

Screamology with Dr. Harold Gouzoules

Ologies Podcast

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Oh hey, it's your sister's high school friend who is eating frozen custard in the background of a hometown date on *The Bachelor*... not really, Alie Ward. Back with an episode you're going to hate, maybe. I dare you to listen. It is packed with bananas information about the human mind, and psyche, and about fear, and power, and social contagions, and delightful squeals, but it is absolutely not soothing, whatsoever. Don't fall asleep to this, don't play this with your grandpa recovering from surgery on the couch next to you. Don't turn to me if you're having anxiety about your colonoscopy prep... not the episode. Not the episode for that at all. This one is going to tear at the fabric of your sanity and this ologist offers so much cocktail party trivia, oh boy.

He did his undergrad in Animal Behavior and got a master's in Psychology and a PhD in Zoology, a postdoc with primates at Rockefeller University, and is now a professor in the Department of Psychology at Emory where he has been since 1984. And if you have seen an article about the study of human screams, it is likely that this person has been quoted. So, here we go.

But first, thank you to patrons who submitted wonderful questions for this. You can join the Patreon at Patreon.com/Ologies for a buck a month and submit questions. Also, thanks for spreading the word about the show, telling friends, and leaving reviews which help so much. This one this week, holy shit, so worth it I'm going to put the review at the end of the episode as the secret, I want to read the whole thing.

Anyway, onto Screamology. So, the word "scream," it's said to come from a Scandinavian term meaning to terrify or cry aloud. It's a vocalization via forced air, and the term screamology was coined in the press, years ago, about this guy. So, I reached out; luckily, we had some help in booking him. We talked before the holidays on a day when Emory was having some giant fundraising drive on campus. But luckily, his office appeared to be soundproofed. So, we warmed up our voices and chatted about movie screams, which animals scream, the difference between yelling versus screaming, happy screaming, scream queens, scream kings, the decibels and distance of screams, screaming in your nightmares, boy bands, dictators, death metal, and more with plenty of examples in here that we try to keep quiet but they're in there. So, get ready with primatologist, research psychologist, and one of the world's very few, professional, dedicated screamologist, Dr. Harold Gouzoules.

Aside: Once again, that name is...

Harold: Harold Gouzoules. Gouzoules, it's a Greek name. Three syllables, so pretty simple for a Greek name. And he/him.

Aside: Kind of like someone who's been a victim of a kazoo theft and is now kazoo-less.

Harold: Hi, Alie.

Alie: Hi, you sound great!

Harold: Well, let's hope. I almost had a heart attack coming down here. Atlanta traffic is notorious, and Friday afternoon is the worst, and it just turned out to be one of those worst-case scenarios, and I was rushing to get down here and managed. And then I discovered that the campus is a very noisy place today because Emory, my university, is kicking off their

big capital campaign. So, there's music playing everywhere right now. *[Alie laughs]* Fortunately, my office seems to be tucked away just sufficiently well so it's not really noticeable. I don't know if you can hear anything in the background.

Alie: No, I can't at all.

Harold: Okay. Good, good.

Alie: Now, does your office have to be well insulated in case there are screams? Or is it just luck? *[laughs]*

Harold: Well, my lab is more isolated, and yet, the story goes, that people walk by and will hear some of the screams that we're listening to and talking about within the lab with my students and wondering what's going on. *[Alie laughs]* So, they have to hear, "Oh, that's just Dr. Gouzoules' scream research. Don't worry about it, don't panic, don't run for the hills."

Alie: How long have people been calling you a screamologist?

Harold: Only quite recently, as a matter of fact.

Alie: Really?

Harold: Within the context of ologies, I would first be a biologist, that's where my degree is in; it's actually in zoology, my PhD. And I'm working in a psychology department and have been for 37 years, if that can actually be true. Here at Emory, yes. And my training is in ethology, which is the study of animal behavior. And the animals I work with, mostly, are nonhuman primates. So, technically I'm a primatologist as well.

Alie: Augh! You're so many ologies under one roof!

Harold: I am a lot of ologies! *[Alie laughs]* I was talking to a reporter, I don't know, a year and a half ago, and he said, "Is it okay if I refer to you as a screamologist?" And at the time I thought, "Hmm, that's a little off, but go ahead if you'd like, if it's something that would enhance your piece, please, screamology would be fine."

Alie: Well, it's lucky for me because after that came out, I had a lot of people screen-capping it and saying, "There's a screamologist, you have to find him. *[Harold laughs]* Please ask him everything, please find him right now." So yeah, I've had my sights on you for a while. *[laughs]*

Harold: Oh, well that's cool. I must say that my daughter-in-law is one of your biggest fans. When I mentioned the possibility of this interview, she was so excited! So, that was really cute.

Aside: So yes, thank you for vouching for us Sam, we absolutely owe you one. I know that you would expect this episode in October everyone, but right now it's January and it's cold and the snow is dirty and slushy, my roof is leaking, is it a good time to bellow your throat raw?

Alie: What would you say, time of year, as a culture, people scream the most? Do you think it's in the summer when people are getting squirted with water guns? Is it during haunted house season? Is it when they get their bills after the holidays? When do we scream the most?

Harold: That is very interesting. I don't think I've ever had that question, but I would say, people in general, you probably hear more screams outside in the summer and they come mostly from children because they're at swimming pools, and playgrounds, and just a lot of social

interaction. As any parent and most adults can appreciate and know, children just scream all the time when you get them together. ["Marco!" "Polo!" "Marco!" "Polo!"] So, I would say summer. I think probably that's what I would think.

Alie: Yeah, that was my hypothesis. I'm glad that it holds a little bit of water.

What is a scream and who does it? What animals can we classify as screaming? What's the difference between a call, and a behavior, and a scream?

Harold: Right. Screams are a particular category of vocalization in the repertoire of many different species. We can come back to that in a bit. There isn't a precise and absolutely formal and totally accepted definition of a scream. But there are key features of screams.

So, in terms of the length of a particular utterance, it would be from half a second to about a second and a quarter, maybe stretching it to two seconds, but anything beyond that begins to sound unnatural. Screams are high-pitched and there are often harmonics around the fundamental frequency. But screams also break into chaotic noise as well, so they're not pure tones, although some people tend to produce screams that are more tonal and frequency modulated, and others have more noisy, harsh-sounding screams, so there's some individual variation as well.

There's an acoustic parameter that's referred to as roughness, it's rapid variation in modulation of amplitude. Fluctuation in a particular range is characteristic of screams. There's one group of researchers, Luc Arnal, has claimed that in fact it is definitive that that is what inherently categorizes a scream. But subsequent research has shown that other kinds of human vocalizations also have this characteristic of roughness so it can't be exclusive to screams.

Aside: You know what, let's go through a couple quick vocal basics here, shall we? So, frequency of the soundwaves determines their pitch and that is measured in something called hertz. The amplitude is the height of the soundwave and that determines the volume. Amplitude is measured in decibels, which you've probably heard of.

So, the roughness, what does the roughness mean? That is the rate of change in volume, and the more the volume fluctuates in a scream, even though it seems imperceptible to you, it'll land as more shrill, and it'll probably freak you out more. Infants crying exhibit roughness, as does a human whistling, just in case you've ever heard either of those and just wanted to put on earmuffs and then just descend into a sewer hole in the middle of the city street when you hear it... that's normal.

Harold: So, coming back to your question... We all recognize screams. One of the projects that we did was to play screams and other kinds of vocalizations, including yells, and moans, and laughter, and even sounds like sneezes. I it sounds like a simple, silly little project but what we were looking to see is whether participants agree as to what constitutes a scream. And with humans, of course we scream in a variety of different contexts, ["I'm literally screaming right now."] and that we can come back to later perhaps because that distinguishes us from other species. I know that was part of your question, what other species scream?

So, we were interested to see whether people agree as to what constitutes a scream. So, "Independent of formal scientific definitions, do we know a scream when we hear it?" And the answer is very clearly yes. [*faint, croaky ah-ha scream*] Species that scream very considerably; some species of frogs scream, you pick up the frog and it produces a vocalization that is clearly scream-like. [*shrill and somewhat squeaky, sustained scream.*]

Alie: Wow.

Harold: Rabbits scream. There are very popular... and you can probably find it. There are videos of rabbits screaming. Somebody picks the rabbit out of the hutch, out of the cage [*multiple high pitched, short screams*] and it just belts out a scream that is so humanlike and I think it gets a lot of hits, gets a lot of clicks because people just find it so funny that a rabbit sounds so humanlike. And goats as well.

Alie: Yes! I was going to say, I've seen videos of goats screaming and it seems like someone is dubbing over it. [*prolonged, very humanlike scream*]

Harold: I know! Yes, that's a perfect imitation of a goat scream by the way. But yes indeed, they're all humanlike. And what that says is that as a vocalization type, screams are evolutionarily conserved, so they don't vary all that much. People find it surprising that animal screams sound as much like human screams as they do.

Aside: Do they though? Well yes, according to the Google search that I started with "What animal sounds like..." that then auto-filled, "a woman screaming." So apparently, a lot of people hear a red fox and then call the cops. [*four screams in short bursts*] Barn owls [*extremely shrill screech*] sound like your ancestor coming back from the grave to haunt you for taking such bad care of your skin. Even caterpillars apparently will yell their heads off, as evidenced in this YouTube clip uploaded by Matt C, whoms fingers I'm assuming are the ones in frame gently squeezing the butt of a neon green moth larva. [*a couple of squeaks*] But that air, I learned, is likely coming out of spiracles, so scientifically not a scream. A scream itself is when air is passed through the vocal cords with greater than usual force. My friend Workipedia says this can be performed by any creature possessing lungs, including humans. So, larva and spiracles, I'm sorry, you're just doing some kind of respiratory fart at anyone who squeezes your butt, I don't blame you.

But yes, according to Dr. Harold Gouzoules, screams require a lot of vocal force and cause the vocal folds to vibrate in a chaotic, inconsistent way. So, that is some of the what, but onto I why.

Harold: And of course, if we want to dive into some of the evolutionary questions, the original screams in species like frogs and rabbits, probably served as a way to elude capture by a predator. So, if a predator has you in its grasp and it's the last-ditch effort in a sense, to escape, a loud, sudden vocalization could sometimes, at least occasionally, startle the predator, and give the prey, the victim, some small chance of escape.

There are also suggestions in the literature that screams could attract other predators and thus thwart the efforts of the first predator that's got the prey. So, by screaming, it attracts attention. That's another characteristic of screams, they definitely attract attention by listeners. So, that's how screams probably started, as one way to defend against predators and predation.

Aside: Okay, but frogs don't gather at the pond, giggle screeching during water fights, or turn trees into money and then give that money to other frogs who have created a haunted pond for them. So, what's happening in primate brains, like mine?

Harold: But then, in the evolution of sociality in species like monkeys and apes, where complex social interactions are dictated and governed by vocalizations, screams come to serve another purpose and that is to solicit support from your friends, your allies, your relatives. And especially in the context of dominance interactions, because as you might know, in monkeys and apes, it's not how big, how strong, how tough you are, it's who you know.

[*Alie laughs*] So, your allies... In the monkeys that I've studied in the past and continue to be interested in, the social relationships are primarily among females and female matrilineal groups; they're the lifelong residents of the social group. Whereas the males hightail it out of the group at sexual maturity [*"See ya."*] and find their way into another group for mating and to live the rest of their lives. But the females stay together for their entire social lives, and they help one another develop and maintain their dominance position in the social group.

And of course, if you're going to have an ally, you need a way to recruit that ally. So screams, again acoustically similar to what you see in frogs, and rabbits, and goats, and so forth, evolved in a more complex way and diversified acoustically so that the monkeys can communicate more subtle details about the fights that they're in. Is the opponent dominant? Is the opponent subordinate? Is the aggression intense or is it modest and mild?

So, what we think happened is that at least within the context of fights and what the scientific literature refers to as agonistic interactions, there has been diversification to send more subtle and nuanced messages about what kind of fight and who the opponent is. And that's information that's pertinent to an ally, a relative for example, the mom of the victim or the sister, who might be out of sight, foraging in dense vegetation or something, but it hears the vocalization and of course, that implies that it has to recognize who the screamer is and it's very clear that that's the case: it's my daughter, it's my cousin, it's my aunt. And they come to the rescue and intervene in a way that is consistent and appropriate for the kind of fight that is taking place. That's information that they get through the scream. [*"I'm learning a lot."*]

Alie: And is there something about the frequency or the amplitude of the sound that hits our brains differently because of instinct and genetics? Or is that something that really has to be learned by primates from a young age through social connections and responses?

Harold: They scream naturally, and even human babies, in their first vocal efforts, crying is of course distinct and separate from screaming but screams can be part of the vocal output that very young babies produce.

Aside: Any new parents out there? Maybe you're up nursing at 4 AM or whatever, just think of your baby as emitting vocal output, not screaming. Maybe that'll help you not want to stuff it back into your womb for another year, I don't know, I have a very old, quiet dog so I'm not sure how it works. But when it's a happy child, and it's shrieking in delight, just know that in Dr. Gouzoules' speculation, it's doing that so that if a large raptor swoops down and tries to pick up your small child out of a group of many small children and your back is turned you think, "Wait, that sounds like the spine-tingling yell of *my* offspring!" So, thanks evolution! Also, do we learn this or is it just hardwired in our jiggly goopy complex brains?

Harold: I don't think you have to learn to scream. The question is whether or not humans have to learn to distinguish different kinds of screams that we produce in different contexts. Because of course, unlike other species, as everybody knows, when you point this out, they all nod and say, sure, humans will scream in fear, pain, aggression, frustration, excitement, particular forms of excitement like sex, [*"I'll have what she's having."*] and in startle situations. Lots of people including my wife will produce a startle scream when she sees a cockroach or some people with a mouse, that kind of situation.

Aside: So, the core of a screamologist's job is to figure out if humans can distinguish screams in different contexts and to note what the hell is up. Man, I hope they collect some kind of huge catalog of screams, that would be amazing.

Harold: One of the ways that we've done that is to collect a huge catalog of screams. We've got, literally, a scream library that has been harvested from the internet and YouTube because of course, as we know, everybody posts their entire life history on the internet these days. So you can see, there are many examples of naturally-occurring real screams that we can use in the research. And then of course there's the opportunity to take screams from TV shows or movies and those acted renditions of screams.

Alie: How has your research changed over 37 years as people have more access to recording devices and platforms to share them?

Harold: Oh gosh, yes it makes a *huge*, huge difference to how the research is done and what is possible. Back when we started, it was my wife and I that began studying screams when we were postdocs at the Rockefeller University in New York.

Aside: Wait, is this screamologist married to another screamologist? ... I'm screaming. So, Dr. Sally Gouzoules spent time as a behavioral biologist working with nonhuman primates and also worked with some human primates, namely Harold.

Harold: And we were working with a very prominent... primarily he was a bird researcher, Professor Peter Marler was his name; very well-known animal behaviorist. And he kind of dabbled in primate vocalizations as well. His primary research was in birdsong and birdsong acquisition, but he always wanted to have some graduate students and postdocs working on primate vocalizations. And the pair of researchers who had preceded us in his lab had studied alarm calls in a species of African monkey called the vervet monkey.

That work revealed that this species of monkey had evolved different kinds of alarm calls, acoustically different alarm calls, that they gave in response to different kinds of predators and the primary predators were leopards, martial eagles, and pythons. Now, those predators hunt and attack in different ways, they have different strategies. And thus, the response to the presence of one of those different kinds of predators will be different. So, you can't make do, if you're a vervet monkey, with one kind of alarm call. They had to come up with a system that had different vocalizations, in essence, associated with predators.

Aside: So, you waltzed into this episode, casual, maybe leaned against a wall and thought, "This is just going to be about horror films." But now you know that monkeys can straight up talk... well, if you ask me. But is it talking, is it language? So Harold, an ape, uses language to make speech about the history of the perception of communication.

Harold: Dating back to Darwin in 1872, he published, *The Expression of the Emotions in Man and Animals*, and 'expression of the emotions' is the key part of that title because that is when everybody believed animals communicated about, their emotions. And that remained true and that's what was the conventional wisdom about animal communication, that while we humans can, with language, talk about the external world and anything we can imagine, animals were restricted to communicating about their emotions: aggression, fear, sex. But that vervet monkey work that came out in the late 1970s and early 1980s revealed that there were some animals that could use vocalizations to index, to refer to particular occurrences in the external world, namely the presence of different kinds of predators.

Aside: Wait, so what is screaming and what is a warning? Is screaming emotional but alarm calls are informational?

Harold: Alarm calls, people sometimes confuse alarm calls because screams can be alarming but in the animal behavior literature, when they talk about an alarm call, it's a specific kind of vocalization that refers to the presence of a predator. Whereas a scream, you can scream when a predator has you in its jaws but that's not alerting others about the presence of that predator, that's a different kind of evolutionary adaptation to avoid being the dinner or the lunch of that predator.

Aside: So, as a postdoc working with monkey screams for science, Harold was listening for vocalizations that might convey information about external events. So, were they screaming for help? And so, by playing tapes of their alarm calls they could learn who showed up for whom, and hopefully that did not cause a lot of monkey rifts from just sewing distrust like a monkey who cried leopard. Anyway...

Harold: We've pursued it in different ways with different species of monkeys, looked at the difference between males and females, because as I mentioned earlier, the males end up leaving the group that they're born into, and they enter a group, and they don't have allies. Maybe they might have a brother or a cousin who also migrated to that same group, but it's the females that have these persistent, long-lasting social relationships, and they tend to scream. Whereas males drop screaming from their repertoires as they reach sexual maturity.

Alie: Really?

Harold: Yes, in these monkeys, mm-hm.

Alie: And is that a learned social behavior then? To not scream so as to differentiate yourself from the females?

Harold: Well, it does indeed seem to be learned but it's learned because when a male screams, he gets attention, unwanted attention, from the dominant males [*"You talkin' to me?"*] and sometimes even high-ranking females. So, what we think and what has been suggested in the literature is that because they get attacked when they scream, because they draw attention when they scream, they just stop screaming.

Alie: [*gasps*] So, males stifling their emotions.

Harold: I think so.

Alie: [*laughs*] In other species as well.

Aside: Dudes out there, let it outttt. You're huuman. Scream it into a jar, release it on a mountain top like Yosemite Sam, or those people who sell their farts on Etsy.

Alie: What about in humans... is there a biologic sex difference or a learned gender difference in terms of who screams when?

Harold: Well, just in terms of your experience, what would you think?

Alie: I would say we think people who identify as women would scream more than those who do not.

Harold: That's a very well-stated hypothesis and I agree. I think if you look on YouTube again, in particular contexts, there's some interesting contexts such as opening a present. Everybody again records Christmas and birthdays and it's up on... and you can see when

somebody opens a present and it turns out to be unexpected and just terribly exciting, often there's a lot of screaming. [*very high-pitched screams from young girls*] but who does that screaming? It's young girls, it's women. I've never seen a boy or an adult male scream in that kind of context.

So, there are, at the very least, contexts in which there are gender differences in terms of the production of screams. Think about the movies. We've been watching James Bond since the 1960s and all the different actors. Have you ever heard James Bond scream? I don't think so.

Alie: No, of course not. But that's so probably cultural too and engrained...

Harold: Oh, I agree, absolutely.

Aside: One notable exception though is Daniel Craig in *Casino Royale* being tortured. [*several screams and grunts*] Okay, so to sum this up, he's getting whipped in the nards with a ship rope and being told that he won't be recognized as a man when this guy is done with him. But since emasculation is apparently illegal in the bond universe, his screams turn into kind of a sexualized joy [*more screams, which then turn into shouts of, "Yes! Yes."*] and then victory. Sorry, spoiler!

Harold: It's not that men cannot scream, they certainly can. Those aggressive screams, just to go back to the movies... Have you ever seen the movie *Braveheart* with Mel Gibson?

Alie: Yes! Yes, of course.

Harold: The fights between the Scots and the English, they're prefaced with these loud, aggressive screams on the part of the Scots. [*bagpipes playing, unified screams*] Screams are used as a way to intimidate opponents as well. It's not that males don't scream, but they don't scream in the kinds of contexts that women tend to scream in.

Another interesting difference is rock concerts. I've thought about this a lot. It's not anything that could be easily tested in a formal scientific way but again, we've all seen footage of the early shows, Ed Sullivan and The Beatles, and so forth. [*"Ladies and gentlemen, The Beatles." crowd erupts in high-pitched screams*] And who is it that's doing the screaming? It's the young, female fans. That's true before The Beatles, when it was Elvis Presley, before Elvis Presley, Frank Sinatra, and after The Beatles, One Direction, and Justin Bieber... it goes on and on.

And even with a concert with somebody like Katy Perry, megastar, attractive, but you don't get that kind of screaming reaction that you do with the boy bands. So, it's an interesting question, why is it that there tends to be this difference in certain kinds of contexts? I've kind of playfully suggested, and I hope no one finds it offensive...

Aside: Hey, this dude is a literal screamologist and he's got an idea.

Harold: But it seems to me that the screaming in that context is almost competitive. It's not conscious, I don't believe it's conscious, but I think there's emotional contagion and the arousal level tends to be expressed, not in yelling but in screaming. And it might be in a sort of evolutionary sense, a way to say, "Look at me." Again, screams always attract attention, and by screaming perhaps these mega stars are what is prompting the screaming.

Just a little less fun example of that, there are historical descriptions of the Nazi rallies with Hitler in attendance and young women screaming. [*Alie gasps*] And again, it's not just

culture, and the presentation of rock stars and so forth, and the tradition of screaming. I wonder if when Cesar went down the streets of Rome whether there was screaming as well? But again, it was the women who screamed at Hitler, for Hitler.

Alie: Oof!

Harold: It's a really interesting phenomenon, something that would be challenging to test or to explore in a more formal scientific way, but just as an observation, I think it's quite strikingly interesting.

Alie: Yeah. You know, it's funny my mom and her sister saw The Beatles in the '60s and somehow their picture got on the front page of *The Chronicle*, just in a picture of screaming girls. And my mom and her sister still assert that they each made eye contact with a different Beatle that night and [laughs] I think it's interesting to think, "If I scream loud enough, maybe they'll look in my direction."

Harold: Indeed! I think it's an interesting hypothesis. There was a student, of course my student... I teach animal behavior here at Emory and most of them know that I'm also interested in screams and human screams. And one of the students came up to me after class one day and said, "I've got a story for you Dr. Gouzoules and I think you might find it interesting. A year or so ago my parents asked me, no they told me, that I would have to go to a Justin Bieber concert with my younger sister." [Alie laughs] She said, "I hate Justin Bieber, I'm not a fan, I did not want to go, I knew I would be embarrassed." But as a good older sister, she went to the concert. But here's the funny part. She said, "Despite my best efforts, I found myself screaming."

Alie: Oh no! [laughs]

Harold: Yeah! It was hilarious. But again, it suggests that there's something infectious, emotional contagion, if you will. So, many unanswered questions, especially in that arena.

Alie: What about the catharsis of a scream? Why does screaming sometimes feel so good, or relieve pain, or feel like an outlet?

Harold: It does. You know, years ago and I think it was in the '60s and it's now discredited and no longer talked about but there was something called the primal scream. I don't know if you've heard...

Alie: Yeah, yeah.

Harold: And the idea was you could feel better if you just let it all hang out through screaming. Again, not just yelling but screaming in particular.

Aside: So, screaming is, remember, and nonverbal vocal expression. To shout generally means saying something at the top of your volume. Yelling is supposed to mean unarticulated wailing, no words, just sound. But I feel like we use yelling to mean shouting. Let's say that you broke curfew and your mom yelled at you, but it was actual yelling, just like gibberish shrieking, you would probably get home earlier next time. Although Harold makes the point that sometimes, when we know what we're getting into, the spike of an alarm can feel good so we toss money toward roller coaster terror and pay to get chased around Knott's Berry Farm by actors holding chainsaws.

Harold: And why is it that we do that? Why do we like to be scared? Again, we can speculate. I think that screaming has been so important in the evolutionary past that in essence practicing is something that is advantageous, and our brains treat it as rewarding.

So, you could look on YouTube and search for scream contests. [*“They say everyone’s good at something.” Man screams. “For these people, it’s screaming, and they pitted themselves against each other to win a screaming contest.” shrill, very long woman’s scream.*] They involve people, often a pair of people, young girls tend to do this more often, again. But they’ll scream, and they scream in a competitive way: one screams, the other screams. Who screams louder? Who screams longer? Little kids will do that. It’s something that is done socially, and I think what it does is expose the people that you’re close to, your friends, your relatives, to the particular renditions of a scream that an individual produces.

In terms of a vocalization for permitting individual recognition, screams are not ideal and that’s because the air is forcefully projected through the larynx and through the vocal folds in a way that produces chaotic vibrations. Chaotic in the sense that they’re not as predictable as normal speech is. So, very quickly we can get familiar with someone’s voice and recognize it when we pick up the phone. But the theoretical literature would suggest that, for screams, that’s not the case because there’s that lack of predictability.

A quote I like from *Jurassic Park*, “Nature finds a way.” So, from the origin of screams, again to deal with the imminent death due to a predator, you have to, in essence, expose your friends and relatives to the kind of scream that you produce. That’s maybe why kids scream as much as they do. In essence, they’re driving their parents nuts and the neighbors nuts [*“Enough with the freaking Marco Polo!”*] but through that effort, again evolutionary, it’s nothing conscious, needless to say, that exposure to screams allows for more ready identification, “Oh, that’s my kid.” So, maybe that’s one of the reasons that we tend to scream, and enjoy screaming, and actually seek out experiences that prompt us to scream.

Aside: Okay, but what if you’re on the other side of the chainsaw and you’ve been paid to scream?

Alie: Does a scream have to be an utterance that is, kind of, unintentional, like it just has to come out of you? Or does it still count as a scream if you are consciously going [*fake screams*]. Is that a scream or not?

Harold: Sure. And of course, actors, good actors do that all the time and they convey an emotion through a scream and, presumably, they’re not experiencing that precise emotion. I’m not an expert in acting techniques but I understand that sometimes they will try to generate or create the internal state, the emotional state that would allow for the production of a scream or other kinds of emotional expression. But some people are really good at producing, let’s say, convincing screams. And that’s one of the studies that we did, we presented participants with real screams and acted screams and asked them to judge which were acted and which were real. They were terrible, they couldn’t do it.

Alie: Really?! Really! What kind of movies did you pull from? Was this Meryl Streep or was this a horror movie on the Hallmark channel?

Harold: [*laughs*] A range, dating all the way back to one of my favorites because I’m a primatologist and interested in screams, the original *King Kong*, 1933 with Faye Wray. [*“Scream for your life!” Faye Wray screams*] As you probably know, they coined the term scream queen back then, so these are people like Faye Wray, Jamie Lee Curtis, Kate Capshaw, Kim Basinger, Phyllis Coates, probably not a name that you would recognize but she played Lois Lane in the 1950s *Superman* TV show, had a very distinctive scream, I’d recognize it anywhere.

[“I’m in trouble Jim and if...” Two big screams. “Hello? Hello, Ms. Lane?”] Of course, she was always screaming for Superman to come aid her.

I’m so familiar with people who scream in movies, actors and actresses, and so forth. I had a subscription to Netflix for a while where I was getting DVDs and I’m sure the algorithm pegged me as just [*Alie laughs*] the biggest horror film fan out there but actually I was harvesting for screams [*both laugh*] for the research.

Alie: It was work-related.

Harold: That’s right.

Alie: Can I ask you questions from patrons, listeners?

Harold: Oh, of course!

Alie: Okay, good. I told them you were coming on, I sent them a link to your ResearchGate, and they have a bunch of questions. So let’s just lightning round, let’s see how many we can answer?

Harold: Okay.

Aside: Before we dive in, let’s take some cash we’re going to toss it at a cause and Dr. Gouzoules would like to point that money toward the American Diabetes Association which educates the public about diabetes and helps those affected by it through funding research to manage, cure, and prevent diabetes. So, that is the American Diabetes Association. So, cha-ching, Team Pancreas. That money toss was made possible by sponsors of the show, whom I like.

[*Ad Break*]

Okay, let’s get to your blood-curdling curiosities. A bunch of you, Ivelisse Sanchez, Jodie Pierce, Gerald Thompson, Alora Smith, Paige McLachlan, and Alicia Rae Bell, asked Harold to simply play favorites. Nathan-Andrew Leaflight, you’re going to like this; I read your question.

Alie: Madison Stewart and a bunch of other listeners, want to know: Who has the best movie scream?

Harold: Well, I would just out of sentimentality go for Faye Wray and that is because it combines primatology [*Alie laughs*] and screaming. So, I would say Faye Wray.

Aside: Faye Wray, a classic starlet in an era full of helpless heroines. She shrieked her way into forever fame via *King Kong* and if you’re thinking, “Wow, a classic 1933 Hollywood picture show for me to watch.” Well, some undertones of the film can be pretty socially jarring nowadays. How so? Well, for more on that you can see the work of Argentinian sociologist of culture and the arts, someone named Juan Antonia Roche Cárcel, who wrote a whole paper about the intersection of the 1929 financial collapse and the Great Depression and then the subsequent xenophobia that started to appear in horror films, and essentially the fear of the other. We could do a whole side episode just on this aside but I’m going to link his work at my website.

But did the ingénue, Faye Wray, did she gasp and scream in her final breaths? Nope, no. Lucky for her, she lived a long 96 years and she just died peacefully in her sleep. But what scream queens took over for her?

Harold: I’m trying to think, which of the Harrison Ford movies Kate Capshaw was in...?

Alie: Oh, *Indiana Jones*?

Hg: It was one of the *Indiana Jones*, the one with Kate Capshaw. And she gives just a stellar performance in terms of screams and different contexts. It's really quite amazing. [*"Indie!" long, sustained, shrill scream*] Another example is Kim Basinger in the original *Batman* with Jack Nicholson. [*short, high-pitched scream.*] She produces screams in a wide range of contexts and she's great too. So, I've got a number of favorites. There's no such thing as a scream king.

Alie: Yeah, I was going to say, what men scream... out of surprise or...?

Harold: There are some.

Alie: Yeah, there's got to be some, right?

Harold: Do you know the TV show *New Girl*? It was on a few... five, six years. I'm blanking on the... Nick, who played Nick? The actor.

Alie: Oh... It starts with a J, but yes.

Harold: Yeah. I'm blanking on it. It'll come to me in a bit.

Aside: If you've watched *New Girl*, you've been screaming "Jake Johnson! His name is Jake Johnson." He played Nick Miller on *New Girl* and my ex-boyfriend Michael used to wait tables at a Vietnamese place in LA and said when Jake came in, he was really nice, so I just wanted to tell people that.

A few other scream kings just to name check 'em, they deserve it. The film critic Rachel Roth says that their rise is really the result of female characters being more than just monster bait, so that people who identify as males could start to be the screamers. And Roth says that Bruce Campbell of the *Evil Dead* movies is a total scream king, so is Evan Peters in *American Horror Story*, and Daniel Kaluuya of *Get Out* is also worthy of the Scream King scepter. But yes, Jake Johnson, a certified, top-notch, man of hollers, as deemed by this professional screamologist.

Harold: He's got an interesting scream. [*collection of Jake Johnson's various screams*] and he uses it to great effect in that show on multiple occasions. Startle screams, he gets startled...

Alie: What about Homer Simpson? I think he's a scream king. [*range of Homer Simpson screams to the tune of The Simpsons theme song. Homer: "Thank you."*]

Harold: You know, I'm not a huge fan of *The Simpsons*. I have to admit something, I don't think I've ever watched an entire episode of *The Simpsons*. [*sad "D'oh."*]

Alie: If you just look up Homer screams, he has a very iconic... it's a little bit like this [*Alie mimics Homer's quick bursts of shrill screaming*]

Harold: Okay, oh I've heard that, I've heard that. And of course, there's the classic Wilhelm scream.

Alie: Yes! How do you feel about that?

Harold: Well, it is something that obviously we've been aware of, I've been aware of from the start of our human scream research. It's something that you have to take into consideration when you use screams from movies and TV. I recognize it all the time.

Aside: So, the Wilhelm scream, just a little background. It's a stock sound effect that was originally recorded in the 1950s for a swamp scene and it was labeled on an old reel, "Man being eaten by alligator," and the man being actor Sheb Wooley. And decades later, the

sound designer for *Star Wars* tucked this scream into a scene of Luke Skywalker shooting a stormtrooper off a ledge, and folks were like, “Nice.” So, then they kept using it. And once you know the scream, you’ll hear it over and over again in movies. It’s kind of like a little sonic treasure embedded, just for you. It’s been in *Transformers*, *Lord of the Rings*, *Toy Story*, *Wonder Woman 1984* also used it, so did *Tron*. *Cloudy with a Chance of Meatballs* popped it in there. It sounds like this. [*short scream, loud at the beginning, then fades*]

Harold: Of course, there’s superimposition of a scream for some individuals, but they tend to be not the main stars. So, the way I describe it... Remember the original *Star Trek* and the people that always got bumped off in the first few minutes were what I referred to as “the red shirts” and I think that’s actually a term that is used by the fans of the show. They’re just the crew members that get bumped off by the alien or whatever evil is out there. And you know, they’re not going to be producing screams. If they scream it’s going to be a Wilhelm scream bite. [*Alie laughs*]

But you look at somebody like Kim Basinger over her career in the different movies and you get screams from different movies, it’s she who is screaming, there’s just no doubt about that. So again, it is something... it’s a fascinating question. And the classic Wilhelm scream is so recognizable and inserted by Spielberg, and George Lucas. It’s just an in-joke for them to sneak it in, again in a lot of the Harrison Ford movies.

Alie: It’s become a meme almost, in its own.

Harold: It is, it is. Absolutely.

Alie: Correct me but did your research find that actors tended to scream longer? Or the less believable screams were the ones that were longer?

Harold: If they extend, again in that domain approximating three seconds, then that tends to be deemed less believable, yes.

Alie: That makes sense.

Aside: For more on this, you can feel free to cozy up in your little reading nook with Harold’s 2021 paper, “The emotional canvas of human screams: patterns and acoustic cues and the perceptual categorization of a basic call type.” And that research was conducted, and Emory’s bioacoustics lab and they used screams collected from movies, and TV, and ads, and YouTube videos, and some commercial sound banks. I read the details of the study and it said that, you know, for experiments like this, where they’re hooking volunteers up to what sounds like people dying, there is an institutional review board that has to sign off on it. But the volunteers gave informed, written consent, they got class credit for completing the study, no word on what happens if they bounced after 2.12 seconds, which is the average duration of an angry scream, those are the longest.

The study also showed that happy screams clock in around 1.5 seconds. Fear and pain screams both about 1.3 seconds in length. And the shortest type of scream, quick and easy ones, frustration and surprise. So, gasps and grunts, each at about a third of a second, just in case you have to fake it for anything, now you know. Now, the loudest of all of those? Also anger, which was the longest. So, [*inhales*] take some deep breaths, maybe go lock yourself in your car... go rip out a few.

More on that in a minute but while we’re here some patrons including very quiet, first-time question-asker Brixton Moss, as well as Brecken Hart, and Boreal Becca had volume inquiries.

Alie: First-time question-asker Tony Vessels, and a ton of other listeners want to know: How far can a scream travel and still be heard? Essentially how loud can a human scream?

Harold: Right, that's a great question. We first noticed in studying monkeys that you could be hundreds of yards away and hear screams. That's certainly true with the screams from children at the swimming pool near our house. I'm just amazed, always. You can't hear the conversations, but you can hear the screams. Of course, it would depend upon the acoustic features of the particular environment; if you're in a concrete canyon, the sound will be transmitted further than in a forest, for example, but hundreds of yards at the very least, I would say.

Aside: So, given that screams are a defense against predation, this brings to mind one of the most chilling opens to a book I've ever read, the book *Helter Skelter*. I think it may have been the only page of the book I read having picked it up in middle school because my future crime reporter sister, Celeste, was reading it. But it starts:

It was so quiet, one of the killers would later say, you could almost hear the sound of ice rattling in cocktail shakers in the homes way down the canyon. The canyons above Hollywood and Beverly Hills play tricks with sounds. A noise clearly audible a mile away may be indistinguishable at a few hundred feet.

And that imagery always stuck with me, and as an Angelino, I could say it is not comforting.

But let's say that your life isn't in peril and maybe you're just screaming for clout. If you're a middle-aged blonde woman named Jill Drake, you could set the world record for the loudness of a human scream. She practically blisters paint at 129 decibels, somewhere between a chainsaw and a nearby gunshot.

But what if you can't do it? Asked patrons Rahala, Danielle Burs, Rachel Kendrick, Nina Eve Z, Jessica Kleist, Leah, Alia Myers, MB, Felix Wolfe, Robin Juehn, Jenayle McIntyre, and first-time question-submitters August Syfritt, Lyssa Mercier, Frenck Hendrix, and Kim Hamlin. And as someone who has had strangers point kitchen knives toward her throat, not on a movie set but just on Beverly Boulevard in LA, I could tell you that screaming loud is harder than it looks, or sounds.

Alie: Okay, I'm a person who has been mugged; I survived. But for myself and for a lot of other listeners including Sunni Brimsy, Maren Ellis, Bridget Lawrence, Francesca Huggins, a lot of people wanted to know, in Maren Ellis' words: Why can't my screams come out loud when I'm distressed? Yelling for one of my munchkins who is in danger, my scream comes out hoarse and almost muffled when I need it to be loud and alarming. And Sunni wants to know: Why is it sometimes when someone goes to scream, nothing comes out?

Harold: I had somebody contact me, it was a young woman in Australia. She emailed me and said, you know, "Have you ever heard of this situation? I cannot scream, I've never screamed in my life." So, it wasn't restricted to a particular dangerous situation or an attack. She said she was incapable of screaming. I had never heard of this, and I don't know that it has been defined or characterized in the psychological literature. Again, she said, "It's not that I don't feel emotions and it's not that I can't express emotions in other contexts, but I can't scream."

So, people vary just, a lot. Some people are more expressive and have more control over the vocalizations and so can consciously produce a scream whereas other people can't. I don't think I could scream. I think some people's thought process, especially in the context

of imminent danger might proceed rapidly enough that they assess whether or not the screaming will make the situation worse. But I don't know, I'll be thinking about that some more.

Alie: Good. Let me know if you ever need to do some research on someone who couldn't scream when she was in grave danger because I'm one of those people.

Aside: If you're like, "What if a demon tries to kill me in my sleep and I can't scream?" It seems like the perfect time for a demon to kill you. But I looked into it, and the reason you can't scream in a dream is because of a fancy little feature you have called REM sleep muscle paralysis or muscle atonia, which is your brain's way of keeping you in bed and not really swinging at a T-ball with the guy from Maroon 5 or whatever you're dreaming about. So, your motor neurons are like, "Gone fishin' bitch," and they are not going to do your bidding or your pharynx screaming, even if you're doing it in a dream. So, that one's for you, patrons Taylor, Hanna Vaughan, Alicia Penney, Lily Honey, Kelly Shaver, Katherine PG, Arianna Mattson, and Jade Pollard.

However, bonus round. In my, I-drank-coffee-too-late problems I had this week, I did find myself pouring through a vintage 1998 study out of Japan and it was translated to, "Screaming during sleep in patients with Parkinson's disease," and it analyzed the really high rates of sleep shouting and screaming in Parkinson's patients who, because of lesions in the mid and lower brainstem, don't have that muscle suppression during REM sleep, so they do scream in their sleep.

But in the hardest part of the day, the waking hours, - [*soft voice*] JK I'm fine - why does screaming seem to be the BFF of anger and stress? Asked vulnerable but relatable patrons Sophie Trinacty, Bee, Stephanie, and Kay, who drives around alone, shrieking, to blow off steam and is one of us, all of us.

Alie: Is there something cathartic about raising your voice in a situation where you're angry or you feel like you need to be aggressive to be listened to?

Harold: I don't know how cathartic it is, but it certainly is more effective. I don't think parents want to scream or should scream in front of their kids. And I don't mean just raise your voice. There's a distinction when we say, "I screamed to him, 'Stop it!'" That's language. We can talk about screaming meaning raising the voice, loud, maybe harsh sounding, but that's still language. When we talk about screams, we talk about that non-vocal utterance that rabbits, and goats, and monkeys, and apes, and we are capable of producing.

Alie: That's a good distinction to make.

Aside: And just a backtrack to the catharsis of a scream. So many of you, honestly like 50 of you, you know who you are, I love you, wanted to know: Why screaming feels good? And the short answer may lie in the long answer, beta-endorphin neuropeptides. There you go. So, that's some wonderful juice that your hypothalamus and pituitary glands squirt out in response to food, and sex, and apparently, screaming.

But let's say that the gelato is gone, no one will become naked with you anytime soon, and your walls are very thin so you can't scream, you *can* milk those endorphins by exercising for 30 minutes. So, do you want to do that when you're stressed or angry? Of course not. But your brain is like "Pleeease, please, please, please, please it'll make me so happy though," and you're like, "Aauughh."

Screaming can be cathartic, that's what one headline said about David Arquette who said filming *Scream 5* with Courteney Cox, his ex-wife, was cathartic. I guess they met during *Scream 1*. And yesterday, I emailed Harold to see if he's seen *Scream 5* yet and he said, "I have not seen *Scream 5*, I have not been to a movie or a sit-down restaurant for that matter, since the pandemic hit. Dreadful." But despite the last few years being its own kind of horror show, Dr. Gouzoules is still doing his amazing work as an Emory professor.

Alie: Someone, a listener, wrote in and said, about you: NO WAY! I TOOK AN ANIMAL BEHAVIOR CLASS WITH HIM AND IT CHANGED MY LIFE!!!!

Harold: Are you kidding? Aww.

Alie: Olivia Milloway.

Harold: Oh, I know that name! I do, I remember.

Alie: Yes! She says thank you.

Harold: Well, Olivia, that's such a sweet and kind thing to say.

Alie: Really enjoyed your class and had a question: How can babies tell the difference between happy and angry screams, or can they? When is this something that we do figure out?

Harold: I don't think babies could. I think... This is an interesting question; we haven't talked about this much but why is it that humans have screams in these different contexts (pain, fear, aggression, frustration, excitement, startle) when other species don't? I think, and again this is speculation, but I think it's fun speculation, and it's kind of ironic, that language gives us the capacity to use nonverbal communication in more elaborate ways than animals can. Cognitively, the brain and cognitive underpinnings for language, I suspect, give us greater capacity to use nonverbal communication in more elaborate ways than other species.

And I think supporting that contention is laughter, an entirely different category of vocalization. You can tickle a chimpanzee, which is a fun thing to do by the way, [*Alie laughs*] or an orang when they're young, and they will produce a laugh and it's not a very sophisticated laugh, it's kind of a [*Harold mimics the laugh, "Ha-ho-ho-ho-ho-ho"*]. There's a play face associated with it. And the production of that vocalization is limited to that tickle and play context. Whereas humans, again, we use laughter in a variety of sometimes pretty nuanced situations; we've got genuine laughter, we've got fake laughter, we've got derisive laughter. And I think that too is probably a reflection of our capacity for language and how our brains work to draw inferences.

Alie: That is so interesting to think that we are doing that subconsciously without even recognizing it.

Aside: So, is laughter the best medicine? I want to know if a screamologist can take a prescription pad and write down, "Go yell your fucking guts out."

Alie: Yuka Oiwa wants to know: What's up with colleges having primal scream sessions before finals? I'm wondering if Emory does that? And Justin So wants to know: Does screaming into a pillow have the same effect as screaming out loud?

Harold: [*laughs*] Those are great questions. As I mentioned earlier, the primal scream phenomenon in psychology as something that would be recommended and prescribed, fell out of favor in the 1960s or early 1970s. So, I don't think there's been much empirical support for that contention.

Now that, despite the fact that we sometimes feel good after screaming, there is something pleasurable about screaming in particular contexts like roller coasters and haunted houses. So, to my knowledge, there is no strong scientific support for this primal scream therapy approach to mental health.

Aside: And screaming can release some endorphins but most psychologists say it's as good a release as exercise or just laughing, the latter of which is probably the most convenient of the three. But the real work is actually just untangling whatever clot of trauma you have that's bottling up all of your feelings in the first place. And Harold says that, no, they don't gather on the Emory quad for any scream days, but during finals, they do have therapy dogs on campus, and hearing that was the most comfort I have felt for the youth in quite some time.

Harold: The social context is something that's really important in all of this. Again, it wouldn't be fun to be on a roller coaster by yourself. Would you even scream?

Alie: Yeah, probably not. I probably wouldn't, I would probably just experience it. But it does feel like I am definitely allowed to make very loud vocalizations on this roller coaster, and no one will accuse me of crying wolf or trying to get attention. Does feel, like, very cathartic.

Harold: Yeah and who would go to a haunted house by themselves? You always would go with somebody and experience the fear and the startle experiences. And the screaming, again, is a social interactive phenomenon.

Alie: You know, By the Bi, is a listener who wrote in and asked: Am I stronger when I scream? I also want you to know that I told people that when they submitted questions, they could do so in all caps just because it's a screaming episode. [*Harold laughs*] So, By the Bi asked: AM I STRONGER WHEN I SCREAM?

Harold: There are weightlifters who scream when they are making the effort to lift their weights, competitive weightlifters. So, maybe for some people? I don't know that it would be universally true, but I suspect some people do get some strength out of a vocal production like that.

Alie: Right. You know, a lot of people wanted to know, in Kelsey Story's words: Is it possible for metal vocalists to damage their anatomy by screaming improperly, or is that a myth?

Harold: No, definitely you can damage your vocal cords. We haven't talked about screaming in rock and roll. I'm sure some of your listeners at least know The Who's, "Won't Get Fooled Again." What would the end of that song be without Roger Daltrey's classic scream? [*end of the song plays, with scream*]

Alie: Yes, yes! So many people asked about that.

Aside: Looking at you, patrons Kelsey Story, Spencer Parks, Chelsea Rabl, Jeffrey Bradshaw, Dane Schuckman, Rachel, That Ryland Guy, Nyxxia Vale, Ashley Sayre de Rivas, Samantha Barnes, Mary Leiby, Erik Pohanka, Bruce Wayne? Jordan Wainwright, Evan Davis, Carolyn Wolfram, Maria Jouravleva, and first-time question-askers, Heaven Clinger, Thomas Wallace, Zoey, deathcore music fan Alina, and Katharine PG who wrote in: Is there a safe way to scream for music (looking at you black metal)?

Alie: I'm so glad you're mentioning this. My brother-in-law is in a death metal band and seeing them live... I'm like so worried about the vocalist. [*laughs*]

Harold: You can search on YouTube and there are lessons for vocalists in these kinds of bands, “How to scream without damaging your vocal cords.”

Alie: Wow! What do you find when you listen to that kind of screaming? Like Alina, first-time question-asker, says: Deathcore music fan here. How do the vocalists do it? They go to one concert and sing their heart out, but they’ll lose their voice the next two days, so explain the sorcery. But are they doing a completely performative type of vocalization? Or do you think that they also, like an actor, have to get into the emotion for it to have an effect on the audience?

Harold: I think they have to acquire that ability and scream in a particular way that doesn’t damage their vocal cords. Again, if you go to some of those YouTube videos, there are clearly techniques that are advocated to minimize and reduce the possibility, the likelihood of damage.

Aside: Of course I researched this for too long, with absolutely no intention of joining my brother-in-law’s thrash metal band, which by the way... Exodus, Heathen, shout out, scream out. But some guy named David on YouTube uploads via a channel called RiffShop and he seems to have you covered for your death metal, brutal, guttural vocals. Or you can also just search about false chord screaming, which is where you keep your vocal cords open, but you learn to flap the skin above them to spare the wear and tear on the actual cords, false chord screams. Just don’t call it cookie monster screaming, [*Cookie Monster, “Im-portant.”*] the death growl community, not into that. Speaking of death.

Alie: Lisa Muschinski wants to know: Can you die from screaming? Can it kill you?

Harold: I don’t think so. I’m sure some people have died screaming, lots of people have died screaming but I don’t think screaming would be the cause of death.

Alie: You literally scream from the cradle to the grave, perhaps, depending on the way that you go out.

Harold: Again, it’s just one of these extremely important and interesting vocalizations and it’s just so prominent in popular culture. Again, the horror movies, the rock and roll, even art. Munch’s famous painting, it’s just iconic and as I understand it, it’s the second most readily recognized painting in the world, second only to the Mona Lisa. And why is that? I have thought about this. If we could hear that scream, it probably wouldn’t be as interesting.

Alie: Ah, that’s such a good point!

Harold: Yeah, but instead, we’re left to come to our own conclusions and that’s the essence of good art, isn’t it? Does it portray internal psychological disarray, fear, angst, alienation, personal dread, or is it more a general comment about the state of the world? Who knows? But that’s what makes it really interesting.

Alie: Yeah, well I guess... I always ask two questions at the end, but really quick before that. You mentioned that there are so many questions still unanswered, and I saw on your website that you might be looking for a graduate student, are you still?

Harold: I am.

Alie: Should people apply?

Harold: Sure! That’d be great, [*Alie laughs*] absolutely. You know, I never have trouble recruiting participants for the research... always have to provide a description, of course, of the study. And people are interested, they’re curious, they want to be able to be challenged,

can they tell one scream from another? There are so many unanswered questions and eventually we'd like to do some brain imaging studies, exactly how does the brain process these different kinds of screams? There's been some preliminary exploration in a lab in Europe, researcher by the name of Frühholz who has begun to explore that set of questions, but we'd like to jump in with that as well.

Alie: So, there might be some future screamologists out there who should reach out.

Harold: I think so, that would be great.

Alie: And in all of this, last questions I always ask, there must be something difficult about being a screamologist. Is it listening to screams all day? Is it paperwork? Is it recruiting people for studies?

Harold: I think it's the, it just translates to being a faculty member doing research, you're faced with the kinds of challenges... There are so many interesting questions that in a different world or a different era, you might be able to pursue but there are constraints; there are financial constraints, there are ethical constraints as to what one can do. Again, it's not unique to this kind of research, but there are always limitations to the scientific method and how we can apply it to understand questions. So, to have the curiosity and to wonder about the answers to these questions is what is rewarding and reinforcing about doing the research, but there are always the frustrations. I'd like to answer this particular question, but you just can't get there at this point.

Alie: Yeah. So, I can imagine how frustrating that must be because there's so much exciting research to do. But what is your favorite part about being the world's most recognized screamologist? *[laughs]*

Harold: Having to accept the term screamology, I suppose. *[Alie laughs]*

Alie: I'm so glad someone coined you that. But yeah, is there a part of your work that just really gets you out of bed in the morning?

Harold: I love to teach students about animal behavior. I also teach a seminar on animal communication, and I take great pleasure in that as well; revealing, and discussing the literature with them, and having them explore new ideas. And like Olivia, some of them just say, "Wow, I look at the world differently as a result of understanding animal behavior and evolutionary principles and how they might apply to us and other living creatures." And that's just enormously rewarding to invite people to think about things in ways that they perhaps haven't done so before.

Alie: I love how you are changing what we know about ourselves, things that we don't even think we can study. It's great to know that there's someone out there, when it comes to human communication, and screams, and vocalizations, there's someone out there who is on it and that's amazing.

Harold: I'm on the job.

Alie: *[laughs]* You're on the job. Oh my god, thank you so, so much for being on, this has been a joy.

Harold: It was my great pleasure, my great pleasure.

So, ask smart people loud questions if you want because it'll help you understand yourself and the world a lot better. Dr. Harold Gouzoules is out there and looking for researchers so hit him up, future screamologists. Here's the world just screaming opportunities at you.

You can find more links to everything we talked about at AlieWard.com/Ologies/Screamology. We are on [Twitter](#) and [Instagram](#) @Ologies, I'm [@AlieWard](#) on [both](#). *Smologies* are the shorter, condensed, and kid-friendly episodes that come out about every two weeks. You can find more of those to download for your children or just yourselves at AlieWard.com/Smologies. Thank you, Zeke Rodrigues Thomas of Mindjam Media for editing those and Steven Ray Morris for the assist on that. Thank you, Erin Talbert, for adminning the [Facebook group](#) and Shannon and Boni for helping with that. Thank you to Noel Dilworth for all the scheduling, Susan Hale for so much behind-the-scenes stuff.

Emily White of The Wordary makes the professional transcripts, Caleb Patton bleeps them and those are available for free at AlieWard.com/Ologies/Extras. Nick Thorburn made the theme song, he's in a very good band called Islands. The lead editor is Mindjam Media's Jarrett Sleeper, who as part of his job is forced to sleep in a bed with me and tell me that I'm pretty from time to time, and when I'm tired and crying and worried everyone is going to be mad at me if this is up on a Wednesday because I couldn't stop researching, he reminds me it's not the end of the world. So, thank you, Sleeper.

And if you listen to the end of the podcast, I do tell you a secret so, you know, here's another one. The last few weeks, they've been really bad with anxiety around work and maybe that's just my bruised brain's way of trying to incapacitate me, but I don't like it, 0 stars on that. But I'm going to end us on an up note and that is this really wonderful review someone left this week. I'm going to read it to you because it deserves it. They wrote:

When I discovered this podcast, I was working a dead-end job that I hated. I imagined what life might one day be like if I was half as interested in my work as I was in Alie Ward's take on the Natural History Museum and that particular episode (where she mentions volunteering to scoot closer to meaningful work) landed squarely in my lap when I needed it and inspired me to imagine a new future for myself. I began to volunteer for a youth empowerment organization and finally acknowledged how much I loved working with students. Three years later after a few new roles and lots of luck, I landed my dream job directing a college STEM scholarship program, funded by the National Science Foundation. Yes, I help baby scientists hatch and it is indeed as incredible as it sounds. I've been waiting all these years [Alie pauses, voice trembles as she continues] to post this review in hopes that this one may be read aloud so that other listeners can hear that change is possible. Thank you for reminding us all how important it is to celebrate buffoonery, to spend each day learning, and to ask smart people not always smart questions. Signed, your SC Advisor.

So, thanks for that review, I'm glad I left it at the end. That would have been weird to start the episode crying and then go into screaming. To everyone who leaves reviews, it helps the show stay up in the charts, but it always helps me on the days that are more tough so... thank you for letting me know that it's always worth it to keep going.

Also, one more secret, that review actually said to ask smart people stupid questions, but I always get a tweet or two whenever I say, "Stupid questions," even if it's an ironic reclaiming of the term, but just covering bases there.

Okay, next week, plant stuff. Plants are very quiet, last I checked so that one should be more mellow. So, everyone go get some rest and thank you for all the pep talks and the reviews and for listening, it really matters to me a lot. All right, we got this. Berbye.

Transcribed by Aveline Malek at TheWordary.com

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[Basic Wilhelm Scream info](#)

["Study reveals 1933 film King Kong is Loaded with Racism"](#)

["King Kong, the Black Gorilla" by cultural sociologist Juan A. Roche Cárcel](#)

[Monkeys scream in dialects](#)

[1998 study \[Screaming during sleep in patients with Parkinson disease\]](#)

["Roughness" of a scream](#)

[The emotional canvas of human screams: patterns and acoustic cues in the perceptual categorization of a basic call type](#)

[Christina Ricci's dad was a primal scream therapist](#)

[Neurocognitive processing efficiency for discriminating human non-alarm rather than alarm scream calls](#)

[The credibility of acted screams: Implications for emotional communication research](#)

[Hitler: loved by white ladies](#)

[What is harmony](#)

[False cord screaming lesson](#)

[Working on Scream was cathartic](#)

[The emotional canvas of human screams: patterns and acoustic cues in the perceptual categorization of a basic call type](#)

[Sound waves of screams](#)

[Screams of 'joy' sound like 'fear' when heard out of context](#)

[Neurocognitive processing efficiency for discriminating human non-alarm rather than alarm scream calls](#)

[Loudest scream: Jill Drake](#)

[Some basics on Screamology](#)

[Profanity can scream](#)

[Helter Skelter excerpts](#)

[This guys screams Baby Shark fyi](#)

[Gary Numan: goth British I'm Screaming dude](#)

[False cord screaming lesson via YouTube](#)

[Jill Drake hits 129 db](#)

[Decbel levels of different things](#)

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[Marco Polo game](#)

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[Caterpillar "screaming"](#)

[Stop with the frickin marco polo!](#)