kind of operation you seem to be running, Anderson had said over the phone, poised and clipped. Little to no ethical oversight, outrageously risky human trials. Even under the most extenuating circumstances, even in times such as these, there must be some adherence to a pre-defined benchmark. I don't feel comfortable with the lax standards for which you've advocated. JET Force doesn't operate that way and our work is at least as dangerous as yours, if not more so.

You don't have a timetable, Lightcap had said, her voice still raw from weeping, her cuticles cracked and bloody. You have the luxury of carefully mapping your way. Look, I understand your objections. I truly do. I sympathize with them. But this approach is necessary. As head of kaiju-related projects you wouldn't even be involved in any—

It's never necessary, Anderson had cut in. You've demonstrated your operating philosophy. In spectacular style. I don't think I'd be a good fit for your organization.

"Since two weeks ago. We're getting her co-director instead. The guy," Lightcap says.

"There's a JET Force *guy*?" Serge asks. "Since when?"

"Yeah," Lightcap replies. "Apparently. He's less into spending time with the press, more into spending time collecting specimens. He gave a fantastic keynote in Geneva a few months ago."

"Green Hair Guy?" Tendo asks.

"Green Hair Guy," Lightcap confirms.

"Just what we need," Jasper says. "We have enough personality in the K-science division to write a post-modern novel."

"He any good at poker though?" Serge asks.

"You never know," Lightcap replies, a musical sing-song.

"Is he any good at his *job*," Jasper says darkly.

"He's still *alive*, so that's got to be some kind of surrogate endpoint for skill," Lightcap says. "It's hard to know from a publication record, a cover letter, and a snappy personal style. But Dr. Gottlieb apparently *loves* him so—well, I actually have no idea what that means."

"Wait. Dr. Gottlieb—*likes* someone?" Serge asks. "There is a human on God's green earth that Dr. G actually *likes*? And that human has green hair? I don't even *understand* what you're *saying*. The words that came out of your mouth weren't in the right order, I don't think."

"I did not say 'likes'," Lightcap replies. "I said '*loves*'. Intellectually. Probably intellectually. Don't spread that around. It's just a personal opinion that I and any other thinking human would form after listening to Gottlieb indulge in a twenty-minute rhapsodic soliloquy regarding the guy's credentials and then turn around and tell me that I shouldn't hire him because he'd be wasted on practical troubleshooting and should stay in realms of higher thought. We've also got to be way past the one minute mark, Tendo, what are you doing?"

"I thought you wanted a slow ramp," Tendo says.

"Not this slow. I said a minute and I actually meant a minute. Can we focus please?" Lightcap asks. "Rather than salivate over the admittedly amazing interpersonal drama that may or may not be coming our way?"

"Hey," Tendo says. "I'm *entirely* focused, but yet also constantly attending to peripheral detail. This is an essential part of my job description."

"I'm trying *not* to focus," D'onofrio says. "That was actually a central point in Dr. Schoenfeld's four hours of instructions, if you'll recall."

"I *did* tell him that," Jasper admits.

Lightcap ignores their persistent attempts to lighten the mood. She pulls a deep breath in, resettles her shoulders, relaxes the tension in her thighs, and looks critically at the entirety of the data set they've recorded. She can see no problems in the ebb and flow of electrical signals. She takes a deep breath to settle herself.

"Okay," she says, after a propitious little four count. "We're going to go a bit further, again on my count—I'll give you a one two three and then a 'go' on four."

"Yup," Tendo confirms.

"Aces," D'onofrio says.

"I'm watching," Jasper adds.

She gives them their count. Tendo's channels are already live, so he just watches the readouts as she slides the resistance down in a slow, even pull.

"Talk to us, Serge," Jasper says.

"I'm getting something. No pain. No temperature. No pressure. Just—a sense of where she is in space. Her arms. Her legs. I can feel mine. I can feel hers. Kind of weirdly—both together at the same time."

"Proprioception," Lightcap says, her eyes fixed on D'onofrio, her throat tight, her voice higher than usual. "Perfect. Just—just hold here."

When you climb to the top of the mountain, David Bowie sings, look out over the sea.

"The EEG," Tendo snaps soundlessly, one hand over the mic. "Look."

Lightcap snaps her gaze left. At first she notices nothing out of the ordinary. But then, small and quiet within the background noise, she sees it. A sinusoidal wave. Small. Coming and going. Oscillating in amplitude within the static. The same thing that had risen up to kill Casey midway through their first trial.

She swallows.

"I'm going to try moving my fingers," Serge says.

"No." Lightcap cracks the word like a whip. "No," she says again, quietly this time. Calmly this time. "No, not yet. Just stand by, please."

"What do you want to do?" Tendo whispers, leaning toward her, his hand over the mic.

Lightcap stares at the little static snake. "It's going to happen every time," she whispers.

"Don't jump to conclusions, Cait. Let's just abort the trial," Jasper says. "We'll take some time to think about this. We've got new data to work through."

"Not enough," Lightcap whispers, hating herself, hating the world, hating Jasper, hating that little static snake in the grass of neural noise. *Identify the automatic thought. Identify the feeling that comes from that thought. Identify the reflexive response. Automatic thought: I am a terrible person. Feeling: Guilt. Reflexive response: handwashing. Later. Maybe never. One two three four, two two three four, three two three four, four two three four, nothing's gone wrong yet. Nothing's gone wrong. Not yet. Save it. Save it. You can save it. You're the only one who can. You can save it. You.*

"What's going on up there?" D'onofrio asks.

"We're seeing an oscillatory pattern in the leads coming from your cortex," Lightcap says bluntly.

Tendo grimaces, looking worriedly at the camera close-up of D'onofrio's face on the rightmost monitor.

"The same pattern that killed Casey," D'onofrio says. It's not a question.

"That's very likely," Lightcap says. "Yes. It's small, it's waxing and waning, but it's there. We're discussing how to proceed."

"Do I get a vote?" D'onofrio asks.

"You always get a vote," Lightcap says. "What are you thinking, kiddo?"

"Casey tried to do too much," Serge says. "Let me try moving my fingers. We know it can be done. Pentecost did it and lived through it, no problem."

The three of them consider his words in silence. Lightcap looks at Tendo, then at Jasper. There is no certainty to be found in either of their expressions.

'I need you to come,' Lightcap had said to Jasper, standing in his familiar office, in his familiar lab. *'I need you to come because I need someone to be the brakes to my engine and I know you can do it. You're the only one I knowcan do it. So if you can live with the fact that they chose me rather than you—even if you can't—I need you to come with me.'* He had looked at her, quiet and powerful behind the wide expanse of his desk, the sun picking out the gray in his hair. All he said was, *'I've always wanted to see Alaska.'*

"Is this too far?" She asks him, her words silent.

Jasper looks up at waving colored lines, then over at the video feed of D'onofrio's face.

"You *tell me* if it's too far," she hisses, quick and quiet and vicious.

"No," Jasper says, like a rock in a stream. "We're still in familiar territory. We're not pushing, we're replicating previous findings."

She can feel her insides untwist and with a lucky little four count she says, "All right. Try your right index finger. One tap. When you're ready. Don't rush it."

They lean forward, Jasper's eyes on Serge, Tendo's eyes on the snaking current readout, Lightcap's jockeying the camera feed from the shatterdome floor into a closeup view of the prototype's right finger. She waits for it like a coiled spring. Next to her, Tendo inches forward on his chair. She can feel Jasper's breath on the back of her neck.

Onscreen, the Jaeger's finger twitches.

"You did it!" Lightcap shouts in total elation, her eyes switching immediately to the readout Tendo is watching, where oscillating voltage weaves through neural noise.

"I *know* I did it," Serge says, his voice strained. "No need to scream in my ear about it, Dr. L."

"Sorry," Lightcap whispers, instantly contrite, instantly quiet. "Sorry. No change in your oscillating pattern. At least at a first approximation. Can we mathematically confirm that, Tendo?"

"Give me a second," Tendo replies. "Yup, confirmed. No change."

"Let me try it again," D'onofrio says. "I get the feeling that this is the kind of thing that improves with practice."

"Hold up," Jasper snaps, "you bleeding, Serge?"

Lightcap watches in protracted horror, her vocal chords frozen, her mouth opening silently, as D'onofrio, unthinking, reflexive, *moves his right hand to his face*.

A room away, a giant metal arm lifts into the air, shoulder joint opening, elbow joint flexing, wrist joint rotating.

"Shit," Tendo breathes, high pitched, as the EEG explodes into a oscillating wave of strain. "Shit shit *shit*—"

"Freeze," Lightcap snarls into the mic, every tyrannical impulse she has poured straight into a single word.

Serge freezes, his arm in mid air, his fingers just beginning to extend toward his own face.

No one speaks.

The Jaeger waits for D'onofrio to move again.

The snake on the readout settles back into its static, unperturbed.

"Did I just kill myself?" D'onofrio asks casually, as *It Ain't Easy* plays quietly into the air.

"No," Lightcap whispers, her eyes still on his EEG. "You're doing it. You're okay. We still see the oscillation, but—it's not changing."

"He's bleeding," Jasper says. "You *are* bleeding, Serge. That can't be good."

"Don't touch your face, brother," Tendo says. "Just put your arm down. Nice and slow."

Lightcap watches as man and Jaeger lower their right arms in perfect tandem. D'onofrio, exhales, shaky and long, then pulls in another slow breath. A thin trail of blood trickles down his face and runs over his lip, staining his teeth. He looks terrible. He looks amazing. He looks like the best thing that's happened to Lightcap in months. "Let's jack out," she says, her mind buzzing with elation. "Captain, we're jacking you out; you did an *amazing* job."

"Wait," D'onofrio says. "If you guys are okay with it, I want to try something."

"What?" Lightcap replies, and then, right on top of the question she snaps, "You tell me with *words*, buddy."

"I want to try standing up."

Tendo and Lightcap exchange a sharp, speculative look.

"No." It's Jasper who speaks, flat and final, doing what Lightcap pays him to do. "No way. Not yet. Let's look at this data. Wait a few days. Build up your tolerance to the load."

"But I can *feel* her," D'onofrio says. "What if I *never* spike out of range, like Casey did? I don't think I will. I feel her. I feel her *tight*. Right here with me. We need more than an arm movement. That's nothing. You guys have a site review tomorrow. Let me bring her up."

"Yeah. A site review. And I need another dead pilot like I need a hole in the head," Lightcap snaps.

"I *have* a hole in my head," D'onofrio says. "Live a little, Dr. L. I can do this. I'm telling you I can."

Lightcap glances again at Tendo, who shrugs and makes a useless equivocal hand gesture that echoes the uncertainty in Lightcap's own mind. She looks at Jasper, who

shakes his head, sober and solid. She sharpens her face into an expression of urgent appeal and, after a moment, he relents, opens a hand, and steps back, out of her peripheral vision.

Lightcap drums three sets of four with bare nails on the edge of a metal console, listening to the sound of Ziggy Stardust, on the rise. *Ascending. He ascended into heaven and sits at the right hand of God the Father Almighty. From thence he will come to judge the living. And the dead. And he was all right. The band was all together. I believe in the Holy Spirit. The holy Christian Church. The communion of saints. The forgiveness of sins. The resurrection of the body. And the life everlasting. Yes, he was all right. The song went on forever. One two three four; four three two one.*

As *Lady Stardust* ends, Lightcap leans forward and speaks into the mic, low and quiet. "Stand when you're ready."

With a grinding sound of metal-on-metal, the Jaeger rises to its full, skeletal height as D'onofrio stands, fighting for balance pulling the frame with him, dragging cables behind him where they're fastened to his calves, his thighs, his arms, his spine, the helmet that's bolted to his skull.

Lightcap feels the hot rush of tears in her eyes she pans the camera back to look at the standing Jaeger, the tiny waving figures of J-tech at its feet. She presses her fingers against her mouth and hunches in her seat, trying to contain all that she is feeling.

"Maybe it's him," Tendo says, watching Jasper stand there, trembling, blood trickling from his nose. "Maybe he's just—a natural. Maybe Pentecost was as well. Maybe some people are just—strong enough. Maybe some people just have the right neurochemistry. Maybe Casey didn't have it. Maybe he pushed too fast?"

"I don't know," Jasper replies, slow and cautious, his eyes flicking back and forth between Serge's face and the oscillating current readout. "Run another round of analysis on that pattern will you? Just to be safe?"

Take a step, Lightcap wants whisper to Serge, her eyes still on the video feed from the Shatterdome floor. *Take a step forward*. But she says nothing, staring at the unarmored, naked Jaeger on the monitors. She wants to run into the next room. She wants to see it move with her own eyes, feel the vibration in the floor as it does. Let it knock her off her feet.

"How we lookin', team?" D'onofrio asks, sweat running into his eyes, his voice almost even under astronomical strain.

"We are lookin' good, brother," Tendo says.

"Well, in *that* case," D'onofrio says, and steps forward.

Lightcap's hand flies to her mouth, and the prototype Jaeger rocks their control room as it brings a foot in a high, uncontrolled arc and slams it against the floor. Jasper falls into Lightcap's shoulder as she and Tendo grab their console for support. A distant alarm begins to sound. Yes, she thinks, triumphant, elated, *it will work. It is working.*

"We have a problem," Jasper says, right in her ear.

She knows him so well that she can *feel* what he means, *know* what he is looking at, *see* what it is he's already seen.

"Go," Lightcap shouts, and only then does she look to the monitor to see the oscillatory pattern rise in every goddamn lead. "Go," she screams again, but Jasper hadn't waited. He's already leaving the room, already ripping the drill off its clip at his hip.

Lightcap slams the heel of her hand down on the button that will summon a medical team to the interface lab.

"Serge," Tendo is saying tight and afraid, "Serge. *Serge*. Can you hear me? Talk to me, brother. Say something."

This is not happening, this is not happening, undo it, start over, it was going so well. One two three four, two two three four, three two three four, four two three four, undo, unmake, restart, negate, she thinks, this is my fault, she thinks. I have to fix this, she thinks. I have to fix this. Think, Caity, think think think. You can do it. You can. Think. One two three four, two two three four, three two three four. Solve this. Pull him out. Cut the connection. Too late. To late. Too late.

"Cait," D'onofrio says, once, maybe, choking through clenched teeth.

"Cut the connection," Lightcap says, high pitched, shrill, trying to dial up the resistance, to block the open channel between D'onofrio and the Jaeger. "Cut the connection!"

"I can't," Tendo shouts back. "It's got him too tight. I can't separate the feeds. We've got to manually get him out of there."

On the screen, Jasper darts into the room, sprinting across the floorspace, and skids to a stop behind D'onofrio. "Hang on," she hears him say over the monitors. "Serge. Serge, hang in there." The drill begins to revolve, a high pitched crescendo that phases as Jasper starts at the base of D'onofrio's spine.

Serge tries to speak again, through a clenched jaw, his back arching minimally against the frame he's bolted to, the Jaeger flexing with him as far as its semi-mobile spine will allow.

"We're going to get you out, Serge," she says, her voice so high it doesn't sound like hers.

Tendo shakes his head and Lightcap thinks her own lie might leach into her lungs and drown her.

One two three four, she counts with David Bowie, *two two three four, don't count, think. Don't count, think. Don't count, think. New track. The load is too great. It's killing him and you can't get it off him before he dies. Maybe you can help him hold it up. But how.*

"He's strong," Lightcap says, speaking rapidly, her hands clenched on the edge of the console. "Stronger than the others. He can hold through the unbolting it if we help him. We have to *help him* hold it. How can we help him hold it?"

"Resistance is already jacked as high as we dare take it," Tendo says, catching her train of thought and running with it. "Gain is down. We can turn on all her systems, try to drain power from the neural network." As he speaks, his hands are already moving over touchscreens.

Lightcap stares at the oscillating wave on the monitors, watches its amplitude open up, watches its frequency narrow down. Jasper's halfway up D'onofrio's spine when the Jaeger crashes to one knee, bringing D'onofrio with it. There is the terrible sound of a drill, of a *misaligned drill*, screeching to a halt and then starting up again. *Help him hold it*, Lightcap thinks. *How can you help him hold it? How? If it were a literal weight, I would —*

"God," Lightcap whispers, rocked by fear. By total elation.

Tendo looks over at her.

"Tell Jasper to stop," she whispers, stumbling to her feet, tripping over a heel she'd hooked to her chair, but not falling. Not seeing anything but her only remaining option. Her fingers are numb; her heart is pounding so hard that it feels like something a person could die of.

"To—stop?" Tendo asks. "*Where are you going?*"

But Lightcap is already across the room and out the door. She runs through the halls, not dressed for this, never dressed for *this*, sprinting on heels that snap against the cement of the hallway floor in an echoing staccato, risking a fall, a broken ankle—a broken ankle that might kill a man, that might doom a costal city. It's not far, and when she gets there, she plants a hand on the open doorframe, swings herself through it, and staggers into the lab.

"Stop that drill," she shouts.

Jasper stops the drill.

D'onofrio is dying. Right there. Right in front of her. Back arched, kneeling on the floor, still half bolted into a duplicate of the rig that killed the pilot before him. It's her rig. It's *hers*. She knows it inside and out. Its dark frame, its streamers of electrodes. Where the screws go. Where the bolts fit. Where the microelectrodes snake along their proper courses. It's complex; it's contacts a detailed web that can't just be yanked out of the human nervous system. She knows that she can't pull him out in time to save his life. It's impossible. She cannot get him out.

But she can get herself *in*.

She's crossing the room. She's spinning in front of her original rig. She's reaching up and behind, she's groping for the rim of the helmet, she's pulling it down and into place, crushing her hair to her skull, nearly knocking her glasses off her face.

"Just the brainstem, port please, Jasper," she says, like she's ordering a glass of wine.

Lady, she thinks. *Lady whose shrine stands on the promontory. Pray for those who are in ships.*

"Cait," he says, understanding but unmoving.

"Bolt me in." It's not a request. *Pray for those who are in ships. Those whose business has to do with fish.*

"*Cait*," Jasper says, even quieter this time.

"*Bolt me in.*" she hurls the words at him, like a rain of burning oil, like arrows so thick they block the sun, like something so dangerous that he will be able to remember why and how she'd forced him into killing her.

He starts toward her, his drill in hand, his face pale. As he goes for her lumbar spine she snaps, "no. *No*. There's no time. Start with the brainstem."

"Kill the music," Jasper calls to Tendo.

"No," Lightcap says. "No one touch anything. *Anything.*"

"Okay," Tendo says, stressed and sharp and right in her ear. "Serge, hang in there brother. Cait's coming for you."

The drill begins. Her face is numb, her hands are cold, her eyes are bright and wide and hot. *One two three four*, Lightcap thinks. *Two two three four. Pray for those who are in ships and those whose business has to do with fish. Those concerned with every lawful*

traffic and those who conduct them. Repeat a prayer also, repeat a prayer also, repeat a prayer also, repeat a prayer also—one two three four, two two three four, three two three four, four two three four. Superconduct. And supercollide.

"It okay," Jasper whispers, right next to her. "I'm with you. There's no time for a local anaesthetic. It's going to hurt and you have to hold still when it does. Perfectly still."

"I know," Lightcap tries to say.

"One two three four," Jasper counts with her over the whine of the drill. She feels the pressure on the back of the helmet. "Two two three four, three two three four—"

The opening chords of *Ziggy Stardust* sound loud in her ears.

"—four two three four," Jasper says, slowing down to count right along with the new rhythm, doing it for her, doing it because it will make it easier. Easier for her.

She feels the deep burn of metal breaking skin, the prick and pressure of electrode extension, the danger of a waiting precipice before sliding right over a nonexistent edge in an avalanche of something bright and burning, *four three two one—*

She cascades into a space that isn't a space. The wind is in her hair. The sun is in her eyes. Somewhere, tires scream over asphalt as a car she is and isn't driving spins in a tight arc. Her fourcount ignites.

Ziggy played guitar

Jamming good with weird and Gilly

And The Spiders from Mars.

They are together.

They are *not* together. Instead they are the *same*, looking up in wonder toward stained glass in a church and at contrails in the twilight. A little girl. A little boy. The locks he picked; her bloody, coltish knees. Beneath his bed he keeps a box of fireworks. She counts inside of closets, behind her mother's shoes. The ice where they are skating is cold and thick in winter; the summer that their arm breaks is dark and full of crickets. They accelerate in unimpressive cars down unimpressive streets, windows always open, drifting back and forth in a sea of history that wasn't shared but *is*, that somehow *is*; it's both of them that cry hot and silent tears when basic training's over and both of them that shudder when Jasper (young and brave and certain) drags a shirt over their head.

He played it left hand

But made it too far—

Somewhere someone shouts, *Cait can you hear me? Cait can you speak?* But there is no *her* to call to anymore; there is only them. The water is too hot. Their hands are dry and cracked, wet with soap that stings and burns. Red and yellow, green and blue, spring and summer, halfway new. *Stop, baby, stop it now.*

Became the special man

Then we were Ziggy's band.

They fall, knocked off their feet in a flying tackle, hitting springy turf, landing on the ball, curling around it. *Praise God from whom all blessings flow; praise God all creatures here below! Alleluia! Alleluia! Praise Jesus Christ whose power uplifts! Praise the spirit, Holy Spirit—* Lightcap: a blaze of blue eyes and white lab coat, highest heels, longest hair, a laugh like a tray full of crystal dropped on a tile floor. D'onofrio: a dark doxological rock of a man, bowed head and eyes the color of the sea above the continental shelf, where one day, together, they will walk.

Ziggy really sang,

Screwed up eyes and screwed down hairdo

Two people as one. A little girl. A little boy. Holding onto one another to balance in the slurring, drifting, cracking space they've made out of themselves somewhere between shared sets of circuitry. *What's happening*, they ask, but no one knows the answer; they think to pull away, back inside themselves, but there no place to pull to, no place only one of them can go. Each wisp of thought is shared, a thing possessed by both of them. *Evangeline*, they whisper to themselves, looking at the prototype they built. *Evangeline*. She is with them too. Quiet, heavy, waiting. *What's happening*, they ask again, but no one knows the answer.

He could lick 'em by smiling

He could leave 'em to hang.

They are alone and they are weeping in their car, the kind of crying that will rip apart hydraulics in the chest, some essential tubing they could name if they were better with anatomy and not so good at math. This memory feels real to them, too real, realer than the rest and *we can't stay here; don't follow it, don't follow it down*. The wheel feels real beneath their hands and *Evangeline. Evangeline. I'm losing everything to this* is Lightcap and *we're a we and we can't stay here* is Serge but they're splitting apart with a tearing feeling in her heart in her mind in her heart in her throat in her eyes in her chest and this at last is how they fly apart. It's Lightcap's throat that's closing, Lightcap is the one who hears the words as words: *don't follow it; don't follow it down*. But she already has. *It isn't real*, Serge says, now beside her in the car; the space between them

growing. *It isn't real, Cait. None of this, none of this is real.* There are electrodes in his skin and Lightcap barely hears him over endless, endless counting.

So where were The Spiders

While the fly tried to break our balls?

Cait, Serge shouts at her. *Cait!* The car is stretching in a way that cars don't stretch. Serge's fingers clamped around her wrist, Serge's fingers clawing at her shoulder. Serge's nails pressing through her blouse and Lightcap screaming, screaming, *screaming* in past and present agony. *Just the bier-light to guide us.* The second she reaches back toward him they snap back together: tight, aligned, and drifting through the landscape of memory that they do not understand. *So we bitched about his fans and should we crush his sweet hands?* They hold together, cut off from their bodies, watching drifting ghosts of separate pasts form and fade and fail around them. *Don't follow*, they think, letting Caitlin in her car slide into the dark, allowing Serge to break his ankle. A brush runs through their hair. Little pictures flare like sparks, bursting all around. Lightcap fails to hook a bra clasp. Serge encounters the word 'fuck.' *Try to hear the here and now*, they whisper. *Try to open eyes you closed. Move your mouth to ask a question. Make your questions into words.*

He took it all too far

But boy could he play guitar.

Four eyes, all closed, snap open. A room away, a set of simple sensors come to life.

A shift in their perspective leaves them looking out of Lightcap's eyes, then Serge's eyes, then seeing with the sensors they don't yet know how to use, studying a field of static grays and static reds.

"Cait," Jasper whispers, right there, his voice afraid. "Cait—can you hear me?"

They can hear him.

Speaking is harder.

"We hear you," they say in tandem monotone, and they don't flinch when Jasper jumps.

They try again and only speak as Lightcap. "We can hear you, Jasper."

They look around the room with Lightcap's eyes. Her pain is duller, hotter, deeper than the cold and knifelike agony that runs up Serge's spine.

Making love with his ego

Ziggy sucked up into his mind.

"What's happening?" Jasper whispers.

"We're together," they say. "All three of us."

"Cait." They hear Tendo through their helmets. "Can we cut the connection? Is it safe to cut it?"

Like a leper Messiah—

"Not yet," they say. "Serge is on the floor."

"What?" Jasper says. "What does that *mean*?"

They stand as Lightcap, they stand as *only* Lightcap, and step forward.

"You'll kill yourself," Jasper hisses. "You're not bolted in Cait, you'll pull this thing *right out* of your skull with any pressure." But he's grabbed the port behind her helmet and has dragged the rig to follow.

"Thank you," Lightcap says, and then slowly (slowly) kneels.

"She's matching them," Tendo says. "Jasper—she's matching them. She's going bring the prototype up and redock it."

Yes, that's exactly what they're going to do.

As Serge, they find their balance. The Jaeger frame is shifted. And then, in perfect synchronicity, the three of them stand together—Lightcap, Serge, and the prototype Jaeger. They step back. And then they sit. All three as one.

When the kids had killed the man

I had to break up the band.

"Tendo," they say, using Lightcap's voice. "Cut the connection, please."

There is a rending feeling as their self is torn apart. She passes briefly through a shrieking darkness of perception before Lightcap is alone, alone in her own head, back in her own body, the back of her head aching in a strange and terrifying way, her expression contorting in panic, her breathing whistling in her own closing throat, gasping for air, high and ragged.

"Tendo," Jasper is shouting, one hand gripping the back of her helmet, one hand pressing down on her shoulder, "come down here and help me *get them out*." People are already pouring through the door, the med team and her techs. To her left she hears Serge and it sounds like he's choking on something; she feels *sick*, she feels like she's going to throw up, her back is soaked with sweat and the drill is loud in Jasper's hand right next to her ear.

Ziggy played guitar.

Stay calm, she tells herself. *Stay calm, it's okay. It's okay, Caity, it's okay. One two three four*, she counts to herself. *One two three four, two two three four, three two three four*—but it doesn't feel the same. She doesn't feel the same. She's not sure how she's different but she is. She's missing a hand or a leg or an eye or a brainstem. She's missing something she can't see.

David Bowie starts singing *Suffragette City*.

"Cait," Jasper says, very quiet and very close to her. "Listen to me. You're okay. I'm going to unbolt you right now." She can feel him grasp the electrode he's screwed into her helmet and into her skull. She can feel his grip somewhere where no human should ever feel anything. "Take a deep breath," he says. She tries, but he says, "Not good enough, Caity," he whispers. "Try again. All the way in, all the way down."

She does it, her eyes wide, her vision blurring.

"Let it out," Jasper says. And when she does—he yanks the brainstem port out of her head.

She wants to scream but she's out of air. She gasps and leans forward, her hands struggling with the helmet, her vision flaring and fading, flaring and fading.

"Oh my god," Jasper says.

She pulls the helmet off, feeling her hair fall stiffly and incompletely out the twist she'd put it in that morning. The back rim is red and sticky.

"Cait," Jasper says, trying to pull the helmet out of her hands. "Cait, give me that. Let go. Put your head down. Or, shit. Maybe not? Can I get a doctor over *here*? There were *two* of them bolted in!"

Lightcap looks for Serge. She can barely see him behind the wall of people that separates them. She calls to him, silently, with only her thoughts, an unreasoned act of pure instinct, but he's not there. They aren't connected anymore. She is only herself.

Also? That was blood. On the helmet. The one she had been wearing. She thought Casey's blood was gone. She thought she'd cleaned it all.

"Look at her back," Jasper is hissing to someone, one hand on her shoulder, pushing her down, one hand at the base of her skull, holding her hair. "It's all down her back. I must have hit something going in. It's not like the *fucking skull* has anything important, right? Jesus Christ. Jesus *Christ*, she could be bleeding into her brain."

"Serge," Lightcap calls into the knot of people between them. "Serge!"

But he doesn't answer her, or, if he does, she can't hear him.

Lightcap wakes in sunlight on a Sunday morning, surrounded by sunflowers, her parents in the room. Pentecost comes every night, Tendo brings her tea, and Jasper lurks in corners. Five days pass in a blur of medical exams, data analysis, and conversation after conversation—with Stacker and Jasper and Tendo, with Serge while they're both still in medical, undressed and monitored, electrodes on their heads.

"They had to drill a hole in your skull," is the first thing Serge says to her. "*Another* hole. A *second* one."

"I noticed," Lightcap says, her fingers running over the side of her head where they've shaved away her hair in a narrow strip, the neat line of stitches beneath a thin bandage. "Think I should copy your buzzcut?"

"Nah, wear it down," Serge advises. "Move your part, comb it over, twist it around, and pin it up. Your hair is so long that no one will even be able to tell."

Lightcap lifts an eyebrow.

"That was weird," Serge says. "Yes? Yes. Sorry. That I know too much about your hair. Also that you almost died. Also *very* sorry about that one, Dr. L."

"Call me Cait," she says, "and find me a comb."

They don't talk in earnest for ten days, not until an unusually cold night when she is sitting cross-legged on her bed, wrapped in a robe, hunched over her laptop, the cat in her lap keeping her warm while she burns candles that smell faintly of sandalwood and listens to *Supercollision* play and play and play on repeat. The knock on her door is so quiet that she's not even sure if it's really a knock when it comes. But she gets up, trades her robe for a track jacket, and peers through the opening in the dense metal.

It's Serge.

"One second," she calls through the door.

She yanks off her jacket, throws open a drawer, dives into a sports bra, realizes she put it on *over* her tank top, then hides the whole undergarment disaster by putting the jacket back overtop. She steps unsteadily into socks because she's always felt like her feet really aren't her best feature when they're not in stiletto shoes; it's too late for make-up, but then again he might or might not remember that time she unexpectedly had her period and ruined a pair of pajamas that she'd later burned so 'no make up' isn't really a thing, she just likes to be *ready*, that's all. Ready for everyone; Serge is not special; Serge is now extremely special but not in *that* way, well, maybe a little bit in

that way but only a little bit she has better things to think about than *all of this* so she swings open the door and says, "Hi."

It comes out breathless. At times like this she wishes she could spinkick herself in the head.

"Hi," Serge says, with a strange expression on his face.

Self-consciously, Lightcap reaches up to make sure of the artful sweep of her hair.

"It doesn't show," Serge says. "Not even a little."

"I know," Lightcap replies, straightening her spine slightly, delicately repositioning her glasses.

"It's late," Serge says. "I shouldn't be here."

"No," Lightcap replies, "probably not." But she swings her door wide and he steps over the threshold.

She's struck painfully and all at once by how her room must look to him. Sparse and hard and impersonal with no pictures and no decorations and yet *somehow* still inherently *girlish*, if only because she's burning forbidden candles, if only because she's poured herself a glass of red wine, if only because Schrödinger is curled in a little ball of cat on her pillow and because of the novel on her night stand with a horse on its cover.

Lightcap sits in her chair and Serge perches gingerly on the edge of her bed.

"Wine?" Lightcap asks, reaching down to pull the glass that used to be Jasper's out of the bottom drawer in her desk. Her head throbs dully with the change in position.

"Didn't they tell you not to drink?" Serge asks looking dubiously at the quarter glass of red wine sitting on her nightstand. "Maybe it's just me, but doesn't seem like you should be drinking a week after brain surgery."

She pours him a glass. "Ten days. I'm not drinking it. I'm *smelling* it while it slowly migrates inside me. It also wasn't 'brain surgery'; they just drilled an extra hole in my skull to drain off some accumulating blood. There's a difference."

"Yeah," Serge says rolling his eyes, taking the glass from her. "After this we can go play some tackle football."

"I *am* taking it easy, D'onofrio. What do you want from me? Usually I'd be drinking hellshit beer and sitting on the end of the deployment dock—" she trails off. Because he knows. He knows all of it already.

"No," he says. "No, keep going."

"But you already know," Lightcap murmurs.

"In a way I'm not *supposed* to know," Serge says, like a finger pointed at the tip of an iceberg.

Lightcap shrugs and doesn't bother to finish her half-articulated thought.

"I can go, if you want me to," Serge says. "I shouldn't have come."

"So long as you're not planning to seduce me, you can stay," Lightcap says dryly. "I'm not in the mood to let anyone down gently and I'd rather not crush your soul like an empty can of diet coke."

"You crush a mean can," Serge says, the tips of his ears turning faintly red.

"Thank you for noticing, D'onofrio," Lightcap says, draping herself over the back of her chair.

"So um," Serge says, looking up at her with a rueful smile, swinging his smile in the direction of the wall, and then looking back at the floor. "I made a list of things to say to you." At this point, to Lightcap's astonishment, he reaches inside his jacket and pulls out a literal list. On literal paper. Crisp and neatly folded right down the center, tucked into a pocket somewhere inside the depths of his uniform. He unfolds it carefully, then looks up at her.

"What?" he demands.

It strikes Lightcap that her expression is probably most kindly described as *gleeful*. "Nothing," she says, trying to drag the grin off her face, trying to resume a neutral expression. "It's just too adorable for words, you little nerd; I want to rip it out of your hands and frame the thing, god *damn* it. But no, go ahead. Read me your list."

"So number one," Serge says, letting the paper fold itself closed. "I'm not quite who I thought I was. Or, maybe, you saw me as someone I didn't want to be."

"I'm not sure I know what you mean," Lightcap says.

"That shit is *real*," Serge says, inexplicably. "People calling you 'pretty' all the time, giving you shit for your shoes, fucking *cramps*, getting called a bitch behind your back, to your face, that *dick* who grabbed your ass on the first night of your Departmental retreat when you were in *college*, can you believe that guy? The things that even Schoenfeld said to you that he wouldn't have said if you were a *man*, fucking *tights*—"

"*Oh* my god," Lightcap says, breaking in, literally pressing a hand to her mouth for an instant to try to press the grin straight out of it, "okay buddy, I get ya; you can stop."

"And I was just the most recent part of some giant, mediocre pattern."

"No," Lightcap says sharply.

"Yes," Serge insists. "The way you saw me, the things I said—that image wasn't how I saw myself. Not how I wanted to be seen. Not how I wanted to be. I actually *don't* want to be the guy who talks about how hot you look kneeling in stilettos. That guy is a self-absorbed dick."

"Less a self-absorbed dick than an *insulated* dick?" Lightcap offers kindly.

"Ugh," Serge says. "Just tell me you forgive me and you'll give me a clean slate."

"Sure," Lightcap says, giving him her most rakish half-grin.

"You know I've never thought about the concept of gender a day in my life?" Serge says. "But then, yesterday, shopping? I almost bought some tampons because I didn't *have any?*"

Lightcap laughs, and wraps her arms around the back of her chair. "You did not."

"I swear to god I did," Serge replies. "I literally pulled a box off the shelf. Weirdest moment of my life. I forgot I'd *never need them*. Do you have any weird gender stuff left over?"

"I'm pissed literally every time I have to sit down to pee," Lightcap says.

"Ha. Pissed," Serge says dryly. "Nice."

"That was for you, baby doll," Lightcap replies.

"I spent about a day without my bearings," Serge continues, "totally lost, knocked out of my track. And then—that feeling of confusion, of not knowing what kind of clothes to put on, that kind of thing—it faded. It just pops up here and there when I least expect it. In grocery stores. When I pass Dr. Gottlieb's giant board of math that I almost used to understand."

"Even I don't understand his wall of math," Lightcap says.

"Impossible," Serge shoots back.

"I do know what you mean though," Lightcap says, allowing the steady flame of a candle to photobleach out a little spot in her retina. "I never thought that I'd live in a world where someone might, quite literally, *know* my mind. You saw things that no one was ever supposed to see. We both did, and I would say that we need to forgive each other for that, except—"

"Except what?" Serge asks.

"Except I think we already did," Lightcap murmurs, still staring at that candle. "I think we had to, to align like we did. To stabilize that wave pattern. To bear the neural load. I already forgave you for everything I might have ever needed to forgive you for. So it's nice that you asked me, kiddo, but you didn't have to, and I think you know that."

Serge nods.

"What's number two," Lightcap whispers.

"Ah, number two," Serge says without opening his little paper. "That's a tough one."

"Say it," Lightcap urges, "because as soon as I get formal permission and medical clearance I'd like us to jack in again, and there are no secrets there."

"Again, huh?" Serge asks, quiet and warm, like he's stepped over a threshold but isn't quite ready to spill his secrets, or hers, into the waiting air. Lightcap doesn't blame him. She's less a confidant and more a fault-line waiting to slip, and Serge must know it. How could he not, after all he has seen and done?

"Yes," Lightcap says, and Serge smiles, quick and bright, while some smartass sings about insomnia from the little speakers on her desk.

"It took me a while to figure it out," Serge says. "The memories were such a blur, so fast, so confusing, so scrambled, all feeling like things I already knew. I had to go back, try to figure them out, try to separate yours from mine, before I realized what it was that I was trying to put my finger on."

Lightcap waits him out, already sure what he's driving toward.

"You have OCD," he says.

"It's not a secret," she replies. "Hell, it's on my Wikipedia page, D'onofrio."

"But I didn't know," he says. "Probably, that's not the way you'd have wanted to tell me, if you ever did tell me about it."

"No," Lightcap says, "I usually wait for people to say, 'God, Lightcap, do you have OCD or something?'" She grins at him. "And then I say 'yes, you insensitive *asshat*, good pickup'."

Serge snorts at that and rolls his wineglass back and forth between his hands.

"What was it like?" Lightcap asks. "Looking at it from the inside out, in pieces, without knowing what it was?"

"You know, at first, I thought it was just you. In some of the memories—the counting was just a soundtrack to your thoughts, which already felt denser than mine, like you

knew more things and you lived more fully and underneath it you were just there, counting it out so everything hit with a rhythm, everything arrived on time. But as it went on, as the 'Drift', I guess you're calling it, went on, I could see that it *had* to be that way for you. That the counting was like—some magical thing. Some thing that could ward off problems, that could erase thoughts you shouldn't have, that could make it so that no one hated you, that could make you a good person."

"It's not like that," Lightcap says, stiff and reflexive. "Counting can't do that. Counting is just counting. It's lucky."

"It's not lucky," Serge says.

Lightcap looks away. "What are you saying?" she snaps. "Fine. It's not 'lucky'. It's an irrational impulse that I can't shed. Are you *happy*? Do you think I should quit my job and meditate on it for the rest of my miserable, circumscribed life? I tried that; it doesn't help."

"No," Serge replies. "No, that's not *at all* what I'm saying."

"Then what *are* you saying?" Lightcap demands. "You think I don't know it better than anyone? You think you can look at it for three minutes, in pieces, and offer me some insight into myself that I haven't already seen? That I haven't already dug out of my own mind?"

"No," Serge says again. "Will you just *listen* to me?"

Lightcap lifts a hand and drops it, not bothering to look at him or not able to look at him.

"I'm trying to—to demonstrate that I *get it*," Serge snaps. "I'm trying to tell you, *in words*, what I saw. I'm trying to tell you, in words, that it *matters to me* how you feel about what I saw."

Her head aches and her sinuses feel heavy. Her eyes are hot and she stares at the floor, in serious danger of crying for a library of reasons. Crying in relief, crying in release, crying for her mother who had not wanted to leave her in Alaska and who had wept silently all the way to the airport, holding Lightcap's hand in the back seat of a PPDC issued car, while Stacker drove down mostly empty roads and made awkward small talk with her father.

"The details fade," Serge says, "the farther from the Drift, the less I remember the immediacy of the need to count things off in sets of fours, how much you cried when you slid back into handwashing after Jasper's wife called you and scared you so much—the times you returned to rituals you thought you'd shed, the ways that you tried so

long to make things not your fault, to ward them off, to control things that no one could control."

She does cry, then, sitting in her desk chair, her face still and turned away from Serge.

"I saw the other parts of it—how hard you've worked for what you have, how well you're doing now, how well you've always done, how much faith it took to let Jasper drill into the back of your head. I can imagine how much that line of stitches probably bothers you. The point of this isn't to drag you through battles you've already fought but to let you know how fucking *much* I saw, and to tell you that I'd never want anyone else building these things. Doing what you do. Jacking into my brain. Because there couldn't be anyone better than you, Cait, there just couldn't. There couldn't ever."

"Says the guy who's only ever seen one other human brain," Lightcap says, with wan smile and a tight throat. "But thanks."

"Yeah," Serge says.

Lightcap takes off her glasses in a careful pull, mindful of her hair. She wipes her face with the black sleeve of her track jacket and then slides the frames back into place. She watches as Schrödinger uncoils himself from her pillow, leaps lightly to the floor, crosses the room, and scales her leg to end up in her lap.

"You okay?" Serge asks her, watching her pet her cat.

"Yeah," Lightcap says.

"With all the things I saw?" Serge asks. "You can tell me if you're not. I'd get it. Believe me, I would."

"Well," Lightcap says, struggling for the right words, battling through too much hyperbole and rhetoric. "When I did it—I don't know what I was expecting. Not what I got. I thought I'd feel the prototype. Like you felt her. I thought we'd share the load. I'd feel her half as much. But that's not what happened. You were there. I was there with you. We were in the same space. Somehow we created it to accommodate what we became when I jacked in." She looks up at Serge to see a strange, preoccupied expression on his face. "What?" she asks.

"That first moment," Serge says. "Before the memories started going off like landmines—what was it like? Do you remember it?"

"It felt like falling," Lightcap replies. "Like the slow slide over the edge of a cliff."

"Huh," Serge says.

"What about you?" Lightcap asks. "I almost had the feeling that—you were already 'there,' whatever 'there' means in this context."

"I wasn't, not exactly," Serge says. "I was kneeling in that room, pretty sure I was going to die—and then, as you came, the 'there' started to appear. Not all at once. You brought it with you."

"What was that *like*?" Lightcap asks. "How did your mind—" she stops to search for the words she wants before she finishes with, "explain what was happening?"

"An empty parking lot," Serge says, the tips of his ears flushing again. "That you created as you crossed it. I knew you were coming. I could *see* you coming."

"I created—an empty *parking lot*?" Lightcap asks, grinning at him.

"Eh," Serge says, blushing further. "I don't think *you* created it—I think that was *my* brain, trying to tell me what was happening. It was a specific parking lot, actually. The one behind the church just down the road from my house. Do you remember that one? From the Drift?"

Lightcap tries to think back, and she has a vague, nebulous sense of dark ice, of yanking a wheel to try and spin out her parents' shitty station wagon into a 360-degree spin.

"The church where you and Matt used to try to kill yourselves doing donuts in the winter?" she asks.

"Ha," Serge says. "No. Different church."

"What can I say? Your teenage stupidity seems to be one of the things for which I have the stickiest memory."

"Great," Serge says dryly. "Just what I wanted. But no, this was a different church—higher roof, smaller parking lot. But the church wasn't there, it was just the parking lot. The cracked asphalt, the trees around the border. And you were driving a car."

"What kind of car?" Lightcap asks, feeling the vibration of Schrödinger's motor-like purr against her thighs.

"A little blue coupe," Serge says. "The top was down. Your hair was all over the place with the wind and you were driving fast, straight towards me. At the last second you swung the wheel and stopped so that I was standing right in front of the passenger's side door. *Ziggy Stardust* was on the radio. You leaned across and opened the door—and that was it. Then we were just there together."

"I can't believe I drove a metacognitive car into your brain like a total badass," Lightcap says. "You're making that up because you think I'll like it. Are you making that up?"

"No," Serge says. "No way. It's burned into my brain forever."

They are quiet for a short time, Serge looking at the half-finished wine in his hands, Lightcap sitting sideways on a chair, one arm hooked over its back. Schrödinger purrs. From her laptop some bastard sings about strange attractors.

"Can you dump this on my drive?" Serge asks, his gaze directed toward her computer. "Their entire discography?"

Lightcap smirks. "Sure."

"I'll give you all my Tom Petty," Serge says.

"No thank you," Lightcap replies. "I *remember* liking Tom Petty, as *you*; but *I* do not like Tom Petty. As me. I'm very clear on that point."

"I'm pretty sure *Free Fallin'* was written for you, actually," Serge says.

"Ah, but who am I? The 'good girl' or the 'bad boy'?"

"Both," Serge replies. "Obviously."

"Whatever, nerd," Lightcap says. "If there's *ever* been a song written for me, it's—"

"Evangeline," Serge says.

Lightcap elevates a single shoulder. "So what's your song, then, D'onofrio?"

"*Bicycle Race*?" Serge suggests.

Lightcap laughs, the back of one hand pressed against her mouth, and Schrödinger jumps off her lap, shooting her an offended look over one shoulder.

"I'm not a complex guy," Serge says, grinning at the floor.

Lightcap is still laughing, wound up too tight or not wound tight enough, she's not sure which. It takes her some time to stop, to lose her emotional momentum to the sober friction of the world, but it finally happens, and she says, "sorry. Sorry."

"Shut up, Caitlin," Serge replies, good-naturedly embarrassed.

Lightcap laughs one more time against the fingers she's pressed to her mouth, and then says, "sorry," again. "This is a *very* serious talk we're trying to have and I'm ruining it. What's next on your list."

Serge unfolds and refolds his paper in the blink of an eye. "There's really only one more serious thing on here. The rest is little stuff. Like how I miss your demon cat. What kind of chapstick do you buy because I want some. That kind of thing."

Lightcap exhales, short and sharp and amused, opens a desk drawer, and tosses him an unopened tube of chapstick. "The cat is right there. Just waiting to be petted."

"I prefer my hand unmauled, thanks," Serge says, pocketing Lightcap's chapstick.

"So," Lightcap says. "Since we're already doing this; we might as well do it right. What's your last big ticket item?"

Serge tucks the paper back inside his jacket, swirls his wine in his glass, and says, "I read your report on the Drift."

"You read my internal memo, I think," Lightcap says. "The 'report' is classified."

"I'm bad with bureaucratic lingo," Serge admits. "Sure. I read your 'internal memo', then. Where you advocated for the identification and training of drifting pilot pairs. And when I was reading it I was—wondering how you thought you might fit into all of this. Whether you'd stay on the theoretical side, whether our Drift would be your only Drift—or whether you might want to try it again? Whether you might want to *be* part of a pilot team? Whether you and I might be a team. Might be the first team."

The thrashing desire for that exact outcome is something that she hasn't been able to crush.

"I—" she has to stop to clear her throat against a sudden dryness. "I have always wanted to execute the final common pathway of everything I'm building. I've *always* wanted that. But I'm not sure I want the right *part* of it. I want the interface. The connection between my mind and the work of my hands. When it comes to killing kaiju—frankly, I'm not sure how *good* I'll be. I've never done anything like that. I've never been in a physical fight. I can remember it from *your* life; how much it hurts at first, how terrifying it is to feel real physical damage. The way you habituate to it. The way you also lose your habituation after too long away. And they're—inherently—well, they're terrifying. The kaiju."

Serge rotates his wine glass in his hands and doesn't say anything.

"And then there's the question as to whether it's a smart choice. A good use of resources. *Should* I be so enmeshed in a single part of the process, when I'm in charge of making sure the entire thing goes to completion? Part of the answer to that question depends on how—unique we are. You and I. Whether just anyone can do what we did. Could you Drift with Tendo? Could I? Can any two people do this? Or is

personality and alignment and intent—are they all important. Were we unusually successful, or were we only barely any good?"

"We were good," Serge says, like a dredge grinding over rock. "You know we were."

"Yes," Lightcap whispers. "I know it."

"There's a lot that can't be answered right now," Serge says. "But, if you're interested in my opinion, I think you'd take to combat training like only a few I've ever seen. You have the kind of drive that won't leave you until you run out of air or blood. *That's* what lets you win fights. Getting hit, getting hurt—those things wouldn't stop you. Scare you, yes. Maybe. Stop you? No. You can work with, anger, with fear, with insufficient skill—all of those things are surmountable in different ways. But that terrible, overriding drive—irreplaceable."

"Terrible," Lightcap repeats. "Overriding. So—you think, with training, I'd be good. You don't think I'd drag you down? Hold you back? Make you—physically *less* in some way?"

"No." Serge shakes his head.

"Because if I do it, it has to be because I'd *be good*. To do it, to justify it, I'd have to be amazing. One of the best. One of the best *ever*. Otherwise, I should sit behind my desk and yell at people to work faster. Do you know what I mean?"

"I do. And I think there's a chance that you *would* be that good. That *we'd* be that good. You'd have to learn how to fight. You'd probably have to learn my style. From me."

"I've seen you on the floor," Lightcap says. "I'd have no problem with that."

Serge snorts. "You're going to want to kill me with your bare hands most days. I've seen that brain of yours. You're going to hate me, every day single day I set you back on your ass because I'm better than you. Every goddamned day. Until the day that I'm *not* better."

Lightcap lifts an eyebrow.

"Tomorrow," Serge says. "We'll start. Light stuff. The lightest of the light. Talking through it. Ask your neurosurgeon when you can start high impact training. Probably it'll be five more weeks. Maybe longer."

Lightcap nods.

Serge runs a hand over his buzzcut and then continues, like he's cranking a release-valve open, "I can't believe you jacked right into your brainstem without securing the

frame. I can't believe Dr. Schoenfeld had the balls to drill into your head, freehand. God. Never do anything like that again, it's not *worth* it."

"It was *absolutely* worth it, baby," Lightcap says, flat and certain. "I saved you. I saved the whole project. It was worth dying for either one of those things."

Serge knocks back half his remaining wine.

I thought you might be paralyzed, Lightcap thinks, when we stood and your spine was half-unbolted from that frame. But you were with me then, and, together, we decided to stand anyway. We did it for her, for the prototype, to redock her, because, in that moment, she felt just as important as we did. Who did that feeling come from? Me? You? Some strange echo of life that our minds breathed into her?

"It's going to be that kind of a decade," Lightcap says to him.

"I know it is," Serge replies.

The Blue Guitar

[The sound of rain. The sound of Caitlin Lightcap whistling. Opening music fades up.]

Notes: This audio production of *The Blue Guitar* was written and directed by cleanwhiteroom. It was produced and edited by elementals. Musical direction and scoring was performed by Friend King. Voice acting was provided by elementals, allyspock, Friend King, and their associated family members. Album artwork was created by saltbay and narcomanic. Music provided by *The Superconducting Supercolliders*. Learn more about this radioplay and the involved artists at www.cleanwhiteroom.com. Disclaimer: this is a fanwork, created based on characters in the film *Pacific Rim*. None of the involved artists are profiting in any way from the creation of this work.

[Opening music ends.]

The Blue Guitar

Narrator: *[deadpan]* Sometime in the winter of 1903 to 1904, near the end of his Blue Period, the artist Pablo Picasso painted *The Old Guitarist* over a pre-existing and nameless painting of a mother and child. In 1937, inspired by that painting, a Hartford insurance executive named Wallace Stevens wrote a poem entitled: *The Man with The Blue Guitar*. In 2009, inspired by that poem, an indecisive graduate student working on his sixth and final doctorate purchased a blue guitar. In 2013, an alien species emerged from the bottom of the Pacific Ocean and began periodically laying waste to costal cities at decreasing interval time spans. There was no causal relationship between the alien incursion and the graduate student's purchasing of the blue guitar. In fact, the events were not even temporally correlative. At the moment a transdimensional breach opened in the bottom of the Pacific, that graduate student was tenured, hung over, and proctoring a tissue engineering final at an academic institution halfway across his little blue planet. His name was Newton Geiszler. His guitar was never given a name. In 2016, the blue guitar, in the company of its owner, made its way to Alaska. In 2016, Newton Geiszler joined the Pan Pacific Defense Corps. These two events *were* causally related. At this time, the guitar made the acquaintance of Dr. Caitlin Lightcap, head of the K-science division. This meeting occurred on a helipad in the dark of an

Alaskan spring. The weather was unseasonably cold. A guitar string snapped, inaudible beneath the sound of the wind and the rotating blades of the chopper.

[The sound of wind. The sound of a chopper.]

Newt: *[shouting to be heard]* Dr. Lightcap, I presume?

Lightcap: *[shouting]* What gave it away?

Newt: Situational cues?

Lightcap: Good answer. Welcome to Alaska. *[The sound of a closing door.]* Whew. The weather will turn tolerable right around the time we relocate to Tokyo.

Newt: *[reserved, cautious]* Tokyo? No one said anything about—

Lightcap: You now work at the whim of an international organization structured around elements of borrowed military bureaucracy, kiddo. No one says anything about anything. Is that a *guitar*?

Newt: Yup. Call me Newt.

Lightcap: *[sweetly]* No thank you.

Newt: Do you play? Guitar, I mean.

Lightcap: Nope, and neither do you.

Newt: Oh, wait, hang on a second; let me just recalibrate my entire personality and worldview to suit whatever subjective opinions you might express.

Lightcap: Good. And while you're at it, consider your death. Consider your carbonization to ashes. Consider those ashes spread across the sea. Consider that, depending on the manner of your death, you will leave no ashes. Don't grin at me like that, Geiszler. I'm serious.

Newt: That much is extremely apparent. So *very* pleased to have made your acquaintance, Dr. Lightcap. I think I can find my own way from here.

Lightcap: Can you though?

Narrator: Dr. Geiszler replaced the broken guitar string that same day. As a matter of principle, he chose to display the guitar prominently and inappropriately in his assigned lab space. It was in this way that the guitar joined the K-science division. Despite Dr. Lightcap's initial hostility, it seemed that in practice she tacitly approved of Dr. Geiszler's aesthetic and attitudinal choices. She said no more about the instrument. Because of the guitar's proximity to his workspace, Dr. Geiszler immediately developed the habit of plugging a pair of headphones into the output jack and playing dissonant

chords while 'thinking.' Unfortunately for his nearest colleague, while the electric guitar was not connected to an external amp, these chords were still audible. Even more unfortunately, Dr. Geiszler was known to 'think' very frequently.

Hermann: zeta of s equals the sum of, from $n=1$ to infinity, one over n to the s . If the real part of s is greater than one, then the zeta function satisfies the sum of negative one to the n plus one over n to the s —

[Dissonant electric guitar chord.]

Hermann: I will kill that man. It will be justified. It will, in fact, *be* justice.

Narrator: Dr. Geiszler's colleague was the acting head of a K-science subdivision known as the B-side. The B-side was named for the transdimensional portal at the bottom of the Pacific, known colloquially as 'the Breach.' Dr. Gottlieb's team consisted primarily of quantum physicists working to discover the portal's origin, properties, and composition. After his arrival in Anchorage, Dr. Geiszler petitioned Dr. Lightcap to create another division within K-science devoted to the study of the biological organisms transited by the breach, known colloquially as 'kaiju.' Dr. Lightcap named this division the K-side. Dr. Geiszler objected to this name on the grounds that it would cause undue confusion within a department already known as 'K-science.' He renamed his division The A-team. This caused significant consternation on the B-side.

Hermann: This name is indecorous, immature, creates a false sense of hostility and an inappropriate rivalry between two subdivisions that should be collaborative in nature—

Newt: Rivalry? What 'rivalry'. That's ridiculous. You can't pit quantum mechanics against biology. Except in terms of grant funding, probable relevance, competence of specialist personnel, demonstrable advances, and sheer exobiological awesomeness. The A-team clearly dominates in all those categories. But the *letters*? In and of themselves? Meaningless. A is a. B is b. Law of identity.

Hermann: Law of *identity*? You juvenile, disingenuous—

Newt: You pretentious, literal-minded—

Lightcap: *QUIET.*

[Silence]

Newt: He started it.

Hermann: You are *clearly* the instigator of this *utterly* pointless—

Lightcap: How long have you two known each other? Less than a week? I feel like there's some history I'm missing.

Newt: Nope.

Hermann: Absolutely none.

Newt: There is no history. No history at all.

Lightcap: Uh huh. Okay. Sure. The names stand. B-side. A-team. Gottlieb, stop complaining. Geiszler, stop surreptitiously being a bastard at every opportunity. Both of you? Stop wasting my time. I don't have a lot to spare.

Narrator: Drs. Geiszler and Gottlieb did, in fact, know one another prior to being assigned adjoining lab spaces. They had begun their correspondence in 2013 following the first kaiju attack. They had spent the intervening years exchanging an extensive series of letters.

[The sound of a needle dropping. A record begins playing Bolero by Ravel.]

Hermann: *Dear Dr. Geiszler, you must pardon the indecorous enthusiasm of the response you are about to read but I must confess I was thrilled to receive your letter. I cannot tell you how frustrated I have been, trying to communicate the relevancies of my model to a pedestrian academic hierarchy of an indentured faculty who seem to distrust applicability purely on principle. That statement is, of course, unfair.*

Newt: *Dear Dr. Gottlieb, indecorousness pardoned now and forever. In fact, I actively encourage indecorousness at every opportunity. That sounded unpardonably lascivious; allow me to rephrase. The turnaround time on the exquisitely worded 'missive' you just sent was unbelievable. It's actually going to take me a few days (years?) to navigate myself through that document you sent—I do not math the way you math, I don't think.*

Hermann: *Dear Dr. Geiszler, at times I feel as though you may have a firmer grasp on the conceptual underpinnings of quantum physics than many of my colleagues, though I am certain this cannot truly be the case. Perhaps a better way to put this is that you are a reductionist who presents himself inductively.*

Newt: *Dear Dr. Gottlieb, I talk a good game, it's true, but I think I think a better one. You, on the other hand, tend to mean what you say and say what you think and so I am terribly flattered by your analysis of my analysis, or, rather, your analysis of my analytical style. Allow me to say: right back at ya, but inverted.*

Hermann: *Dear Newton, I find myself wondering about the future of tissue regeneration as a field now that you have turned your intellectual energies elsewhere. I confess I have been perusing the literature after reading your Nature paper from 2012 and it seems extremely apparent to me that you are one of the prime drivers of basic research in—*

Newton: *Dear Hermann, I kept refreshing Science's website for the entire afternoon. I can't believe you wouldn't send me a pre-publication copy of your paper; you are maddeningly ethical. It hurts me. In my soul a little bit. I know, I know, you made an agreement with the group from Japan, but—*

Hermann: *Dear Newton, I have never met anyone who has a better grasp on the inherently political structure of academia. At times I almost think you must have been raised in such an environment, it's so integral to your worldview—*

Newton: *Dear Hermann, you aren't wrong; in fact I get the sense that you're rarely wrong, and that is something of an intellectual turn-on, I am not going to lie about that. But I don't want to give you the idea that I'm a cheap intellectual date, okay? It takes a lot more to satisfy me than the verifiable accuracy of a working model—*

Hermann: *Dear Newton, you must tell me what you think of this paper in Quantum Physics Letters. I was unaware of its existence until I picked up a copy of Die Zeit this morning. The fact that you emailed me one hour ago and didn't mention it—*

Newton: *Dear Hermann, I'm late for my genetics seminar but I saw your email and I just had to let you know that yes! I saw it. Thank god it's out now. It's been killing me to keep my mouth shut about it since I saw their data at a RIP talk I crashed six weeks ago—*

Hermann: *Dear Newton, it's four in the morning and I am too troubled to sleep. I am watching the continuing coverage from the Philippines—and I find it at once both distressing and fascinating. I am reminded of your comments regarding—*

Newton: *Dear Hermann, I hear the insomnia song; hear it, have heard it, will always have it playing on repeat somewhere in my head; it sounds a little bit like Freddie Mercury singing Under Pressure over and over again if you want to know—*

Hermann: *Dear Newton, please be careful in Manila, social conventions are lost mid-disaster and you—well, I don't wish for you to take this the wrong way, but you strike me as the kind of person who might not—*

Newton: *Dear Hermann, I'm trying to keep myself awake. There is so much particulate matter in the air here that if you fall asleep and your respirator filter clogs it's possible to die of hypoxia. The touchscreen on my phone is corroding—*

Hermann: *Dear Newton, Alaska is cold, dark, and altogether miserable. My outerwear is inadequate and my room is made of poorly insulated metal for no reason I can discern. It is enough to make one take up drinking if only for—*

Newton: *Dear Hermann, I do not understand why you insisted upon applying to that ridiculous pilot training program, it sounds like it's full of pointless machismo and I will—*

Hermann: *Dear Newton, please do not be so dramatic; things are not as bad as I made them out in my previous email; I was frustrated by—*

Newton: *Dear Hermann, sorry for the radio silence; turns out I was in quarantine—*

Hermann: *Dear Newton, I thought of you today because —*

Newton: *Dear Hermann, I will miss you if you die while—*

Hermann: *Dear Newton, please be more careful—*

Newton: *Dear Hermann, tonight I can't sleep—*

Hermann: *Dear Newton—*

Newton: *Dear Hermann—*

Hermann: *Dear Newton—*

Newton: *Dear Hermann—*

Narrator: Their correspondence continued until they met in person in 2015 at a scientific conference in Geneva, and, through a complex sequence of unfortunate circumstances, snap judgments, and unadvised decisions, came to instantly despise one another.

[Music abruptly disappears.]

Narrator: Dr. Gottlieb never revealed to anyone that he had a habit of printing Dr. Geiszler's electronic correspondence and drafting his replies longhand. Weather permitting, he would sit outside as he wrote. His last letter had been composed on the summer solstice, near midnight, under an unsettling Alaskan sun as he worked his way through a thermos of Earl Gray tea after his dismissal from the Jaeger Academy. Dr. Geiszler never revealed to anyone that he had created a small, solid-state drive to hold the entirety of their correspondence and carried it as a key ring in the shape of a guitar pick. He did not want to be thought sentimental. *His* last letter had been composed on a trans-Atlantic flight passing forward through a set of seven time zones. The pace of his typing had disturbed his seatmates. He made an effort to type more slowly and quietly multiple times. He was not successful. Shortly after Dr. Geiszler joined the PPDC, the pair became famous for their incompatibility, their open disdain for one another, their semi-regular shouting matches, and their perplexing tendency to sit next to one another at mandatory briefings, exchanging sardonic asides. Whether or not they considered themselves 'friends' was a widely debated topic on which neither of them deigned to weigh in. Dr. Geiszler's guitar, the frequent focal point for their confrontations, had no opinion on the matter. It was, after all, a guitar.

Shortly after its arrival in Tokyo, the guitar made the acquaintance of Mako Mori.

[Sound of alarms, running, general commotion, a loud crash, and general commotion continues under the spoken lines.]

Lightcap: *[shouting]* Get a med team. Get me a drill and get me a *med team*.

Hermann: I—would not have believed this possible.

Newt: *[understated]* Well, *that* doesn't look the best.

Lightcap: His copilot is dead, half of *Tango's* drive train is gone, the cockpit is too warped for automated docking, he's injured, and according to Tendo? He's got *a little girl* in there. Holy *shit*. *[quietly and rapidly]* One two three four; one two three *four*.

Hermann: A child?

Lightcap: Yeah. Okay. New kid? You're with me. He's going to be bolted into that suit and the rig won't dock with the automated frame. We're going to have to unscrew the thing manually.

Newt: Okay, forget the mechanics of the 'unscrew'—how are we going to get *in* there if the cockpit is too warped to dock?

Hermann: I recommend jumping from the lower service deck to the auxiliary service port and climbing past the reactor. From there, you're a hatch and a ladder away from the cockpit.

Newt: Jump? Do you realize how many tax dollars have been invested in my brain?

Hermann: Far more than it warrants. Try not to dash it against concrete.

Newt: The shielding on that reactor core is shit.

Lightcap: This is the job, kiddo. I'll give you a raise if everyone lives.

Newt: How did Pentecost get a little girl inside that thing. Is there seriously a little girl in there?

Hermann: Left hand to right cockpit emergency hatch. Which you would *know*, if you *bothered* to look at *any* blue prints. At all. *Ever*.

Newt: Not my area. *Hermann*.

Lightcap: Geiszler. Stairs. Service dock. We're going. Hold my drill.

[Sounds of transit over metal]

Newt: If I die, Lightcap, I want you to know that I died unimpressed with your emergency access designs and your respect for the train wreck that is radiation meeting the human genome.

Lightcap: Well, if I die, I want *you* to know that I was not thinking about you *at all*, other than as the guy holding my drill.

Newt: *[with difficulty, climbing]* Touché. Let me ask you a question, Lightcap. Doesn't it seem like people that *aren't us* should be doing this? J-tech, for example. The medical team. J-tech. Also? J-tech. Did I *mention* J-tech to you.

Lightcap: *[grimly]* It's my rig, my suit, my interface. My bolts. My screws. My risk assessment. My division. J-tech? Is mine. I am the best qualified and at the crucial moment you happened to be standing next to me like an overqualified neoneurohipster with nothing useful to do. Now, we're jumping this gap and we are *not* screwing it up.

Newt: Ideally not, no.

[sound of Lightcap jumping]

Lightcap: Now toss me the drill and jump.

Newt: Comin' atchya.

[The sound of a tossed drill.]

Lightcap: Jump. Don't think about it.

[Newt jumps.]

Lightcap: *[quiet laughter]*

Newt: *Thinking* is my skillset. You realize this.

Lightcap: I know, baby-genius. Now climb.

Newt: Climbing, *climbing*. God. Don't call me baby.

Lightcap: Don't have that face. *[low in the mix, beneath Newt's coming lines]* One two three four, two two three four, three two three four, four two three four.

Newt: Very mature, Lightcap. Your professionalism never ceases to astound. *[The sound of straining over the sound of grinding metal.]* Is there a trick to opening this thing, or?

Lightcap: Put your back into it, Geiszler.

Newt: You're the one who, like, lifts weights every day. Personally, I'd prefer a *lever* of some kind, but—

Lightcap: *[under breath]* Oh shit. *[then urgent and intent, but not loud]* Marshal. Marshal Pentecost. Sir. Stacker. *Stacker*. The short wave went down. Are you hurt?

Pentecost: *[pained]* I've had worse. Allow me to introduce Ms. Mako Mori.

Lightcap: *[to Mako]* Hi baby. You're going to need to let go of the marshal so I can unscrew his suit. Okay? Come on. Let go. Let go. We're letting go. Nope. We're not letting go. That's good. Thaaaat's just great. *[Mako begins to cry.]* Okay, and now we're crying. Um, don't cry, baby. Geiszler, how about *you* take the kid and *I* will take the drill? Yes?

Newt: Myeah, I—

Lightcap: Give me the drill. Take the kid.

[Mako continues to cry.]

Newt: Mako Mori? More Like Maks in socks, am I right? Hey, it's cool, crying is, like, a thing. Evolutionary. You just go for it, kiddo. Weeping seems like a reasonable choice to me. Very defensible. Myeah, you speak no English, do you? Absolutely none. My name is Newt. I, uh, like your shoe? You can stick with me for a little while. I'm probably the coolest person here; I won't lie to you about that. I'm extremely honest when it comes to appraisals of personal merit; it's one of my strong suits.

[Sound of a drill]

Lightcap: *[whispered]* Oh god, this looks bad. We've got a team from medical on the way.

Pentecost: I'm all right.

Lightcap: *[distractedly, as if very intent on absorbing work]* You might not know. You might be in neural shock. Can you feel your fingers? Feel your toes? Are you in any pain at all?

Pentecost: I'm all right.

[The sound of a drill and warping metal.]

Newt: You look like you're a smart one, Maks. Lots going on in that brain. How did you get yourself into a Jaeger, hmm? That's ridiculously badass. You should probably be a bassist. Women who play the bass are categorically badass. Not because it's a gendered, thing, Maks, that sends the wrong sort of message. Only because if you can rock a large instrument with small hands that implies a greater degree of virtuosity.

Look, none of this matters because I don't *have* a bass. You'll have to make due with a guitar for now. You'll like it. It matches your coat. It's literally the most fun thing I own because some overbearing supervisors that I won't name but that might or might not be in the immediate vicinity and listening to this right now put a weight restriction on personal items at time of employ for no real reason other than some wish to conform to a preexisting militaristic culture, myeah? Am I right, Maks? Of course I'm right. I'm always right. When I'm running K-science people will be allowed to own *books*. Put up a monster poster or two in their workspace if that's their shtick. Buy a coffee maker, huh? Does that sound reasonable? A coffee maker? No response? Well, look, I get that you're probably a little bit preoccupied. I would be too. Coffee though. Very important. For morale. Also for science. Think about it. Humans need to be human. That's the point of it all, I'm pretty sure, Maks.

Mako: *[tearfully]* Mako.

Newt: Maks.

Mako: *Mako*.

Newt: Mako. *Mako*. I get it, kid; what do I look like to you? An idiot? Do you care about *my* name at all, or do you just want me to get yours right? I know a guy you'll get along with really well. His name is Hermann Gottlieb.

[Sound of drill.]

Pentecost: *[through gritted teeth]* Who's the new guy?

Lightcap: No idea.

Newt: *[pointedly]* My name is *Newt*, Maks.

Mako: Mako.

Newt: Mako, Newt. Newt, Mako.

Mako: Newt?

Newt: Newt.

Pentecost: What kind of name is Newt?

Lightcap: *[to Pentecost]* Newton Geiszler, PhD.

Newt: In sextuplicate. Nice to meet you.

Pentecost: That hair isn't regulation.

Newt: It isn't? I am so sorry about that. I, a scientist in governmental employ and not *actually* subject to your faux militaryesque hierarchy, will just get *right on that* for you, dude. How are we getting this kid out of here, by the way.

Pentecost: Carefully.

Narrator: Years passed as the guitar traveled the Pacific Rim. It saw Dr. Lightcap come more and more frequently to Dr. Geiszler's office. She would sit with her PPDC-issued boots propped on a desk that was not her own, balancing her chair on half its legs, her arms crossed in blithe unconcern regarding any possible unbalancing. It saw Dr. Gottlieb stop by less and less frequently. He would pause occasionally in the hallway, but he would rarely enter Dr. Geiszler's office, as he did not care to be drawn into three-way speculative discussions when there was science pending. And there always was. It saw Mako Mori grow taller and acquire her own bass, which was electric and black. It witnessed the building of Jaegers, the coming of kaiju, and a turning point in a war between two species. This is its story.

Newt: *[testily rather than broadly]* This had better be important. I *hate* mandatory science-side briefings. Despise. Loathe. Cannot stand. Waste of time, nearly universally. Why do I need to be informed regarding the regulations pursuant to J-tech's slovenly OSHA violation blah blah blah et cetera et cetera et—

Hermann: *[flatly]* Stop needlessly sowing intellectual rivalry wherever you go. J-tech is an exemplary—

Newt: *[suggestively]* Fifty percent of my complaining is for your benefit, you realize. I know you secretly love it. What if we started bringing vodka to these things. Vodka is clear, right? We could put it in those hermetically sealed futuristic waterbottles that all the *pilots* seem to think add a little bit of badass cache to the biological necessity of hydration. Just a thought.

Hermann: *[amused]* I will most certainly report you if you begin such a practice.

Newt: *[theatrical sigh]* Ugh. Don't I know it.

Skye: Hey Newt. *[to Hermann]* Is this seat taken, bro?

Hermann: Do I *know* you?

Skye: Yes? Or, I *thought* you did?

Newt: This is my intern. This has been my intern for six weeks. The same intern with the kickass comparative anatomy paper in *Nature Kaiju Science*. The same intern with a weird gift for wielding a bone saw. This will continue to be my intern for the rest of the

summer. You have seen him literally every day. You will continue to see him, again, literally every day, because he has an admirable weekend work ethic. Now. Say hello.

Skye: Hey Dr. Gottlieb.

Newt: Not *you*. Him. *Him*.

Hermann: What did you say your name was?

Skye: Skye.

Hermann: What.

Skye: That's my name. Skye. Skye McLeod.

Hermann: How unfortunate for you.

Mako: Hello Dr. Gottlieb, please excuse me.

Hermann: Ms. Mori. What are you doing here?

Mako: I wished to help. I told Newt that I wished to help specifically with the bones that the summer intern is also helping with. This is because I am interested in science. Science is very important. *[To Skye]* Dr. McLeod, I have finished cataloguing the samples you assigned to me.

Skye: Awesome. Want to check out my bone saw?

Mako: Yes, very much.

Newt: *[in a tone of understated warning]* Watch it, Dr. McLeod.

Skye: *[confused/maybe not confused]* What?

Hermann: *[acidly and quietly to Newt]* She's a bit *young* to be working in a lab full of toxic alien viscera, don't you think?

Newt: Chill. They're in one of the auxiliary labs. Mostly.

Hermann: Is Marshal Pentecost aware that you—

[sound of someone tapping on a microphone, sound of crowd slowly fades out]

Lightcap: Hello? Is this thing on? Yes? Yes. Okay. Hello. Thank you all for coming. I realize that literally everyone hates these meetings. You can stop leaving comments in the suggestion box about how they're disruptive to experimental schedules. I have read them. Or, I *would* have, if we *had* a suggestion box, which, ha, we don't! Sorry kids. It builds character. Now, I've got good news and bad news. The good news is that the timetable for Mark 3 production has been moved up! Yay!

Newt: Great.

Hermann: Oh Gott.

Lightcap: The bad news is that the timetable for Mark 3 production has been moved up. In order to meet the demands of the new schedule we will be hiring some additional faculty but also asking certain members of the K-science Division to take on responsibilities that would normally fall to J-Tech, including but not limited to design, computational programming—

Newt: Sucks to be you.

Hermann: Shut up, will you please.

Lightcap: —acquisition of raw materials, participation in quality control panels, and construction of stereotactic rigs 5, 6, 7, and X.

Hermann: I won't be the only one working at the behest of J-tech.

Newt: Rig X is mine *anyway*.

Lightcap: *Brawler Yukon*, and *Romeo Blue* are due for re-fits. We owe Vladivostok a good turn and, also? We're collectively, as a species, trying not to die and soooo we're updating the guidance systems of *Eden Assassin* with Dr. Choi's latest code. Also, for those interested, *Coyote Tango* is back in Anchorage with a new pilot team.

[cheering]

Mako: *[whispering]* That was the Marshal's Jaeger.

Skye: *[whispering]* Sweet.

Mako: If it were here I could show it to you. There are secret ways to get in and to climb up.

Skye: For real?

Mako: It is true for every Jaeger, but for now I only know the plans for *Coyote Tango*. I am going to be a Jaeger pilot some day.

Skye: That's awesome, Maks. Er, do you actually go by Maks?

Mako: Yes. But only sometimes. Only people I like may call me Maks.

Skye: So—

Mako: You may call me Maks if you wish.

Skye: Cool.

Lightcap: Onscreen is a detailed timetable for each division regarding the projected—

Newt: Aaaaaaand that's my cue to leave.

Hermann: *[hissing]* this is a *mandatory briefing*.

Lightcap: *[continuing under the rest of the dialogue]* production and refit requirements broken down on a week-by-week and unit-by-unit basis. Let's start with the J-tech core team. Priorities one, two and three are listed on the screen. Briefly, we're talking shielding, shielding, shielding people. I don't know about you guys, but I'm not wild about the idea of dying of cancer in my forties, so let's improve the leaks without adding metric tons of lead, what do you say, kids? The fact that we haven't fixed this problem is killing me. Literally. Next up? Materials science. This is a little more complicated. Now, as you know, the local contract with our friends here at Tokyo Energy Solutions is about to be renewed and in order to get enough raw materials and industrial equipment needed for the new conductive system in the Mark 3 Jaegers we will have to make good on our promise of sharing our alloy formula and *those* documents have to go through *our* legal department to *their* legal department so, unfortunately someone's going to be need to be elected to peel off and spend a week as a science liaison to make sure everything goes through on time and on schedule. Any takers. Yes? Yes? Anyone? Anyone? Bueller?

Skye: *[whispering]* I'll come with you.

Mako: *[whispering]* I'll come too.

Newt: *[whispering]* No, er, you guys take notes for me, okay?

Skye: Dude, that's cold. I'm going to get back to the lab and you're going to have dissected that *entire* wing.

Newt: Fine. But Maks, you stay here.

Mako: I will stay here for five minutes and then I will come.

Newt: A-plus, Maks. You are going to be *dangerous* when you grow up.

Hermann: You are a terrible influence. Someone is going to *fire you*, Dr. Geiszler, and I will *stand by in infinite approbation*.

Newt: Byeeee Hermann.

[Lightcap's speech continues until the sound of a door shutting]

Skye: Ugh, so boring.

Newt: The meeting, or Dr. Gottlieb? Ha. Don't answer that. I'm just going to assume you answered correctly.

Skye: So Mako tells me you play guitar.

Newt: You could say that.

Skye: She *also* tells me that you had a nerd rock band and that you played *leftie* guitar.

Newt: Eh. My band and my guitar are pretty okay if you're into awesome things. You and Mako seem to really be hitting it off.

Skye: She's just looking for someone to practice the bass with, I think. We've been hanging out. I do a little drum playing, so we jam.

Newt: Oh you *do*, do you.

Skye: You should come.

Newt: Maybe. I'm concerned that you don't seem to view me as your superior. Or fear me. You really should fear me at least a little bit, Dr. McLeod.

Skye: Eh.

Newt: Now look, scintern—

Skye: What's a scintern?

Newt: A portmanteau of science and intern? Come on. *[snapping fingers]* Get with it. Now. Look. I'm your advisor, and I'm about to advise. There's a certain *je ne sais quoi* undertone-of-responsibility in carefully deciding which mandatory briefings to skip. If they involve something that's going to kill you? They are not skippable. If they involve financial obligations to governmental or corporate powers, they *are* skippable, unless you are a human lynchpin of the bureaucratic machinery that runs this place, like poor Lightcap is. Poor Lightcap. Poor poor *poor*photogenic, rockstar, rock of bureaucracy, science goddess, robot-whisperer Lightcap. I feel sooooo bad for her. No, seriously though. Get *too* much shit done in this life and you *will* suffer, scintern; it's just part of the human condition.

Skye: Speaking of Dr. Lightcap? I feel like you couldn't get away with half of what you get away with if she didn't like you so much.

Newt: What's to get away with? Wait. You think she likes me?

Skye: Yeah. Kind of like in a *parent* way though. Not a girlfriend way.

Newt: I am going to pretend you never said anything about any of this, scintern, okay? That way I won't have to strip a layer off my cortex with a dilute bleach solution I inject into my intrathecal space.

Skye: I just call it like I see it. No offense.

Newt: *[sigh]*

Narrator: Dr. Caitlin Lightcap was born on a sunny Monday morning in 1984 to a Methodist minister and a divinity school librarian. As a child she sang in church; as a teenager she was the star of her high school basketball team; and when she went to college at Carnegie Mellon she published the results of her senior thesis in *Science*. She received a PhD in robotics on a rainy day in May and later that same week she arrived in Washington DC on the heels of a record heat wave to begin her work at DARPA. After the Breach opened in 2013, she was recruited to the PPDC by Jasper Schoenfeld, a mentor turned lover turned painful acquaintance. Her scientific accomplishments and her consequent rise within the fledgling organization were meteoric. She built an interface to connect the human brain to a massive framework of metal. She saved the life of pilot candidate Sergio D'onofrio by bolting herself to a stereotactic rig and, in so doing, created the Drift. She became famous for an Op-Ed in *The New York Times* in which she spoke openly of her struggle with OCD.

Lightcap: *[composed, as if reading]* ..everyone has their own identity, their own ways of perceiving themselves, perceiving others, determining what should and should not be possible. For myself, I took comfort from the idea of the mind as a mechanical object. A set of circuits that are configured in unique ways. Would I say that there's something *wrong* with my brain? Some days it feels that way. But then there are other days; days where it feels like the world is a computer simulation that I'm running on my own unique and exquisitely sophisticated biological processor while pieces of code and needed RAM are snapping down in the precise way that I *want* them to snap down. I did worry that in a world where we are now interfacing our minds with colossal, sophisticated machines, I might be precluded from participating in the way I wanted to participate *because* of my OCD. But it didn't turn out that way. I think it could have. I don't think our species has come so far that a board room of sober decision makers would give me the go ahead to step into a Jaeger—the most precocious thing that our species has collectively constructed. But the reality is that I didn't *give* them that choice. I jacked myself into a rig to save a man who was dying. I didn't think about the social significance of that act as I was performing it; I was simply acting to save a human life.

Narrator: Along with Stacker Pentecost, Dr. Lightcap founded the Jaeger Academy. Under her direction, the prototype Jaeger *Brawler Yukon* was built by a crew of engineers that she would later turn into the J-Tech division of the PPDC. She trained as a pilot. Along with her drift partner and husband, Sergio D'onofrio, she was the first human to kill a kaiju using a Jaeger. It was at this time that the iconic picture of Dr. Lightcap kneeling on bloodstained ice, her interface helmet under one arm as she

looked up at *Brawler Yukon*, was taken. Dr. Lightcap became an international superstar; the first scientist to capture the global imagination since Albert Einstein had toppled Newtonian mechanics. It was well known by children worldwide that Dr. Lightcap had a black belt in tae-kwon-do and a cat named Schrödinger. She stood six feet tall in her favorite pair of stiletto heels and five foot ten in her favorite pair of combat boots. She was known for ending interviews with truculent eloquence regarding the importance of science as a discipline.

Lightcap: *[with haughty charm]* Experimentation as salvation. Who's the nerd now?

Narrator: Nevertheless, Dr. Geiszler considered himself unimpressed with this collection of personal and professional attributes.

[insert various sounds of saws and bones cracking and viscera hitting the floor.]

Newt: Hand me that hydrospanner.

Skye: That's tool from the *Star Wars* universe.

Newt: You're a tool from the *Star Wars* universe. This thing uses hydraulic pressure to crack alien bone, what more do you want from me?

[cracking sound]

Skye: You realize *I* could be doing this, right? De-boning this tissue sample? Rather than just handing you tools? Comparative anatomy *is* kind of my area.

Newt: I know, kid, but here's the thing. I'd feel really bad if you *died*.

Skye: I just don't see that happening.

Newt: Don't you? Well, that's only because you lack experience. Watch the door, will you, I don't want Maks sneaking up on us and accidentally stepping in a compound that, technically speaking, I haven't so much identified as *not* identified—

Mako: Hi Newt!

Newt: Oh my *god, Maks*; give a guy a heart attack.

Mako: I said I would come in five minutes. It was five minutes seven minutes ago. Dr. Gottlieb says to tell you that if you do not return to the briefing he will volunteer you in your absence for an unpleasant duty of some kind.

Newt: I'm writing that off as a cost of doing business, by which I mean science, but thank you, Maks. Back up kiddo. Back up more.

Mako: Here?

Newt: More than that.

[sound of liquid hitting a floor]

Skye: *[disgusted]* Ugh.

Newt: Do *not* get that particular bluish fluid on your suave biohazard outerwear.

Skye: What's the point of contact precautions if—

Newt: I just haven't seen anything *look* quite that way before and I don't like things that I'm not familiar with mixing with minors. I have an idea. How about you go and take Mako to lunch.

Skye: I have a PhD. You can't just send me to lunch with your kid sister.

Newt: I have *six* PhDs.

Skye: You say that a lot.

Newt: You're the one trying to start a ridiculous argument with me, kid. Delta-doctorates is entirely irrelevant to the fact that I am your direct supervisor and I order you to take Mako to lunch. Also? Doctorate Differential makes a great band name. You can have that one for free.

Skye: Thanks. You always make me leave for the cool parts.

Newt: Because that is the relationship that we have. You do boring, necessary things, like documentation, retrieving coffee, and exhaustive explorations of detoxified alien anatomy. I, in turn, shoulder professional risk. This is the nature of the science apprenticeship. Also, the science apprenticeship requires feeding the young people. Professional courtesy meets personal investment in your probably productive future. Like I said, I'd feel *really bad* if this is some form of uber-dilute kaiju Blue.

Mako: Kaiju Blue is very dangerous.

Newt: Good point, sub-intern, Mako. Why don't you go wait for Skye on the other side of that door.

[door closes]

Skye: There's no way that's Blue. Is it? Because if it is—

Newt: I don't *think* so? This thing was soaked in formalin and chemically inactivated for years before we got it. Literally years. This is part of *Reckoner*, which was—

Skye: 2016. I remember. But even on the year-level penetration isn't great in kaiju tissue, and this guy is from an era before we really *knew* that.

Newt: Thank you, Skye, but I *am* aware of that, as that's *my* paper you're referencing.

Skye: When they detoxed this thing in Hong Kong they may not have scored and drained it adequately.

Newt: The more you talk, the more I'm thinking you're right and therefore the more I think I want you to take Mako out to lunch.

Skye: But—

Newt: Go strip off your gown and gloves, go to my lab, find me the Blue assay kit, make sure everything's there and all the tops on all the tubes are screwed all the way shut, box it in styrofoam, and then toss it to me from, like, a room away.

Skye: Yes to assay kit, no to showering you with acetic acid, yes to toss-proof packaging. Got it.

Newt: You're my favorite scintern.

Skye: I'm your *only* intern. Unless you count Mako.

Newt: Mako's just straight up my favorite.

Narrator: It was Dr. Geiszler's preference to perform potentially dangerous work alone, in a quiet isolation room across the hall from his main lab space, noting his observations on a pocket voice recorder for late-night transcription. The facilities for studies in comparative kaiju anatomy at the Tokyo Shatterdome were state of the art: hermetically sealed with rapid air-recirculation and filtered venting to the outside, containing built-in oxygen sensors, toxin-detection systems, safety showers, a first aid kit, and multiple variants of PPDC-issued personal protective equipment. There was a wide window into the main hallway that could be rendered transparent or opaque with the idea that, when transparent, passers-by would identify any potential emergency. Unfortunately, after Dr. McLeod delivered the requested assay kit and took Mako Mori to lunch, there were very few passers-by, as the entire body of the K-science division was attending Dr. Lightcap's mandatory meeting. Dr. Geiszler's guitar, mounted on the wall of his office across the hall, had an excellent view of unfolding events. This, however, was no help to Dr. Geiszler.

Newt: Note to self, weird bluish fluid is definitely *not* kaiju Blue, for evidence please see assay results documented by cellphone picture taken at thirteen thirty hours, August 2018 and transferred to subfolder *Reckoner*, specimen samples. Hmm. Good job on the detox, Dr. Leung, I never doubted you, even though my intern did a little bit, apparently.

[subtle metal clicking sounds]

Newt: Sooooo I am hypothesizing that this blue-tinged fluid that's *not* kaiju Blue might actually be a non-toxic precursor that circulates in the lymphatic system-equivalent. I've never really been happy with kaiju-related immunological assumptions, but I'll let that *entire field* alone for now and hope that some immunological baller has the time to get into it at some point in the relative near term, because it's possible that we're just seeing a system that *looks* like a terrestrial immune system but really? Its function is entirely different. I wonder what would happen if we just let one of these guys go for a little while. And by "guys" I mean "kaiju" and by "go for a little while" I mean "not kill it immediately." Maybe the common cold would take it down, *War of the Worlds* style. After, oh say, the observational subject demolished, like, an entire coastline, so maybe not. Bad idea. Redact that. Let's pretend I never thought of it. I already get enough crap for this kind of thing. Yeah? What do you think, Reckoner? May I call you Reckoner? Given a chance, would *Staph aureus* kill you?

[sigh]

Newt: Probably not, no, but that's what I'll tell myself in consolation if my civilization *really* starts to crash and burn, you feel me? Myeah. You feel me. Okay, again, note to self, fluid samples one through six collected and labeled with adjoining picture documentation between thirteen forty-five and thirteen fifty, August 2018. Sample entirely detoxed, confirmed by ultrasound, which was negative for all subcutaneous fluid collections. Fluid suctioned into stage-1 decon, no traces of kaiju blue or toxins of any kind, and therefore? Dr. Geiszler is getting out of this *suit*, which is *hot*, and only in the thermal way, alas.

[The sound of an unzipping suit.]

Newt: Okay. Note to self: it's fourteen hundred hours, I'm de-gloved, re-gloved, and still missing an interminable briefing. The overside of this limb was pretty well worked over by the Hong Kong team, who made a *mess* of it by the way, but hey, it was 2016, so what are you going to do. I'm about to make a ventral longitudinal incision measuring one point five meters. Pre-cut pic has been routed to the *Reckoner* sub-folder.

[The sound of a scalpel dividing tissue; then the sound of a discharging nematocyst.]

Newt: [pained yet simultaneously airy/offhand in delivery] Note to self, or, *more* probably, note to person who finds my dead body, I have discovered something interesting.

[The sound of rapid high pitched breathing.]

Newt: Um, oh god, I feel weird. I feel kind of lightheaded. I think maybe I've been poisoned. Er, maybe I *am being* poisoned. I'm going to die, probably. Okay. That's fine. Or, rather, I'd prefer *not* to die, but I think I *might*, given that I've got, um, something, possibly something horribly toxic kind of pinning my arm to my lab bench a little bit, in the most extreme sense of the word *pin*. As in, definitely, *definitely* passing *through* my arm, like all the way through, like, oh, yeah, er, I think I'm going to go with 'impaling.' Wow, these are really terrible last words. Okay. I'm going to do better.

[deep breath]

Newt: Note to self, or to Lightcap. Hi Lightcap. Sorry about this. At approximately fourteen hundred hours I confirmed total detox to the tissue sample we received from Hong Kong via ultrasound. I therefore removed my biolevel 3 contact precautions, regloved, and made a ventral longitudinal incision at which point I triggered what I *think* is a kaiju-equivalent of a nematocyst, which, alas, happened to discharge straight into my left forearm, pass through it, and bury itself into the lab bench to an undetermined depth. Oh god, so, ah, from what I can see? This thing is made of a proteinaceous matrix that was spring-loaded or pressure loaded in some way? Possibly in much the same manner as a conventional terrestrial nematocyst. Um, scientific aside: I don't remember anyone describing this phenomenon before but it explains *so much* about some of the more esoteric damage reports from the pre-Jaeger days. The firing of nematocysts, especially if they were triggered in response to mechanical disruption might actually turn out to be a very effective anti-aircraft adaptation that then became obsolete over time as we altered our defensive tactics, to, you know, *not* include planes with planet-killing weapons. We don't *have* a lot of samples from those early kaiju, primarily because they mostly ended their existences as radioactive Blue, ugh I would *kill* for a dermal sample of *Trespasser* right about now. Skye, look into this for me: *Trespasservis-a-vis Reckoner*, re: dermal substructures. It's right up your alley. Okay, back to trying to help someone save my life. I'd say that this protein matrix passed straight through the soft tissue between my radius and ulna, although I'm not ruling out an ulnar break—the outside of my left hand is currently numb, which, you know, could be nerve damage and/or the slow leech of a neurotoxin. Those aren't mutually exclusive. Then again, I *did* detoxify this thing, and it's been sitting in formalin, so there's the possibility that this is just a mechanical injury. That would be great for me. I would literally never skip a mandatory briefing ever again. I would learn my lesson. I would learn it so well.

[The sound of rapid breathing.]

Newt: Of course, my phone is exactly *two centimeters* beyond the range of my right hand. That's great. That's just great. Anyway, Lightcap, if you're wondering why I didn't call anyone, that's the reason. I could try to throw a *shoe* at the *wall alarm* but there is no way that's going to work. If I were *you*, Lightcap, that would work. Yup, I'm gonna do it.

[The sound of successive shoes hitting a distant wall.]

Newt: Ugh, I hate not being you, Lightcap.

Newt: That's not even true.

Newt: Note to self. I feel like maybe I'm *not* being slowly poisoned? Like maybe I'm psychologically adjusting to the idea that part of me has been impaled by an alien nematocyst. Xenatocyst? That's a better name. Still, risk analysis indicates that the likelihood of me dying is significantly greater than it was, oh, say, when I was sitting in the briefing, so I should probably use this time to document certain thoughts. For Lightcap: A) don't give up on the remote interface when I die just because of the local culture of hands-on heroism. Killing monsters remotely is still killing monsters. B) stop tacitly encouraging Mako to die in a Jaeger, there are plenty of other ways to die that are slower and plenty of other people willing to step into one of those things, and how will you feel when she's killed? Oh right. You won't feel anything, because you'll probably *already be dead*. C) I really recommend replacing me with someone pulled straight from academia; the global, ostensible *nonmilitaristic* structure of the PPDC has been hanging by a thread since its conception and you could easily destroy what minimal virtues it has. D) Don't pour too much funding into J-tech at the expense of K-science. You want to, I know you want to, but you'll be kicking yourself if this is an evolutionary arms race. I know you think it's not, but if it is, we've already lost. E) I am willing all my Supercos related memorabilia to you, use your international fame to canonize me as a dead (nerd)rock star, will you? For Hermann: A) Math is God. God is dead. Therefore, by the transitive property? Math is dead. B) Try not to miss me too much. C) I know you think otherwise but—

Hermann: Newton! What is wrong with—oh god.

Newt: Ugh. You are *literally* the last person I would have picked to walk through that door right now—no, don't throw up. Don't *faint*. Hey. Hey. I will be *so angry* if you pass out right now. If *I* can not pass out in this situation then *you* can. Not pass out. Okay? Yup. Put your head down. There ya go, champ.

Hermann: I'm calling Dr. Lightcap.

Newt: Noooooo, we don't need to call Dr. Lightcap, we just need to page, um, anyone but Lightcap, who is, at the moment, in the middle of a briefing, unless it's over; are you here because it's over?

Hermann: It is not over.

Newt: Do *not* end Lightcap's briefing for this, no, put down my phone, no, just tell them to page the decon team; I'm actually very senior in terms of the staffing here, I can totally oversee my own, um, decon, it's—

Hermann: *[on the phone]* Yes, I'd like to request an emergent overhead page.

Newt: *[weakly]* just the decon team?

Hermann: A decon team, a medical team, and Dr. Lightcap.

Newt: You are such a responsible jerk.

Hermann: *[tightly]* You are pinned to your own lab bench by a toxic piece of alien physiology.

Newt: *[pained sounding exhalation]* Technically? Yes.

Overhead page: *[bored sounding page operator]* Code Green, lab 2. Code Green, Lab two. Dr. Lightcap, lab 2. Dr. Lightcap lab 2.

Newt: She's going to know it's me.

Hermann: Literally everyone will know it's you. Would you like a *chair* while we wait for someone to bring you *astretcher*.

Newt: No. I am *fine*.

Hermann: Your arm is *pinned to your lab bench*.

Newt: Can you not keep saying that? I'm trying not to look at it. Or visualize it. Or think about it at all.

Hermann: Does it hurt?

Newt: *[waspishly]* Does it *look* like it hurts, *Hermann*?

Hermann: Yes, *Newton*, it does. I am trying to ascertain if you are experiencing sensory loss, you obtuse *cad*. Is it broken?

Newt: The nematocyst? I can't tell. The tip is probably damaged by the carbon-fiber base of the bench—I can't feel it coming out the underside of the table.

Hermann: I meant your *arm*.

Newt: Oh. Well, frankly, given that this thing is probably a hollow cylinder potentially full of toxin? The brokenness of the nematocyst concerns me more than the brokenness of my arm. But to answer your question...maybe? I don't think so. I don't think my bones are supposed to be as far apart as they are right now though.

[The sound of an opening door.]

Skye: Oooooohhhh *shit*.

Mako: Newt!

Hermann: And it is, of course, the *children* who have the fastest emergency response time.

Newt: Hey kids. Why are you here? Did you not hear the page? Did I not explain to you that code green pages are not for you? Um, go back to lunch. Now is not a good time for me. Or for science.

Mako: I will get the Marshal.

Newt: Maks! Maaaaaaks. No. No need for *that*. Dr. Lightcap's going to come help me out, she can tell the Marshal about this later, ideally in an understated, semi-humorous way, which is how I intend to remember it—

Hermann: I think that is an excellent idea, Ms. Mori.

Newt: You're trying to get me fired.

Hermann: What was your first clue.

Newt: Whoa. Hold it there, Dr. McLeod, what are you doing?

Skye: Chill. I'm not going to touch anything. At first glance, dude, it seems like this thing in your arm is connected to a toxin sac.

Hermann: Bloody fantastic.

Newt: Myeeaaaaaaah, that seems reasonable to me.

Skye: I think you got it though. It's cut through. I think you detoxed the sac itself.

Newt: *[weakly]* I am awesome.

Skye: There could be a very small amount of residual toxin within the shaft itself though.

Newt: Well, obviously. Could I have that chair, maybe?

[Sound of the door crashing open. The medical team begins speaking beneath the overlying dialogue.]

[Medic 1: Looks like we're going to be working in here, people, and we're assuming toxic exposure. Let's get baseline vitals and get him on a set of monitors.

Medic 2: Go this way with the stretcher, yeah, and lock it.

Medic 1: Hand me the pads, yup, just in case. Crack open the morphine and draw it up, we're probably going to need it.

Medic 3: Heart rate 120, BP 160/90, O2 sat 100%.

Decon crew 1: You guys need to be in baseline protective gear.

Decon crew 2: I'm not detecting any kind of release, neither are room sensors; if there's anything to decon it's in his arm.

Medic 2: leads in place.]

Lightcap: God damn it, Geiszler, *god damn it*.

Newt: Liiiiightcap.

Hermann: Consider berating him *later*.

Lightcap: Gottlieb, what are you *doing* here. Never mind, I don't care. Newt, fucking hell *shit*, look at me, kiddo, look at my face. What the *hell* is in your arm?

Newt: I think it's a kaijuesque equivalent of a nematocyst? Poisoned-dart-type thing?

Lightcap: Poisoned?

Newt: Well, in a perfect world, no, not anymore. I performed a full detox. But full disclosure? Previously? Prior to said detoxification? Yes, probably poisoned, unfortunately.

Skye: The thing in his arm is contiguous with an empty sac that likely held some kind of toxic substance. I the cylindrical protein matrix might be hollow.

[hollow knocking sound]

Newt: *[strangled scream, then breathlessly]* Can you not *do* that?

Skye: It's hollow.

Lightcap: So when we pull it out of his arm we're going to need to not. Crack. It.

Newt: *[still breathlessly]* In case it's got any residual toxin, yes. Dr. McLeod, would you care to unbolt the bone saw from the wall?

Hermann: Your solution seems a bit extreme, doesn't it?

Newt: It's not for *me*, Hermann. It's for the *nematocyst*.

Skye: On it.

Lightcap: You want to cut laterally across that thing? Shear stress might still crack it, and, if there's a column inside there full of fluid, anything above the cut is going to pour down over your arm. I think we've got to pull this thing out intact.

Newt: No. No way. It's already got to be cracked at the base, where it ran into the carbon fiber of the table. I think Dr. McLeod is going to have to cut below my arm. Between my arm and the table.

Lightcap: No baby. We're lifting this thing out. We're not cutting. Also? *Jesus Christ*, medical team, what are you doing? Can you not *give him something for pain*? He has a poisoned protein column *through his arm*. Does he *look comfortable* to you?

Medical team: No ma'am.

Newt: *[weakly]* Er, belay that, med team, you're doing a great job, and I actually think I'd like to be *conscious*, to make sure Lightcap doesn't kill me with well-intentioned scientific machismo, thanks.

Hermann: Dr. Lightcap, I don't think your plan is viable. I concur with Dr. Geiszler—there is a virtual certainty you would be lifting a cracked tip, possibly leaking toxin, through his forearm were you to attempt to pull this thing out the way it came in.

Lightcap: *Well* if you two are in agreement, *fine*. Baby-face, you get the final call—after all, it's your arm. Cost/benefit-wise I think I'd rather drag the cracked tip of a poisoned shaft through my forearm than open a potentially pressurized column of pure toxin directly over or under an open wound.

Newt: *[with a pained stiffness]* I weight my risk analyses differently than you weight yours, Lightcap.

Hermann: There is, of course, a preferred solution.

Newt: Well are you going to share with the class?

Hermann: We slide a piece of sheet metal beneath your arm and then insert a spacer between the sheet metal and the table. This will expose more of the shaft. It can then be cut, laboriously, and by hand, with your diamond-bladed bone saw at enough of a distance so that if any toxin is released it will likely not contact your skin.

Newt: *[weakly impressed]* You want to jack my forearm off the table like you're jacking up a car with a flat tire. I like it. Maybe I'll live.

Lightcap: You like it? I love it.

Newt: It occurs to me that this is actually going to *hurt* quite a lot as it separates and possibly breaks the bones in my forearm.

Hermann: Yes, I believe it will.

Newt: Try not to *enjoy* this too much, Dr. Gottlieb.

Hermann: Oh do shut up.

Lightcap: [*kindly*] Next time, kiddo, just come to the briefing, yeah? Rather than impaling yourself with a newly discovered dermal structure?

Newt: [*with weak theatricality*] If I die, please ensure it's named after me.

Hermann: We will certainly do nothing of the kind, I therefore recommend you endeavor *not* to *die*.

Newt: Why are you still *here*, even. You hate this kind of thing.

Lightcap: [*dryly*] I think Dr. Gottlieb's life would be empty and meaningless without you to torment.

Hermann: There is, perhaps, some truth to that.

Newt: Now I *know* I'm dying.

Narrator: Dr. Geiszler did *not* die. He *did* spend four hours pinned to his lab bench while his summer intern sawed carefully through the nematocyst. During this interval he received a PPDC issue box of apple juice courtesy of Mako Mori, an abbreviated verbal reprimand from Marshal Pentecost, a string of anxious commentary from Dr. Lightcap, and the sustained presence of Dr. Gottlieb, punctuated by sardonic asides. Dr. McLeod succeeded in cutting through the protein matrix. To the relief of all present, no toxic fluid was released in the process. Dr. Geiszler spent five days in quarantine on broad-spectrum antibiotics, which was, perhaps, not *strictly* necessary, but generally agreed to be a wise course of action. Dr. McLeod received a standing job offer from Dr. Lightcap for maintaining his 'west coast cool' under pressure. Mako Mori received instructions from Marshal Pentecost to 'spend less time with Dr. Geiszler.' Dr. Gottlieb refrained from commenting on the incident until *after* Dr. Geiszler had been released from the medical bay, had returned to his office, and was staring at his ceiling, playing dissonant chords on his guitar.

[*dissonant chord*]

Hermann: Must you do that?

[*dissonant chord*]

Hermann: Newton.

Newt: *Oh*. Hey. Sorry. Headphones.

Hermann: *Desist*.

Newt: Nice to see you too.

Hermann: How is your arm?

Newt: *[understated]* Not really up to strumming for a prolonged period of time, but pretty okay, actually, thanks for asking. I will be pipetting like a pro in the relative near term.

Hermann: *[trending toward upset]* I hope you have *learned* something from this experience.

Newt: *[acidly]* Yes, Dr. Gottlieb, a chance occurrence has reorganized my worldview and I have, in fact, spent the past five days building a psychological temple to unthinking obedience where I will ritualistically sacrifice my time unto authority figures everywhere; you will be so proud.

Hermann: *[with a slow build from indignation to genuine upset]* You are a thoughtless, irresponsible, arrogant, *child* of a so-called scientist who flaunts his flouting of bureaucratic ephemera for no other reason than he finds it appeals to his prodigious sense of intellectual vanity. You are *not* a 'rock star', you are, on your better days, *ascientist*. Avoiding mandatory meetings does not make you a visionary iconoclast; it makes you an *idiot*. You nearly *died*. You should be *fired*. If I were Dr. Lightcap I would have sent you back to academia months ago, *years* ago, you do not belong in an organization such as this, you are not *suited to it*—

Narrator: Dr. Geiszler was curious as to how long his colleague's monologuing might continue in the absence of external influence. He therefore confined himself to the unimpressed elevation of a single eyebrow and said nothing. Dr. Gottlieb continued in this manner for nearly two hours.

Hermann: *[continuing breathlessly]* you do not take any of this with the gravity it deserves, you never have, you likely never will. Despite what happened earlier in the week, I am certain that you will not change, that you *will never change* and that this place will never change to fit you. You never should have left JET Force, you never should have *joined* JET Force. Go back to MIT; they *liked* you there, god knows why, they appreciated you and did not mind the way you took them for granted; I don't know why you ever came here, honestly, you can study the kaiju *from Boston* you can surround yourself with people who view your body art as a growing tapestry of irony

rather than those who view it as a personal *assault* to human decency. You can get *out* because you're incompatible with this place, with it's ethos. Do you have anything to say for yourself? After all of this?

Narrator: The content of Dr. Gottlieb's speech painted an inaccurate picture of Dr. Geiszler, who, in fact, had an excellent track record of laboratory safety in a dangerous field, always met his bureaucratic deadlines, and consistently demonstrated an impeccable work ethic, if his latest personnel evaluation was to be believed. And it was. Dr. Geiszler gained only one real insight from Dr. Gottlieb's prolonged rant.

Newt: I had no idea you cared so much.

Hermann: That is *not the point*, Newton.

Narrator: It was, of course, exactly the point. Later that same evening, Dr. Geiszler went in search of Dr. Lightcap, who was drinking alone on the end of the deployment dock.

Lightcap: Hi baby.

Newt: You have selected an unsanctioned sobriquet, Cait-Science, but hi.

Lightcap: Don't fall over.

Newt: I'm not even. I'm just sitting. On purpose. With less coordination than you, but not less coordination than *expected*.

Lightcap: If you say so. Are you wearing that sling as a fashion accessory? I *definitely* saw you messing around with your guitar earlier today.

Newt: Well it's just that it matches my outfit so nicely. All the medical people agree that a) occupational therapy, aka guitar strumming, is entirely reasonable, b) slings are useful for avoiding Tendo's propensity to throw things at me that I catch, or, realistically, *try* to catch, with my dominant and injured hand, c) these two facts taken together tell you literally everything you need to know.

Lightcap: How's the arm.

Newt: It wants a beer.

Lightcap: We can handle that.

[sound of opening caps and clinking glass]

Lightcap: *[with some gravity]* I want to tell you something.

Newt: You're not my type, Lightcap. I am, however, outrageously, just *outrageously* flattered.

Lightcap: Oh but you're *my* type though, little minion, and that's all that matters.

Newt: Er—

Lightcap: *[laughing]* I wish I had a camera. So much.

Newt: *[aggrieved]* Shut up, Lightcap. God.

Lightcap: *[still laughing]* Then stop ironically playing the dick card because your arm hurts and you feel like an idiot after getting a vicious lecture from Dr. Gottlieb.

Newt: All right all right all *right*. You heard that, did you.

Lightcap: I just walked on by.

Newt: Good call, probably.

Lightcap: Mmm hmm.

Newt: You wanted to tell me a thing?

Lightcap: I don't think I want to anymore. You're not in the mood, I can tell.

Newt: Lightcap.

Lightcap: I'll tell you some other time.

Newt: Lightcap.

Lightcap: I'll tell you never.

Newt: This is very aggravating.

Lightcap: You deserve it.

Newt: Tell me the thing.

Lightcap: One two, buckle my shoe. Three four, shut the fucking door. And don't let it hit your ass on the way off my deployment doc.

Newt: I am not interested in that plan as outlined. You promised my much-abused left arm a *beer*. Now spill.

Lightcap: I don't want to. I'm not drunk enough, I don't think.

Newt: *[gently]* Lightcap.

Lightcap: *[angrily/tearfully]* You came in here, you little shit, and you told me I was going to die and that when I did, you were going to *take my job* and *I believed you*. Your second week you told me that; you blazingly arrogant*fuck*. I believed you even then. I relied on that, Geiszler, you bastard, you absolute bastard, and then what. You spend two years, *two years* making yourself indispensable, not just to K-science but *to the rigs*. To *my rig*. To J-tech. To the *idea* of a remote interface and then? After all of that? After

all your sanctimonious, endless preaching: 'you'll kill yourself, Lightcap,' 'let someone else do it, Lightcap,' 'you persist because you're selfish, Lightcap,' after*all of that*—what the fuck do you go and *fucking do*?

[The sound of a breaking bottle, then silence.]

Newt: I feel like I heard this talk once already today.

Lightcap: No baby. Not this talk. That was just the opener.

Newt: Are you firing me?

Lightcap: No. No, of course not.

[Silence. The sound of wind and sea.]

Lightcap: I listened to your voice recorder after the decon team cleared it. You've got a little more poise under pressure than I would have given you credit for. Not a *lot* more, but a little more.

Newt: *[dryly]* Thanks.

Lightcap: It was horrible, listening to it. I wish I hadn't. *[whispered]* I was so proud of you.

Newt: Tell that to Dr. Gottlieb, maybe.

Lightcap: Shut up. Did you get yourself into a horrible situation? Yes. Yes you did. That part of it was really fucking stupid. Did you do a good job once you were in that situation? Yes. You did. I was proud of you. And don't give me your affected I'm-too-cool-for-Lightcap's-genuine-emotions tone, Geiszler, I saw the exact same sentiment on *your* face when your wunderkind intern cut through that protein matrix. You did great, kiddo. You thought you were going to die and you held it together to leave something useful behind.

Newt: Thanks.

Lightcap: Yah.

Newt: So, was that the thing you wanted to tell me, because I—

Lightcap: *[high pitched]* Nope. Feelings are always the easy part. Truth is harder. For me, I guess. For me, right now. Because what are feelings, kiddo, really, other than just how we feel? Not all that important in the grand scheme of things.

Newt: I guess?

Lightcap: Do you ever see events rolling out like a road in front of you, probabilities and trends coming together into outcomes that you just *can't escape*? That are, inherently, inescapable?

Newt: *[quietly]* You can escape, Caitlin. I guarantee you that you can. It might not *seem* that way. But you—

Lightcap: *[tearful]* No baby. I can't. I can't. But for just a minute there, when I had your stupid voice recorder in my hand, and I was listening to you, I could see whole futurescapes unmake and shift until I was looking at one where I was alive and you weren't and I was trying to find *someone else* to do the things that you *said* you could do, that you *promised me* you could do. *Someone else* to make the things happen that *you* would have made happen and I just felt—so tired. Because you're right. I mean, there won't be consensus on this for far too long, but—I can already see the same thing you can, kiddo. They're adapting. They're changing in a progressive way. The kaiju. It's harder every time. We won't win my way. They'll beat us out. If they're really changing in the way you think they're changing, if they're being evolved, or selected, if this is an arms race—then you're right. We'll need something else. Something better. Something *more*.

Newt: So get *out* of that *Jaeger* and *help me think of something*.

Lightcap: I can't. I can't. I won't.

Newt: Why.

Lightcap: Why should I? I'm good at it. I'm fantastic. I created this system and I'm going to see it down. Every part of it.

Newt: You're not going to see it *down*. You're not going to see it *through*. You're not going to see it *at all* if you don't get out of that thing. Away from it's shielding like a sieve and its escape hatch that doesn't exist and the waterproofing job that could be a whole hell of a lot better. You're going to die in that thing, Lightcap. You're going to be consumed. You're going to be crushed to death. You're going to drown. You're going to bleed to death inside a suit bolting you to a metal frame.

Lightcap: Everyone dies, baby. Didn't anyone ever teach you that?

Newt: Yes.

Lightcap: *[very gently]* But *did* they though?

[Silence. The sound of the sea.]

Lightcap: Maybe not. Let me tell you something about death, kiddo, since it seems to concern you so much. Did you know that I've already killed every single one of my experimental test subjects? Including myself? Including the man I married?

Newt: That's nonsensical.

Lightcap: There was no shielding. Early on, before you came. In 2014? We started without adequate shielding from the radioactive cores of the prototypes. Every single one of us is going to die *anyway*. Ten years at the absolute outside. So why should I hang up my helmet? Why should I step out of this place that *I made for myself*—doing what I'm *good* at, defending *my planet* in the way that *I conceived*. Whether this is the solution I hope it is or the stop-gap I fear it is, all that I've built is mine. *Mine*. And I'm going to crest and fall right along with it. This is who I am. This is what I could make. We're sitting on it. This dock. This shatterdome. These machines. The drift. That's what I've got, kiddo. That's *all* I've got. The next brilliant idea that comes, *if* it comes, is going to have to come from the next brilliant person. From you. From Gottlieb. From your little intern. Who knows. But not from me. All that you see is all that I am.

Newt: You've as good as straight-up *admitted* that we *need* another approach. What the hell *is* this, Lightcap; is this you trying to *leave that to me*? Because that is *not okay with me*. You can't just abdicate your massive, *metalscience throne*. No matter how many kaiju you kill, you will *never get a free pass on that*. Do you understand me? I will *never* stop telling you to get out of that Jaeger. Not. Ever.

Lightcap: I know. And that's fine, kiddo. I think you might be the only person I know who's out there, feeding his bitter little fire on my behalf. Everyone else just thinks it's great. And it *is* great. What I'm doing. It just—doesn't*feel* that way sometimes.

Newt: And what's so great about it? Your misallocation of resources? The way you *personally* prioritize *killing* alien life over studying it? Your warped assessment of personal risk?

Lightcap: *[whispered]* You know it's not really any of those things. Don't make me say. That's not fair.

Newt: Lightcap—

Lightcap: You're a weird mix, little minion. Arrogant. Bitter. Manipulative. Snide. Sarcastic. A little bit histrionic. A little bit starry eyed. A kind-hearted, fair-minded, anti-authoritarian, romantic *idealist* who makes friends with an eleven year old and tries to interest her in fish and playing the bass rather than killing monsters which is the one thing she wants more than anything in this entire world. I don't think I've ever figured you out. I don't think I ever will. But you know, you've always struck me as a guy who'll go right to the end. Not the end you make for yourself in one manner or another, but to the actual end. You're the guy who'll be trying to live right until the very last screaming second of his existence. I love that about you. Don't let anyone beat it out of you and don't kill yourself in a freak lab accident before Dr. Gottlieb figures out how to shut that

breach. You wait in the wings, kiddo, okay? When I die, you make sure no one else climbs my science throne before you do. You keep my program going until you can't anymore and then you find the next thing that will work. Not the next thing in the pipe but the next thing that you *honestly think* will work.

Newt: This is not the kind of advice that I need, Lightcap.

Lightcap: It's not advice. It's what you'll feel you owe me after one of those things finally takes me down.

Newt: Stop looping me into your penchant for morbid prophecy. I'm not into it. Get out of that Jaeger. Get out of it or you'll die. You've done your time. You've paid your ethical dues. Spend your days *thinking* and maybe we can win this war and someone will cure whatever kind of cancer you end up getting.

Lightcap: Truculent, adorkable optimist. I should have added that to my list. Baby, I don't want to tell you half the things I see you facing down in the next five years, the next ten. I don't want to see what it does to you at the end; the way you see what it's done to me. I just want to know that you'll *be there to do it*.

Newt: I will.

Lightcap: *[whispered]* Good.

Narrator: The summer faded into fall. Dr. Lightcap's carefully delineated goals were met week after week. The kaiju transited the breach in ever shorter increments, and Skye McLeod left Tokyo to return to the American Inland, accepting a post-doc position at Harvard. In his absence, Mako Mori's bass playing declined precipitously. Dr. Geiszler's guitar was frequently employed in an effort to convince her to practice. It met with little success.

Newt: Dr. McLeod was an only so-so drummer. You can jam with me, Maks. I'm not a regular scientist; I'm a *cool* scientist.

Mako: I do not wish to practice now.

Newt: You *sure*?

Mako: I am sure.

Newt: Well fine, you can mix up some buffers then, sub-intern Mori. I'm running low on PBS. Science doesn't do itself you know. That did not sound right. Disregard that. Soooooo any plans for the weekend?

Mako: *[sadly]* No.

Newt: You hear from Skye?

Mako: Yes. He is very happy in Cambridge. There are no kaiju there.

Newt: So true. Maybe *you* should go to Cambridge. Did you ever think of that? I could get you into MIT with the click of a button. Well, technically, I would first have to type an email that I would send with a click of a button. I could get you in.

Mako: I want to be a Jaeger pilot, not go to MIT. Why do you think Skye does not write unless I write to him first?

Newt: Oh boy. Ummm—

Mako: He does not like me.

Newt: No, I'm pretty sure he *likes* you, just—

Mako: Not enough.

Newt: Well, straight-up, kiddo? Myeah. I think you're probably right. Not enough.

Mako: Why? Please explain. You have liked girls before? What makes you like them or not like them and how much.

Newt: Well, in the spirit of technical accuracy, Maks, I tend to 'like' guys, but, in my experience, people seem to be people, so everything still applies. A lot of times it's not *them*, you know? It's not hypothetical guy x that's like bang [*insert a single snap*] destiny. First off it has a lot to do with my own head, and for whole huge spans of my life I just haven't even been *looking* for a romantic relationship.

Mako: Because of science?

Newt: Um, no. I have not sexualized the scientific method; I'm pretty sure you're thinking of Dr. Gottlieb. I'm kidding, Maks; do *not* tell him I said that. Though he'd probably be complimented. Ha. Also do not tell the Marshal that I said, 'sexualized the scientific method.'

Mako: [*annoyed*] I have learned what to tell and what not to tell, Newt.

Newt: Okay okay okay. Everyone's brains are wired differently. Everyone's neurons fire differently. That firing can change that wiring and the wiring can then change that firing. You hit bedrock at some point when you start asking the selfhood questions, kiddo, but it just happens to turn out that I have a low interest in sexual activity at baseline. I just feel kind of 'meh' about it most of the time with a few notable exceptions that are always particular guys that I *already* happened to like. As humans. For one reason or another. But that's just me. It works for me. I'm cool with it. So, going from specific case: me, to general case: Random Boy who we'll call 'Randoy', it's really hard for you or for *anyone* to know what's happening in Randoy's head. Right? I mean, this guy is

complicated. Maybe he likes girls. Maybe he likes boys. Maybe he likes both. Maybe he likes neither. Maybe he's into romance. Maybe he's not into romance. Maybe he's into sex. Maybe he's not. Maybe he thinks he shouldn't be the 'boy' everyone has told him that he is. Maybe he's still thinking about things. Brains are so weird, Maks. Even when you think you've got a handle on something, so so so often? It turns out that you don't. Memories remodel every time we remember them. No one really understands the hard problem of consciousness. Is your whole perception that you're a conscious individual with agency just a byproduct of your own neuronal circuitry? Life is weird. And cool. And so so weird, Maks. Mostly weird. The question of why isn't Skye McLeod pestering Mako Mori with phone calls every hour of the day just hopelessly complex.

Mako: That is not satisfying. Skye likes girls. I know he does.

Newt: Did you guys talk about this?

Mako: Well, we didn't talk about all the things you said but we talked about some things. He said I was pretty. Pretty and 'awesome.'

Newt: Well you *are* awesome, Maks. Like, literally everyone agrees about that. But here's the other part of the question. Let's now replace Random Boy with Actual Skye. That sounds misleading. Real Skye. Equally bad. Skye the Guy. Skye the Guy, in addition to his attraction level toward you and his romantic feelings for you, and all the other complicated baseline responses he's going to have to your appearance, actions, and demeanor, also has other players in his brain besides you. Comparative anatomy. His continuing education. Love of science. A *very* genuine interest in the PPDC's diamond-bladed bone saw. So he has goals and you have goals, which I'm sure you told him about.

Mako: Yes. Yes, I told him all of it.

Newt: All of it all of it?

Mako: All of it. About my family and about the Marshal and how I want to go to the Jaeger Academy and how Dr. Lightcap says I can if I work hard.

Newt: That's good, Maks. I think it's good to tell these kind of things. You've got a better track record than I do already. So you told him your real goals. Did he tell you *his* goals?

Mako: Yes. He said that he wants to do research and he wants to be a professor because he loves science and he wants to help to understand the kaiju because it's so important that we really make an effort to learn all we can about the first extra-terrestrial life that we have encountered as a species.

Newt: Aw, Skye the Guy. Super fly.

Mako: Yes.

Newt: Did you guys talk about relationship goals?

Mako: What relationship goals. If we love each other we should just want to be together.

Newt: *Whoa*, Maks, you can't just drop that one in like a rock. Well, you can, actually. You did. Would you say you're in *love* with him?

Mako: Yes. Why do you think I am asking you these things?

Newt: Aw, kiddo, well—

Mako: Do *not* tell.

Newt: Who am I going to tell? The Marshal? He tries to talk to me as little as possible I'm pretty—

Mako: Dr. Lightcap. Do not tell Dr. *Lightcap*.

Newt: I'm not going to tell Lightcap. I'm not going to tell *anyone*, Maks. Chill. Quick question though, did you tell *him* that you loved him?

Mako: No. I read to not do that.

Newt: Ah. Wait, you *read* it? Where are you *reading* these things, Maks?

Mako: Online.

Newt: Okay, well, it's probably good to take it slow, generally speaking.

Mako: But why is he not calling?

Newt: Well, kiddo, in addition to life goals, and, look, I can't say for sure, but it's possible he might find yours a little scary, there's also relationship goals to consider. Maybe now is not a great time for Skye McLeod to have a girlfriend. Also? He might feel that he's a little old for you—

Mako: I am fourteen. He is just barely sixteen. We are only one year apart.

Newt: Eh, you're a year and a half apart, Maks, and that's kind of a far distance in your teens.

Mako: We are both *very* mature. He saved you with his bone saw.

Newt: Technically that was *my* bone saw, Mako, but yes. I see your point. I do. I see it. You're missing *my* point though, which is a general point, not a specific one. Your relationship goals have to line up before you can really put yourselves together and let

your wave functions interfere for a while to see if they're interfering constructively or destructively, you feel me? You need that alignment of goals first, kiddo, to ever get a real shot at it. And, from the outside, from what you're telling me, it seems like you guys never quite made it there.

Mako: Have you ever made a constructive thing?

Newt: Nooooo. I've done some interfering in my day though.

Mako: I do not think that my relationship goals and Skye's relationship goals were the same.

Newt: Probably not, no.

Mako: */sadly/* But I think that we could have made a good wave function.

Newt: Maybe. The first time you give the romance thing a try and it doesn't work out is always hard, Maks. It feels pretty crap.

Mako: Yes.

Newt: Did you talk to the Marshal about any of this?

Mako: Yes. He says that Skye McLeod is stupid and he bought me ice cream.

Newt: Ha. Well, look, he's not wrong.

Mako: He did not talk about wave functions though.

Newt: Well, no one's perfect.

Mako: You have different kinds of advice.

Newt: I won't ask you whose advice is better, I'm just going to assume I know the answer. Also? He's cheating. */could buy you ice cream, Maks.* You want some ice cream?

Mako: No.

Newt: Want to watch *Blue Planet*?

Mako: No.

Newt: Well good. Me neither. How about—

Mako: I do not wish to do anything.

Newt: Your bass playing could really use some work. I'm beginning to doubt your commitment to rockstardom.

Mako: I wish to be a Jaeger pilot. That is what I will be.

Newt: Well, yeah, so you've said, but you shouldn't decide *now*, Maks. You should—

Mako: Do not say what I should do. *You* decided what to do when you were younger than me. When you were eight. You left home when you were eight.

Newt: Well, kind of? I'm a bad standard of comparison, Mako, I—

Mako: Skye McLeod chose the same way. He is only sixteen and he has a PhD already.

Newt: So, what, you're going to go to the Jaeger Academy tomorrow? You have to be eighteen kiddo, so why don't you maybe develop some other skill sets in the meantime while you think about it.

Mako: I do not want *other* skill sets.

Newt: Mako—

Mako: You do not understand.

Newt: Yeah, obviously. Maybe I'm finally getting old. What do you think, Maks? Am I old yet?

Mako: No, Newt. / am getting old.

Newt: Don't do that, Maks.

Mako: I can't be your assistant anymore. I have signed up for karate after school.

Newt: Well fine. But be careful of your hands. Don't endanger your back-up career as a bassist. If you can't play the base, I'll leave you on the street, Maks. On the street. That's a lie. I'd let you be a roadie.

Mako: [*fiercely*] I am going to be a Jaeger pilot.

Newt: Okay, okay, okay. Okay. When does karate start?

Mako: Tomorrow.

Newt: Well you can still make up those buffers for me, then.

Mako: Yes. Today, I can.

Narrator: In late September, the primary base of PPDC scientific operations was relocated from Tokyo to Seattle in order to take advantage of the emerging powerhouse of cognition research at the University of Washington. Most of the K-science and J-tech personnel were transferred. On October 21, Dr. Lightcap and her husband threw a combined anniversary/housewarming party. They had been married for one year. They invited all of the senior staff from every division of the PPDC. Dr. Geiszler's guitar was extended a special invitation.

[The sound of a party. Sound of Debaser played distantly on electric guitar.]

Stacker: Congratulations, Cait. Like what you've done with the place.

Lightcap: Thanks, Stacker.

Mako: Happy Anniversary, Dr. Lightcap.

Lightcap: Thank you, baby. I heard from our martial arts instructor that you can kick the shit out of a board. Damn it. Sorry. *[regrouping]* I heard you can break a board with your foot.

Mako: Yes. I can break two stacked boards now.

Stacker: She's a natural.

Lightcap: Good for you, Mako.

[Sound of Debaser, continues and then abruptly falls off. Newt continues to irregularly strum his guitar under the following dialogue.]

Newt: *[drunkenly]* I feel, like, *really* bad for Alfred Russell Wallace, you know? I mean, look, I have emo love for Charles Darwin, I kind of have to; it's a professional requirement but, like, Wallace literally sends his paper to, like, the *one guy* in the entire world who's going to scoop him? That's just, well, okay it's not exactly just really really terrible luck, like, really terrible, but um, I mean you feel me.

Hermann: *[also drunkenly]* I do. Honestly though, Newton, my most profound sympathies have to go to the *deadones*.

Newt: *[careful whisper]* Hermann.

Hermann: *[also whispered]* What.

Newt: *[still whispering]* I want you to brace yourself. Wallace? Is dead. So is Darwin, for that matter.

Hermann: *[disgusted, normal volume]* I am talking about the ones that died for reasons related to their work. Giordano Bruno. Marie Curie. Antoine Lavoisier.

Newt: I'm pretty sure he was just rich during the French Revolution.

Hermann: Well, *I'm* 'pretty sure' he was killed for trying to assist *Joseph Louis Lagrange*, who, if you ever *took* calculus, which I *doubt*—

Newt: Oh I took calculus. I, in fact, I took calculus before *you* did, I'm pretty sure. Are you going to win, in a math-off? Yes. I admit that. Are you going to win in an awesome-off? No. I do not admit *that*.

Lightcap: Oh my god, you guys are so adorable when you're drunk, it almost looks like you're friends.

Newt: Cait-Science! We're just, like, sitting next to each other, randomly. Stochastically. Random on the quantum level.

Hermann: An entirely chance occurrence. Read nothing into it.

Lightcap: Uh huh.

Newt: *You're* so adorable when you're drunk, how about. Not even scary. Just so married and so normal and so wearing *nice shoes*.

Lightcap: Geiszler, you're supposed to be singing for ambiance, not half-assedly playing *Debaser* and crying over dead scientists.

Newt: How about no.

Lightcap: How about yes.

Hermann: He's realized that you're his only fan, you see.

Lightcap: That not even true.

Newt: It's a little bit true. I give up music for science every day of my life.

Hermann: I also don't think he sings for 'ambiance'.

Newt: That is *also* true, Dr. Gottlieb, thanks for noticing. *Yes*. I sing only if everyone is listening to me, only if Mako is going to throw glitter, and only if I am alone in the lab.

Hermann: Or if you *believe* yourself to be alone in the lab.

Newt: Yes, or if I *believe myself* that I'm alone in the lab.

Lightcap: Oh my god. Oh my god. *Geisszzlerrrr!*

Newt: Aw, *you* want to sing, Lightcap? By now I have literally every song you know in my repertoire. Unless you're keeping whole swaths of your musical taste secret from me because you don't want me to judge you.

[Newt invitingly plays the opening to Debaser on the guitar.]

Lightcap: I'm going to pass. If you guys have a drunken make out session, please document it in some way for the ongoing shatterdome pool. Later, losers.

Newt: I think that was an inappropriate comment. For like five reasons. Or at least two.

Hermann: I couldn't agree more.

Newt: She just walked away. She can't do that.

Hermann: Evidence indicates otherwise.

Newt: *[shouting at Lightcap]* You document *your* erotic activities, how about.

Newt: I probably should not have shouted that.

Hermann: Really, Newton, at this point I don't think it matters.

Newt: I'm too far-gone, is what you're saying. I will never rehabilitate my image into something respectable.

Hermann: That is, indeed, the general, sort of, *landscape*, if you will, that I am suggesting.

Newt: Your landscape seems really polite to me. I'm actually *very* responsible if you use a metric other than *yourself* or like, anyone in the military. Like, I'm probably a little bit more responsible than Tendo?

Hermann: Oh I don't think so.

Newt: Come on.

Hermann: You are more responsible than that fellow who runs the IT department, what's his name?

Newt: *Jad?* The Jad who takes pictures of his food every day in the mess hall, gives me status updates on my aura, plays the trombone, badly, at K-science power hour, wears candy bracelets, and avoids shoes on Friday 'because of reasons'? *That* guy?

Hermann: Yes.

Newt: Well, first of all, Hermann, I have had exactly zero IT related problems since I've joined the PPDC, so it seems that Jad, despite his dubious demeanor, is probably actually pretty competent. You shouldn't be so judgmental. At a minimum, he's anecdotally competent.

Hermann: He seems competent because my division has taken over *all* network maintenance due to our bandwidth requirements for offsite data analysis.

Newt: *[interested]* Have you *really*.

Hermann: Yes.

Newt: Well that explains a lot about why Jad seems to have so much free time. He's been photographing my *plants* quite a bit lately. He's been working on a terrarium in the back of my lab space. He needs to put it there because his office doesn't have windows.

Hermann: I knew the two of you would be friends.

Newt: Jad's a solid guy.

Hermann: You are making my point.

Newt: Just because I'm *friends* with Jad does not mean that he and I have approximately the same responsibility level. What does that even *mean*. You're committing some kind of fallacy. Like, fallacy of proximity. Fallacy of two guys just both having unusual hair in a shatterdome full of people with really boring hair. Because *that's* a thing. Fallacy of plant bonding.

Hermann: This entire conversation is pointless.

Newt: Agreed. I feel like we used to be having a real one though. What *happened*.

Hermann: I'm sure I don't know.

Newt: Lightcap happened is what happened.

Hermann: *[long suffering sigh]*

Newt: I'm going to follow up on a thing. Hold my guitar.

Hermann: No.

Newt: Yes. Just hold it, it won't bite you.

Narrator: Dr. Gottlieb would later think often of that night, often of that guitar from 2009, its blue finish, its left handed chirality, the butterfly sticker that Mako Mori had affixed to its back when she was eleven. He would think often of that particular party, with a strange *in medias res* sense of fondness. He would remember his colleagues as young—before the rise of the Wall and the change in their fortunes. He would remember the arrangement of clean, white rooms in Dr. Lightcap's house, the bright yellow cast of the light, the cheerful flux of the people. He would remember the contrast of blue-on-white as he leaned the guitar against the wall of Dr. Lightcap's living room before he went in search of his colleague. He found him in the kitchen.

Newt: *[still drunkenly]* Cait-Science, Cait-Science. It's *embarrassing* we don't yet have a remote interface. Like, as a species. I am embarrassed for our species. It pains me. Literally every day.

Lightcap: *[also drunkenly]* If it pains *you*, my little Prince of an Alien Xenome, how do you think it feels for me? I always wanted that, you *know* I always wanted that—right from the beginning. But I gave it up because it wasn't *workable*.

Hermann: Back at this again, are we?

Newt: We will literally never not be not back at our failure to do this. Or? You know what I mean.

Hermann: I really don't think I do.

Lightcap: He gets you.

Newt: Does he though?

Hermann: I doubt there's much *to* get.

Lightcap: Moving on. I don't see that anything about the situation has changed. We have no way to take a signal from a brain, transduce it to a computationally readable form, transmit it wirelessly, and then turn it into a complex series of actions. The *lag* is absolutely killer. Literally. And those things are getting faster. They're getting faster faster than *we're* getting faster.

Hermann: That is, of course, the point that you have been missing for *years*, Newton. The transduction and remote transmission of signals from the human motor cortex *takes too long* in the context of *physical combat*.

Newt: Oh look, the quantum physicist is weighing in. Missing? Have I been *missing* that point, do you think, Lightcap?

Lightcap: More like lamenting. I'd say.

Hermann: Lamenting in a way that heavily implies a reluctance to accept inherent technical constraints of the system in which you find yourself.

Newt: *[exasperated]* Ugh! You are so—*you*.

Lightcap: I have—wondered about the Drift though.

Newt: *[with a broad sort of inebriation]* No shit, Lightcap. Tell me more. Tell 'us' more, I guess, since Dr. Gottlieb is being a pest.

Hermann: Do not say 'shit.'

Newt: Fine.

Lightcap: You guys are so fucking weird.

Newt: You're not going to tell Lightcap not to say—

Hermann: Do *not*.

Lightcap: We tend to use the drift in a very *literal* way. Person A, right hemisphere. Person B, left hemisphere. But there's not a reason it *must* happen that way. Let's say, for the sake of argument—what if I had a twin? What if we had *both* acted identically to

save Serge that first time, when he was dying in that rig. What if there had been a three-way jack-in? What would that have *been like*? How would that have ultimately settled out? It couldn't have been divided down structural lines: left hemisphere/right hemisphere. That's what happened by default the first time, but what if you could add other parties to the drift? Look, the unknowns are too great and the benefits are questionable; but what about adding multiple parties to the drift? What about attempting a drift with the computational program that we use to establish the connection between the pilots and the Jaegers? If that program could be *expanded*; if it could be turned into something more like an AI and brought into the link somehow, then maybe the lag due to transduction could be eliminated. There would, essentially, *be* no lag. Because the drifting pair would be one with the computational program running in the Jaeger.

Hermann: You can't be serious.

Newt: *[flatly]* Lightcap, that is absolutely insane.

Lightcap: Baby-face! You were my best hope for getting anyone to take this idea seriously. And it's not insane.

Newt: Okay, look, it is not *absolutely* insane.

Hermann: Yes, it is.

Newt: I feel really strongly about this though, Lightcap. *Really* strongly, okay? Listen to me. I think you're probably absolutely right. I bet you could get multiple compatible parties in on a drift and possibly, *possibly* get improved capacity. There would be that much more danger of a lack of alignment, right? There are those triplicated kids that want to try it in triplicate? The Wei Tangs?

Lightcap: That's where I got the idea. I've been designing them an interface.

Newt: Well, okay, that's extremely *badass*. Why didn't you tell me you were doing something that awesome.

Lightcap: You've been busy.

Hermann: If you wish to continue your sequencing work you will need to work up a funding proposal that you have not even *started*.

Newt: Myeah, okay, busy. But yet? Not too busy for awesomeness.

Lightcap: Write that grant, baby. Money's shifting somewhere, and I've heard rumors of a second defense program in the works.

Newt: I'll write the grant, people. Ugh. Have some faith. But look, Lightcap. *Lightcap*. A three way human drift is one thing, but you're talking about a human-on-human-on-computer drift, yes? With the hope that it would facilitate a drop in the killer lag time that's been precluding remote monster killing?

Lightcap: Yes. That is exactly what's I'm proposing. One two, look here you, three four, I'm hard-core.

Newt: Oh yeah. You mastermind that childish rhyme. Look. A biological brain is going to have more plasticity, more ability to adapt than even the most *sophisticated*, AI or AI-like computational program you might be able to put together. Probably? The drift will just be an uninterpretable mess, but you don't want *your* neural patterns permanently or even transiently altered by, like, a *Star Trek* style first contact between biological and computational software. I even can't get Dr. Gottlieb's weird presentations to work properly on *my* operating system of choice and you think you're going to add a piece of software as a *participant* in a three-way *drift* and have it *work*?

Lightcap: I think it can be done.

Newt: Well then it probably can be, but don't be an idiot, Lightcap. If these three kids from Hong Kong are so excited about trying a mental three-way see if that works. First.

Hermann: I concur.

Lightcap: That's the plan.

Narrator: That night, Dr. Geiszler left the blue guitar at Dr. Lightcap's residence. For several weeks he intended to retrieve it, but he never had the time. Shortly after the party, Dr. Lightcap succeeded in assisting the Wei siblings in the establishment of the first three-way drift. As autumn progressed towards winter, she refined her plans for eliminating the lag-time that precluded remote control of a Jaeger. She submitted a petition for approval from the PPDC's oversight board to attempt a pilot experiment using herself and Sergio D'onofrio. She was denied approval. She requested to appear before the committee to make her case.

Lightcap: It's *my* pilots who are out there, dying. I conceived this project. I trained them. We all, all of us—you on this board, me in my lab, every person in every country who watches, riveted, as they protect the coastline—all of us—we *send them out there*. The presence of people to protect creates an ethical imperative to which whole scores of individuals have *stepped up*. We have to do this. We have to do this because we might be able to reduce some of that risk. We might be able to retain trained pilots for longer. As it stands? In a year? I might not be around to propose this to you. This isn't

melodrama. This is what it is and how it is. And this is what we have to do. You and me. We have to try and do this for our pilots. For the ones we have, the ones we're training, the kids who are walking down the streets in hopeful pairs—best friends, siblings, lovers—and *looking* for a dojo or a studio or a gym where they can start their training. We have to do it now. It has to be me that tries. It has to be you that says yes. Tell me yes. You must. You must tell me yes.

Narrator: They told her yes. She and Sergio D'onofrio attempted her proposed drift the following week.

Lightcap: Uplink established.

Tendo: Cait, you okay? Your alignment just fluxed.

Lightcap: *[frightened]* I'm okay, yeah. We're okay. We're okay to keep going. *[whispered and very low in the mix]* one two three four, two two three four, three two three four, four two three four, five two three four.

Tendo: Yeah?

Lightcap: *[breathlessly]* Yeah. It's strange. It's a little bit *weird*, is all; we're getting some unparsable input, I think.

Tendo: You want to just take some readings and jack back out?

Lightcap: Nope.

Tendo: Serge? Can you hear me, brother?

Serge: *[tightly]* Yup.

Tendo: Okaaay, initiating neural three-way.

[Lightcap begins to hear Yoshimi Battles the Pink Robots Pt. 1]

Lightcap: *[whispered, tearful]* I think something's wrong. I'm caught in a memory.

Serge? Tendo? Cut the connection. Cut the—

Mako: Gambatte! Ikimashou!

Lightcap: *[with increasing strain under all of the coming lines]* One two three four, two two three four, three two three four, four two three four, five two three four, six two three four, seven two three four, eight two three four, nine two three four, ten two three four, eleven two three four, twelve two three four...

Lightcap: I'm a little bit excited. I mean, don't *tell* him this, but I love his band. Unironically.

Hermann: Ah. I can't say that I'm familiar.

Lightcap: Shhh!

Newt: *[singing]* Her name is Yoshimi, she's a black belt in karate.

Mako: Hya! Ya!

Lightcap: *[laughter at Mako's karate moves]*

Newt: *[singing]* Workin' for the city, she has to discipline her body.

[The sound of rising static.]

Newt: I didn't think you were going to make it. Not that first time.

Lightcap: West. Look west.

Mako: Sometimes I feel afraid when I think of it.

Newt: The light was behind you.

Serge: I'll always remember it. Your nails digging into the ice.

Hermann: I do not *give him* a 'hard time.'

Lightcap: What's a nice kid like you doing in bitchin' boots like those, anyway.

Hermann: I have *never* given him a 'hard time.'

Lightcap: *[whispered]* I need more time.

Serge: Unbelievable.

Lightcap: This sounds a little bit juvenile, but I think D'onofrio might—like me?

Mako and Newt: *[singing]* working for the city; she has to discipline her body.

Newt: Will you come with me?

Mako: We are learning about reef sharks.

Lightcap: Yeah. I'll come with you.

Hermann: I don't think you understand how poorly suited he is to this environment.
How poorly suited we *all* are. All of us except you.

Lightcap: You have feelings for me.

Newt: Build yourself a temple of quantitative splendor and live there.

Serge: Is that a problem?

Newt: Don't be weird about this, Lightcap. It's not a guy thing, it's just a *human* thing, okay? Your ribs are broken. Just *sit*. Sit.

Newt and Mako: *[singing]* But you won't let those kaiju defeat me.

Lightcap: Oh babyface, no one ever taught you a thing.

Hermann: Perfect men, like perfect numbers, are rare.

Serge: Don't scream. Just breathe, don't scream.

Lightcap: Screeeeeeewww you, fuck off and die.

Newt: You're quoting. I *know* you're quoting.

Fan: Dr. Lightcap, would you sign my chest?

Hermann: Descartes, of course.

Mako: I'm helping!

Newt: You're selfish, that's what you are, selfish.

Mako: You have done so much.

Lightcap: I wish you wouldn't take it so hard.

Newt [singing]: Those evil-natured kaiju, naturally selected and or engineered to destroy us...

Newt: Schoenfeld is an absolute *dick*. Why are you still *thinking* about that guy. Ever. Even one time. Move on.

Lightcap: The continental shelf.

Serge: You make that clipboard look good. I'm just sayin'.

Lightcap: He was brilliant. He *is* brilliant.

Hermann: I don't know that we can implement this time-table.

Newt: *I'm* brilliant. You're brilliant. You could shake a stick and hit someone who's literally God's gift to their own personal corner of science.

Mako: I wish to be like you.

Newt and Mako: [singing] 'Cause she knows that it'd be tragic if those evil kaiju win. I know she can beat them!

Lightcap: Do you believe in God?

Newt: Stop. Please stop.

Lightcap: [laughter]

Hermann: I do not know what my father intends to *do*, exactly—

Lightcap: The miracle mile.

Serge: Don't scream.

Newt: The good times are killing me.

Lightcap: Why are you doing this?

Serge: Forget about him. He doesn't love you like I love you.

Hermann: I am—concerned. To say the least.

Lightcap: It's coming. It's under the water. It's coming.

Newt: If I never *see* the Pacific again it will be too soon.

Lightcap: You could absolutely be a pilot baby. I know you could.

Newt: I just can't believe the guy *hit* me. What is this, the stone age?

Mako: You think so?

Lightcap: Am I going to die?

Hermann: I do not approve of your methods.

Lightcap: / can.

Mako: Newt, can you beat *everyone* at Portal?

Lightcap: I worry about you sometimes, baby, I really do. You know how many fights you're going to start with those things? You know how many you're going to *win*?

Mako: Why does it matter how many times I have watched *Blue Planet*.

Newt: Hiiii Lightcap.

Mako: Tell me a story!

Serge: I know it hurts, just hang on.

Newt: I like to think of you winning every lottery. All of the time. For all time.

Lightcap: Bitch-prince of the xenome!

Hermann: It reminds me of home, I suppose.

Serge: I don't know if you're thinking what I'm thinking.

Lightcap: I don't understand why you don't *sing* more, my little habitual grandstander.

Newt: What did one 1,4 methylcyclohexane say to the *other* 1,4 methylcyclohexane?

Hermann: Do you have any idea. Any idea at all why they might have rejected my application.

Lightcap: Karloff.

Lightcap: I love you so much.

Newt and Mako: *[singing]* Oh Yoshimi, they don't believe me, but you won't let those kaiju eat me, Yoshimi.

Lightcap: Admit it though. You like him. A little bit. A little bit you do.

Newt: You looked very heroic.

Newt: You're going to die in there.

Mako: This beetle is very interesting.

Lightcap: So you don't die out here.

Newt: Oh yeah, there was this one guy, in Prague, at a *bioethics* conference believe it or not—

Lightcap: I only play Chell, Geiszler.

Hermann: I do not understand why none of you place a priority on the *etiology* of this catastrophe. The breach must be *shut*.

Newt: Whatever. Everyone's hotter while holding power tools.

Newt and Mako: *[singing]* 'Cause she knows that it'd be tragic if those evil kaiju win. I know she can beat them!

Lightcap: Sleeping at the empirical wheel, kiddo. Not a good look.

Mako: But are you sometimes afraid?

Lightcap: You never talk about your family, Geiszler.

Hermann: I will admit absolutely nothing of the kind.

Newt: A story? What kind of story, Maks?

Serge: Even now sometimes I can't believe you've done what you've done. I love everything about you. Even your goddamned demon cat.

Lightcap: There once was a warrior princess named Mako and she lived beside a giant lake.

Newt: You are the brick and mortar of this place, Lightcap.

Mako: Afraid of the water?

Lightcap: Mako! There is *glitter* in my *hair*.

Serge: You can't die.

Newt and Mako: *[singing]* Yoshimi, they don't believe me, but you won't let those kaiju eat me; Yoshimi they don't believe me, but you won't let those—

Lightcap: Girl you so groovy!

Mako: Afraid when it comes in?

Lightcap: If you build enough, you can live for the only forever that matters.

Newt: The only forever that matters to *you*.

Serge: You can't die. You can't leave them. If you leave them the ships are going to wreck.

Lightcap: She kicked the shit out of that board. Stacker, did you see that?

Doctor: Your ribs are broken and you're bleeding internally.

Newt and Mako: Oh Yoshimi, they don't believe me—

Lightcap: I love you. I love you. Serge. I love you.

Newt and Mako: *[singing]* —but you won't let those kaiju defeat me, oh Yoshimi.

Lightcap: Did they—treat you okay?

Hermann: Frankly, Dr. Lightcap, I believe you set a poor example. To put it bluntly, your professionalism leaves something to be desired. I do not think this incident would have occurred if you would more consistently enforce attendance at mandatory briefings.

Newt: *[now singing alone]* Oh Yoshimi, they don't believe me, but you won't let those kaiju eat me—

Newt: You're going to die out there.

Tendo: Find Geiszler, find Geiszler, oh god, someone find Geiszler.

Lightcap: Don't let him see.

Mako: Are you ever afraid? Afraid when it comes in?

Lightcap: Their thoughts pull in and blow out in a bright, beautiful brisance of sun and circuitry.

Newt and Mako: Hey Yoshimi, you don't believe me but you won't let those robots eat me—

Lightcap: Torque and torment.

Hermann: I think you should say something to him about the hair.

Lightcap: Brawler Yukon. What do you think? You like the name?

Lightcap: The butterfly on Mako's notebook. The slide of a shoe.

Mako: Are you ever afraid?

Lightcap: The shattering of glass.

Lightcap: I'm ready.

Narrator: They did not survive the attempt.

Narrator: Dr. Geiszler was not present in the interface lab at the time. Shortly after the incident, the members of J-tech present in the interface lab drew straws to determine who inform him of what had taken place and ask him to come to the lab to assist with documentation and data recovery. Dr. Choi drew the short straw. On his way, he encountered Dr. Gottlieb, and was relieved of his straw.

Narrator: Dr. Geiszler attended neither Dr. Lightcap's funeral, nor her wake.

[Begin to fade up piano.]

Narrator: He spent her funeral on the end of the deployment dock. Her wake he spent alone, in his room, listening to *Black Sabbath* and drinking a bottle of vodka he had found when going through Dr. Lightcap's desk.

Newt: I think it was because she liked machines more than people, really, when it came right down to it. No, that's not right, I didn't mean it that way, she just—she could make them do what she wanted and I don't understand why it didn't work for her. That last time. You people. You, Tendo, her, J-tech, me, everyone, even Mako—her simulator scores—we built these things to be extensions of *us* and she was better, better than anyone. How can *this* be the thing that kills her? That killed her?

Hermann: *[gently]* Newton. This is the price. Not of progress, but of the *rate* she set. The rate that necessity dictates.

Newt: *[flatly]* You think I don't know that?

Hermann: I'm not sure you've ever accepted it in the way that Dr. Lightcap did. So this war has now, finally, touched you. That does not make you singular. But nor are you alone.

[Piano fades into Dreaming Correctly.]

Narrator: In Seattle, it rained all through the winter. Tendo Choi met the woman he would marry. Stacker Pentecost made a promise to Mako Mori. Hermann Gottlieb had a falling-out with his father over the concept of a Costal Wall. Skye McLeod switched

fields from comparative anatomy to exoimmunology. Under the specter of decreased funding, Dr. Geiszler submitted his supplementary grant, which would eventually lead to the observation that kaiju were genetically identical to one another. In 2020, Drs. Geiszler and Gottlieb would attend a global conference in Geneva, where the structure of the Breach would finally be revealed. At the same time, a kaiju called *Knifehead* would nearly destroy a Jaeger off the Alaskan coastline. In 2021, Mako Mori would be granted entry to the Jaeger Academy. She would be one of the last pilots to graduate. In 2022, construction would begin in earnest on The Wall of Life and the Jaeger program would begin its slow defunding.

[First two verses of Dreaming Correctly.]

Narrator: The blue guitar remained in Dr. Lightcap's empty house.

[Guitar solo of Dreaming Correctly.]

Narrator: Dr. Geiszler intended to retrieve it. He never did.

[Last verse of Dreaming Correctly.]

Narrator: *[overtop the choral montage at the end of Dreaming Correctly]* It is speculated that the guitar was destroyed in the early spring of 2019 when the kaiju *Ragnarok* obliterated a large portion of Seattle. It was never ascertained for certain whether or not this was the case. It was possible a member of Dr. Lightcap's family had removed it after her funeral. It is possible it was found by passers-by in the aftermath of the kaiju attack. Some historians doubt that the guitar existed at all. It is documented in no photos. No record of its production can be found. *[now begin to double the Narrator and Mako]* Dr. Geiszler himself has never commented upon its existence. The guitar has been mentioned only in anecdotes told to the press by Mako Mori, following the destruction of the breach in 2025. But how could Mako know these things that, over time, she has told? Mako could not know *all* of them. Mako would have had to tell the story as she remembered it, filling in the details that she learned of only later. She would have had to imagine what would happen to a guitar in the cold of Alaska, in the humidity of Tokyo, in the suburbs of Seattle. Does the guitar remember Mako only because she remembers *it*? To remember a thing is to change it in the re-experience. That is the nature of memory. It is not an impermanent thing, written in stone, and unchanging. It lives within us.

[Dreaming Correctly fades up and then ends, revealing the following very low in the mix:]

Lightcap: *[whispered, neutral]* one two three four, two two three four, three two three four, four two three four, five two three four, six two three four...

[Credits music begins.]

Credits. The Narrator was played by Friend King. Caitlin Lightcap was played by Allyspock. Skye McLeod was played by elementals' son. Newton Geiszler, Hermann Gottlieb, Mako Mori, and Stacker Pentecost were played by elementals. Uncredited cameos provided by family members of the actors. Album art created by saltbay and narcomanic. Links to the artists' webpages can be found at www.cleanwhiteroom.com. This work is protected under creative commons attribution-NonCommercial-ShareAlike 4.0 International License and may not be used for any commercial purpose. For more information and for a full delineation of musical and special effects credits, please see www.cleanwhiteroom.com.

Crystal Lake

Dr. Lightcap dies on a day without kaiju, in a room walled away from the ocean.

I can't believe it, everyone says, in voices that are not surprised.

Mako decides she should begin going to the gym twice a day. So, the day after the funeral she gets up and she does it. She eats breakfast at oh four hundred, before even the Marshal is awake and she goes to the gym. There are three others there and they look dubiously at the small Japanese girl who has entered their space. Mako doesn't care. Mako tips her chin up and starts doing push-ups. More push-ups than *they* can do, probably.

After her workout, she showers in the empty women's locker room. She goes to school, she comes home, she goes back to the gym, she frowns through her karate lesson, and then she does her personal routine for the second time that day. When she comes home, the Marshal is sitting at their small, shared metal table. She thinks that he has been waiting for her, because he is sitting, not doing anything, when she enters the apartment.

He watches her as she slips off her shoes at the door, walks forward, and gives him a short, respectful bow.

He nods his head at her.

The silence seems to demand something to fill itself with and so Mako says, "It's my turn to make dinner," even though it is not her turn. "What do you think of oyakodon?"

He makes a face that looks like he stepped on a nail and like he also knows that it is not her turn to make dinner. A terrible understanding rises in the back of her throat. When she was eleven, she had hated the many small ways that people tried to show her the pity they had for her, like little glass flowers under handkerchiefs. She understands now that it was not always pity. That, sometimes, empathy looks the same. That, sometimes, it hurts when it is unwanted.

She is not sure what to do. She hovers on the threshold of the kitchen and does watch while the Marshal masters his own expression.

"Mako," he says finally, and he looks at the chair opposite him in a way that means *'please sit.'*

Mako comes to the table and sits.

The Marshal says nothing. He is looking at his hands.

"She was your friend," Mako says, her voice high and tight and full of regard.

"Yes," the Marshal whispers, low and tight and full of sadness.

Mako nods, trying to think what would be good to do.

Their apartment is very quiet.

Dr. Lightcap would have thought this was stupid. This quiet sadness. This pause in work. The slower pace in the halls. The way no one will go in her office. Use her rigs. The week-long leave that Tendo took. The flowers on the Shatterdome floor. The flowers in the mess. The way that J-tech had painted *Brawler Yukon* black sometime in the night. And Newt. She would think Newt was the stupidest of all.

"Mako," the Marshal says. "Tonight—there's going to be a wake. Have you ever been to a wake?"

Mako shakes her head.

"It's a time for people to come together after a funeral and remember the person who has died. Usually it's—a celebration. Of the life a person has lived."

Mako nods once, then points her chin up, clamping her jaw so she can continue to watch him speak to her.

"But sometimes," the Marshal says with increasing difficulty, "when a young person dies—sometimes it's not a celebration."

Mako has never thought of Dr. Lightcap as 'young.' Mako *had* never thought of Dr. Lightcap as 'young.' But neither was she old.

"Or sometimes," Mako says, her voice wavering too much before she swallows and makes it still, "if only one person can do a thing. A thing that other people need. And then that person dies and no one is left who can do it. And the people left behind wonder what will happen to them. That, also, it is hard to celebrate."

The Marshal looks away from her, his lips pressed together very hard. He nods.

Mako twists her mouth into a tight frown and then relaxes her face. Tears that aren't tears go back into her eyes without falling.

"It's up to you," he says quietly, "whether or not you want to go."

"When does it start?" she asks.

"Two hours," the Marshal says. "At her house. Her family will be there. Her parents. Captain D'onofrio's parents. And his brother. Most of J-tech."

"Would you like me to go with you?" she asks him. "Would it be easier for you or harder for you if I am there also?"

He smiles at her. Just a very little smile. "I want you to decide," is all he says.

"I wish to think about it," Mako says. "May I be excused? I'll be back very soon."

He nods at her.

Mako goes to the door, puts on her shoes, and leaves the apartment. She jogs through halls, small and unnoticed along the sides of the corridors, turning left, then right, then left again, circling around behind the black bulk of *Brawler Yukon* until she is standing in a little doorway next to the huge doorway that leads out to the deployment dock.

She looks outside.

The clouds are low over the open ocean. The rain pours down, thick and fast, bouncing off the cement of the deployment dock. Like the clouds, the sea is gray. Newt is leaning against the railing, far out, toward the end of the dock.

Mako turns around and goes back inside.

Mako turns around and goes back to the doorway.

He doesn't understand what you wanted, Mako thinks at Dr. Lightcap. That is because he is stupid. Stupid and annoying. He was the only one who didn't understand you. Is that why you liked him best? Second best, after Captain D'onofrio? I understood. I understood always. I could be like you. You said I could be like you. You said it and you never said anything to me that wasn't true.

She steps slowly out into the rain. There is no point in hurrying. Fast or slow, she will be wet.

I hate you, she thinks at Newt. I hate you. I hate you I hate you I hate you so much sometimes.

She treads doggedly through pools of water, over wet cement. After only a few steps, her hair starts to cling to her face.

There once was a warrior princess named Mako, Dr. Lightcap whispers in her thoughts. And she lived beside a giant lake. It was an enchanted lake and so mysterious things came out of it. No, not kaiju, baby, shh. Giant crystals. Huge, beautiful crystals that would crash through the surface of the water and freeze there into huge, multicolored projections that looked like towers. And they were tall. As tall as Coyote Tango. Warrior Princess Mako called it Crystal Lake and she went sailing there every day, even though it

was risky because what if a crystal came up out of the water right where she was sailing? What then? It would wreck her boat!

Mako feels the rain soak through her shirt, leech through little holes in little shoes.

That didn't matter to Mako though, Dr. Lightcap continues, because she loved Crystal Lake. It was worth it to her to take the risk. To sail around among the colored crystal towers, looking up at the sun reflecting off of them. She sailed on the lake so much that the Kingdom of Fishpeople took note of her. Most of the time they just paid attention to their own kingdom. They didn't like to go out in the daylight. Their kingdom was dark and full of seaweed and glittering shells. It was beautiful too, but much different from Mako's kingdom. The more she sailed on Crystal Lake, the more the Fishpeople talked about her with her little boat and her pretty dark hair and her serious eyes. She spent so much time sailing through the crystals, they thought she might be making them grow. But of course, she wasn't, because correlation (Mako sailing through the crystals) does not equal causation (Mako making the crystals grow). Remember that, baby, it's very important.

The sea birds aren't calling today. Somewhere, out over the water, a ship blasts a foghorn. Once. Twice. Mako shivers. The rain soaks up her pants at the ankles, where they drag through water. It falls hard and fast on her thighs each time she takes a step.

They thought that because she was so beautiful and so good with handling her little boat, and so brave to sail amongst the crystals that might crash through the water at any moment, that she must have special powers. So they asked their king to go and talk to this mysterious sorceress and ask for her help. Because they had a problem. A terrible terrible problem. Can you guess what it was? No? You want a hint? It has something to do with the crystals.

Mako frowns wiping rain out of her eyes, remembering how she had looked from Dr. Lightcap to Newt. How he had tapped his glass of icewater, and then shoved an ice cube beneath its surface. How she had shouted, 'too many crystals below the lake!' like a baby. Like a little kid. Like a stupid little girl who didn't remember her real family and how she hoped they had been crushed to death by a falling building instead of eaten while they were still alive and afraid of how they were dying.

Yes! Dr. Lightcap had said. The whole underwater kingdom was full of crystals. The Fishpeople had to move out of their homes and into the homes of their friends. There was less and less space for them, and they had to stay under the water because they couldn't breathe the air. They needed someone to stop the crystals from growing beneath the lake. And they thought that maybe Warrior Princess Mako could figure out a solution for them. Now it just so happens that the King Salamander of the Fishpeople was a pretty

inventive little bastard. Er, guy. An inventive little guy. He'd have to be, if he wanted to make friends with a Warrior Princess who breathed the air, right?

Mako stands behind Newt on the deployment dock and stares right at his back, glares right at the center of his shoulders, and says, "I'll never be like you," silently, beneath the sound of the rain on the dock.

So he made a magical force field, which he called a Countercurrent Exchange Field that he could put over his gills, and one day, while Mako was sailing through the crystals, he burst out of the water and climbed into her boat! Mako wasn't having any of this nonsense. So she picked up her oar and hit him with it, knocking him down before he could say anything. You might think this seems a little harsh, but in Mako's kingdom, people ask politely before they climb into boats. Fortunately, King Salamander wasn't really the type of guy to take a subtle or even a really glaringly obvious hint, and so being hit with an oar didn't offend him. He held up his hands and he said, "I surrender! I surrender! I hope I'm doing this right! I'm not even from around here, gosh!" And then Mako realized that he was a Fishperson from beneath the lake. So she put down her oar and helped him sit, and she apologized for attacking him. It had been hundreds of years since any of the Fishpeople had talked to any of the Landpeople, and they had a lot of catching up to do. Talking about wars and storms and what bands were popular under the water these days.

The rain comes down.

Mako stands there and stands there, getting wet. Getting wet all the way.

She doesn't *want to be here*, but she can't not be here either. So she tries tearing a little part of herself away from the whole she's trying to make herself into. She tries to make herself into that little torn away piece, just for right now, just for a *little while*, so that she can do something for someone else. To do what she wants to do, she has to be a person that she's not anymore. A person she hasn't been for months. A person she doesn't want to be. A person that, after today, maybe she'll never be again.

It works. It works too well.

They talk for hours and hours, Dr. Lightcap says, and they become good friends. She says, 'call me Maks.' And he says, 'call me Newt.' And he tells her all about his problem with the crystals. How they look completely different under the water. Less beautiful. Darker. Scarier.

Mako crosses the last distance that separates them, her steps hurrying, her shoes splashing in the water of the dock. She calls his name, loud over the sound of the rain.

He turns around and she can't see his face, really, because his glasses are streaked with water. But she runs forward and when she gets to him, he opens his arms and he hugs her. She hugs him back, her arms around his neck. As tight as she can. She can tell he's crying. That he's probably been crying this whole time. Maybe that's okay. Maybe, this one time, it's okay if she cries too. He won't tell. Newt has never told any of her secrets.

And at first, Dr. Lightcap whispers, Mako doesn't see how it's possible. The crystals are so beautiful. The way the sun glitters off them like colored ice. She tries to show him. She says, 'spend a day with me in my boat, and then you'll understand.' And he says, 'okay, Maks, but after we spend a day in your boat looking at the crystals in the air, you have to come down with me, under the water, and look at them there.' And Warrior Princess Mako agrees to his deal, even though she has a bad feeling about it.

"I should have come before," she says into his neck because she should have held his hand when he'd gone into the room to fix the rig. Because she'd done it before, seen pictures of parts of things that weren't her parents and she'd said, 'yes, those are my parents,' and the Marshal had held her hand and so Mako knows how to do it, and Newt doesn't know how to do it at all. She can't imagine Dr. Lightcap dead and Newt alive but also there, in the same place at the same time.

He can't say anything, but she feels him shake his head.

"Do you know what a wake is," she whispers.

He tries to let her go, but she doesn't let him, and again she says, "do you know about wakes?"

"Yeah," he says, finally. "I know about them, Maks."

"I think don't go," she says, right in his ear.

And so Princess Mako spends a day showing King Salamander the surface of the crystal lake. It's the prettiest at sunset, when the colors are the brightest and the sky is the darkest. And at the end of it, he agrees that it's probably the most beautiful lake in the world.

"Why not?" Newt says.

"Because," Mako says, her eyes hot and her throat tight and her face all wrong.

"Because."

The next day, King Salamander makes Warrior Princess Mako her own special force field so that she can breathe underwater and he shows her his kingdom. How dark and green

it is. The forests of kelp. The banks and banks of coral. The schools of fish that the Fishpeople herd like sheep. It's beautiful and alive. Everything is alive. Except for the places where the crystals shoot up out of the silvery sand.

"Stay here," Mako says. "Here is where she is, anyway. Not with flowers. Not at a wake. Here. In what she made. That's where she is. She said to Captain D'onofrio one time at night, at our apartment, when the Marshal couldn't hear, she said, 'promise me Serge, that we'll die on the same day', and he promised her, Newt. He *promised*."

But this does not make Newt feel better. He cries more, and so Mako, too, cries more.

'So now you see my problem,' says King Salamander to Princess Mako. And Mako does see it. And she knows what she has to do. So even though it's hard, and it makes her sad, she returns to the surface, and climbs into her boat.

Dr. Lightcap should have died fighting kaiju like everyone thought that she would, not in a lab during an experiment. That is the *only* thing that is sad. That everyone has to die and not everyone can die killing kaiju but that nothing less should have killed Dr. Lightcap. That is why Mako is crying. Mako isn't crying because she'll miss Dr. Lightcap. Because how could she miss anyone more than she misses her own family? The islands of Kagoshima Prefecture? Sakurajima, dark slopes above blue water? The ferry from the mainland to Tanegashima? She never could. Newt is crying because Newt is just Newt and he never understands anything in the right way.

And she takes the oar of her little boat. It's a big, heavy oar, but Mako is very strong.

"So it is all right," Mako says, the rain running down under her collar. "She was doing what she wanted. She was never sad. You," Mako continues, swallowing, "*you* were the one who was sad for her. She never was for herself. She *never* was." *So stop it*, she does not say. *Stop it*.

Newt lets her go and turns to face the ocean, flat and gray and jagged with rain. "Get out of here Maks," he says, sounding choked. "Thanks for coming. But get out of here."

Mako steps forward to stand next to him, bringing her hands up to rest on the rail. "Are you going to the wake?" she whispers.

"No," he says wiping his face. "Tell me how it is. Pour some ginger ale on the floor for me."

"I am not going either," she says. "I am going to watch *Blue Planet* in your lab. You may come if you like."

"Aw," Newt says. "I don't know if I'm going to make it, kiddo."

"I will tell Dr. Gottlieb that you're out here," Mako says.

"Please don't do that," Newt whispers, so pained that Mako is sorry she said anything.

"Okay," Mako replies.

And she breaks all the crystals, right down to their roots, Dr. Lightcap says, making her hands into fists and then bursting them open right in Mako's face. Every single one. So that she can save the Fishpeople's underwater kingdom. She gives the reefs and the kelp forests the space to grow. She smashes them all into tiny, tiny pieces that turn to dust and glitter in the air.

Newt will never understand things the way that Mako understands them. But that is not his fault. He is a different person than she is. At the beginning, he seemed the same as her. Knowing how to speak without pity, showing her new things, walking away from sadness into not-sad places and looking for interesting fish there. All those things are fine. But he can't be serious in the way that he should be. He couldn't let Dr. Lightcap go, and so she'd dragged him through things he wasn't suited for and could not understand. He doesn't know how to talk to people, how to accomplish what he wants to accomplish, how to be respectful, how to be polite to people who have power over him, how to keep what he thinks to himself. Mako should not drag him with her, to the places she will go. It would be cruel to him and it would hurt both of them.

And so Mako, again, leaves her old self behind her. She straightens her back and grips the rail, looking out over the ocean. As if he can *feel* her change, Newt looks over at her.

She cannot quite bury the urge to clamp her hands around the jacket he is ruining and tell him that he *must* come inside. That she needs him to watch *Blue Planet* with her and that she does not want to spend the night alone while half the Shatterdome is across town at a wake. That she will stitch together the ends of everything that is unraveling if only later, in four years, when she goes to the Jaeger Academy he will say, 'I'm proud of you, Maks; I'm happy that you got what you wanted,' even if he is not really happy. But he will never, never say that. He hated Dr. Lightcap's choices, but he will hate hers *more*. Every moment they spend together will make her final choice more painful for both of them. Because he will feel that he failed if she goes, and she will feel that she failed if she doesn't.

So she should leave him alone, on Dr. Lightcap's dock. On the dock that will always be Dr. Lightcap's, no matter who and how many come after her.

"You should go," Newt says, again, not knowing the truth of his own words.

Mako *should* go.

And so she will.

In a little while, she will.

Geneva 2020

On a remarkable day in a remarkable city a remarkable biologist is giving a remarkable talk.

The remarkable day is Monday.

The remarkable city is Geneva.

The remarkable biologist is Newton Geiszler.

The remarkable talk is this talk.

The lights in this offensively amphitheatreized auditorium are not bright, but Newt's final slide is. Bright white. Bright white within the dim purple glow of the room. Bright and white, rectangular and illuminated, and not *whatshould* come at the end of a talk, which is an 'acknowledgements' slide where Newt rhapsodizes about his Super Science Team of Super Science Friends.

Nope, that is not what this is.

Not this slide.

Not this final slide.

Not this bright and white, rectangular and final slide.

Not this slide. This slide has a different title.

THE WALL OF "LIFE"

All caps, to better accompany the probable shouting.

He gets through half a sentence, though one long, subordinate clause delivered with a contempt-cocked cadence before the audience becomes cognizant of the idea that he is *not* (as it were, is, are, and will be) *a fan*.

The room shifts, literally and figuratively. Audience members become restless in their seats, turning toward one another. The quiet gains a subtly threatening undertone, like the low buzz of a too-close nest of wasps.

Newt keeps going.

Newt keeps going and the low hum breaks into audible talking.

The talking ratchets up in volume.

He has six points to cover.

He's not listening to what people are beginning to shout at him and he *doesn't have to*, because he has a microphone clipped to his collar, three minutes on the clock, and a slide of ideas he's going to articulate. The first person who makes a real attempt to speak over him is a guy in the back row who has elected to go with an anti-Geiszler ad hominem and *come on*; that's low hanging fruit, man. He's made it easy for them, he's not sure why, with the dark drape of his tattoos that look black under purple light. Should he have worn a blazer? Probably. When he hits talking point two, entitled: DESTRUCTION OF COASTAL ECOLOGY, another audience member stands up. Guy Two is planted smack in the middle of the central fan of seats. From a standpoint of academic tactics, this is not a great development for Newt. Guy Two joins his ideological friend at the back of the room in some sub par rhetoric. Newt nails Guy Two with his best back-off stare, long and fixed and derisive and disdainful and disdainful and *disdainful*; he can *feel* his own disdain distorting his expression, leaking out of his voice, dripping off the pointed ends of his consonants, sdaining the floor with dis.

"Catastrophic and pointless destruction of biodiversity aside, before moving on, I will again emphasize that it is *acategorical impossibility* to fence in the Pacific," Newt says, letting his volume slide up, analog-style.

Someone accuses him of attacking a straw man. Newt shifts his gaze, snaps, "yeah, in my dreams," and then continues, his rhetorical stride entirely unbroken.

He glances laterally at Drs Choi and Gottlieb, who are taking this display with equanimity. Like they're professionals or something. Weird. Tendo's wearing a mask of total neutrality but Hermann nails Newt with an expression that veers just a little bit into incredulous while simultaneously carrying a do-what-you-must vibe. Newt looks away and moves on to talking point three.

DIVERSION OF ESSENTIAL RESOURCES.

It is here he begins to lose control of the room.

He'd rather *not* lose the room. Not here. Not now. Not at point three. So he hangs on, increasing his volume, spreading his hands, gesticulating in sweeps, digging deep into all two hundred and six of his buried didactic bones, in order to *last this out*. He's pushing it, he's pushing it, he's creating sustain, he's modulating his pitch, he's refusing to close a cadence, he's using *every rhetorical trick he knows* to hook his train of thought into listening cortices, to keep the thread of his monologue from hitting the full stop where the room will break into something he can no longer speak over.

It is in this way that he makes it through point three.

He clicks a button and point four appears.

INEVITABLE FAILURE.

"Even if the Coastal Wall could overcome the obstacles I've briefly laid out, catastrophic failure is inevitable," he begins, and the room cogwheels another notch out of his rhetorical grasp. Two more people stand and still more are speaking—some in support of Newt, some joining with the opposition. He can see a line forming down the center of the room. The people who have stood are shifting, moving centrally. Newt still controls each lateral side—the left, where no one is standing, where Tendo and Hermann are acting as an awkward anchor on the scientists around them; and the right, where the ecologists have set themselves up in a solid block, all of them sitting, all of them radiating approval—so he steps away from the lectern and moves forward, looking up at the jackass in the center, not *listening*, not *responding*, just continuing, speaking louder, glaring straight up the middle of the room and talking over them, talking over them, talking over them at increasing volume until his voice cracks and he's shouting into his mic.

He's still the loudest; everyone can still hear him, he's sure of it.

He doesn't look at the screen as he clicks forward to point five.

EXTINCTION.

Probably he doesn't need to explain this one. But he's doing it anyway; he's still shouting straight at the guy in the center of that central section, the guy who seems like he'd like to get out of his row, but whose cooler-headed neighbors aren't letting him reach the aisle. "—given that failure is inevitable," Newt says, maxing out his volume, "given that a *child* could understand that the walling away of the planet's contiguous waterspaces is functionally impossible, we are left to speculate about the implied competence of—"

The thing that stops him doesn't come from the guy in the center or his block of supporters.

It comes from the back.

He's not even sure exactly *what* it is that is said, but Lightcap's name breaks through his thalamic gate-keeping and derails his train of thought.

"What did you say?" Newt shouts over the dull roar, spreading his arms, inviting attack. Doors are opening at the back, people are leaving, people are getting the hell out, people are coming *in*, this is—

"I said," the man shouts, his voice fraying with the volume he's bringing to bear, now that Newt has made *him* the focal point of the shifting attentional tide, "that Dr. Lightcap would have supported this Wall. That this Wall would have *saved her life*."

"Fuck you," Newt shouts back, pointing with two fingers, turning a corner he hadn't known was there, too much adrenaline in his hands in his voice, in his ears, where he's not sure if the dull roar he's registering is the room or the sound system or something internal to him. "She would *never* have let this idea get off the ground. She would have *killed* it. She—"

Someone remotely deactivates his microphone.

That doesn't matter.

Newt clicks through to his final talking point.

FUTURE PLANS.

"I will destroy this project," he screams over the deafening roar of the room, over local and global arguments, over everything and everyone trying to speak.

"We will destroy this project," shouts an ecologist on the side of the room, standing, dragging the postdoc next to her to his feet, stepping into the aisle to block the path of a guy who looks like he's maybe coming down to take a swing at Newt.

"It's not viable," Newt continues, losing his voice to the effort of amplitude, "it's ludicrous to the point of farce. I will do *everything* I can to bring it down."

"The *Jaeger* Program isn't viable," says a physicist, leaning out over the front row, trying to shout him down. "Resource consumption by the Jaeger program is increasing exponentially as the rate of Breach transit accelerates—"

"It's *effective*," someone snaps from the other side of the room, maybe Tendo; Newt's not going to turn his head to see.

"That's not the issue," Newt says, his vocal chords grating, his throat beginning to burn, "just like you wouldn't compare the Jaeger Program to a collection of children who *wish* for the kaiju to *go away* you wouldn't, you wouldn't *ever*, compare it to building a *Wall* constructed of all your resources and mortared with short-sighted *denial*—"

The lights in the room come up, turning from the purple that's ideal for looking at fluorescent microscopy to a brighter glare.

Someone grabs Newt's arm.

He jerks away reflexively, stepping laterally, muscles contracting, but it's only Tendo, who isn't dragging him away, who has, apparently, just decided to come stand here

with him at the bottom of this academic pit, probably for the purpose of creating just a little bit of a higher bar for anyone who might be inclined to, oh, say, punch Newt in the face, for example.

An administrator with a *working* microphone steps through a door at the back of the room and announces the end of the afternoon session.

"Come on," Tendo says, looking at the door behind the podium, already pulling Newt toward it. "That's our cue."

Newt shakes his head.

"Come on," Tendo says again, and then Newt *is* getting dragged toward the nearest door, but after a few steps he decides to just go with it because he'd lost the room at Lightcap's name, or the room had lost itself there; it doesn't matter, either way his platform is irretrievable. He'd made it through everything he'd had to say; there's nothing left for him to do here other than face the fallout of his comments, which he'd fully intended to do, but which is seeming like maybe not the *best* idea to him right now. They stop long enough to for Newt to pull off his microphone and for Tendo to release Newt's tablet from the lectern, and then they leave the room, emerging out into small back hallway, up a flight of stairs that *of course* Tendo knows about because Dr. Choi is a closet architect in the secret dark of his brain and heart, obsessed with the utilization and mental mapping of interior spaces.

They end up on the second floor of the building, where Newt is pretty sure they're *not* supposed to be.

In the half-light of an abandoned corridor, Newt glares laterally at Tendo and snaps, "I'm not going to *run away*," way too viciously while ironically, yup, definitely in the process of running away a little bit.

"We're not running away," Tendo says, unmistakably conciliatory, his hand still locked above Newt's elbow. "We're just waiting until a point that the most preeminent structural engineer in the PPDC looks like he's *not* planning to deck you. That's not called 'running away,' that's called a 'good decision'."

Tendo leads Newt down an empty hall and doesn't say anything else.

The silence weighs on Newt.

"It's just that she would never," he offers, like a cogent explanation.

"Yeah," Tendo says, hoarse and quiet, looking away, looking at the door he's opening. "I know."

They enter an unoccupied men's room, fluorescently lit and much too bright.

Tendo gives Newt's arm a subtle shake.

Newt looks up, the answering half of a gaze-to-gaze call-and-response. They stare at one another until Tendo sees whatever it is he needs to see in Newt's face and Newt gets a shoulder-clap as reward or affirmation.

"Hang out here, yeah?" Tendo says. "I'm going to go downstairs and see if any security personnel or six foot five American engineers are spoiling for a fight."

"Sure," Newt says, because he can't quite bring himself to say, 'thanks.'

Tendo leaves Newt alone.

Newt paces the length of the empty room, over the black marble of the floor, past three red stalls, and pictures a time ten million years from now when maybe an alien culture (that comes in space ships rather than in the form of giant carnivorous unthinking yet admittedly kind of awesome monsters) finds this bathroom and maybe also finds some trace of Newt's DNA long after the fall of his civilization and maybe they'll improbably clone him from trace nucleic acids and maybe Future-Newt will be a good person who has an interesting and important and fulfilling life as an alien science experiment; maybe the aliens will be *nice* and they'll be into talking rather than eating and they'll try to figure out Newt 2.0's wants and needs and it will just be great all around. Maybe that's what the kaiju are doing, kind of—roaming the planet, looking around for something they can talk to and encountering all these delicious plankton-size little guys that build interesting sand castles that are fun to crush. Maybe the kaiju are just marauding teens and someday soon their even gianter lizard parents will tell them it's time to grow up and get a real job, chopping down trees like ya do, or maybe in finance or science, or marketing or entertainment and then all the disaffected young people will go on to become productive members of kaiju society, unaware of how many little consciousnesses they'd killed and terrorized in their youth.

Poor disaffected lizard teens trying to find their way through a dangerous multiverse.

Life is hard, kids, Newt thinks at *Tresspasser*, *Hundun*, and *Kaiceph*, and *Scissure*. *Reckoner*, *Karloff*, and *Knifehead*, and *Raythe*. Stop coming here and killing people. Stop coming here to die. Start a thrashmetal band instead or something.

He's crying a little bit, but that's not weird. That's just evolution. It doesn't count. It comes with the adrenaline and the implied threat of physical violence from his peer group who subliminally and collectively desire to physically punish him for a

threatening conceptual stance because they're all, Newt included, descended from warrior primates with established dominance hierarchies. That's fine.

Rise above your genetics, little cerebral primate friends. Newt thinks. *Rise above.*

He puts his tablet down on black marble or fake marble, whatever, Newt's not really great with *rocks* it turns out. That's not his area. He grabs the dry edge of the sink, but doesn't turn on the water. He swallows. His throat is hot and dry and sore.

Dear Hermann, thinks Newton Geiszler, PhD⁶, standing under fluorescent lights in a Swiss men's room, composing a letter it's too late to send, *I'd like to take this opportunity to both apologize for and explain my recent comportment, which I recognize has been less than ideal. A little bit sub par, even for me; a little bit of a bad idea in an unprofessionally disheveled shirt; a little bit like mv versus a brick wall, a little bit like one half mv squared versus a sick Wall, a little bit like critical mass meeting critical mass where both masses are previously apportioned parts of my personality. That got away from me a little bit, analogy-wise. I am sorry about that. I'm going to redirect into more intellectual territory and give it another go. The human brain, am I right? Very plastic. Very lazy. It relies on expectation and fixates on novelty, so we take things for granted, like the sunrise, like the sensation of clothing after a lifetime of wearing it. We don't have to work so hard to understand phenomena conceptually related to that which we've mastered. Expectation. It's great. I'm a fan. Generally.*

He hears the door to the otherwise unoccupied men's room open and Newt clenches his jaw, tips his head back, glares at the ceiling, tips his head forward, fixes his hair, and maybe wipes his face a little bit. Let gravity to what it's good for, right? He is very—he is just *very*. He decides to wash his hands because that is what people do while standing in front of sinks. Tendo won't judge him. Tendo's not a judgmental guy.

Newt is slightly surprised when he gets a familiar, lateral, waspish, and *notably* judge-y, "Newton," that is not very Tendoish at all.

"Hey," Newt says without much enthusiasm, not looking up, just staring down at his hands, at the colored dermal drape on his forearms that no one gets and that no one can *get over*; but it doesn't matter, because it doesn't matter to him and if it doesn't matter to him then who should it matter to, really? No one. That's the answer.

"Do not say 'hey' to me," Hermann hisses, coming closer, "as though I am some acquaintance you vaguely recollect. What is *wrong* with you. There is no excuse for such behavior in a public venue—"

"He had it coming," Newt says, neutral and casual, powerful and freaking *amazing*, like some kind of rhetorical deity, rolling his shoulders in a broadband broadcast of unconcern. "They *all* had it coming, actually." He adjusts his glasses, smooths a rolled sleeve, stares straight at himself in the mirror, fixes his hair, and decides that no, Dr. Geiszler does *not* look upset because why would he? No reason. "You shouldn't have involved the meeting administrators, or security, or whomever it was that you involved. I'm assuming that *was* you? Actually, I don't need to *assume*. I just *know*. The whole thing had you written all over it. Did you tell Tendo to drag me out of there? It doesn't matter. I had it under control, for your information. I wanted to make a point. I wanted to make several. I *do not appreciate* professional interference of the kind you're dispensing on a semi-regular basis these days; it's not necessary, it's not required, it's not—"

Hermann interrupts Newt before he gets the chance to build up much momentum.

"There is a sizeable faction attending this conference that conceived, funded, and currently supports the Coastal Wall." Hermann says in a secretmen'sroomesque, half-hiss. "The project has the political and literal capital to progress itself over the next five years and so you would do well not to antagonize them *quite so overtly*."

Newt rolls his eyes and exhales in obvious and (mostly) collected dismissal, as if he weren't the guy who'd spent the final three minutes of his talk screaming down the people who had started screaming at him, as if his throat doesn't still feel like it's bleeding somewhere deep down, as if his sinuses don't ache. Everything is fine; everything is perfect. So he's a polarizing figure. So people hate him. He doesn't care. He's doing his job. At the end of the day, science wins. Or, alternatively, at the end of the day science makes a stupid decision in the short term and, before the field can self-correct, everyone dies horrible, agonized, terrified, protracted deaths. So, myeah. Low stakes. He's chill. He's literally always perfectly chill; it's other people who aren't chill. Other people. Newt smiles at Hermann, casual rictus style.

Hermann looks away from him. Quickly and completely, turning his head to the side, like Newt is taking off his pants or typing an unconcealed password.

I feel ya, Newt thinks.

"Are you all right?" Hermann asks.

"Excuse me, but who the *hell* do you think you *are*," Newt snaps, in an inexplicable, aggressive reflex, zero to eighty in four words.

"Unacceptable," Hermann hisses, looking at him again now that Newt's rhetorical pants are back on or whatever. "All of this. I understand that you are upset. I understand *why* you are upset. We are *all, all of us* distressed by—"

Newt actually throws a hand up because, turns out, despite his rhetorical pants and his snappy exterior and—and, well, he's not *sure*, but despite all the things that are in an active state of 'despite' this is not going to go well, this is outside his limits; it's shouldn't be, it's weird, it's like doing a drug in an unfamiliar location; not that he knows about that in a practical way, but his psychological tolerance isn't as high in Geneva as it is at home; does he *have* a home? Probably not, but fine, his tolerance isn't as high as it is in the lab, as it is in front of a bench, in front of a rack of tubes, a cytometer, a microscope, holding a scalpel, with a headache from the smell of formalin, where Mako passes him in the hallway with her new blue hair and her serious face, where the food is all the same, and the rain is hard and happens every day.

Hermann stops speaking in surprising submission to Newt's silent sign for 'stop'. Newt doesn't say anything, he just walks straight past Dr. H.G., PhD, because he doesn't have anything *to* say to him, not here, not now, not in this men's room, not with all that's happened and all that hasn't; all that will and all that won't. Hermann should not care quite so much about Newt, or he should at least have the decency not to show that he cares. What is this, anyway? Some kind of men's room intervention? The whole thing is disingenuous and unjust and not fair at all. Don't write to a guy for years and years and years if you're too inflexible to accommodate anyone else's personal style, god, though, really Newt's not one to talk, *per se*, but Newt is done with this train of thought, he's been done with it for years, and he's *definitely* done *now*. Newt doesn't need anyone looking out for him, Newt doesn't need to be rescued from academic riots he purposefully creates, Newt doesn't need anyone's sympathy, Newt is fine, deeply, widely, always fine. Newt is a biological organism, a deformable sack of electrified goo, piloted by another even *more* deformable sack of even *more* electrified goo inside an ossified case. Newt is totally ridiculous and ridiculous things don't need sympathy from colleagues who consider themselves *less* ridiculous and are, therefore, *more* ridiculous.

He trips going down the stairs, probably because he's thinking too much about his brain and not enough *with* his brain, but he saves it, it's fine, and while he very much *plans* to descend upon the fifteen minute coffee break like he owns the thing, because he *does*; he doesn't so much return to the main lobby as he walks through a back door out beneath the shredded blue and white sky.

He shoves his hands in his pockets and stares up towards the expanding edge of the observable universe. It hurts his retinas after the dark of interior spaces.

Everything is fine. A heated talk within a lifetime of heated talks isn't a big deal. People love him or hate him; or first love him then hate him; or first hate him then love him; but there is not now nor has there ever been a whole lot of the oh-yeah-Newt's-a-guy-I-feel-pretty-neutral-about-I-could-take-him-or-leave-him-really sentiment going around these days. Or ever.

It occurs to him that he's left his tablet in the men's room.

Hermann will probably notice this.

Hermann will probably hang onto it for him.

Newt decides to take a walk.

He heads in the direction of Mount Blanc. He can see its rise of rock only occasionally between the closer, steeper upsweeps of bright buildings—mostly it's a cityscape of white stone and glass that reflects the clouds. It's decorated with the pale glitter of traffic lights and other illuminated city-semiotics that are washed out beneath a pale sky.

The wind blows through his hair and he can't help but wonder if it hurts to die fused to a rig, caught in an undescribed memory. He hopes it was a good memory. He's not sure why he's sure it wasn't.

Calm down, he tells himself. Pull yourself together. Grab the imploded pieces of your selfhood with tongs, pull them out of the vacuum suction that is your current psychology, put them in a dish, clean them, make a three-dimensional model of what they should look like, and epoxy them into a workable structure because there is a giant Wall of catastrophic stupidity that needs to be torn down. Literally. By you. In the relative near term.

Of course, his brain offers. Of course they'd wait until she was dead to propose walling in the coastline. They'd wait until she died. Did someone propose it like that? As an action item? When A, then B? Did they have this proposal in a drawer somewhere, waiting for the day that she couldn't laugh at it?

Did I need that thought? He asks his brain politely. *Was that really necessary?*

I don't generate, his brain replies. I just articulate. Also? If you're interested? You're going to fail. You've already failed. That Wall is going up.

Newt ends up on the Promenade du Lac Genève, looking over a body of water that nothing will be crawling out of. That's nice. That's fun. That's what passes for a vacation these days.

This is his second time in Geneva. He'd come five years ago, for the First International Breach Symposium. That time, *he'd* been giving the keynote. Giving the keynote, meeting Caitlin Lightcap, meeting some absolute dick who he'd corresponded with multiple times per day for two years in an incredibly bizarre flurry of total mental alignment, which had been very exciting until, well, alas, said guy definitely was not into him in the way that Newt was into said guy, and that was also fine because said guy was really, really *really* about one point two million subtypes of irritating so Newt didn't care; Newt didn't care at all it turned out. He doesn't care now. The past is always some halcyon misdirection of the consciousness; that's what *makes* it the past. The present tends to feel like an ever-evolving slow motion catastrophe no matter what's happening—or at least every present Newt can remember in a present-y sort of way? Memories. What are they even? NMDA receptors, long term potentiation, blah blah blah, he doesn't care, he's having a nihilist afternoon a little bit, kind of, not *very* much but yes, a little bit. Yes. Kind of.

Are you sure the lights were green?

Are you sure that the lights were green?

Not really.

He leans a hip against the white stone railing and looks out over Lake Geneva, which is beautiful to the point of offense, full of boats and clouds and birds and other things that people from the late Renaissance had secretly been dying to paint when perspective was a new and exciting thing and High Art was just all saints all the time, when the coming Dutch obsession with light was a century and a half away and Andy Warhol hadn't even emerged into the darkest prognostic dreams of the Artistic Establishment. Is any of this even true, or is it just a plausible story he's absorbed, fabricated, and re-articulated about art history courtesy of too much time in academia and an ill-advised incendiary relationship with a Fine Arts grad student? Could go either way, really. He's not great with rocks, he's not great with art, he's so/so with space, he's fantastic with tech, he's shit at most things involving hand-eye coordination, he'd rate himself a C+ when it comes to fashion, a C++ when it comes to programming, he is entirely unimpressed with his knowledge of history but he's not into war, he doesn't like it. The vista is pretty though. That's the point. That's nice. Whatever. He's on vacation. He's on fifteen minutes of vacation. He's on a walk.

His phone vibrates in his back pocket.

There is a one hundred percent chance that it is Hermann.

Newt tries to guess what's going to be appearing on his little pocket screen. Probably it will say: "where are you," without a question mark, so it reads as a demand. It *might* say something about his professionalism or his maturity level, which are not likely to be particularly impressive to Dr. Gottlieb right about now.

His throat feels hot and wet and he's already sighing as he looks at his phone.

But.

It's a single message against an empty screen from a number he doesn't recognize.

::Hi Newt, I'm not sure if you remember me...but this is Søren. I have a new number::

Newt raises his eyebrows, not really sure how an event like this, with a near zero statistical likelihood, has happened to him.

Dr. Søren Sen, the arrogant, well-spoken, irreverently poised, poisedly irreverent, one hundred percent attractive and one thousand percent intellectual hotbox, also known in the Geiszlerian cognitive catalogue as 'that one guy from Prague,' is—

Texting him?

Right now?

Newt hasn't seen the guy in twelve years and hasn't spoken with him for six.

::Yes:: he texts back. ::I remember you:: And then, because the set of words he has selected looks a little too collectedly ominous out there on its own, he adds, ::life can only be understood backwards:: Is this pretentious? Yes, it is a little bit, but Newt is having a Kierkegaard-y day and a guy improbably named *Søren* is messaging him, so there's also that. He's within the bounds of nerd philosophy flirting. Nerdosophy flirting.

::...but it must be lived forwards:: he gets in reply. ::Can I take you to dinner?::

Newt's face seems to be confused about what it's supposed to be doing and, also? Søren's skipped a step or five, which seems about right based on what Newt remembers about the guy, which is a lot, and he feels kind of disorganized and totally unprepared for a person that he knows, wholly unconnected to science or the PPDC or really any salience hook upon which Newt has been hanging his varied hats lately, to just *contact* him, out of the blue, while he's sitting by nice lake; what's that about even.

::You seem to be thinking very hard about this:: Søren observes, after Newt spends a flustered set of not seconds but minutes, literal, actual *minutes* not sure what to say. ::If you're busy, I understand::

::I'm in Geneva:: Newt types, confused.

::I know:: he gets in reply.

Newt's brain is still grappling with working models when Søren elaborates, ::I'm also in Geneva. In fact, I'm attending the same that conference you're attending. If you want the next level of detail, I feel I must inform you that I'm currently leaning against the south wall of Poster Session C next to the wine (obviously) and listening to a grad student give a dramatic reenactment of your talk to a group of her peers::

Newt backs away from the white stone railing and sits on a bench, resting his elbows on his knees, not entirely certain how to reply, because it turns out that this is *not* a random occurrence.

That's—less good.

He's not sure what Søren, who has a PhD in *philosophy* is doing at the Breach Symposium, but hey, sure, the existence of an interdimensional portal is a thing that it seems like philosophy would have something to say about, so fine. Admittedly, Newt is not excited about the fact that the guy is listening to a likely biased blow-by-blow account of, arguably, the *least* successful talk Newt has ever given. He's also not sure why he cares so much what Søren might think about this, because yes, Søren is hot, and yes Søren is outrageously, just outrageously intelligent, and they'd had a fun time, but they'd never really had a *thing* and if they *had* had a thing, which Newt does *not* admit, even if they *had*, he's entirely *over* that thing, whatever it might or might not have been. He's over everything in his life, actually, he lives in the fine-ground prism of the present, not in the unsplit light of the future or the magical rainbow past. Given his clear-headed total neutrality, does Newt really care what Søren thinks or is it actually that Newt cares what *Newt* thinks; and if the latter is true (as it likely is), what is it that Newt thinks? Newt's not sure.

::Still nursing a weakness for the fiery diatribe?: Newt asks.

::Until the day I die:: Søren replies, and Newt can *hear* the blend of sincerity and sarcasm coming off the digital page. ::You didn't answer my question. Can I take you to dinner?::

::Drinks::Newt replies, not inclined to trap himself somewhere for hours with someone he's not sure he knows, not inclined to do that today, not inclined to do that ever again,

maybe, because he doesn't need that. He has his people, Tendo who likes everyone especially those who carry too much, Mako who will probably (hopefully) one day grow out of her adolescent death wish before it obligingly ends her life for her, Hermann who doesn't really like him but who hates Newt less than he hates other people, maybe, not really at all. The point is that Newt is fine, Newt is great, Newt doesn't need to kill two and a half hours in a darkened restaurant with a guy he doesn't really know, a guy who probably lives whole stretches of time where he doesn't think about the ocean, the drift, the kaiju, the Wall, the people who have died and the ways that they've done so; Newt doesn't need a sexual fix, has never needed a sexual fix, has never needed *anything* really and he just likes places he can walk out of, walk away from, because that's something he finds he prefers to do on a semi-regular basis; it's fine, it's part of it, it's part of his life now, it's part of who it is that he is and what he's becoming.

It's what you'll feel you owe me, she'd said.

Maybe if he'd only replied, *I don't owe you a thing, Lightcap, and I never will*, she'd have let him make that true.

"It's okay," Newt says, looking out across safe water, not talking to himself anymore, but to his memory of her. "It's okay." And it *is*, because he will not let them speak for her, he will not let them append her name in any way to a Wall she would have scorned. That she could have laughed down, once, on the nightly news. They would have said, 'what are your views on the Coastal Wall,' and she would have looked at them, her expression twisting with her effort until she couldn't stop it anymore and she would have laughed. High pitched, and musical and long, one hand over her mouth, one hand on her chest, her skin flushing, her eyes watering, trying to stop, but failing, saying, 'oh my god,' every time she took a breath, one hand over her mouth, staring at whomever it was who was interviewing her in that way that she had, that conspiratorial way, as the news anchor tried to get out, 'I can see you're laughing, what do you find so funny?' but not making it through three words before they were laughing too, choking on the question, as Lightcap kept breathing over and over again in genuine helpless appeal, 'I'm so sorry, oh my *god* I'm sorry, I'm sorry, I'm so sorry,' as she laughed and laughed and laughed until an unscheduled commercial break when she would have had to drink a glass of water and compose herself in a corner, alone, counting off in whispered sets of four.

And that's the way she would have killed the Wall.

Newt can't do that.

His phone vibrates in his hand.

::And by 'drinks' do you mean a 16:00 cocktail or a late-night bottle of wine?::

It takes Newt a spread of seconds to understand the message.

What drinks.

What cocktails.

What wine.

But it comes back to him.

::Are you propositioning me via text message?:: Newt replies. ::After twelve years of minimal contact?::

::Don't redirect.::

::Nine o'clock. Wherever you're staying. I'll meet you there.::

Newt decides to class things up for his date/not-date and wears the blazer he probably should have worn to his talk.

The lights in the bar are twilight-spectrum strips along wood-paneled walls. They give off a halfhearted glow that doesn't quite make it to the dark spread of the floor or into corners created by block-like, minimalist tables and chairs. The air is warm and the room is crowded with too many people dressed in dark colors.

Newt hasn't seen Søren in twelve years, but nothing much has changed about the man except for his newly acquired neohipster facial hair, his upgraded shoes, and the fine lines at the corners of his eyes that make him look even more thoughtful than Newt remembers, which seems like an impossibility, but, apparently, is not. He gets an intense hug in the middle of the bar, long and hardcore and *very* much in the people-I-have-formerly-slept-with vein and he had forgotten that humans do this and that this is what hugs are really like and yup, nope, it's unexpectedly hard to *not* cry in the face of unmitigated affection, because it's not like buckets of the stuff get thrown his way with any frequency these days. He's less *erotically* turned on by the whole thing than he is sort of totally and completely and acutely and precipitously aware of his *own misery* and just, ugh, nope, shutting all of that down, right here right now. Shutting, shutting, shutting, shutting, shut.

"It's good to see you," Søren says, like paint thinner splashed against monster-stenciled walls.

"Yeah," Newt replies, kind of. His mouth makes the right shape, but his vocal chords decide to sit this round out.

"You look good?" Søren says, like it's a lie trying to torque an anti-parallel observation into something true by way of an interrogative cadence. Or maybe like it's a statement being pried up by a subterranean unanswered query that's powerful enough to warp the crust of a declarative delivery. Like, oh, for example, the question: "are you crying?" or some other unaskable set of words.

"Nah," Newt replies, "I'm outrageously jetlagged. *You* look like next year's tech."

"Meaning desirable?" Søren asks, with a slow dry slide that settles Newt down into a previous pattern that fits like a sterile glove, close and satisfying and familiar, a faintly powdered slide of deformable plastic, like a thing he wears almost every day of his life. "Meaning something you want in your pants? Meaning something you already *have* in your pants? Meaning something doubling the capacity of currently available models? Meaning something flexible? Meaning—"

"Meaning something I want to interface with my brain," Newt says.

"Ugh, that is so *you*," Søren replies, caricaturizing disappointment to the point that it flips the bar and becomes innuendo again.

They engage in the the obligatory commentary about the conference, the weather, the drinks, the city, the vista, the flights that brought them here, paying occasional homage to Wittgenstein and his philosophical friends because they are who they are and why not, before they seat themselves at a low, dark table, in a far, dark corner, where the light doesn't accent anything they do or say except for the dark wave of Søren's hair and the thin line of gold that runs through the earpieces of his glasses. They look at one another over their respective alcohol.

Newt starts chewing ice immediately.

"I've been following your career since the summer of 2008," Søren says, swirling his fancy scotch in his fancy glass and looking slantwise at Newt in a way that's hard to misinterpret.

Newt almost says, 'I'm taken, it turns out, just so you know. Taken by a guy who pretends to hate me, it's weird, or, actually, it's not that weird, he actually *does* find me all kinds of irritating. Full disclosure, he doesn't actually like me very much. It doesn't mean I'm not taken though, because I am. On a related note, have you seen any wood? I'm looking to build myself a Carthaginian Funeral Pyre.' What he actually says is, "JET Force, you mean?" and it sounds listless even to him, because he is not feeling

the past, not feeling the future, not feeling this night, not feeling this day, not feeling this conference, not feeling this year, not feeling this decade, not feeling any of it.

"I mean all of it," Søren says. "I remember when you used to be into philosophy of *mind*. I remember when you cornered me at the bar in Prague and we talked for six hours about eliminative materialism. What *happened*?"

"Meh," Newt says. "Other than the alien monsters laying waste to coastal cities?"

"Yes," Søren says. "We will take that as given."

Søren's question seems to stand despite Newt's implied answer. He's not sure how to elaborate, not sure what to say that won't land like a slap in the face, that won't sound moralizing, that won't sound like he's the guy who enlisted while Søren ran away to the realm of meta analysis even though Newt is somewhat possessed of this opinion.

Somewhat.

"I'm just not suited to philosophy I don't think," Newt says, in compromise.

"False," Søren says. "Discuss."

Newt gives him a courtesy smile for an appropriated phrase and then says, "you don't even *know* me."

"I know you like I know everything," Søren counters. "Narrow scope, deep insight."

"Good pick-up line," Newt replies.

"How's it working?" Søren asks.

"I'll let you know," Newt says, chewing on the ice in his rum and coke.

"You're quite a bit cagey-er than I remember," Søren says.

That hits him hard and hits him the *wrong way*. He's not sure *why* but he thinks maybe because it's a little bit true—not in the conventional sense, not in the manner that people expect, not like he's a guy whose luggage is full of secrets, but there are things on his skin that weren't there before and there's something in his brain that makes him scan the crowd for a woman who is blonde and tall and loud and quiet and *dead* and he doesn't want to *behere* anymore, not really, in this stupid bar with his sleeves down and his boring hair, trying to escape something from his present with something from his past that wasn't even anything *at all* other than a short set of nights where he hadn't felt so horribly alone and so yeah. That's his secret; a personal grief that seeps from work to life because, now, his work *is* his life.

"Newt," Søren says.

Newt puts his drink down, takes off his jacket, and begins rolling up his shirt sleeves—turn after turn after turn and it *is* a show and Søren *watches it* and does not miss the stylized spread of what he'd decided to start inking down into his dermis and does not say a thing as Newt finishes one sleeve and starts on the second, rolling pointedly to the elbow.

When he is done, he sits back and drinks his cheap, shitty, mixed drink.

It's not even regular Coke.

It's Diet-Coke.

"Doesn't phase me," Søren says, point blank, ratcheting up the intellectual intensity, ratcheting down his body language, one hand turning palm up, his fingers opening casually and then shutting again in a gesture that hits the air between them like a capitulation, like a surrender, like Søren is trying to cede all his expectations back to Newt, like he's content to simply sit there, to simply exist, as though he is prepared to be a thing that is walked away from, and that ontological security grants him some kind of non-threatening free pass to Newt's psychology, which isn't true, which isn't true *at all*, but Newt doesn't get up. Newt sits back and speaks with a cool poise he doesn't feel and that he'd never forgive if their situations were reversed.

"What doesn't phase you." It is and is not a question.

"Indelible ephemera remains ephemera," Søren replies, swirling his scotch.

"Contradiction in terms, but it rates as a band name," Newt replies, blunting the edge that wants to creep into his tone, trying to relax. "*Indelible Ephemera*."

"Thank you. I see that you remain master of the non sequitur. That," Søren says, waving vaguely in the direction of Newt's body art, "is just an advertisement for some genuinely Nietzsche-level shit. Dionysian meets Apollonian *Kunsttriebe*. If you want to know what I read there? It's existential instability in the post-modern tradition. Also, it's hot. How far do they go?"

"Both further and farther all the time," Newt says, some of the tension leaving his back at being slightly more than slightly flattered. "Now I remember why I slept with you."

"It wasn't my skill with the double-entendre and my neohipster aesthetic in a hipster-filled world?" Søren asks.

"Actually? It was your book," Newt replies.

"Seriously?" Søren says. "Newt. How *substantive*."

"Don't tell anyone," Newt says.

"I don't think I have to," Søren replies.

"So how's philosophy these days?" Newt asks.

"Obsessed with metaphysics," Søren says. "The multiverse. The hard problem of consciousness. Lots of quantum handwaving. Everyone's taking the Drift for a spin, and why not?"

"Mmm," Newt says, with a one-shouldered shrug, chewing more ice, making a genuine effort *not* to be miserable.

"So you must have known her pretty well, probably," Søren says. "Dr. Lightcap, I mean."

"Fuck you," Newt replies reflexively, totally and unexpectedly stripped of ire, suddenly crying a little more than a little bit into his rum and coke. He's not sure why.

"Oh *shit*," Søren says, leaning forward, looking panicky, looking surprised, like this was a thing he *definitely* did not expect; and why would he? Pseudofamiliarity, four nights of sex, and twelve years of intermittent digital flirtation can only take one so far and they do *not* know each other, because unlike a PhD, deep and narrow is not enough, deep and wide is what's required and there's nothing deep about sex anyway.

"Use your insight *responsibly*, man," Newt replies, his voice cracking, one hand kind of over his eyes.

"Newt. *Newt*. I am *incredibly* sorry."

Newt feels a little bit bad for him. Søren is in a weird Geiszlerian sweet spot of emotional vulnerability or something, because people talk to Newt about Lightcap *all the time*. Every day. He's taken over for her, he maintains her rigs, he maintains half her program, he continues her science and he continues her agenda, he lives a Geiszler-flavored variant of her life every day so it's not a *surprise* to him that she's dead, or it *shouldn't* be. This is Hermann's fault, somehow, probably, Newt's not sure how, exactly, he's not sure why, but Hermann gets it, gets the whole thing, deep and wide, the length and width and depth of Newt's entire existence, and Hermann does his treading carefully and lightly and around the perimeter of the maelstrom he's been studying for months now. Hermann has arranged things so that no one says to Newt, "so I hear that your friend died, how's *that* going for you?" Or, no one *typically* says things like that to Newt, because they mostly *know* how it's going for him, it's an extrapolation of how it's going for *them*, which is shitty, which is horrible, which is not really that well, when the thing one believes stands between civilization and death is being defunded, is decaying, is collapsing. Newt is not doing what he is *supposed* to do, what she'd *wanted* him to do, what she'd *told* him she wanted, because Newt is *not*

her. Newt can't laugh at a Wall and make it fall down, Newt can't torque the axis of bureaucracy around the fulcrum of his voice; Newt can't do that, Newt can't do any of the things she'd done, that she'd wanted him to do. He's never let anyone down before, he's never failed, he's never failed a person who needs him *so much* because that person is dead and can no longer act at all.

Newt mostly gets his crying stopped before it really has the chance to get going and then just wipes his face and looks laterally, not at Søren, but at the bar where a whole collection of people who passionately, passionately disagree with one another are still and forever arguing about a dying robotics program and the rise of a Coastal Wall. Some of them look back at him and then look away.

"Do you want to get out of here?" Søren asks. "You seem like a guy who is not having a *great* time at the Sixth Annual Breach Symposium."

"It's been a rough day," Newt says.

"It's been a rough year for you, I think," Søren replies, with a Gottliebian-style delicacy that makes Newt feel vaguely sick. He has the urge to check his phone, but does not.

"What are you doing here anyway?" Newt asks, regaining his poise, regaining his cool, regaining everything that's trying to slide out of his grip and phase through the floor.

"Like everyone, I've taken an interest in the Drift. I'm here for the science side of things. You know how it is. Another year, another book," Søren says, looking concerned, looking careful, looking guilty, looking interested.

"Send me a copy," Newt says.

"Oh absolutely," Søren replies. "Pre-publication. You can tell me what you think. Come on. Let's apply the reductionist approach you love so much to my overpriced minibar and talk about the good old days, when everyone thought that the development of Artificial Intelligence would destroy mankind."

Newt cocks his head, downs the rest of his drink, and stands, extending a hand to pull Søren to his feet.

Søren likes him, despite Newt's infinite collection of personal idiosyncracies. Søren had liked him right from the beginning, unambiguously, without lying. He had said, "so the American intellectual *does* exist; I had thought people such as you to be a myth," and Newt had said, "that's the most pretentious thing I've ever heard in my life," and then Søren had switched languages and said, "if only you spoke German," and Newt had said, also in German, "I grew up in Berlin," and Søren had said, "I surrender, I surrender entirely, but this means you are *not* an American," and Newt had switched back to

English and said, "tell yourself whatever you want, man," and they had spent four nights and four days together in Prague.

"You look older," Søren says, stepping around the low table as he stands.

"I *am* older," Newt replies.

"Did I or did I not tell you that you'd be irresistible in your thirties. It will be one of the greatest regrets of my life that I did not know you were speaking. I can feel it already. There must be footage somewhere online. Tonight I will look."

"Meh," Newt says.

"Tomorrow I will look," Søren amends. "*Have* you turned thirty yet?"

"Six months ago," Newt says.

"Ah yes. I remember. Your decades align with the Gregorian calendar. If one is to have an incendiary set of ten years, this seems like a good choice. Perhaps they will write about you in the future, at this meeting. The riot you nearly started. The way you put your philosophy on your skin. Perhaps they will speculate as to what it meant to you. What it means to them."

"If you're trying to make me feel better, it's absolutely working," Newt says, as Søren drapes an arm over his shoulder, steering him in the direction of the elevators.

"Excellent," Søren replies, "but I must know—and then I promise I will stop asking you about it—did your audience upset you, or did you set out to upset your audience?"

"The latter," Newt admits, stepping into the dim, gold box of an elevator.

"Good," Søren says, pressing a glowing number as the doors close, "I spent an afternoon hoping so."

"That's—" Newt begins, but doesn't get any farther because Søren reaches out with a delicate brush of fingers and tips Newt's chin up, kissing him because they're alone and because he's a little bit of an interpersonal baller, and because Newt has probably inadvertently been giving him a morass of desperate signals all night long; less because he's feeling amorous and more because he needs something to get him through this conference, he needs someone to navigate for him while he tries to thread the needle in Beggar's Canyon, he needs *something*; he's not sure what, and he's not sure it's necessarily an elevator make-out session, but he's not sure it's *not* that either.

Well, that's a little bit of a lie.

Søren moves from his mouth to his neck, and Newt tips his head back, tries to let go of himself, and finds that he defaults to drafting the pointless letter he's been working on

for days. The one he's going to send to Hermann. The one he's *not* going to send to Hermann. He misses it. He misses it all. The letters, feeling understood, drinking on dark deployment docks, breaking bottles, the rain, the funding, and Lightcap, Lightcap, Lightcap.

Søren yanks Newt's dress shirt out of his pants.

Newt tips his head to the side, eyes the slow digital slide of the ascending floors, and then—

His phone buzzes.

He pulls it out of his back pocket and checks it.

::Where are you:: It's from Hermann. Again, demand-style, not question-style.

::Why:: Newt texts back, one-handed, also demand-style.

"Newt. Are you seriously *texting* right now?" Søren asks, pulling back to look at him, clearly torn between amusement and outrage. "I'm erotically biting your *neck*."

Newt is too wrung out to summon up even a marginal amount of guilt, especially because his former colleague-with-benefits looks as though he's trending more in the incredulous direction than the hurt direction. "Well, it's just that you're good-looking and all, Søren, but you haven't written any *books* lately, so—"

"None that *you've* read, you *ass*," Søren says, with no real ire. "Who is—" he pulls Newt's phone down into his line of sight. "Hermann Gottlieb?"

"He's my secular nemesis," Newt says.

"Um, do you have a *nonsecular* nemesis?" Søren asks politely. "Is it god? Please tell me it's god."

The elevator door dings quietly.

Newt smiles, a real smile this time. "No, I'm bastardizing terms—if I'm one half of a Hegelian dialectic? *He's* the other half."

"Oh no," Søren says, as they step into the hall. "Do you have a *picture*."

"A little bit, maybe," Newt says, handing over his phone.

Søren studies the screen for a moment and then says, "he looks intelligent. This is terrible for you."

"I know," Newt replies.

::Because I want to ensure you aren't upending any tables:: Hermann texts back.

"Tables?" Søren says, eyeing Newt skeptically. "You haven't. *Have* you? I don't see it. In Prague I remember you rescued a *spider* from my *sink*. You trapped it in both hands and put it outside."

"In Japan, morning spiders are lucky," Newt says, thinking of Mako, of the years in Tokyo when so many people were so much more alive.

"Spiders are not lucky," Søren says, "because luck does not exist. Have you actually upended a table?"

"He's speaking metaphorically," Newt says.

::Literally:: Hermann decides to add.

"He heard you," Søren whispers.

::I'm not at the bar:: Newt texts back.

::Well I'm not in GERMANY, Newton::

Søren laughs. "I like him. I think maybe you should go find this person," he says. "This person that you are messaging *while* I am kissing you."

Newt sighs and pockets his phone.

Søren raises his eyebrows and says, "so that is how it is?"

"That's how it is," Newt agrees. "Where's your room? You promised me a minibar and a night of identity theory."

"Deeply offended though I am," Søren says, lying on his hotel room bed, three miniature bottles of whisky into a sprawling and disorganized discussion regarding Drift metaphysics that's on its way toward winding down, "that you no longer seem to find me the adequate intellectual turn-on you once did—"

"Well, no," Newt says, also drunk, trying to merge with the chair he's sitting in, "no, you're just as much of a switch-flicker in the abstract as you've always been, man, it's just that—"

"Do *not* cut me off, Newton," Søren says. "I hate that."

"I don't even think that's true," Newt replies in a torrent of poorly separated words. "Consequently, I am? Skeptical." He points at Søren. "Do *not* call me 'Newton'."

"Fascinated though I am with your unpracticed speculating regarding the nature of the Drift—"

"Unpracticed," Newt says to the opposite wall. "He calls me unpracticed."

"Whom are you addressing?" Søren asks.

"Me," Newt continues, still talking to the wall. "Unpracticed."

"You are a technician of the consciousness," Søren says dismissively.

"Fuck you, I'm not."

"Fuck me, certainly. By all means. But you are. You clip little wires into place, yes? This is your job?"

"No. That is *not* my job. I'm a xenobiologist."

"I do not even wish to discuss this. I do not care about the Drift. Well, to be fair, I do not care about it right *now*. In this moment."

"I just—" Newt begins. "*You* just—" he amends. "*Your entire career trajectory—*" He gives up. "Pass me another one of those things."

Søren makes a show of sorting through the contents of his minibar, which he has deposited in a pile. "I confess I don't even know what you like. You seem to have poor taste in alcohol. Perhaps this sub par vodka will be to your liking?"

"Tequila?" Newt asks.

"You drank all of the tequila," Søren informs him, "but for you, I have selected this rare and precious Americanized take on a traditional Russian spirit distilled from fermented potatoes."

"That is vodka and you *literally* just called it sub par," Newt complains.

"No," Søren says, handing over a miniature bottle. "You are mistaken. That was a different one. This is excellent. You will love it."

"Vodka Challenge Triple Arctic Berry Twist Adventure?" Newt says, squinting to read the miniscule print on the label. "I hate you."

"No no no," Søren says. "The flavor is 'Arctic Berry' and the *experience* is a Triple Twist Adventure of a challenging and storied alcohol."

"What the hell is an arctic berry?" Newt asks.

"You are so uncultured. It is an arctic delicacy, made in the following manner. First, one creates a hard sugar resin around the edible stem of a tundra flower. I cannot, in this moment, recall the name of the flower, but honestly Newt, I am not a botanist. It's yellow. That's all I can tell you. The stem is cut from the plant and—"

"What?" Newt says, incredulous. "This an actual thing?"

"Well, it's not a 'berry' in the traditional botanical sense, but an actual thing, yes. So you have the nucleus of the edible stem and the sugar resin that crystalizes around it—you are following me? You look extremely confused."

"I'm not 'confused.' I'm skeptical. There's a distinct difference. Keep going."

"As you wish. Following the creation of the sugar resin around the flower stem, one crushes a particular subtype of arctic moss to create a paste. That paste is molded by hand around the sugar-resin nucleus and then left outside to freeze. This is what is meant by 'Arctic Berry'. It's has a delicate bitterness that is balanced perfectly by the crystalline sugar and the freshness of the edible flower. I think you will enjoy this vodka very much."

Newt stares at Søren through narrowed eyes. "You're messing with me."

"Excuse me, but this is my *heritage*, Dr. Geiszler. Half my heritage. One quarter of my heritage."

"This vodka had *better* taste like moss," Newt says, twisting off the cap. He takes a sip, and, of course, he is rewarded with the revolting flavor of esterized raspberry brought to him via shitty organic chemistry.

"You're a *dick*," he says to Søren, who is now laughing, both hands over his face. "I didn't believe you. Not at all. Not even a little bit. I *live* in Anchorage right now, asshole. I am pretty sure if there were arctic berries I'd have started putting them on my PPDC issued cake months ago."

"Oh no," Søren says, still laughing. "*No*. You do *not* receive institutionalized cake. Please tell me you don't."

"Every other Friday," Newt says. "Carrot cake. It comes in PPDC packaging."

"Newt, I am so sad for you; I cannot believe I convinced you to drink the shitty vodka. I apologize. Please take this overpriced sample bottle of Yamazaki 12-year in recompense."

"I *will*," Newt says, but he doesn't touch the Japanese Scotch that Søren puts on the nightstand, he continues drinking his Arctic Berry Triple Twist Adventure.

"I am trying to understand a set of certain things," Søren says, into the quiet that follows his laughter, "without asking you about them."

"And how is that going for you," Newt enquires politely.

"It is not going well," Søren admits, glancing at Newt's phone as it vibrates subtly on the nightstand between them.

"Myeah," Newt replies, expansively, drunkenly, sheets-of-raspberry-ice-clotted-over-a-four-degree-sea-ly. "I could see that."

"I have decided to take a calculated risk," Søren says, "and ask you about this Dr. Gottlieb whom you curiously ignore for three hours of drinking but whom you decide that you need to message precisely and only in the midst of my *very* well-executed elevator seduction."

"Ugh," Newt says, dragging one hand over his face and kind of leaving it there because when one puts it like that, well, yikes. "Noooo I did not do that. I did not do that and I did not do it *like* that, nope. You are wrong. Totally wrong. No."

"Poor Newt," Søren says.

Newt shakes his head, one hand still over his eyes.

"You need not discuss it," Søren says.

"No," Newt says. "Yes," Newt says. "Okay, no, fine. This is good. This will be great actually." He drinks more of his disgusting vodka. "It's not a complicated story."

"I find this difficult to believe," Søren says.

"Shut up. You're wrong. It's extremely straightforward. This is what happened. In 2013, after *Tresspasser* did what *Tresspasser* did to San Francisco, I wrote to a whole bunch of physicists about the nature of the Breach. He wrote back right away. Dr. Hermann Gottlieb. I'd caught him on a terrible day, and it was a great letter. You know the kind. A *great* letter. It was amazing. He sends me a manuscript. Like—" Newt shakes his head, shutting his eyes, "a detailed, *unpublished* mathematical treatment synthesizing everything he's pulled out of the publically available NOAA and USGS databases. I'm not sure if you understand—what that means. The implications. Unpublished. Unreviewed."

"I do. Of course I do, you *ass*. I still work in academia, you know."

"Okay, sorry. Sorry. It's just—I was extremely impressed. Right out of the gate—total trust. He had total trust in me and my intentions. Total disclosure. Total respect for the conceptual foundation of my interest and the credibility of my credentials. It was weird."

"Commendable," Søren says, interested-listener style.

Newt is giving too much detail. This much detail is *not* required. He decides that he will skip two years of passionate correspondence, he will condense it down, he will contextualize and forget about that day in Manila, when he had sat with his back

against a destroyed wall, breathing through a respirator with a filter that kept clogging, trying to navigate through the golden haze of dust that blotted out the sun, soaked with sweat, exhausted, composing a letter to a mathematician who was freezing in Alaska, learning how to torque his thoughts so some machine could fuse him to a person that would always understand him. Better than Newt would. Newt, who was half a world away dehydrating to death and trying to terrify a team of former academics into being careful enough that an already-dead kaiju wouldn't kill them.

No, Søren does not need any of that. Neither does Newt. There was nothing special about any of it. Best to be accurate.

"We corresponded for several years," Newt says, "and we arranged to meet. But *when* we met, it did not go well."

"You had feelings for him," Søren says. "Already. At the time of your meeting."

"No," Newt says reflexively.

"Newt," Søren says.

"Okay, a little bit, yes, but I am *very* irritating and he has a low tolerance for anything even remotely akin to indecorousness, so, long story short, he most *definitely* wasn't interested, and then I became less interested over time, and that's the end of the story."

"That story is pathetic," Søren says, "it is not a story. If you don't want to tell me, that is *fine*; I do not insist. But either tell me the salient details or do not tell me anything; I am extremely busy, I could be asking you about metaphysics right now."

"True," Newt says, drinking more Arctic Berry Vodka. "Okay, sure. Saliency. I can render up some salience for you, Dr. Sen. It would be my pleasure. I am in a state of baseline upset post the death of a close friend and colleague. Consequently, my stupid brain is latching onto a broad array of misery subtypes and deciding to test them out. I tell it to stop, grow up, get a life, but it's not listening to me. This is alarming another close friend and colleague with whom my relationship is significantly more complicated, because he's arguably better filed under 'failed romantic partner' than 'professional buddy.' It gives everything a little bit of a weird vibe, because he cares more than he should and knows more than he should about my personal psychology, and so this tends to *bother* me, to irritate me, possibly to *slightly* upset me under circumstances such as these, where I'm constantly accidentally looking for a dead person at an unfamiliar coffee break, feeling nostalgic about being back in the city where Dr. Gottlieb and I totally tanked any potential relationship, and, oh, y'know, doing

my best to kill a diversion of funding that's going to have the end effect of screwing our entire species straight into extinction in, oh, I don't know, the four-to-seven year range."

Søren looks at Newt for a moment and then says, "this is an improvement."

"In saliency?" Newt replies. "I should hope so. Because that's all I've got."

"I will not argue with your conclusions," Søren says, "though I am somewhat dubious that your potential prospects with Dr. Gottlieb are as dim as you make them out to be. He has texted you twenty-seven times in the past set of hours."

"Well, that has been a sticking point, yes," Newt says. "The general undeadness of our relationship prospects. Our prospects are not *alive*, mind you. But they aren't entirely dead either. They're just sort of crawling around, in search of brains to consume. Specifically, they are consuming *my* brain."

"When you say 'failed romantic partner'—" Søren prompts him.

"Ehhhh," Newt says, making an equivocal hand gesture.

"Tell me he is *not straight*," Søren says.

"No no," Newt replies. "He's bi; I asked. I asked, like, *early*."

"Smart. Lucky."

"As for the former? Yes. Indisputable. As for the latter? No. Also indisputable."

"Shut up," Søren suggests.

"The problem was not sex. Or, I don't think it *would* be sex, because we never even remotely approached that as a possibility. The problem was that he kind of hates me and kind of likes me at the same time. It's very confusing for me. Also? The same thing is true in reverse."

"What?" Søren says, looking drunk and confused.

"He drives," Newt whispers, "me crazy."

"Ah. This is apparent to me, yes," Søren replies.

Newt stares at his miniature bottle of terrible vodka, not sure what to make of the strange spread of his too-academized life within the context of an incipient extinction-level event. "I think I'm having an existential crisis," he confesses.

"I believe you are correct," Søren replies. "In fact, you are constantly advertising as much."

"What?" Newt says.

Søren gestures vaguely at Newt's bare forearm, and Newt follows his gaze with alcohol-mediated detachment. "Ah. Possibly," he admits.

"What do you tell people when they ask you why?" Søren says, still staring at the spread of Yamarishi over Newt's left forearm.

"You would be astonished," Newt says, "by how *few* people have asked that question. By how many assume that they know. How many different things they assume. Even *you* did not directly ask."

"Why, then?" Søren asks. "Why kaiju? Why on your skin?"

"Why not?" Newt counters.

"And now I know what you tell them," Søren says, simultaneously dry and serious.

"Yes," Newt says, pulling out the s into something like a hiss.

"You are miserable, Søren says. "Practically, that is the issue, correct? So. How to effect resolution?"

"Impossible," Newt states. "Categorically."

"Fine," Søren says. "I will not dispute your assessment. How to achieve a decoupling then, from state of being and state of mind. From state of mind and exterior comportment."

"Why, you don't think it's my professional goal to start riots at international symposia?"

"I suspect you may derive a certain peripheral and paradoxical gratification from your ability to provoke an emotional response by discussing an issue about which you have strong feelings—"

"A little less speculation, please," Newt requests, with poor diction.

"Yes, all right. Scope exceeded. Apologies. But you *did* ask."

"I cede you your point," Newt says with poised magnanimity. "Soooo—what. Are you going to offer me advice?"

"Oh *god* no," Søren replies. "Just sympathy. And admiration. Sympathy and admiration and also thanks for trying to preserve my life and the lives of billions of other people at the cost of your own short term happiness and possibly also long term happiness."

"Well," Newt says, smiling, "you're welcome. Especially you. Especially welcome. Keep doing metaphysics man, that's kind of the point of it all. Iron *that* one on a T-shirt: *metaphysics—kind of the point of it all.*"

"I will take it under advisement," Søren says. "In the meantime, I confess I would like to return to the subject of Dr. Gottlieb. I am curious as to why you are talking so intensively with me about the state of your thoughts, rather than with your lonely friend, who is clearly concerned about you."

"That sounds suspiciously like *advice*," Newt says, his eyes narrowed.

"It is merely a polite inquiry," Søren replies.

Newt sighs and looks at the ceiling. "Because I've spent five years trying to genuinely, *genuinely* decouple expectations from reality, but he has this ability to *recouple* what I've successfully *decoupled* without any intention of actually progressing things beyond a certain point. I don't think? I don't know. He's very complex."

"This is becoming too abstract, even for me," Søren says. "Can you provide an illustration?"

"Ugh. Yes. There are about ten thousand examples that immediately come to mind. Here's a good one. One that reveals the ridiculous extent of what's occurring. Last winter, Dr. Gottlieb completed and submitted a grant for me. Like, don't get me wrong, I wrote the science, but I left all the bullshit ephemera that I didn't want to do until the last minute, which is, as you know, a terrible idea, as the bullshit ephemera actually comprises the majority of the text of the grant. And yeah. He just—*did it for me*. Spontaneously. I didn't *ask* him to do it. He, in fact, thought the project was a total waste of my time. But he did it *anyway*."

"How?" Søren asks. "You said he was a mathematician."

"Yeah," Newt practically shouts at him. "Exactly. That's why I picked this anecdote. Because it's illustrative. He had to access my files on my personal computer and on the PPDC server, he had to make sense of my organizational strategy, which, admittedly, might be classified as "loose" by an outside observer, he had to estimate a budget for equipment he doesn't use, based on extrapolations from previous grants I had submitted. If you had asked me whether that submission could have been done by anyone but me, I would have said no."

"One wonders where *you* were during this time," Søren says.

"Away," Newt says evasively, "kind of unavoidably otherwise totally occupied," because he's not sure he likes the picture that additional details are going to paint. "Anyway, I was sure I'd have to wait another cycle to get my grant in, but no. He'd submitted it. And then, I tried to sincerely *thank* him for what must have been a sickening amount of work, but he *entirely* shut me down, called me 'unprofessional' a gratuitous number of

times, and things devolved from there. Over me *thanking* him. Ugh. He makes me think that he *maybe* has a thing for me, but it turns out, unfortunately, that beneath his unfriendly exterior he's just—*really nice*. He just *cares* about people. Waaaaayyy more than the average human cares. While at the same time? He's kind of a counterintuitive dick."

"Kindness strikes me as a *good* quality?" Søren says slowly.

"Myeah," Newt says, "not really. Not if you're trying to date the guy. He hates me. Except when he really doesn't hate me. Like, he *won't* go out for coffee with me but he *will* take a bullet for me? What is *that*? What am I supposed to do with that? It makes no sense. He has a complicated psychology. We are a terrible, terrible match."

"And the pair of you are currently jointly in charge of all major scientific PPDC efforts?" Søren asks, adjusting his glasses.

"Yes," Newt says, "but we are *very* responsible, okay, and freakishly productive."

"I did not imply otherwise," Søren shoots back with a pseudo-innocent shoulder shrug.

"You did a little."

"A little."

"I know what I need to do," Newt says. "I need to let it go, or not. My expectations, my personal feelings, all five years of them. I need to make a move or really, genuinely, truly, *let go*. Let him be whomever he *is*, not the guy *I thought* he was after years of letter writing. That's the way to go. I know that. It's not even like, some grade school type lesson here. Like, grade school is too high a bar for this. I didn't go to grade school, though, full disclosure. It's just difficult. In part, because Lightcap used to deal with him. Used to deal with him, used to protect me from the acid rain of bureaucratic expectation, used to take my side, used to talk me down, used to, you know, be alive. Anyway. I've committed. I'm doing it. Prying my fluxing expectations out of everywhere they live, because I have bigger problems. Generally speaking, I'm doing a better job than this. You've caught me on an atypical day. I'm jetlagged."

Søren raises his eyebrows.

"I can let it go," Newt says, staring at a dimly lit ceiling, finishing his Arctic Berry vodka.

"What makes you so certain?" Søren asks.

"Because I expect it of myself," Newt replies.

Søren nods.

"I should go," Newt says.

"I absolutely forbid you to go," Søren replies.

"You *forbid* me to go," Newt repeats, impressed and unimpressed.

"Yes," Søren replies. "You are far too drunk to navigate through a foreign city, and far far too many people are far far too angry at you for me to let you leave unsupervised."

"A fair point, I suppose," Newt says, in dignified capitulation.

"Tell your friend," Søren says.

Newt picks up his phone and looks at his last message from Hermann. 2:04 AM.

::Newton, if you do not respond to me in the next two hours I will report you as a missing person to the Cantonal Police of Geneva::

"Oh *shit*," Newt says, his voice cracking as he sits forward, "what time is it?"

"Nearly four in the morning," Søren says.

"Nearly four?" Newt says, simultaneously texting. "You're sure it's *nearly* four?"

"Not yet four," Søren says, getting *off* the bed to unsteadily look over Newt's shoulder as he types.

::HERMANN. I am not missing. I have not been murdered by any truculent scientists. I have been catching up with a friend from the pre-PPDC days. Go to *sleep*. I'll see you tomorrow."

"This does not seem like a communication between colleagues," Søren offers. "His response seems disproportionately upset and yours overly conciliatory given that you are *not* romantically involved."

"Wellll," Newt says, feeling slightly more than slightly guilty and therefore predisposed to be fair. "His response is not *entirely* disproportionate given my track record over this past year or so."

::Fine,:: Hermann replies. ::I will see you tomorrow::

::Why are you still awake?:: Newt texts.

"Perhaps you should call him," Søren says quietly, before vanishing in the direction of the bathroom.

Hermann, predictably, does not respond.

Newt does not call.

Instead, Newt turns off the light in the room and sweeps the blinds open, looking out into a bright mist of street-light illuminated rain that seems to hang in the air rather

than falling, like rain is supposed to do. He removes his shoes and then his clothes, stripping down to his boxers, and piling his business casual outfit on the chair where he'd tossed his blazer, hours ago.

He stands at the window and looks down at the city, out at the rain, across a darkened lake.

In his head, he continues his letter.

Dear Hermann, he begins, I'd like to take this opportunity to both apologize for and explain my recent comportment, which I recognize has been less than ideal. A little bit sub par, even for me; a little bit of a bad idea in an unprofessionally disheveled shirt; a little bit like mv versus a brick wall, a little bit like one half mv squared versus a sick Wall, a little bit like critical mass meeting critical mass where both masses are previously apportioned parts of my personality. That got away from me a little bit, analogy-wise. I am sorry about that. I'm going to redirect into more intellectual territory and give it another go. The human brain, am I right? Very plastic. Very lazy. It relies on expectation and fixates on novelty, so we take things for granted, like the sunrise, like the sensation of clothing after a lifetime of wearing it. We don't have to work so hard to understand phenomena conceptually related to that which we've mastered. Expectation. It's great. I'm a fan. Generally.

I miss writing to you. That's why I do this occasionally. Send the epic email from the next room, I mean. I'm better on the page. You know this about me. Arguably we're both better on the page. I'm a little less me. You're a little less you. Maybe we never should have met. There's some appeal to that idea, except for the part where it would be totally horrible. Anyway, I digress. This has probably happened to you—defaulting to pathways where you think of Lightcap as alive. It's worse in places that are unfamiliar. I know not to look for her at the Shatterdome. But here, at this meeting; it feels like I have to retrain stupidly hopeful neural subroutines and I suppose I just thought that was a thing that was over. That I was done with. Maybe it's never over. Maybe I'll be doing this intermittently for the rest of my life. The long tail of neurochemical shortcuts. I think the worst part about this meeting is that I feel like I've let her down. Every moment of every day, I am letting her down, because I'm letting this Wall go up. It's not just a subjective perception—it's an objective truth. I'm failing to do what she asked. She doesn't know, because she's dead. A priori, one might predict that her being unaware of my failure would make it less painful. That, alas, is not the case. In fact, it turns out that it's the opposite.

Søren kisses Newt's temple, interrupting his thoughts. "It is a storied lake," he says, looking out at the dark water. "The Shelleys. Lord Byron. An empress of Austria was stabbed to death here in the 1890s."

"You left the best one off the list," Newt replies, still staring at the water. "Freddie Mercury lived in Montreux, you know."

"That's the other side of the lake, darling," Søren whispers. "I am more partial to Byron, myself."

"Well that's just wrong," Newt replies.

"If you want to go to Montreux I would take you," Søren says. "Skip the rest of the conference, rent a car?"

"I've become marginally too responsible to be any fun at all," Newt says. "Tomorrow is Breach physics, and then the next two days are all xenobiology."

"In that case, I suppose I'll have to attend my own talk," Søren says, sighing.

"What time?" Newt asks.

"Eleven o'clock," Søren says, "but not in the main hall. I'm in conference room C. Don't come. You're much too important. And I will be in no mood to be shouted at."

Newt grins in the darkness. "I would never shout at *you*."

"You say that now, when you are undressed in my hotel room, but tomorrow it will be a different story."

"Nah," Newt says quietly.

"I will take the floor," Søren says.

"Don't be ridiculous," Newt replies, sweeping the curtains shut.

In the morning, Newt wakes to find that it's not morning at all. He detangles himself from unfamiliar sheets and opens glowing curtains to reveal a too-bright city and the glittering blue spread of Lake Geneva. He blinks, confused for a moment, but then he remembers Søren and the series of shit drinks that explain his location and the pounding in his head. On the nightstand there is a brief note that says:

Forgive me for not waking you; I couldn't bring myself to do it. I can never forget the story of how Descartes died—I'm sure you know it.

Newt sits on the edge of Søren's bed, feeling chemically if not physically debauched. He contemplates his coming day, the coming night, the spread and shape of coming

days and coming nights, not sure what he's doing, not sure what *to* do, but sure he wants to make Hermann's keynote, which is happening in two hours. He showers in Søren's bathroom and then pulls on clothes that smell like smoke and alcohol.

He walks through the city, squinting a through a headache he deserves and spends half an hour in a small café just down the street from the conference center, drinking coffee, waiting until the last possible moment to leave, so he won't be forced to mingle with the milling, anxious science crowd. He spends the time sending emails to his lab, to Lisa and to Anarud, who are trying to balance current needs with future demands in the setting of dwindling resources.

When it's time, he turns a corner and enters the building and then the auditorium, blazer on, hair flat and ungelled, head down, as incognito as he gets. No one seems to recognize him, but still, he feels raw and exposed, like a nerve in an open socket. He tells himself it's because he feels sick, because catastrophic stupidity always makes him nervous, because he doesn't want to die and they're the ones who'll kill him, not now, but indirectly, years from now when the Wall that they are building cracks and falls. That endgame is too many years away to sharpen up their thinking, but too few to abstract away the fear Newt's too tired to turn into anger and too depressed to turn into inquiry just right now.

Newt slides into a seat in the back of the dimly-lit room, beneath purple lights, next to a man he doesn't recognize and who doesn't look up from the small glowing screen that's waiting for his notes. Newt hooks a thumb beneath his jaw. He presses two fingers against his temple. The knuckles of his ring finger dig into the corner of his mouth. He fidgets, starting a tremor in his left foot.

The guy sitting next to him looks at him in pointed irritation.

Newt looks away and tries to sit still.

He listens to the session chair's introduction of Dr. Gottlieb, and from the intermittent phrases Newt catches through his foreground-background focus shifts it seems the chair is doing a decent job. All credentials, no personal anecdotes. It's not that kind of meeting. It's not that kind of room. There's too much stress, too much unrest, too much of a we-almost-had-a-riot-yesterday type of vibe.

The introduction closes and in the ensuing silence Dr. Gottlieb stands, straightening his jacket, straightening his hair.

Newt actually has to look away in sympathetic anxiety as his colleague silently queues up his presentation, his hands shaking, but only subtly. Subtly.

Hermann hates public speaking. He hates it so much that he's managed to cast the prospect as some kind of incomprehensible science tariff exacted upon him by unforgiving social norms rather than what it *really* is—real-time peer review. Newt remembers arguing about it one night, late, over coffee, in venomless exasperation, trying to talk his normally rational colleague out of an irrational antipathy. He also remembers reading about it for the first time on the DC metro and feeling significantly less irritated and significantly more sympathetic regarding Dr. Gottlieb's total loathing of the oral presentation. But he feels sympathetic *now*, boy does he ever. He can't help it. Sympathy has been beaten into him by what happened yesterday during his own talk. The atmosphere at this conference has been hostile and toxic and divisive and it's only day two.

Hermann may not have an easy time of it.

That is, in part, why Newt has shown up. Even now, exhausted, distressed, hung over, unpopular, with flat hair and a predictable blazer, Newt could exert enough leverage in this room to rescue his colleague if things go wrong. Probably. Probably he could.

But that's not the whole of it.

Because there are talks and then there are *talks*, and Newt suspects that it's going to be one of the latter class—one of the seminal oral presentations of his time, maybe one of the last of the truly great moments in oratorical history, the last of his time, the last of his *species*, and so, well, he's not inclined to miss it.

The light glints off Hermann's glasses and his hair, and something *terrible* happens to Newt, an unwanted and incomplete separation of who Dr. Gottlieb *is* from what he *has done*—the trail of ideas Newt has been involved with for half a decade, that he's heard about weekly, daily, hourly, for years. For years and years. Newt's thoughts close down like calipers in tense, anticipatory simpatico, a total investment, his fingers pressing against his temple, against the arm of his chair, the muscles of his left leg contracting and releasing in a slow, tetanic strobe, until, finally, background slides on quantum field theory give way to that first and most important piece of data. A detailed map of the breach appears as an image that Newt is *certain* will shortly be iconic, going viral, stripped from Dr. Gottlieb as it appears on websites, on the nightly news, in the presentations of undergraduates all across the world.

"Oh god," his seatmate murmurs in horrified release along with the rest of the room, looking at the pastel topography of his own death.

It has landed correctly.

Newt can *feel* it in the brief rise and fall of quiet words in the room, the minimal shifting in the seats, the unwavering attention, the fixed awareness of the shape on the screen.

"Was it good for you too?" Newt whispers to his traumatized seatmate.

The man looks over at him, smiles faintly, looks away, and then does a double take. "Dr. *Geiszler*?" he mouths, incredulous and silent. Sympathy snaps into his expression like a reflex at something he can see in Newt. Something he *thinks* he can see.

Newt puts a finger to his lips.

The man nods.

As Newt watches the progression of slides, the evolution of ideas, it occurs to him that he can love this, that he *does* love this. His life, the science and people he's filled it with; he can love the whole thing, just like he loves Mako, who is growing up to find that she doesn't like him very much; like he loves Lightcap who walked straight and purposefully into her own death; he can stop holding a part of himself in reserve, because there's no point. There's nothing to save for. His species is running short on resources and making bad decisions.

He folds those memories that he holds like secrets into down into the extant, waiting whole of the relationship with Dr. Gottlieb he *has* rather than the ideal he thinks he wants; choking under gold dust in Manila; nights he spent in Cambridge re-reading Hermann's emails on his phone, chewing on the collar of his t-shirt; things he has written, things he has said, the way that Lightcap used to tease him in the dark of the deployment dock, *better make your move, kiddo, before he goes for a passing physicist* like she thought the whole thing was an inevitability.

Dear Hermann, Newt thinks, composing a new letter as he watches the trail of data he knows almost as well as his own. *Do you miss it? The way we used to write to one another? I do. All the time. I'm not sure I've ever mentioned it directly, though you likely suspect as much, given that I write you one of these things every six months or so. It's a little bit juvenile. Sorry about that. Story of my life, as you know. I'm trying not to make this letter about me, but I'm already failing, only six sentences in. Narcissism'd. This afternoon I went to your talk. I sat in the back and watched you layer five years of quantum detail overtop the same theoretical framework you sent me in the fall of 2013. I still have that letter, you know. I kept it. In fact, I kept all your letters. I'm glad I did—I like to remember the people we were then, before we knew one another, before we knew so many of the things we know now. Sometimes, when I look back at those letters, it feels like we can still effect a change. Shut the breach. Protect the coastline. Come to some kind of equilibrium. Communicate with the kaiju, Star Trek style. Where's a telepath when you need one, am I*

right? Though, I suppose we have the Drift now, so there's something inspired for the Geiszlerian cognitive backburner...human/kaiju drifting. Thoughts? Nevermind; I'm sure you're horrified.

It was a magnificent talk. You are aware of this, correct? It was not just magnificent by the standard of your usual talks. It was a magnificent talk by any standard you might care to name. Historically, I might have listed all the professional accolades I thought might come your way, but [and this is one of the perks of actually knowing you] I suspect it will mean more if I say what I really think; that this is the best kind of science. Hypothesis leads to discovery. Salient, ground-breaking, profound. I think a lot about the bounded end of the human species, and if this is the last major concept humanity cracks wide open, I think it's a good one to go out on. Doing science right to the end. And hey, you never know. Maybe we'll live. Maybe we'll figure something out. Empirical progress gives me hope. You give me hope. You've always given me hope, really, right from that first letter.

I think that maybe you thought I'd be different. Older. More mature. Better looking, more composed, less loud, more thoughtful. Taller. [Ha.] Not the kind of guy who's going to go out and get tasteless tattoo after tasteless tattoo. Not the kind of guy who falls apart as often as I do and gets restive and angry and shouts down a room full of people representing the inevitable and misguided future. Even though we aren't quite what we expected of one another, we still have that core connection, and we'll always have that. The thing that made me ask you the question that I asked. The thing that made you give the answer that you gave. You're kind of my fave, buddy, and I have the feeling that you don't really know that. So now you do. You. My favorite. Since 2013. If that seems too early, well, what can I say. I have low standards and fewer close friends than one might expect given my totally charming personal style. I'm better on paper. If this were real life, we'd be shouting by this point, probably about something peripheral that looks central in the heat of the moment.

This letter dead ends there, and Newt gives it up, lets it go, watches it sink into the Dagobian swamp of his mind, lost X-wing style.

He leaves the auditorium before the question and answer period is over, but not before his seatmate, who is, apparently, the editor of *Nature Kaiju Science*, presses a business card into his hand. He walks quickly through the lobby, his head down, his hands in his pockets, and squints in the yellow-toned light of a sinking sun.

He skips the socializing, skips the collective dinner, skips the evening physics on posters, skips the bar. He replies evasively to texts and has dinner with Søren in a dark

restaurant, far from the fluorescently lit science, where no one speaks English. They converse in German and they don't speak about anyone born after 1850, which is nice.

"What will happen to all of this when we die?" Søren asks, drunk and morbid and a little bit maudlin, referring to the entire discipline of philosophy with the word 'this' and the human species with the word 'we.'

"Don't think like that," Newt says, tipping his chair back, waving a hand, projecting confidence with a high to moderate degree of underlying hypocrisy.

"I will think in what manner seems best to me, Dr. Geiszler," Søren replies, drunk on expensive wine.

"Well," Newt says, "if it helps you, certain truths will persist in the absence of human observation. It's like contemplating your own death, but writ large. All things fear their endings, if those endings are amendable to extrapolation."

"I take some comfort in that, I suppose," Søren says.

"Me too," Newt replies.

They part ways immediately after dinner, in the lobby of Newt's hotel. Søren returns to the humid night and Newt returns to his room, whistling *Dreaming Correctly* through sensitive teeth. When he's upstairs, in his own hotel room, Newt retrieves his laptop, seats himself at a desk much too clean to be mistaken for his own, and begins to write, this time in earnest.

Dear Hermann, he begins, I think every time I've written you a formal letter (post 2015, obviously) you have the immediate suspicion that I'm standing on some kind of metaphorical ledge from which I need to be talked down. Let me assure you right up front that this is not the case. Turns out? I miss corresponding with you. I miss the better versions of both of us that have lived their filtered lives in digital typeface. You feel me? I'm pretty sure you do. I'm aware I'm not the clearest communicator in the history of our species when it comes to real-time conveyance of complex feelings. But what do you expect? I'm a reductionist by training. We both are. I think I've solved all our interpersonal problems with that single observation right there. You're welcome.

I apologize for the ongoing trainwreck that has been my professional comportment in the post-Lightcap era. This would of course include but not be limited to the following: a) my longstanding and pointless confrontation with the military PPDC hierarchy over the professionalism of my personal style, b) the time I flipped over a conference table during a meeting about resource allocation, [confessional aside: that probably did not do K-science as a whole any favors], c) the time you had to retrieve me from, er, jail; sooo sorry

about that one, d) the time I made poor choices about a drinking location and then had to go on an inconveniently timed medical leave, e) yesterday. I am not really into the idea of excusing this kind of behavior, but some sort of explanation seems to be a little bit in order, so here you go. I attribute my recent struggles with professionalism to two factors. 1) All the things that Lightcap used to do for me. It wasn't apparent—not to me, not to anyone, just how much institutional garbage she kept from coming my way. I was so distracted by the ways that I helped her that I didn't even see the reversed assistance vector until the point that I was getting informally and occasionally formally reprimanded for my hair, for my noncompliance with bureaucratic standards, for my comportment, for the way I chose to advocate for resources, the way I allocated those same resources...the list goes on. 2) The obvious part of it. The part where she died and the part where that was so much harder for me for so much longer than it should have been. I know that you know these things already. I'm grateful I never had to explain any of this to you in person; you just assumed accurately and acted accordingly. Paradoxically, I resent this act of assumption on your part—I suppose because when I see it, it reminds me that I'm doing a sub par cognitive/behavioral epoxy job. Hence, the increased combativeness. The purpose of all of this is not to get this off my chest or elicit sympathetic counter-thoughts. It's solely to communicate to you that I have insight into the root causes of my recent behavior. I would bet that you've wondered a lot about that. My insight level.

Speaking of heretofore undisclosed things—for weeks now I have wanted to ask you about your family. About your father's public support of the Coastal Wall and your, er, ... clearly opposed stance. Is he here? Are you talking with him? How is that going? I'm asking you in text because I'm terrible at not arguing with you in person. I'm also currently possessed of the rare urge to, y'know, not act like a dick. Strange, yes. I'm aware. Anyway, I can't imagine that the Gottlieb family dynamics are easily navigable at the moment, and I say this with full knowledge that they're not all that navigable at baseline. So if you want to send some details my way, well, I'm interested, is what I'm saying.

That's all, I suppose. Too much and not enough at the same time. Kind of like life that way. —Newton

He sends it.

Hours later, Newt is drinking alone in front of an open window, like the cool kids do, trying to screw himself down into a state of preparedness for the coming morning session, or, failing preparedness, he'll at least maybe achieve a cheap sleep state courtesy of his overpriced minibar. Whatever. It's good to have goals. Achievable ones, even

Hermann has yet to respond to Newt's epic and epically awkward email, but that's fine. He doesn't need to. It wasn't meant as a discussion piece. It was a doubly analytical gift, meaning it *is* a piece of analysis and it is also meant to hold up as the *subject* of analysis. It's free. It stands on its own, requiring nothing, demanding nothing. Monograph as monolith.

"I got this," he says to no one, to someone who is dead. "I do," he continues. "I told you I would." He looks out over Geneva, away from the lake, toward the cityscape in the south. "I don't think I can bring it down," he continues conversationally, "but look. Think about this critically—does it really *matter*? You're going to say, 'yes, Geiszler, of *course* it matters'." Newt clears his throat. "And sure. Practically, it's bad to stack the deck against yourself. Stupid. But the Jaeger Program has five more years. I can do five years. I can figure it out by then. Five years. No problem. The length of an R01, am I right? I'm right. It's a parsable academic unit. One more left. One more half-decade. Besides, Breach transit rates will probably come to a head around then *anyway*. It's okay that I failed to kill the Wall. That I will *continue* to fail to kill the Wall. I'm going to redirect. That's probably what you'd tell me, if you were here, watching me max out my emo quotient in a quotidian way." He shifts his stance, takes a sip of tequila. "Less sigh, more scientist. Don't be sorry, be working. Sure. Fine. Easy. I'll do it for you, Lightcap. And, also, y'know. To live. There's that."

Someone knocks on Newt's door.

Newt eyes his phone, raises his eyebrows at the lateness of the hour, crosses the room, answers the door, and finds Dr. Gottlieb standing on the threshold, wearing a blazer, leaning on his cane, a sheaf of paper half crushed in his hand, already glaring at Newt.

Newt opens his mouth, but before he gets anything out he is hit in the chest by Hermann's handful of paper. Reflexively, he grabs it before it falls to the floor, and steps back, unbalanced, as Dr. Gottlieb shoves past him, into the room.

"Come in," Newt says, belated and dry, closing the door behind Hermann.

His colleague turns to face him and gives Newt a look that is hard to pull apart.

Ugh.

This is *not* going to go well. Newt can just *feel* it.

"Do you want to sit down or something?" Newt asks, irritated, anxious, frustrated, and *really* not in the mood to be on the receiving end of a lecture on scientific etiquette,

appropriate comportment, or the proper way to organize one's personal items in a Geneva hotel.

"What is *wrong* with you?" Hermann snaps, aggressive, accusatory.

Newt is surprised to find that he is about to cry. How inconvenient. That's not very punk rock. That's not his aesthetic. That's not his lifestyle. That's okay. That's fine. He can compensate. "What's wrong with *me*?" he snaps, sweeping his arms open. "What's wrong with *you* how about. What is your *problem*; would it *kill you* to just—" he stops when his voice cracks, not sure what to say, not sure if he's supposed to apologize for sending a thoughtful letter, or for missing a day of physics, or for starting a riot, or for leaving his tablet in the men's room yesterday, or something *else*.

"I *give up*," Hermann snaps, his voice cracking as he opens his own hands, standing at an oblique angle to Newt while, weirdly, *not* looking at him. "I give up, Newton," Hermann repeats.

This seems bad to Newt. He's not sure what it means, but it seems bad.

"*What?*" Newt says, hoping for some clarification, accidentally loosening the metaphorical hemostats he's clamped down on his crying.

"You in *theory*," Hermann says, with what seems to be barely contained rage, or, maybe, barely contained weeping, tracing a circle in the air with one finger. "You in *practice*," he finishes, tracing a second circle, clearly *not* overlapping with the first. "You on the page," Hermann says retracing the first circle, "you in reality," he says, retracing the second. "Your—"

"I *get it*," Newt shouts. "I—"

"Say *any* of it," Hermann shouts over him. "Say *any part of it*. To me. In person."

Newt stares at him, not certain he knows what Hermann *means*, not certain he knows anything *at all*, not certain he's ever known anything *ever*; he should stick with comparative anatomy, with long experimental takedowns in lonely, silent labs.

Hermann steps forward, right into his personal space, to yank the papers Newt is holding out of his hands. He steps back again in one crisp step and Newt is suddenly *positive* that he should have looked at what he'd been holding when he'd had the chance.

"We are *done* with this," Hermann says, brandishing the pages, which are covered with what appears to be a handwritten letter.

"What?" Newt snaps, unable to conceal the stupid edge in his voice, which is *definitely* an are-you-breaking-up-with-me-right-now type edge even though *that's* weird, *that's* inappropriate, what *is* that even; that's not him, that's the ghost of some vagrant child that Newt has never been.

"We are finished with this," Hermann says, calmer now, with an emerging Gottliebian steel that is just *fatal* to argue with; that *particular* tone is, in fact, filed under: 'death, bleed out until.' "We have known one another for *five years*, Newton. In person. I am *tired* of trying to *dredge* anything of substance out of the cesspool that is your constantly unprofessional demeanor, especially since I *know*, so acutely, that there *are* in fact things that might yield to dredging. So. If you wish to discuss something with me, then, by all means, *discuss it*. Converse."

Ehhhhhhh Newt is not into this, not at all; he's *so* not into it, in fact, that he's really *really* tempted to just get up and walk away in a silent calling of Hermann's comment for the bullshit it is, because it *is* bullshit; Newt *knows* it is; if he goes, if he says *nothing* right now, Hermann will cave and write him back in a long and glorious missive that Newt can read alone in some dark, safe place and it will be better than this, easier than this, safer, *by far*, than *this*. This is not safe, this is weird and pointless and stupid and unnecessary and risky and he should *go*, he should *really* probably go; that would be better than staying, staying and standing here without speaking and staring really hard, really intently, really fixedly at *nothing* at all while Hermann just sits there waiting for him to do some dredging.

Also?

This is *his* room.

He's not going to leave.

"Cesspool though," Newt says, with a disappointing lack of verve. "Really, dude?"

Hermann looks like he has the urge to slap Newt for the inanity of his comment, but he doesn't. He just sits down on the edge of Newt's bed like he's been standing for hours, drops his cane, crosses his arms, and says, "in the past forty-eight hours you have participated in a screaming match, alienated roughly a third of the scientific community at this meeting, disappeared for hours on end, and missed an entire *day* of an extremely important conference, which is highly out of character for you."

"Myeah, okay, maybe 'cesspool' is a little bit fair," Newt admits.

"It is not fair," Hermann says stiffly. "I was making a rhetorical point."

Newt crosses the short distance between them and sits down next to Hermann on the edge of the bed. Not face to face but shoulder to shoulder. They both stare at the opposite wall and its crap piece of pseudo modern art in a gold frame just above their current eye level.

"Can I see what you wrote?" Newt asks quietly.

"No," Hermann says. "You may not."

"Okay," Newt whispers.

"I will tell you," Hermann says. "With words."

"Okay," Newt says again, doing a better job at producing sounds with his vocal chords. He chews anxiously on the glass rim of his miniature tequila bottle for about ten seconds before it occurs to him to offer Hermann a drink. "You want one of these things?" He shakes the bottle.

"No," Hermann says.

"Okay," Newt says.

"Yes," Hermann amends.

"Okay," Newt says. He gets up, walks over to the small fridge built into the dresser on the orthogonal wall, and pulls out the most decent looking thing he can find, which turns out to be a middle of the road brand of gin. He hands it to Hermann and sits back down on the bed.

"There is something that deeply troubles me," Hermann says, dropping his papers on the floor and cracking the metal seal on his screwtop bottle. "It has troubled me for quite some time, but I have never asked you about it, because I am *certain* that you will take it the wrong way."

"Probably," Newt replies.

Hermann smiles an ironic half smile and starts in on his gin.

"Are you going to give it a shot?" Newt asks.

"I suppose I will," Hermann replies.

Sometime this century? Newt does not add.

Eventually, Hermann says, "you wrote about the ways that Dr. Lightcap had helped you, professionally and personally. You asked me if I had noticed."

"Yeah," Newt says, his throat trying to clamp shut.

"I had not," Hermann replies. "I had not noticed. But you are correct. She shielded you from a great deal of scrutiny from the military side of the command hierarchy, and she did it without perceptible effort."

"Myeah," Newt says, totally but not unexpectedly miserable.

"What I *did* notice while she was alive," Hermann says, "is how much, how intensively, and how genuinely *you* helped *her*. Personally. Professionally. Philosophically. Practically. You helped her troubleshoot the rigs, despite the fact that your primary appointment was supposed to be xenobiology. You kept pace with her. You kept her company. You became one of a handful of people who could talk her down when she became upset, which was often. When she was injured in her encounter with *Karloff* you spent *hours* per day acceding to her unreasonable demands to be kept involved with literally all active projects for the five weeks of her enforced medical leave."

"Yes?" Newt says, not sure where Hermann is going with this.

"Yes," Hermann repeats. "An affirmatory interrogative. That's all you have to say."

Newt's not sure what that means, and he feels like he's about half a step away from screwing up everything forever.

"Why," Hermann asks, demand style.

"Why did I help her so much?" Newt asks.

"No," Hermann says. "I *know* why you did it. You did it because this, apparently, is your *nature*. You are generous with your time, your intellectual resources, with everything you have that can be given."

This is news to Newt. He's not sure it's true. In fact, he's pretty sure it might be false.

"Um," he says.

Hermann shakes his head.

Newt sips more tequila and tries to figure out the conceptual underpinnings of the question Hermann can't quite articulate. It's a why question, it's a question that starts with the word 'why' and relates somehow to Lightcap, somehow to everything that's happening, somehow to Hermann and the reasons he's giving up on trying to deal with Newt, because even though Newt is, by Gottliebian standards, a 'generous' person. Newt has failed in some way, there's something about him that just won't do, by Jove, something that he didn't—

Waaaaait, his brain says.

"Why *didn't* I—" Newt says aloud, slowly, adding a negative, waiting for the rest of it, and it comes like something he already knows, has known for a long time. "—do that for you," he finishes, fixing his eyes on the shitty painting on the wall, the texture of the carpet. "Why didn't I do for you what I did for Lightcap, when I had *known* you for years. Through the letters we wrote."

Hermann shrugs and Newt knows he's nailed it.

Nailed it about five years too late, sure, but nailed it all the same.

Having nailed it, he feels slightly more than slightly offended.

Only the deathly momentum in the room, the frozen line of Hermann's shoulders keeps Newt from snapping, *because you hated me, because you clearly, clearly hated me, because you made me feel like shit dude right from day one, because you still make me feel like shit, like a kid that no one bothered to civilize, like someone raised by wolves, because you judged me by how I looked and how I spoke and by a thousand other things that shouldn't have mattered to you because you knew what you knew about who I was, because I had told you; in thousands and thousands of words I had told you everything and still you had not seen.*

"Because," Newt says finally, "you didn't seem to *like* me. And I get it, dude. I understand. I'm annoying. Day in, day out, rain, shine, apocalypse; there's always going to be a 100% chance of irritation with me. We're theoretically but not practically compatible. Or something. Both. Neither. I don't know, it just didn't work out quite like it was supposed to. Did I feel the epic suckitude of that? Yes. I did. I'm sure you did too. But there was only so much I could take, really. Also, Lightcap was pretty miserable beneath that shiny exterior, so we bonded over that."

"I know," Hermann says.

"I know you know," Newt replies, staring at the floor.

"I *hope*," Hermann says, "that you are aware that I consider you one of my closest friends."

"I know," Newt says, trying to drag the last threads of disappointment from his voice and limbic system. "Likewise. It would be impossible for me *not* to like you after all that epistolary brain sharing. I mean really." He gives Hermann a crooked smile, but Hermann doesn't turn to look at him.

"In fact," Hermann says like a guy who isn't quite done, "I—recently, my relationship with my family has become somewhat strained, and I—for *me*, you ah, have, to some

degree, well, actually, to be fair, you have entirely taken on that sort of 'classification', if you will, by which I mean 'family' or some sort of—"

"What?" Newt says.

"Well," Hermann continues, totally flustered, "I—"

Aaaaand that's pretty much how far Hermann gets before Newt gives him a lateral hug where there is a *very* small amount of drunken crying on his shoulder, probably not even a noticeable it's so small. "Ugh," Newt says into Hermann's blazer, "me too, man," and then Hermann stops awkwardly patting him on the shoulder and shifts, like Newt's totally unintelligible string of words are some kind of free pass to *real* hugging and so they do that for a while, a little bit glued together, a little bit like setting epoxy, and it turns out Newt is fine with this, this is perfect, this has been what it's *been about* for Newt, where physical intimacy is a shortcut to personal and psychological and emotional intimacy so if it's going to be *this way*, this way that it is *right now*, then that's *fine* with Newt, that's all he really wanted anyway, to just—to be in the permanent picture, to be a part of a Gottliebian reference frame for the rest of his days.

Hermann's breathing is shallow and uneven, his chin digging into Newt's shoulder when he says, "I had an argument with my father."

"Yeah," Newt says into his hair, because it isn't a surprise.

"He effectively disowned me," Hermann whispers.

"This fucking Wall," Newt whispers, his voice cracking.

Hermann nods silently against Newt's shoulder.

"It's okay," Newt says. "We can still save it. We can still save all of it. Ten years from now, you'll be going home for Hanukkah, just you wait, man. Just you wait."

Hermann doesn't say anything and Newt is eighty-five percent sure that Dr. Gottlieb is doing some silent stress-weeping of his own so Newt just sits there, feeling partially miserable and also partially amazed because they *haven't* ever hugged before and this is like, falling off a personal intimacy cliff or something. Newt's fine with that, except his *back* hurts a little bit, he's twisted slightly, but he does not want to *mess this up*, this—whatever this is—he's slightly worried that if he tries to effect any kind of shift he's going to end up ruining whatever delicate, dynamic, and *bizarre* equilibrium is going on right here right now. But while Newt is, admittedly, possessed of a good number of freeze-in-the-oncoming-traffic instincts at the moment, he's also equally sure that he has a little more interpersonal klout in Gottliebian ledgers than he'd maybe previously *thought*, so he says, "come on," and when Hermann says "where," he says "nowhere,"

and kicks off his shoes, and backs up, with a whole array of vulnerable, open handed signals that say 'do not leave me here *waiting* for you on this bed, Dr. Gottlieb, honestly,'

And that is how they end up on Newt's bed, fully clothed, under dim lights, in an unfamiliar room, Hermann's head resting on Newt's shoulder, Newt's arm across his back.

"I am so sorry," Hermann says, "that she died."

"Oh god," Newt says, his voice cracking. It takes him a few seconds before he can go on. "Me too. I saw it coming for so long, but somehow it still managed to surprise me. That was the worst part of it."

"I know it was," Hermann whispers, his voice ragged.

Newt's expression cracks and then reforms.

"She would have loved your talk," Hermann says.

"You think so?" Newt asks thickly.

"She would have adored it. I have absolutely no doubt," Hermann replies.

Newt collects himself and asks, "did your father see *your* talk?"

"I don't believe so, no," Hermann replies.

Newt nods.

"Did *you* see it?" Hermann asks.

Newt very nearly says yes.

But he doesn't.

Because there are limits to human endurance and he cannot lie here, in this bed, *with* Dr. Gottlieb, and discuss *histalk*, the purple lights, the way that he had made a hostile, restive crowd bend under the weight of well-presented science, the years of all their thoughts exchanged in letters and in briefings, the hours in their labs, the late nights drinking coffee, the slow disintegration of all they've tried to build, all the things Newt knows and all the things he doesn't about the that which crawls from trenches, deep beneath the sea.

"I skipped it," Newt says. "I'm sure it was great."

"It wasn't," Hermann says.

Newt shuts his eyes.

"And you've heard it all before," Hermann continues.

Not quite like *that*, he hadn't.

"True," Newt agrees, a soundless lie.

"I was thinking that tomorrow I would come with you to the xenobiological sessions," Hermann says, "rather than attending the talks on human/AI interfacing."

Newt nods. "I could see myself needing a wingman after yesterday. Or not. Maybe. Possibly."

"Possibly," Hermann agrees, delivering the word like brut champagne poured down the collar of someone's shirt, dry and cool.

"So," Newt says, his thoughts sliding back to the pages on his floor, "no more writing, then?"

"No," Hermann says. "No more writing."

"I'll miss it," Newt replies.

"Not if we replace it correctly," Hermann says.

"Well, no promises," Newt whispers.

"I suppose I could make an exception for extenuating circumstances," Hermann says.

"Such as?" Newt asks.

"Well I'm sure I don't *know*, Newton," Hermann replies, "that is, of course, what will define them as extenuating."

"Sounds fair," Newt murmurs, smiling faintly, staring at the ceiling, not saying any of the ten thousand things that come into his head that might be defined as mild Gottliebian abrasives, acetic acid to residue on glassware, sandpaper to varnish, freezing water to already cracking cement. It's hard to map those interactions out, to predict them, to ask the ever-changing questions. Who am I? Who are you? System states are what? Solve for position, solve for momentum, solve for everything not immediately known, stacking up inquiry on inquiry, trying to make variables cancel out before they are brought back as fun mathematical enrichment items, littered around an interpersonal cage that is, yes, a high stress environment but also happens to be the place where one lives, at least for now, at least for the foreseeable future, the cage with the resources to stop an exterior fire but only if those resources are assembled in the right way at the right time and not piled into a Wall that blocks the view.

"What are you thinking of?" Hermann asks him.

"Nothing man," Newt says. "Just spinning the wheels. You?"

"Too much to fully recount," Hermann replies.

Newt nods.

A silent interval passes.

"I am trying to decide what I will say to my sister," Hermann says.

"Ah," Newt replies, unsure how to respond. Primarily this is because Dr. Gottlieb seems to prefer to project the impression that he sprung *de novo* from the collected knowledge of a fire-destroyed library of the ancient world, or self-organized out of a monomeric stew beneath a hot and electrified sky. He has never brought up his *family* before by Jove, not in words, or, rather, not in words that are audible. He'd *written* about them of course, back when they'd been writing, back when they hadn't been able to stop themselves from writing, back when they'd been smarter and stupider than they are now. Than they've become.

"I believe she will be the most upset," Hermann continues, staring at the ceiling, his verbal precision starting to go the way of the serial outlier, "of all of them. My family I mean."

Newt stares at the ceiling too, at its perimeter molding and its shadowed yellow cast. Out of the entire catalogue of concepts and words available to him, he elects to go with: "yeah."

Strong work, Dr. Geiszler. Strong, strong work.

"I cannot imagine this will come as a surprise to any of them," Hermann continues, like a guy reassuring *himself*, because Newt is doing a *bad job* in that department.

Newt can do better than this.

Screw your family anyway, he tries out. *You don't need them*.

Nope, that's probably not a good thing to say.

This sucks for you so much, his brain suggests as an alternative.

He's kind of already communicated that kind of validation, and this phrase doesn't offer much beyond that.

Everything will turn out fine, might be a lie and he's already said that too.

I don't talk to my family very much and look how well I'm doing, is likewise not very reassuring and a little more than a little self-obsessed.

Now you can spend the holidays working, turns out to be a really depressing way of improving anyone's outlook.

Your family should disown its patriarch how about, while true, is neither practical nor useful.

Ugh he can get something good to come out of his mouth. He *can*. It's going to happen *right now*.

No it's not.

Yes it is.

Dear Hermann, Newt begins silently.

"Genetics, right?" Newt says out loud, and usually, aloud, he would leave it at that, but he's trying to turn over a new leaf and find something under it other than forest detritus, rotting plant matter, and dead insects. "You're biochemically tied to a little subset of humans, meaning you share these collections of monomers pushed into patterns outside your control, you share behavioral norms, you share a history that takes place during your physical maturation, and ideally all those things create a niche of pooled physical and metaphysical resources, right? But sometimes ideological rifts occur secondary to, y'know, having a distinct consciousness. Sometimes those conceptual differences can be homogenized but sometimes you spend a lifetime digging opposing trenches until a final rift cracks straight through the no-man's land you've been mapping out for years. Family. It's nice if you've got it in the traditional genetic and social sense, but if that stops being a fully workable model it's also a term that's appropriated and redefined all the time. So, are you losing out on something? Yes. Yes you are. But at the same time, are you losing out on everything? Not necessarily. There's no sweeping categorical moratorium put on your communications with *Karla*, you feel me? So you guys don't do the holiday thing anymore because your dad doesn't want you in the house. Maybe you start a set of new things. Your sister is *not* going to be a dick about this. Also? It's not like this war, this effort is going to continue forever. Either we'll live in a walled-off world with a monster-filled sea and you can go home and say, 'by Jove, Sir Father, you were admirably correct regarding your postulated delights of a world sans ocean-based commerce'—"

"*Will* you—" Hermann begins.

"That is *exactly* how you talk, do *not* deny it," Newt says, over his colleague's objections, before continuing with "or, you'll figure out how to shut the Breach and your dad will try to crawl back into your good graces and you'll *lethim*. If you want. After an

appropriate period of good, old-fashioned German angsting while you make up your mind."

"You are insufferable," Hermann says in a way that seems to imply no such thing. "You have also left the most likely alternative off your list."

"What," Newt says, clear-eyed and dry and dire and dismissive, "the slow, protracted, civilization-ending thing? Where we scatter and die in whatever holes we try to sequester ourselves within?"

"Yes," Hermann says, equally dry. "That's the one."

You're the guy who'll be trying to live, Lightcap whispers.

"Nah," Newt whispers, not dry anymore. "That's not how it's going to go."

You're the guy who'll be trying to live, Lightcap whispers, a ghost on the dark dock of his thoughts, *right until the very last screaming second of his existence*.

Hermann shifts, coming up on one elbow to look down at Newt, and Newt doesn't like that, this too-close, too-far, eye to eye, set-of-eyes to set-of-eyes type thing; he prefers the mutual stare at the ceiling they'd had going. "I confess," Hermann says in a way that makes Newt feel like dying, "that I am not certain if your—your unpredictable attitudinal shifts over the past year come from a genuine change in your opinions, or derive from something else."

Attitudinal shifts, his brain snarls, annoyed at someone, but not sure whom that someone might be. *What a polite way of putting things*.

Hermann holds up his hand in response to something he sees on Newt's face. "Please do not misconstrue," he says rapidly. "Allow me to rephrase more clearly."

Newt raises his eyebrows and waits like a compressed spring.

"Your outlook regarding the eventual endgame of increasing breach transit has never been as dismal as mine," Hermann says.

"True," Newt says cautiously.

"But recently, your optimism about the eventual success of our efforts has vacillated wildly."

"Must everything be *euphemism* here?" Newt cannot stop himself from snapping.

"You have," Hermann snaps right back, "over the past year, been actively trying to adopt a more optimistic personal outlook while simultaneously increasing your pessimistic rhetoric in public venues. Case in point, within the span of thirty hours you

screamed yourself hoarse regarding inevitable, species-level extinction while literally *just now* you made a notable effort to present yourself as holding a more optimistic view of our chances of survival."

"And you want an explanation of that apparent incongruity?" Newt asks.

Hermann looks away from him, toward the open window. "I do not think I need one," he says.

You're the guy who'll be trying to live, Lightcap whispers, *right until the very last screaming second of his existence. I love that about you.*

I love that about you.

"There is something I have wanted to say to you for a long time," Hermann continues, letting Newt off the hook by dropping his elbow, going back to a ceiling-ward stare. "A long time," he says again.

Newt bites his lip, certain that it's not something that he really wants to hear, certain it's not even about *them*, not about the two of them, all that they've shared, all that they haven't, all that they've been to each other, what they could be and won't, what they'd like to have but can't, what Hermann won't risk because of what Newt will inevitably screw up, it won't be about any of that. It will be, of course, about Lightcap.

Kaiju-killer, Jaeger-builder, Drift-distiller, bullshit-filter Lightcap. Even dead, she stalks her way through other people's thoughts, their academic papers, their meetings, the garbage comments they now must shout at lesser scientists. It's only in Newt's head that she sits on docks, alone.

"She wove a mantle for herself that only she could wear," Hermann says. "It was never meant for you. Don't try to make it fit."

The ceiling is trying to burn its watery image into Newt's retinas.

"No," Newt says, "I mean, obviously. Obviously not. You're right. You're ridiculous, actually, you're—wrong. You're—"

"I am not wrong," Hermann says, like a guy who knows he's not wrong.

I love that about you, Lightcap whispers, and he can almost hear her.

I love that about you.

"It's just," Newt whispers, "that we *did* have—a sort of understanding about what I would do after she died."

"Did you," Hermann says, a supposed question that isn't framed as one at all.

"But it turns out that I make a shit Lightcap variant," Newt says.

"I cannot believe that she wouldn't have known this about you," Hermann says dryly. "Consider freeing up your interpretation of what was certainly an overly dramatic comment on her part that you took too much to heart because you share her penchant for theatricality. She couldn't have told you to prevent the building of the Coastal Wall because she didn't *know* about it before she died. She couldn't have expected you to wield even a fraction of the political capital she'd managed to accrue. She couldn't have realistically expected *anything* of you other than a sustained intellectual effort combined with the conceptual risk-taking for which she *hired* you, Newton. I am certain of this. Granted, I did not ritualistically shatter glass with her twice per week, I saw only a fraction of the humanity behind her professional demeanor, if one could call her demeanor professional, but I worked closely with her for *years*. Conceptually, technically, administratively."

Newt gives Hermann a one-shouldered shrug.

Who are our dead? Lightcap had asked him, years ago, turning Kaori Jessup's wedding ring over and over and over again in her fingers, her eyes on it, her mind on it, a silent count of ring-revolutions still rising in her head beneath the words she spoke to Newt, who had interrupted her too late at night or too early in the morning. *Who are our dead, if not those whom we allow to haunt us?*

I'm sorry, Newt had said, standing in her doorway.

Don't be sorry, baby genius, Lightcap had replied, without looking at him. *Be working*.

"You are unconvinced," Hermann whispers. "I can tell."

"Not entirely," Newt says. "Case in point: I've given up on trying to bring down the Wall."

"While I applaud this rare stroke of rationality," Hermann says dryly, "I'm not certain that's at the root of your current problems."

"Oh no?" Newt replies, equally dry. "I'm not sure my problems *are* problems."

"And *that* is certainly what lies at the tangled heart of your personal psychology," Hermann says, dryness cracking under its own aridity into amusement.

"The horror, the horror, et cetera, et cetera," Newt says, with a lazy rotation of his left hand.

Hermann exhales, short and unimpressed.

"I'm not sure we'll ever entirely give up on the prospect of talking one another out of being who it is that we are," Newt offers.

"I'm certain I have no idea what that means," Hermann replies.

"Lies," Newt whispers, because he can't manage to manage anything else.

Hermann sighs and shifts, levering himself slightly more on top of Newt's shoulder, and if Newt had to guess he would say that misery-cuddling is now maybe a thing that's permanently made it into their interpersonal repertoire, albeit with a high activation energy requirement, like incipient, mutual emotional breakdowns or some equivalent insult. Maybe. What *is* this even, like, a new permutation of letter writing? That's what Hermann had cast it as, kind of. It's definitely a Geiszler-driven thing though, the misery-cuddle, because Hermann does not invade people's personal space as a *general* rule, though Newt has the feeling that maybe he *would*, if he were so inclined, under the right set of circumstances, none of which have ever really been met and might not ever *be* met given that Hermann is Hermann and Newt is Newt, given that Hermann has a lot of propriety and Newt has *less* of that propriety, given that Hermann is only moderately tolerant of Newt's truculent edge that doubles back on itself in infinite switchbacks of the self until all he is is that edge, given that Hermann respects authority to an extent that Newt views as not respectable, given that Hermann hates Newt's awesome boots and Newt hates Hermann's stupid sweaters, given that Newt will always and forever burn his virtual lighter for Nietzsche while Hermann's more of a rationalist fan, given that Hermann favors substantive style while Newt favors stylish substance, given that volumes and volumes of words have been exchanged between them.

They know too much about one another for romance to be anything other than post hoc.

It's a dimension that would cause nothing but problems, a dimension to screw up, a capitulation to a social ideal that neither of them need, well, that's not necessarily categorically true, but *Newt* for one doesn't need it; fifty percent of them are just *fine* sans sexual relations, thanks; not necessarily *opposed* but not categorically *requiring* romance as anything other than a marker of likely long-term continued association which is always the subtext of Newt's personal life. The pursuit of a real and permanent deal.

Staring at the ceiling, one arm wrapped around his platonic slash possibly non-platonic superfriend/arch-nemesis/science-rival/debate-team-adversary/frenemy/life-

partner, Newt decides not to ruin his existing relationships in deference to chronic loneliness and social norms.

That's just stupid.

And it turns out that Newt is extremely smart.

He has the things that are important to him.

He has them.

He has them already.

"You do realize that—" Hermann begins, sounding like a guy trying to navigate by stars on an overcast sea, "that I—" he doesn't finish.

"Yeah," Newt says, offhand, casual, in the tradition of Han Solo, his indubitable ancestor from a galaxy a long time ago and far, far away, "I know."

Failing The Solo Trial

Five hours into a morning on the tenth day of the sixth month of the twenty-second year of the second millennium, Dr. Hermann Gottlieb decides the following.

He has missed any window for sleep that might have existed.

It is useless to continue to pretend it is Tuesday night.

He should change his clothes, shower, and reset himself for Wednesday morning.

Therefore.

He leaves his lab.

He leaves his lab, passing through deserted halls in a haze of exhausted preoccupation. He leans rather too much on his cane, one hand passing repeatedly over vision that won't retain its usual clarity. He keys in the entry code to his room, strips off his jacket, shirt, and slacks, steps into the tepidity of a distracted shower, dons a clean set of clothes, leaves his room in its usual pristine state, obtains his third cup of coffee for the night, or, more correctly, for the *morning*, and retraces his steps back the way he came.

By six o'clock he has reentered his workspace and re-seated himself at his desk in a closing of the little personal loop he'd opened an hour previous. His back aches, his shoulders are knotted, and his vision seems to be possessed of a faintly askew quality that the world seems to take on whenever he has had too little sleep. None of this matters.

He resumes his work.

There is a terrible pull to the spread of his spiraling data, an abyss-like conceptual flow that no one but he can yet feel. Equations fold out and back in an endless series of unpacking and repacking of variables, revealing an horrific mathematical topography that he checks, re-checks, triple checks, checks obsessively, checks over and over again, unable to look away from the emerging pattern, and he thinks of Caitlin Lightcap, disappearing to the women's locker room for hours on end, emerging, finally, with chapped hands and bleeding nail beds and he thinks, 'I did not give you enough credit for all you did and I am sorry, I am sorry, I am *sorry* and I will *be* sorry for the rest of my life.'

Soon he will move to chalk.

Soon he will write it out for himself in mineral calcite spread against a green board, crushing the empty husks of small, dead creatures of the sea.

He works, uninterrupted, for a span of hours.

He works, uninterrupted, until someone sets a familiar cellphone directly atop the first half of the equation he's in the midst of scribing neatly across the paper that spreads in a layered stream over his desk.

Hermann slams his pen down and glares upward.

"Oh give it a *rest*," Newton says, imperious, backlit, holding a coffee cup like a piece of personal hagiographic iconography. "For a *day* in your life. *Please*."

Hermann's broken focus collapses under its own weight straight into anger, hyperdense, brilliant, white-hot, nearly uncontrolled. Nearly. His jaw realigns, he shifts his spine, he rolls his shoulders, trying to sublimate the shreds of too much mental energy into a bounded physical outlet. He cannot get the viciousness to clear from his voice as he hisses, "Ah, Dr. Geiszler. What a pleasant surprise. Nine in the morning and you already have your clothes on. What's the occasion?"

"Read it," Newton snaps, imperious and slightly spiteful, clearly possessed by a toe-to-toe mood state that Hermann has never been able to decide if he loathes or loves.

Today, he loathes it.

He packs as much silent excoriation as is humanly possible behind the glare he levels at his colleague before picking up Newton's phone and scanning the subject line.

Special Initiative 352: PPDC Resource Reallocation.

It is from a person whose name Hermann doesn't recognize.

He glances up at Newton.

Newton looks back at him in silence with a slight and portentous quirk of his brows.

Dear Dr. Geiszler, the message begins. Please be advised that due to the resources required for the scheduled completion of the Coastal Wall, we have regretfully elected to shift funding from your current scientific endeavors to other projects deemed higher priority at this time. After careful review by the Financial Allocations Branch of the PPDC, we have determined that your current operating budget will be reduced by seventy-five percent. Your subdivision will fuse with its sister subdivision, creating a single budget for the single department known as K-Science.

Further details on this merge and subsequent budgetary changes will be explained to you and to Dr. Gottlieb at a Reallocation Meeting next week. At this juncture, you should be

preparing your staff for this departmental downsizing. Regretfully, we will only have sufficient funding to retain positions for two science staff members within the entire division—yourself and Dr. Gottlieb.

We apologize for any inconvenience this may cause, but we expect the pair of you to be winding down your existing research projects within the span of the next three years, to coincide with the completion of the Coastal Wall Project. Should you have any questions or concerns, please feel free to contact our central office in Tokyo.

Hermann looks up at Newton.

"Yeah," Newton says, in response to whatever it is he sees in Hermann's face.

"I have not been contacted yet," Hermann says, loathing the hope in his own voice.

Newton drops his eyes and then collapses into a seat on the opposite side of Hermann's desk, wordlessly throwing up a hand as if to ask, 'and what do you think *that* means?'

It means nothing.

Hermann sits forward, thrusting the heels of his hands against his eyes, unable to yet feel the full despair that hangs over him, waiting to crush him to death in the long term. Possibly, in the medium term. Possibly in the short term. Possibly right in this very moment. He is not certain how he is supposed to accomplish *any* of this; his staff has already been stripped down and stripped down and stripped down until there is nothing left; he's working with only a single tech—how is he supposed to—Newton cannot perform his experiments without technical help, it is literally *impossible*—how does anyone expect that *anything* might be accomplished under conditions such as these; they ask too much without being cognizant of asking anything at all; they do not *understand*—

Newton is speaking.

Newton, it seems, has been speaking for quite some time, but a particular phrase breaks through Hermann's iterating despair.

"—not *freak out* about this; it's not productive. I—"

"As if *you* are an authority on *productivity*, Dr. Geiszler," Hermann snarls, bringing his hands from face to desk with an audible crack. "I assure you that I am *acutely aware* of —"

"Chill," Newton snaps, trying to speak over him.

"Do not tell me to *chill*," Hermann screams at him.

"Stop it," Newton shouts.

They breathe heavily, staring at one another for a brief, wild-eyed interval.

"Get out of my office," Hermann says.

"Have you been sleeping?" Newton asks, his eyes narrowed.

"Out," Hermann snaps, pointing at the door.

"I have a takedown experiment today so *don't bother me*," Newton replies, getting to his feet, sliding straight back under a mantle of academic disdain.

"I'm sure I can arrange as much if you'll kindly avoid *impaling yourself* with your *own sample*," Hermann hisses.

Newton glares at him in naked and total ire, retrieves his phone from Hermann's desk, and leaves the room, slamming the door behind him in needless punctuation.

Good riddance.

He does not see Newton all day.

He does not see Newton all day, and he finds this something of a relief after the tempestuous week they've spent in the aftermath of the attack on Central America, the loss of another Jaeger team, and the associated political setbacks that emerged from the fallout of that loss. Newton is absolutely intolerable in periods of crisis; too certain of himself, perpetually trying to reorganize failing algorithms without adequate peripheral preparation, consistently introducing notes of inappropriate levity, too easily upset by what he perceives as the intellectual failings of others, full of a reflex superiority that he does not shake until systems have been restored to their resting state, advocating for solutions that are too ambitious in scope—in short, being *himself*.

And so it is a relief to operate on his own, even if Hermann spends his morning taking up the slack for those who have left, for those who have died, for those who have been asked to pack their bags due to lack of funding. He attends meetings in departments with which he never used to concern himself, as he tries to relieve some of the terrible, unrelenting pressure that has been placed, unfairly, upon Dr. Choi's shoulders. The man is regularly covering LOCCENT now; it is truly beyond belief. All through the morning and all through the afternoon, in the back of his thoughts, the unfinished spread of his waiting mathematics torments him to distraction, because while the tasks he completes are essential in the short term it is the evolving spread of conceptual thought that *must* be finished in order to make any difference at all in the sweep of unfolding events.

He has been working on this particular progression for years.

Post this most recent data from the breach, he's had the opportunity to re-run his model.

To examine the trends he's been trying to abstract for years.

And he's almost got the pattern.

Almost.

Nearly.

Very nearly.

He's very nearly got it.

There *is* something there that will yield to prediction, there *is*. In a way, the blur of recent days has felt like a contest; like a pitting of his mind against his body; like a week-long microcosm of his entire life. Nothing outside the confines of his central nervous system has ever been any good to him at all and so there is a kind of cosmic justice to that which he is now requiring of his corporeal form. His back and his leg and his shoulders and his eyes and his skull can take what he deigns to hand them and they can see how they like it; it is no more than they deserve for betraying him so consistently for so long. This attitude serves him well and *has* served him well for his *entire life*. There is no reason to change it. If one could drop dead from physical exhaustion, he would have done so long ago. He's not sure how he'll die—he's outlasted every endurance trial that man can invent. Something will have to kill him.

He can think of several somethings that would be only too happy to oblige.

In the late afternoon, he finds himself standing on the main floor of the shatterdome, looking up at the towering silhouette of a three-armed Jaeger and listening to Hercules Hansen go over the logistical schedule needed to refit *Crimson Typhoon* with cannibalized parts from the dead husk of *Vulcan Specter*. He's exploring waveforms in the back of his thoughts, trying to ignore the burn of fatigued muscle and ineffective nerves, and wondering, abruptly, why it is that the lights have begun to dim down around the edges of the vaulted room.

He spends several seconds trying to puzzle that one out.

It does not occur to him that he's losing consciousness until it is, mostly, a fait accompli.

He tries to save it, tries to shift his position, put his head down, but it's too late for that; the floor falls away, Dr. Choi whispers, "Hey, are you—"

And then there is nothing.

Until he wakes up, spine pressed against cold concrete, feeling wretched, feeling confused, feeling vaguely sick, with a group of people staring at him from what seems like a great distance away. It takes him several seconds to determine that they are standing and he is lying on the floor.

"Dr. G. Hey." Dr. Choi is kneeling next to him. "You fainted, buddy. We called medical. You want me to call Newt?"

"No," Hermann snaps, or, attempts to snap. It comes out as a cracked whisper.

"Go do something useful," Dr. Choi says, waving a hand in the direction of the interested J-tech personnel who are hovering above them, blocking the light. "We'll restart in fifteen."

"Not with you, though," Hansen says, dropping into a crouch on Hermann's left to fix him with a look that is almost friendly. "You'll need to be checked out by medical."

Hermann pushes himself to his elbows.

"The leg?" Hansen asks him, quietly, because Hansen, of course, *knows*.

"It's nothing," Hermann snaps.

"Working too hard," Dr. Choi says.

"It is *nothing*," Hermann insists, but they make him lie there until he can be transported to the medical bay, where he is given intravenous fluids, a meal, and a muscle relaxant for the spasm in his back and only *then*, when his mind has been pharmacologically stripped of its willpower, do his thoughts collapse in a disorganized spiral. He shuts his eyes halfway through an attempt to continue his work on the backs of the tissues he'd found on his bedside table.

When Hermann wakes, his disorientation is complete.

He cannot remember how he arrived here, in this unfamiliar cement room with its dim lights and its quiet whirl of foreign ventilation. He scrambles for context, for things that happened recently; he flips through a disordered set of memories—Bavaria and Berlin and Alaska and Hong Kong, whiteboards and chalkboards and drifting gone wrong. He can't—he can't quite piece everything together; his thoughts feel like they're tangled in something he can't see.

But he is not *entirely* lacking for reference frames.

Newton is sitting less than a meter away, humming quietly to himself, illuminated by the light that comes from the glowing screen in his lap. The man's hair is ungelled. He's

atypically attired—in black sweatpants and a black track jacket with small white letters embroidered onto the left shoulder in sans serif font reading: IHTFP. He's not wearing any shoes. While he feels oriented by Newton's presence he feels *disoriented* by the man's unusual appearance and he thinks wildly and inappropriately of branches in the quantum foam, of waking up on an adjacent D-brane where Dr. Geiszler is an introvert with pedestrian hair and a personal style best described as—athletic? Ridiculous. Nevertheless, the computer that the man staring at with a singular focus is the only thing about him that seems familiar.

Which, after a moment of consideration, makes as much sense as anything is likely to make, because it is, in fact, *Hermann's* computer.

The universe is awry in some way. This is not right. He doesn't know where he is, he can't remember how he got here, and why Newton would be sitting quietly in the dark, humming a song that Hermann hasn't heard since the autumn of 2018, wearing something that looks like normal sleepwear, his feet propped on Hermann's bed.

"Transmit this," Newton sings absently, the rest of the words fading back into humming and then coming forward again with, "Come get me," only to fade into nothing as something on the screen he is studying catches his interest.

It comes back to Hermann then. The chain of events that had brought him here: the long days, the sleepless nights, the email that morning, the despairing span of hours that followed, and then—fragments of memory. The subtle arch to his spine that was so difficult to maintain. The way it had been suddenly so hard to stand. The phantom pressure across his shoulders and the manner in which the floor had seemed to slope away on all sides.

He shuts his eyes.

Newton, humming, continues to search his way through Hermann's computer, looking, no doubt, for some way to help, for some insight into Hermann's recent and total preoccupation with the time-course of quantum fluctuations.

This is not ideal.

Hermann can guess what the man has found on the hard drive under his hands. What he *will* find. What he is, even now, working his way through.

Stop, he wants to say. *This is not a thing for you to find, alone, in a darkened room as you make pass after pass at quantum mechanics that you should not have tried to shoulder and that shouldn't yield to you at all, you sloppy, quixotic nightmare of a scientist. Don't*

look at what you'll find there, it's not for you; it's never been for you, go back to where you came from; teach cell-lines not to die.

"Go all," Newton sings, "go all or none—" before he fades back into humming.

Hermann feels entirely overwhelmed, incapable of dealing with any aspect of his own life: the dissolution of funding, the probable end of his species, the catastrophic weight of his own expectations, and what to do about Dr. Geiszler, who will, it is certain, torment Hermann into an early grave simply by *existing*. It's not the man's *fault*, per se, but it's no one else's either.

Hermann shifts, trying to sit using muscles with the consistency of cooling toffee.

"Whoa," Newton says, dropping his feet, sitting forward, nearly sending a computer that is not his own into unforgiving concrete as he leans forward to plant a hand directly in the center of Hermann's chest. "You're awake. Hi. *Hi*," he says in a way that can only be described as both subdued and genuinely warm. Before Hermann can reply, Newton lifts his hand, shakes his head, and whispers, "Nope. I'm not even here. Don't talk to me. Go back to sleep. Sllleeeeeeep. Y'know. That thing that you have to do to live. That thing that keeps your brain from turning into a burnt out biochemical husk."

Hermann does *not* feel particularly inclined to take this advice. He forces himself into a sitting position and makes a nearly successful grab for his own computer.

"Noooooo," Newton says, managing to shut the laptop and set it gently on the floor before Hermann can wrest it from his grip. "This is *not* for you right now."

"What are you *doing*?" Hermann hisses.

"Doing? Like, fifty different things in blazing simultaneity," Newton whispers. "It's very attractive. What's wrong. Relax. You totally fainted during a three hour meeting with Herc Hansen, it was *very* dramatic, just *lie down*, dude, lie down."

"Do *not*," Hermann says, falling back onto one elbow. "Do *not* look at—" he can't continue, and he shakes his head.

"What you were working on?" Newton asks, completing Hermann's thought.

Hermann nods.

"Too late," Newton whispers, with that smile of the clear-eyed and damned he adopted circa 2019. "I'm already halfway there."

Hermann shakes his head. The man is *not*. He can't be. He would not sit here *like this* if he *knew*.

"I could fight through your files for hours," Newton says. "I could fight through them for *days*. Or, you could just tell me."

"I will tell you," Hermann says. "Not at this precise moment. But I will tell you. I will, in fact, show you."

"Hand-held quantum mechanics," Newton murmurs, "my favorite kind."

"Your only kind." Hermann falls back against the pillow.

"My only kind," Newton agrees, unmistakably conciliatory. "You used to flatter me so much. Why is *that* not a thing that still happens, hmm?"

"That was when I thought I knew you," Hermann replies flatly.

"That is either too deep or too shallow for me right now," Newton replies, with a magnetic resignation that draws Hermann's gaze. "I have no idea which."

Hermann does not reply.

It occurs to him then that he ought to be *kinder* to Newton; that he does not *know* from where his own pent-up anger comes, that he has *never* known, that this is a *lie*, that he *knows*, he knows *exactly* where it comes from, it comes from the long trail of years in which no one listened to him; it derives from the demonstrable truth of the fact that *no one is listening now* for reasons he *does not understand*, that *none* of them are listening; and why can he not be like Dr. Lightcap, who burned like a torch every moment of every day, who fluxed into all that was required of her, who had certainly never felt like something half-dead even when she was, who could shift the course of history, kill a kaiju with a machine of the mind, and still retain the energy to scream.

Something of this must be written on his face.

Something of it must be there because Newton sits forward, reaches across the space that separates them, grabs Hermann's hand and says, "Hey," like he can repair decades of undisclosed psychological demolition if only he can exert a nonsensical, unending hold on the vector of Hermann's attention. "I want you to know," he says, slow and intent, like he's trying to broadcast through static, "that you don't have to break it to me. I can see where you're going with your spread of math; I can tell what it is, even if it's too sophisticated for me to parse in detail. I know it's the timetable. I know it is. That's okay. That's great. That's useful. Do you hear me? It's useful. We need it. We need it laid out. You do *not* have to finish this by yourself, okay? It's a *lot*. It's too much; it would be too much for anyone and you take these things hard. You take these things with the sort of intensity that I have never seen. You don't need to do this by yourself; you're not *going* to do it by yourself, I can help you. I will help you; it's not a thing I'm

asking you, okay? This is not an offer; this is information. I am capable of helping you and I am going to help you."

Hermann presses his free hand over his eyes as his expression breaks away from fragile neutrality.

Newton cannot help him.

Newton already has too much to accomplish, too much to handle alone, and Hermann refuses to unburden himself on anyone who has shouldered as much as Newton has already shouldered; the man is at his absolute limit; if he weren't he wouldn't be picking needless fights with Hansen and storming out of meetings. Absolutely not. At the same time, Hermann cannot go on, not like this, entirely alone, unable to rest until he has his terrible answer, while time predictably pours away.

He shakes his head.

"Nope," Newton says quietly. "Do *not* give me that; you had your solo trial and you failed it. So you either walk me through the whole thing and then we continue together or you don't walk me through it, you just continue doing it, except this time in front of me. Either way, at the end, we'll go over it together, I'll ask you some wishful questions, you'll give me some depressing answers, and then we'll go drinking. It will be epic, this night of drinking. We'll give it a name. Hong Kong Gone Wrong. The Sherry Setback. The Trial by Tequila. And then, when we're modestly hung over, only *then* will we brief the machismo-soaked upper echelons that have been running us into the ground, presuming the date you calculate isn't, like, next week, in which case we should probably just go right to the briefing. And see? You say I'm not responsible. Anyway, what do you say? There *is* a right answer, so try your best."

"I believe the time frame will be something on the order of two to three years," Hermann whispers.

Newton drops his eyes then looks back at Hermann. "So there's definitely time for drinking then, is what I'm hearing," he says.

"I suppose so," Hermann replies.

"Great," Newton says. "Silver lining takes the form of epicurean excess. That's my favorite kind."

Hermann smiles faintly. "You were singing," he says.

"I have been known to do that," Newton agrees after a brief pause. "Are you feeling okay?"

"Just now," Hermann elaborates, ignoring his question. "Here. In the medical bay."

"I wasn't," Newton whispers. "Lies. Inaccuracy."

"I have not heard you sing for years," Hermann says. "Since 2018."

"I didn't realize you'd been keeping track," Newton says, lifting his eyebrows, looking away.

"Not as such," Hermann whispers.

"Fewer opportunities," Newton explains, his gaze still fixed on a dark cement wall meters away. "My karaoke buddies are dead or gone."

"Ms. Mori is not gone," Hermann says, even though she is, and has been for a quite some time.

Newton gives him a look of dry skepticism. "It's okay. She's got her own deal going now. That's the thing with kids, or so I hear. They grow up into the people they're going to be I guess or whatever, no big deal. Plus, you have to admit that I am *very* irritating; too irritating for cool, teenaged Mako."

"That is true," Hermann says, smiling faintly at him. "I would never dispute that particular assertion."

"Why are we talking about this?" Newton asks him.

"Because I have had a terrible day," Hermann says, his free hand pressed against his aching temple.

"A spread and span of terrible days," Newton murmurs.

"And it was certainly the nicest thing that's happened to me in quite some time."

"What was?" Newton asks.

"You have the attention span of a firefly," Hermann says, not without some level of fondness.

"You know, Dr. Gottlieb, before coming to this infirmary to do *quantum mechanics* at your *bedside*, I spent eighteen hours up to my elbows in toxins performing a takedown, so I could use a little bit of slack when it comes to my working memory, okay?"

"Your *singing* was the nicest thing to have happened to me in quite some time," Hermann explains.

"Oh," Newton replies, taken aback. "Well—thank you?"

Hermann closes his fingers around Newton's hand and says nothing.

"You are the *worst*, by the way," Newton says. "Just the *worst*. How dare you do everything it is that you do. I mean really. I do *not* approve. You can't file dozens of noise complaints against me for years and then tell me that you *like* my *singing*. God. You are the unmitigated master of presenting the mixed message as the pure message."

Hermann thinks there might be substantive substrata that underlie Newton's faux outrage. He suspects the man is speaking more globally than he is advertising, but they have neither the time nor the leeway to excavate all they've buried in the conceptual ground that they've shared for ten years.

Afterwards, he thinks at Newton, after all of this, if we are not dead, if we somehow survive all I've calculated is coming, I will ask you to walk down the street for two blocks to that strange coffee shop you like so much. The one with the abstract representations of fish on the walls. And I will not explain any of it to you. I won't explain a single thing. I will not ask you to forgive me for any of the things I need to be forgiven for, and I will not tell you any of the things I have come to understand about who you are. I will not rationalize, summarize, or analyze my own behavior. Or yours. I will simply sit there, drinking my coffee, starting over from the beginning, the way I might have started in Geneva, in 2015, had things gone differently. Because you, like anyone, deserve such an effort. Not a retrospective, retroactive apology—but a new and genuine and sustained effort to build that which we should have always had. An effort that I cannot make now, an effort that you cannot meet now. We will sit in the window, facing one another, and I will say that I did not think we would make it, and you will say that you always knew that we would, and I will look at the wall and say that I am curious about why it is that you have such a clear affection for fish, of all things, and you will explain it to me, and later I will ask you to dinner and you will accept. And at some point during the evening it will occur to you that the nature of our interactions has shifted and you will ask me, 'Is this a date, Dr. Gottlieb?' and I will say, 'Yes, of course it is,' and you will be unable to entirely hide your surprise though you will try very hard. It will probably be you who brings up the subject of future plans, it will probably be you who says, 'It would be such a shame to part ways now; we work so well together,' because you have always been braver than I. And I will agree with you and I will say that 'I plan to return to theoretical physics and, given that I could work anywhere with a decent infrastructure of moderately intelligent people, why don't you suggest a list of places that could support the kind of research that you'd prefer to be doing—cellular senescence, or neuroscience, perhaps, after all your work on the Drift.' And we will discuss our academic plans as we pack up what little our stripped down funding has left us and every night I will take you out to dinner and you will persevere on

Nietzsche for hours and I will allow you to attempt to change my mind about the merits of Queen and after exactly five nights I will ask you if you object to pursuing a romantic relationship and you will say, 'I hate you so much right now, you have no idea,' and I will say 'I have at least some idea,' and then you will kiss me and I will kiss you back and eventually we will move in together and we will get a cat that I name 'Laplace' and that you christen with fifteen different and equally ridiculous titles. And every day for the rest of our lives my comportment will confuse you because you will never fully understand what happened in that first decade of our acquaintance, when it took me too long to separate who you were from the misleading, transient ephemera that you so vocally claimed for yourself. You will never know that I felt I'd rather die alone than watch someone I love struggle to live. You will fail to understand that I had finite resources that were nearly unequal to the task I had been set, the task I had set myself. I will never tell you that I always considered you to be magnificently difficult, difficult enough to struggle with for decades, perfect for anyone who feels the need to fight their way through life, as I have felt the constant need to do. And if it does not end this way, with espresso grounds and science books, with something long and peaceful; if it ends the other way, then perhaps if I say nothing we will be able to separate when they pull Jaegers out of graveyards and pilots from our people.

"I apologize," Hermann says, with a sincerity that is nearly too acute to bear.

Newton sighs, as well he might. "Oh stop. I'm not serious. I get it. I get the whole thing."

Hermann is not sure that's true, but Newton understands orders of magnitude more than anyone else ever has or ever will. "You do not," he whispers. "You atrocious man. Don't say such things, or I will begin to believe you."

"All of it," Newton murmurs. "Every part. Inductively, reductively, deductively, constructively, minutiae to gestalt, on every scale, with total scope—"

"Shut up, will you?" Hermann whispers.

"Oh you love it," Newton says.

"Untrue," Hermann replies.

"Very true. Extremely true. The most true. I'm going to let you off the metaphorical hook though, because you're convalescing."

Hermann sighs. "What are you doing here?"

Newton sits back, pulls his fingers out of Hermann's grasp, presses his hands to his face, runs them through his hair, and fixes Hermann with a faintly irritated expression.

"What am I 'doing here'? I'm going to take that as literally as possible, because otherwise I would have no choice but to be deeply offended and I've spent my *entire* day in a state of offense, and I'm getting a little tired of it. So. Literally, I'm rocking a bedside vigil in the historical tradition. If you want a rundown the past twenty hours of my life, it goes a little something like this: I picked a fight with my co-division chief, I performed an eighteen-hour takedown with Lisa, who told me, like the perfect champ she is, that she would continue to work for me without pay until her savings run out, I consequently cried tears of guilt/relief onto my sterile field, we then finished the takedown at which point I decon'd myself and found about five messages waiting for me—one from Medical, one from Hansen, one from Tendo, one from Mako, and one from the team in Auxilliary Lab Three. I ascertained that something less than ideal had happened concerning *you* and so I came down here. They told me you were sleeping, which, knowing medical to be a collective of individuals that may or may not be able to tell 'sleep' from 'coma,' I didn't *believe* until presented with evidence, which was, namely, you sleeping. At that point I attempted to elicit a cogent explanation re: what happened to you, with eventual success. I had to take things up the clinical ladder five rungs or so before I was satisfied because I was pretty sure collapsing of 'exhaustion' only happened to people strapped into corsets back in the day. You'll be interested to know that no one has provided me with an account I find satisfactory. The best guess is that you were dehydrated, hypoglycemic and standing too long in the presence of Herc Hansen, so, understandably, you weren't doing a great job perfusing your brain. Consequently, you vasovagaled yourself into a free trip to the infirmary. I would faint too, if Hansen were giving a three hour presentation. I applaud your life choices. Anyway, post my infirmary investigation, I left, ate dinner, stole your laptop, changed my clothes, and came back. That's the aerial view of my day."

"What is IHTFP?" Hermann asks, reading the lapel of Newton's shirt.

"An MIT thing," Newton replies, waving a hand. "Not important. This is my sleepwear, not my leisurewear. I haven't done laundry in eight weeks, but this is neither here nor there. Let me just turn your question right back around. What are *you* doing Dr. Gottlieb? Care to airbrush any detail into my narrative paint-job?"

"No," Hermann says.

"Hermann."

Hermann shoots him a dark look.

"Okay, okay. I get it. I do. I get it better than most people would, I'm pretty sure. It's a little bit—*weird* to lose consciousness in front of people, am I right? But on the plus

side, we can bond over the tragic sequelae of our academic machismo. My embarrassment threshold is not as trigger happy as yours is, but even so, ugh. It was the *worst*. I don't have super *clear* memories of that briefing, you know the one I mean, but I remember being pretty on top of things, feeling awful, yes, but entirely on top of my conceptual game until I had an episode of *intense* déjà-vu. I still remember this part of it—I was talking about projected funding and I remember thinking to myself, 'Wow, this is *boring*,' and I had the overpowering experience of having lived that exact moment before. Maybe because I was turning hypoxic? The parallelism of my present and possibly past boredom in that moment was so intense it actually made me genuinely doubt whether I was repeating myself within the context of the briefing. I *still* don't know. I then remember trying to look away from my slide for some kind of situational cue that would let me work it out, but not controlling the vector of my gaze very well and also forgetting what I would be looking for specifically. Plus, my vision was starting to go around the edges. Narrowing down into a fraying tunnel. That was throwing me off. I felt bizarrely *calm* about the whole situation, just really blasé faire. I remember you saying, 'Newton,' and I remember thinking, 'I must be giving a *terrible* talk, if Hermann is *interrupting* me,' and then I realized I wasn't, at that moment, speaking at all. That's pretty much it, except for some weird fragments of memories; Pentecost saying, 'yes, you did,' in response to—something? You standing up? The dust in the light of the projector? I don't know. I didn't at the time and *still* do not feel great about the whole thing."

Hermann shifts slightly against the bed. "It was a combination of factors," he admits. "All the things you mentioned, plus—I had been on my feet for quite some time. We had been rounding on J-tech's repair work."

"Endlessly," Newton says, laying the word down like the reinforcement it is.

"Not to put too fine a point upon it? Yes. You are correct. And, well, I was having a significant amount of back pain, which I attempted to alleviate by moving as little as possible, which likely did not help matters very much. I confess I was paying less attention to the briefing than I was to my own preoccupation with my mathematical modeling, and—"

"I support your choices," Newton interjects.

"Thank you. It was likely for this reason that I perhaps did not realize what was happening until the point that corrective action was no longer possible. I felt a brief sense of pressure, the sense of the floor falling away even though I knew intellectually that no such thing could be the case and then—" he waves a non-communicative hand.

"Syncope," Newton finishes for him.

"In a word," Hermann says dryly.

"Did you, like—expeditiously *wake up*?" Newton asks.

"I did," Hermann replies.

"Oh *no*. That sounds like the *worst*. I don't think I woke up right away. Did I? If I did, I was *not* forming memories. The lack of a mnemonic record ended up improving the experience for me, I think. Psychologically."

"No," Hermann says darkly. "*You*, to literally everyone's dismay, did *not* regain consciousness in an expeditious manner because you were drowning in your own secretions. I, on the other hand, *did* regain consciousness in time to experience the *entire* senior staff of J-tech staring at me while I was assessed and then carted off the floor of the shatterdome. It was a terrible experience, I literally wish to *never* discuss this again."

"Okay, fair enough, but at least tell me that Hansen looked guilty. Ridden. Wracked. Torn apart by intense, inner, tempestuous culpability. Like his brain was shredding with remorse for driving you to this juncture. At least tell me that."

"He looked, perhaps, inconvenienced," Hermann replies.

"What a *dick*," Newton opines.

"Will you *please*," Hermann snaps at him.

"Sorry," Newton says, sounding less 'sorry' than sullen. "I dropped by his office."

"You did not," Hermann says, horrified. "Please tell me you did nothing of the kind."

"I just—wanted to express an opinion," Newton says, looking away. "Anyway, it did *not* go like you're picturing."

"Oh Gott," Hermann whispers.

"I'll thank you to leave your German god out of this," Newton says. "There's no need for that kind of thing. I'm not under military arrest, am I?"

"If it did not go 'like I'm picturing' then I would very much appreciate you telling me how it *did* go."

"In a word? Weird. In more than a word? Very weird. I walked into his office and he said, 'Geiszler. Great. Have a seat.' This confused me, so I did *not* sit, I instead said, 'Just what the hell is it you think you're *doing* around here?' and he said, 'I don't even know what that means,' and I said, 'You know perfectly well what it means; I have

made my views on resource allocation abundantly clear,' and he said, 'Yes, I remember the incident with the table,' and I said, 'You have seized on something entirely irrelevant,' and he said, 'Would you just *sit down*,' and I said, 'Oh, did you have several sentences worth of points that you'd like to make, what a notable and historic day,' while taking a seat, and he said, 'If you can keep a lid on your personality disorder for two minutes, there's something I'd like to ask you,' and I said, 'Typical,' and he said, 'What is,' and I said, 'Fire away, mon capitaine, throw your pile of rocks, shatter someone's glass house, hopefully it will be mine and not your own,' and he said, 'Sometimes, Geiszler, I almost like you,' and I said, 'If only that sentiment were mutual this moment would 'almost' be so touching,' and then he said, straight up, point blank: 'Do you think Dr. Gottlieb is working too hard'."

It is here that Newton pauses and looks up at the ceiling with a curious expression that Hermann cannot immediately identify. "Well don't stop *there*," he prompts.

"Well, I mean—how would *you* have answered that question? If it were about me?"

"The word 'yes' comes to mind," Hermann says.

"Wellllllllll," Newton replies. "That, while an appropriate answer, did not occur to me just right then."

"Did you flip over his desk?" Hermann enquires politely.

"Nope," Newton replies. "I did not do that either. I pulled a Geiszlerian variant of a prototypical Lightcap move. I didn't *mean* to," Newton continues, "it just, somehow, happened. I mean the question was so stupid, right? Sostupid. So I just—I mean—" the man's expression cracks wholly and entirely into unconcealed, wild-edged amusement.

Hermann raises his eyebrows, shakes his head once.

"You had to be there," Newton says, "it was just—he asked it like he *really* wanted to know. Like it was some secret. Some thing that only *I* could determine. And he gives me this look, like, kind of appealing, borderline *nice*, I guess he must like you, and I just—I couldn't—like; *how* could he not *know*? He just wanted to help. Oh my god, I need to breathe air, I need to not do the same thing again," Newton says, pulling in a calming breath, "but I just sat there, in the chair, laughing. Laughing until I was also crying a little bit and hanging onto the edge of his desk so that I wouldn't fall on the floor because even I am aware that that is *not* professional. And then he comes around his desk, pulls me up, and I *assume* that we are going to see Pentecost so he can exhibit my unprofessional behavior as yet more reason to fire me, but we end up in the

cafeteria and he gets me some cranberry juice, and he sits down across from me and he says, 'Everyone's stressed, Newt. Keep it together.' Then he claps me on my shoulder, really hard, and walks out of the room. He called me Newt! That set me off again; he sounded so uncomfortable when he said it. Oh god, you should have been there. It was glorious. I had to put my head down on the table and give myself a personal time-out for, like, five minutes before I could finish my juice and go get dinner."

"You are a disaster," Hermann says, with unconcealed fondness.

"I will not argue with that. In summary, K-science did not have a banner day in terms of our interface with the PPDC hierarchy. I think without our personnel we're going to turn eccentric to the point of caricature. Discuss."

"You're half right, in that you are already there," Hermann informs him. "Fortunately, that will never happen to me."

Newton leans back in his chair and looks at Hermann through half-lidded eyes. "Suuuure. Well—good. Someone needs to be keeping up appearances so that the military types don't get in the habit of not listening to us. Or? They *should* listen to us, is the point. Because I, for one, fully intend on saving the day on whatever day it is that needs to be saved. I don't know about you, but that is *exactly* my plan."

Hermann sighs.

"Go back to sleep," Newton whispers. "I'm giving you the day off tomorrow."

"Don't flatter yourself," Hermann replies. "After an eighteen-hour takedown experiment followed by an apparently sleepless night, I mandate that *you* take the day off tomorrow. For reasons of safety."

"Well, we can both get what we want," Newton says, "because Pentecost emailed us about an hour ago. Barring any breach activity? We are to take the next three days off entirely. I'm not sure it's a request. But, I figured that would be a *great* opportunity for you to finish your math and then hold my hand through subsequent explanations."

"Actually," Hermann begins, somewhat impressed.

"I know. It's brilliant. Working vacation! Or, technically speaking, just working. But on only one thing! Secretly! Not in the lab! It will be great. Let's order take-out. Whose room? Mine or yours? I can do my laundry. And also clean. We could switch it up—"

"Tell me, in absolute honesty, what is the state of your living quarters?" Hermann says.

"Ummm," Newton replies.

"My room, then."

"Perfect," Newton says, tipping his head back. "I am so tired. I did *not* want to do my laundry. I would have done it though, man. For you. Out of respect. And fear of ridicule. Mostly respect though. Everyone is going to think we're sleeping together. I'm excited. Can we keep that going for a little while, possibly? Just with Tendo. And maybe also Jad, the superfluous IT guy who doesn't wear shoes and shouts out the color of my aura every time he sees me? You know the guy I'm talking about. Jad has been hitting on me really subtly for a while, I think. He's leaving next week with the next round of personnel cuts. I want to let him down gently. He's giving me his plants. And his terrarium. I think it might be *my* terrarium anyway seeing at it was built out of materials from my lab in the floorspace of my lab because he thought I'd appreciate it—oh *god*, now that I've laid it out like this, I think that Jad maybe made a terrarium for me? Wow. That is so nice. No one's ever made me a terrarium before. No one's ever made me *anything* before. I'm so *touched*. I love that terrarium. This is awkward. I'm not interested in Jad, full disclosure, just FYI. I wish I had not said so much of this out loud."

"To answer your original question," Hermann says. "You may *not* disingenuously imply to the incompetent head of the formerly extant IT department that we are romantically involved so that you can avoid an uncomfortable conversation."

"Well when you put it that way," Newton says, with a theatrical sigh, "I look like a Prince of Dicks. Which I am, a little bit." He raises his eyebrows in Hermann's direction. "So are *you* the new IT Department then?"

"Yes," Hermann says, closing his eyes. "Though this is not an undue burden, as I have functionally been the IT Department for something like seven years."

"Riiiiigghhhh," Newton says. "I feel like I knew this at one point and then forgot it after we both started wearing so many ill-fitting hats. But we digress. What am I going to do while *you* silently do quantum mechanics?"

"Certain though I am that you have an infinite number of things on which you might work—" Hermann begins.

"Please say it," Newton whispers.

"I am willing to explain—"

"Yessssss, oh my god, I will write things on your personal chalkboard for you, I will be so—"

"—my thought processes up to a certain point so that you may attempt to follow the final stages of—"

“—so sooooo useful, you do not even know, okay, I will give you real-time admiration—”

“Will you please contain yourself,” Hermann snaps. “I have said I will allow you to follow along.”

“Victory,” Newton whispers to the ceiling, spreading his arms wide.

“So please stop spending hours in a no-doubt fruitless attempt to work through my disorganized thoughts, such as they are, for the sole purpose of saving me three minutes of explanation to you tomorrow, Newton. Just go to bed.”

“That’s not even what I was doing,” Newton says dismissively.

“It was. Please also keep in mind that this is going to be truly horrible experience.”

“I love going on Frenemy Bedroom Retreat Staycations with you,” Newton whispers, giving him an askew grin. “Let’s do it *every year*.”

“The end product will be an answer that we *find disturbing*,” Hermann says.

“I know,” Newton replies. “Sartre could write a one act play about the existential horror intrinsic to calculating the timetable for the end of the world in a boxlike metal room with no windows. But on the *less* horrifying side, we can get take-out from the restaurant down the street that serves Japanesified Indian food, so there will be that. I love their curry.”

Hermann sighs, and neither of them speak. He cannot relate to Newton’s aggressive optimism, to the perpetually arrogant edge that he persistently cultivates, to his immature abandon, to his calculated non sequiturs, to so many of the things he uses to conceal whatever it is that he actually feels but only occasionally expresses.

“Believe me,” Newton says apropos of Hermann’s incommunicative silence. “I get it. I do.”

Hermann raises his eyebrows but Newton is not looking at him. “I have my doubts about your insight level,” he confesses, perhaps unwisely.

“And no one, including me, could *possibly* blame you for that,” Newton says. “My point, I suppose, is that you can’t tell *me* whatever it is that you’re thinking, whatever it is that’s driving you straight into the ground; you don’t have to *wait* until the point that I belatedly call you on it. While Herc Hansen, admittedly, is not a guy who is going to easily pass Go in a Geiszlerian game of Psychological Monopoly, *you*, on the other hand are holding all kinds of favorable Chance Cards.”

“It is not complicated,” Hermann whispers. “I simply do not want to fail and die along with my species.”

"Well *yeah*," Newton says. "Same here. I'm talking short term here though, man. Like when I waltz into your office with bad news and a bad attitude, you can just tell me to cut it out and I *may* do just that, especially if you look like you haven't slept in days. Because I am not necessarily the *most* sensitive to situational cues but I do pretty okay with the moderately obvious ones."

"I very much value your ability to give as good as you get, Newton, I am aware that I am not the easiest person to—"

Newton cuts him off by waving an unimpressed hand. "That's a whole different discussion about your totally unique and somewhat scary personal style. That's not what I'm trying to get at here, don't distract me, I'm *very*distractible."

"True," Hermann agrees, "but I don't understand what you're driving at."

"What I'm driving at is the local topography," Newton says, nearly inexplicably.

Dear Hermann, Newton had written years ago and continents away. *It is terrible here. Truly terrible. The days are spent exploring the local topography of a previously generalized fear. Specifically my previously generalized fear. I am not sure that I will make it out of Manila.*

"I feel, at times, I can picture too well how it will be," Hermann says. "The fall of the Wall. The inland exodus, the spread to the wilderness, the thinning out, the horrific sequelae, the loss of everything our species has built and only *then* the actual end. If we live to see that part of it. Have you thought about that you would do? The choices you might make? Do such things preoccupy you?"

"Well," Newton says, leaning back, tipping his head towards the ceiling as he considers the inside of his own mind, "not in the way it preoccupies you, I don't think. I can see myself consumed with the emerging granularity of small decisions on a local level, readjusting scales to the point that hour-by-hour fate choices take on the same cast that year-by-year resource allocation decisions have now. I don't picture anything in particular for myself, because I'll always want to be right at that wave front, and I don't have a reason not to be. I picture other people though, sometimes. I try to avoid it, but, you know, certain individuals stick in my head for various reasons. My mother, for instance, will not do well with the fall of our civilization. A friend of mine from Prague—he won't do well either. Mako will smash herself into something at some point; that will be hard to take. You and I though, we'll be okay, right up until the point when we're not, and then that will be the end of it. There are so many ways to die; on the level of the organism, on the level of the species, on the level of clades and kingdoms and planets and cultures. Everything has its peak and fall. You know that intellectually.

Now you just have to translate that into something that lets you sleep at night. Maybe this is the end of something, but it's the beginning of something else. Our understanding of the kaiju is nearly contextless. They have their own story, even if it might be one without an attendant consciousness. So we've played out our time and we fold back down. That's okay. That's a part of it. A part of the whole package deal."

"That is not comforting," Hermann whispers. "Do you genuinely find that comforting?"

"Well yeah," Newton says, looking straight at him with an endearing tilt of the head.

"But intellectualization is the shiniest of my personal defense mechanisms."

That is certainly true.

"Thank you for the effort," Hermann says, "but there is nothing that will make the intervening interval easier. I simply wish for it to be *over*, no matter the outcome."

"But that uncertain, transient struggle is all there is," Newton says. "All that there *ever* is or can be."

"I hope that you don't believe that," Hermann whispers.

"Of course I don't, entirely; who can live like that? But I'm making an effort to live with uncertainty a little better, because it might be all we get."

"I don't disagree with you," Hermann replies.

"So we're *definitely* getting that Japanese curry is what you're saying," Newton says, with a faint smile, sliding lower in his chair.

"Go to sleep, you atrocious man," Hermann replies. "I cannot *believe* you attempted to console me with the argument that at least the *kaiju* will live on after we die."

"I'm sure they have a whole thing going," Newton says quietly. "A whole cultural thing. A species thing. One day, we'll figure out how to talk to them and we'll say, 'can you not play on our lawn, kids? You're wrecking the flowers,' and they'll apologize and go home and then we'll be pen pals."

Hermann shakes his head and shuts his eyes.

"Everything will be fine," Newton whispers.

Hermann says nothing.

"You'll show me your math," Newton whispers, "and I'll watch you finish it."

"This is not necessary," Hermann says.

"Very few things are," Newton replies. "Now, for real, go back to sleep; you are demonstrably exhausted; you're making me tired just *looking* at you."

"You are tired because it is extremely *late*," Hermann says, cracking an eye.

"Nah man, I'm nocturnal at night and diurnal in the day. Also? I'm not going to talk to you anymore because I am, evidently, too interesting for your currently delicate state of health. Good night. I will see you in the morning; let's go out to breakfast, just give me a yes/no on the breakfast thing real quick and *then* I legit will stop talking to you, I'm just really hungry right about now and I want to anticipate my next meal. Dim sum? Yes/no?"

"Yes," Hermann says, "all right."

"Excellent. Quantum breakfast. We don't know where, we don't know with what momentum, but statistically there's *something* out there, some future—"

"Newton," Hermann says.

"Stop talking to me, *please*, Hermann. Control yourself. Honestly," Newton says, as he reaches beneath his chair to pull Hermann's computer back onto his lap.

Hermann is about to advise him that there is certainly no earthly reason for him to *stay*, no earthly reason for him to *be* here at all, why *is* he here—but before he can quite work out how to do it, Newton begins quietly humming *Strange Attractor* and Hermann decides he ought to be left to it.

Things Exactly As They Are

In the dim light of a single bedside lamp, Hermann opens a metal cabinet and removes an unadorned box.

"I mean, shit, man," Newton says, from where he has draped himself in an inebriated sprawl atop Hermann's bed. "I mean *really*."

Hermann does not believe this particular string of words merits a reply. He therefore begins unboxing sake glasses with quiet precision.

"No but listen," Newton continues. "*Listen* though. Schrödinger aside. His poor defenseless cat aside. Beer aside. Gödel aside. Dirac aside. Heisenberg aside. A *New Kind of Science* aside. The origins of our universe aside. Firecracker-induced metaphysics aside. Dead intellectual hotboxes of all kinds aside. You aside. Me aside. All things aside—"

Newton elects to pause dramatically.

Hermann looks over one shoulder and eyes his colleague in a manner he hopes captures the unimpressed skepticism he is currently feeling. He does not believe he has ever seen Newton quite *this* inebriated. Such a state does nothing for the man's ability to express himself.

"Like," Newton says, in helpless appeal, "wave functions, man."

Hermann does not quite manage *not* to smile at that comment, but it is a faint smile and one that he manages to direct at his sink, rather than his colleague. "Yes," he agrees, because 'wave functions' manages to cover nearly everything in existence and he can therefore hardly dispute the man's assertion.

"I am *exceptionally* pissed," Newton elaborates.

"About what, exactly?" Hermann replies, already understanding the implied answer but trying to pull the question into something that might serve as a lacquer over his own unfinished despair.

He pours clear and perfect sake into clear and perfect glass.

"About what. About *what*?" Newton asks, taking the alcohol that Hermann offers him and commencing what will likely be their final round of drinking for the night. "You know exactly what."

Hermann sits next to him on the bed and says nothing.

He takes a measured sip of his sake and stares at the opposite wall.

"No comment?" Newton asks, with notably delicate irony.

Hermann says nothing because there *is* nothing to say. His equilibrium has been destroyed—by this humid night in Hong Kong and its attendant alcohol, by his father's fragile Wall and the funding it's diverted, by the continuing grind of political interest superseding rational inquiry time after time after time after *time* even under the metaphorical gun of literal extinction.

"You feel me. Hermann. *Hermann*. I know you. I *know* you and so I know that you know that / know that even though (and reveal this precisely never to precisely no one) I ostensibly give you a hard time about it in a quotidian way, as it were, by Jove, and et cetera—bottom line? All the kaiju-whispering in the world is, in all likelihood, not going to shut that breach."

"No," Hermann replies, staring at his own hands, holding his own glass, full of someone else's sake.

"And a Wall isn't going to shut it either."

"No," Hermann says.

"The Jaegers will not, in isolation, *shut it*."

"No," Hermann says.

"No. There is only *one thing* that will *shut it*, Hermann," the man continues, speaking with a nonchalant, didactic arrogance that is absolutely maddening to encounter head on, but is, actually, *quite* appealing when aligned in defense of Hermann's personal interests. "That thing?" Newton says, teeing himself up for whatever rhetorical point he is about to drive home. "That thing that *will* shut it, if it *can* be shut? Is further inquiry into the nature of spacetime and what the *hell* supposedly quantum-level phenomena are doing showing up on a *macro* scale and making us take it in the neck. There's this culture, a culture that I *do not understand* by the way, of leading basic science to the edge of the practicality volcano every single time some nebulous authority figure becomes restive in the hopes that, by *shoving it in*, system efficiency will increase and the rains will finally come, when *really*? That kind of thinking ultimately sabotages the end game."

Hermann looks up at him.

"Unfortunately," Newton continues, meeting his eyes, leaning forward, snapping into rare and total simpatico, "in this particular case, the 'end game' is the ending of our

civilization. And it was always you, right from the beginning—you were the guy addressing the *etiology* of this horrific mess of a 'war', and if anyone's funding should have been preserved, should have been continued to the very end, until the *concept* of money collapsed—it was yours. They don't get it. They don't *get* it. They've *never* gotten it. The breach must be *shut*. Nothing else will fix this problem."

Hermann raises his eyebrows.

Newton begins working a finger into the tight knot of his already too-loose tie. "This *entire time*? You have been right about that. You're *still* right about that. You have had your eye on the end game for the entire metaphorical chess match, dude; and it must *suck* to feel like that guy who knows what must be done but whom no one's *listening to*, and I just—"

Newton pauses to drag his previously knotted tie into a linear drape over the back of his neck, entirely unaware that Hermann may *throttle him with it* if he does not complete his thought.

"—even though we have our conceptual disagreements? I just want you to know that I get it," his colleague finishes, managing to a) obliterate the importance of seven years of continuous arguing, b) demonstrate unusual (if inebriated) insight while simultaneously conveying c) an exhausted sincerity that Hermann very much appreciates on this night, in this moment.

Hermann's funding has been cut; he has just calculated the approximate expiration date for his own civilization; he is tired; he has not spoken with his father in eighteen months; the room is dark; the sake is warm; and the light from his bedside table glints off reflective surfaces everywhere—his mirror, his dead computer screen, the glass of sake in his hand, the metal of the walls, the frame of his bed, the pen in Newton's pocket, his eyewear, and his hair.

Circa 2025, the accelerating rate of breach transit will become incompatible with human life.

Even now, he can't forget. There will, in fact, never *be* a moment when he can forget—not until the breach is shut or he is dead.

"Two years?" Newton whispers, with an uneven smile and solemn eyes, his thoughts evidently paralleling Hermann's own. "I'd better start spending down my savings."

Hermann leans forward into a kiss that tastes of sake and salt, feels like the running lines of code in a completing model, like an inevitable iteration toward a final system state that he cannot yet see. Newton kisses him back like he's been waiting to do it—

for hours for days, for months, for years, for a decade—and perhaps he *has*, perhaps they've both been waiting for some kind of fallout from all that has been buried so long and so deep beneath the catastrophic differences in their respective personal styles.

After almost no time at all, Newton pulls back and gently drags the glass from the lax cage of Hermann's fingers before knocking back his stolen sake with unforgivable panache.

Hermann flushes, intensely self-conscious.

Newton sets both glasses on Hermann's desk, following his hands with his eyes in a manner that Hermann finds both endearing and terrifying.

"Um," Newton says, without looking at him. "I sort of figure that if we're going to cross this bridge we might as well set it on fire. Discuss."

"I entirely concur," Hermann replies.

Newton fixes him with a gaze that is the undeniable apex of Geiszlerian virescence; bright, intent, magnificent. He doesn't elect to reply in *words*, per se, he simply pushes Hermann back against the covers of his own neatly made bed, climbs on top of him, and authoritatively continues what Hermann so impulsively started.

It strikes Hermann then, beneath the ache in his hip and the sensory flux in skin that has gone so long without human contact, that this—whatever it is that they are doing—is neither a promise nor a thing to be ignored. Much like Newton himself.

Bridges burned indeed, Hermann reflects.

"Please do not think," he manages to say after a few moments, in an attempt to slow their rate of progression, "that this means I will become any more tolerant of your penchant for skipping mandatory briefings."

"Oh certainly not," Newton replies, agreeably breathless and already pleasantly disheveled. "Please do not think that this means I will be building *you* an intellectual ziggurat of any kind. No temples to math. No temples to numbers. No altars to rationalism."

"I would never assume such a thing," Hermann whispers, kissing the shell of Newton's ear. "Please do not take this experience as tacit permission to allow your studies in comparative anatomy to intrude into my workspace."

Newton shivers in a way that Herman finds extremely satisfying. "Well it's going to be hard," he replies, his fingertips tracing the line of Hermann's jaw. "But I'll make an effort.

Please do not conclude from my comments this evening that I will be calling you 'right' about anything on a regular basis."

The same momentum that has carried them here, to this point, on this bed, tangled together over a crisp coverlet, seems to preclude any undiscussed undressing. Newton's fingers trace the edge of Hermann's sweater; Hermann's fingers hover at the collar of Newton's shirt, but neither of them do more than approach that interpersonal asymptote.

"If you leave my shirt on," Newton whispers, attempting to kiss Hermann and smile at the same time with limited success, "that means you have to respect me in the morning."

"Don't be ridiculous," Hermann replies.

"I'm really not sure how I'm supposed to take that," Newton says.

"There *is* a right answer," Hermann informs him. "I assure you." He brings a hand up to run his fingers through Newton's hair, tracing the lines where green streaks once had been. "They should not have made you change it," he whispers.

"The hair?" Newton replies, pulling back and looking straight at him, his left thumb still trailing along Hermann's jaw.

"Yes," Hermann says, without sound. "That is where it all began to go wrong, I think. When the ethos changed. When we began to favor the short term over the long."

"Nah," Newton replies, smiling faintly at him. "We're humans. Short-term rewards are going to get us every time. As for where it went wrong? Well. That was somewhere in the quantum foam. You know how it is. Some wave function collapses into a shit outcome and planetside real-estate hits rock bottom."

Hermann can feel his throat close. "We're not going to survive, I don't think."

"The numbers say no," Newton says gently, "but I'm not impressed."

"I see no way out," Hermann replies, shutting his eyes against a threatening heat, "I honestly see no way."

"Oh you never know," Newton murmurs, shifting slightly and pressing his lips against Hermann's temple. "We'll find a place and we'll dig our last ditch with whatever we've got to dig it with. In the meantime, what the heck are you doing, dude, interrupting my *carpe diem* style make-out with your angsting about the fall of civilization, I mean *really*. Talk about missing the *very* nice trees for the *very ominous* forest."

"Apologies," Hermann whispers.

"Meh," Newton replies. "You're much too responsible to date me until the world doesn't end. Don't think I don't know that."

"Can you imagine if we had a falling out?" Hermann murmurs, still tracing remembered lines through Newton's hair. "It would be a disaster."

Newton grins at him, wild-edged and still, improbably, hopeful after all Hermann has told him, after the fatal spread of math he has seen. "I know."

Hermann shakes his head faintly.

Newton drops his head to rest on Hermann's shoulder, and relaxes into a sprawl. "Can I stay?"

"Yes," Hermann says, his arms tightening around him.

"Ha," Newton says. "I should compliment you more often, apparently."

Oh Gott, Hermann thinks. *Please do nothing of the kind.*

"Hermann," Newton whispers.

"What," Hermann replies.

"Please don't leave," Newton says.

"This is my room," Hermann reminds him.

"No," Newton says, in a flat whisper. "Until the end. Whatever that end is. Don't leave. Don't leave K-science."

"Ah," Hermann replies, thinking of ways to die, ways to try to live, machines he has conceived and programmed and designed and built, of the Jaeger Academy that had rejected him, years ago. "Where else would I go?"

Newton says nothing.

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