

BRAIN SCIENCE PODCAST

With Ginger Campbell, MD

Episode #27

First Annual Year-End Review

Aired December 28, 2007

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INTRODUCTION

This is the *Brain Science Podcast* – the podcast for everyone who has a brain – and I’m your host, Dr. Ginger Campbell. On the *Brain Science Podcast* we explore how recent discoveries in neuroscience are unraveling the mysteries of how our brains make us who we are. For more information including Show Notes, links to previous episodes, and information about how to subscribe please go to the website brainsciencepodcast.com. We also have a Discussion Forum at brainscienceforum.com, and you can send me email at docartemis@gmail.com.

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DISCUSSION

Welcome back to the *Brain Science Podcast*. This is Episode 27. The *Brain Science Podcast* is usually either a book discussion or an interview, but today’s episode is going to be a little different. We’re going to look back on the first 13 months of the *Brain Science Podcast*.

This episode is going to have three parts. First we’re going to look at some of the main ideas that we have explored together. Then in the second portion I’m going to look ahead to the coming year and give you a little bit of an idea of what to

expect in the upcoming episodes. And finally, in the last section I'm going to tell you a little bit about how you can help the *Brain Science Podcast* to grow and prosper in 2008. If none of this really interests you, the next regular episode of the *Brain Science Podcast* will be out in two weeks.

If you've been listening to the *Brain Science Podcast* for awhile you know that this is a read-as-you-go kind of project. Each episode represents a book or a topic that I have been studying or reading about. Looking back I discovered that I have referenced at least 21 different books. I've discussed 13 books in detail and there have been 8 author interviews.

Now, when I first started I was a little intimidated about the idea of having guests on the podcast, so I didn't have my first interview until Episode 7, when Stuart Shanker came on and talked about his work with bonobos. But I have to thank [Matthew Cobb](#) in the United Kingdom for being my first guest. He was actually on [Episode 7](#) of my other podcast, *Books and Ideas*, where we talked about his book, *Generation*, which is an exploration of how scientists back in the 17th century began to uncover how reproduction works. This included the discovery of both the egg and the sperm, and was closely related to the development of the microscope.

I discovered that I enjoy doing interviews, and they seem to be quite popular with listeners. So, by the end of the year I was trying to alternate interview episodes with book discussions. It would not be practical to try to review all these books individually now, so I'm just going to try to review some of the main ideas that we have explored. If you want to know which episode to go back to in order to learn about a specific topic, I'm going to try to put that into the Show Notes.

The main underlying theme of the *Brain Science Podcast* is that the brain creates the mind, but the mind does not exist in isolation. The mind and our intelligence are a result of the interaction of the brain with the body and its environment.

Although I use current books as my anchor, I have tried to concentrate on some of the important functions that neuroscience is exploring. One of the first functions that we talked about was memory, which was discussed in detail in [Episode 3](#) and [Episode 12](#). We learned that the hippocampus, which is a small area deep in the brain, is essential to forming long-term memories. But the actual memories are distributed in the parts of the cortex that were originally involved in the experience.

Also, there are several different types of memory and not all of these are available to our explicit conscious awareness. For example, procedural memory, which is how to do things, may be preserved even when a person can no longer make long-term explicit memories.

One very interesting but difficult and controversial area that I introduced in [Episode 5](#) was the idea of consciousness. I also talked to Christof Koch about this in [Episode 22](#). One of the controversies about consciousness is what is its definition. Is it synonymous with awareness, or does it have a more complicated meaning? How important is subjective experience in the definition of consciousness? There are those who feel that we'll never be able to explain consciousness with what the brain does, and that there has to be something else. This is known as dualism. I personally consider myself a non-dualist.

Emotion is a topic that I think is very important, even though we only discussed it directly in one episode, [Episode 11](#). So far I think the key idea that we have talked about is that emotion is an essential part of normal human intelligence. It's not something that needs to be suppressed or overcome. In fact, one area where emotion is very important is in decision making, since it's been shown that people who have damage to the parts of the brain involved with the emotional circuitry have difficulty making normal decisions.

Which brings us to decision making, which emerged as one of the most important topics of the year. It's the focus of at least six episodes. We learned that there's a lot of decision making that occurs outside of our conscious awareness. This ability is very valuable, but it's also vulnerable to influences that can lead us astray.

When we talked to Read Montague in [Episode 15](#) we learned a little bit about the role of the neurotransmitter Dopamine and the reward circuits that influence our behavior and our decisions. In another episode we talked about the importance of the frontal lobes in our ability to make good decisions, and even to overrule unconscious choices on occasion.

Neuroplasticity was possibly the most surprising and exciting topic that emerged on the show in the past year. In [Episode 10](#) I introduced the discoveries that have overturned nearly a century of dogma that said that after a fairly early point in life the brain is fixed. First of all it's been documented now that some parts of the brain, like the hippocampus, can actually make new neurons.

More exciting, however, is the realization that functions of various areas of the cortex are not fixed, but actually change in response to experience. This means that whatever you spend your time doing, it gets more brain real estate. It's never too late to learn new skills, even if it does get harder as we age. And obviously this has important implications for recovering from disease and injury.

Another topic that overlaps with neuroplasticity is the idea of body maps. Our brain contains multiple maps of our body and its interaction with the world around us. And these maps also change with experience.

One topic that I haven't covered is neuroanatomy. There are several reasons for this. For one thing I really want this show to appeal to people of all backgrounds, and I think that neuroanatomy would be of a fairly narrow interest. But on a

more practical note, anatomy doesn't lend itself very well to an audio podcast. So, I try to stick with topics that you can get without being able to see pictures of the brain while I'm talking.

There have been a few kind of technical episodes. But interestingly, [Episode 8](#), which was about neurotransmitters, the chemical messengers of the brain, has been one of the most popular in terms of number of downloads; even though it was probably the most difficult episode so far.

I've talked just a little bit about some of the highlights of the past year. Obviously it's been a fairly incomplete review, since we're talking about approximately 25 hours of audio that you would have if you went back and listened to all the episodes. If you want to comment or share your favorite highlights from the past year, please go to the Discussion Forum at brainscienceforum.com. That's the best place to share your thoughts.

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Looking ahead to the coming year, I want to start out by just giving you a little bit of background about how the *Brain Science Podcast* got started. The first real episode was posted on December 15, 2006. I have deleted the introduction episode that actually came out a couple weeks before that. But, I actually wanted to have a podcast from the first time that I ever downloaded one from iTunes, which was back in July of 2005.

The problem was I didn't have a subject that I had enough passion to devote the energy to. But then in the summer of 2006 I had the opportunity to record a brief book review for the *Sci-Fi Show*. This was a review of the book, *On Intelligence*, and eventually became Episode 2. After I recorded this review I realized that brain science was a rich topic that I could really enjoy sharing with others.

Once I chose brain science as my focus it took me another six months of preparation, including learning how to do the audio recording, setting up websites, all that kind of stuff. So, it took another six months before I actually launched the *Brain Science Podcast* in December of 2006. I had a few themes in mind to start out with—things like memory, emotions, consciousness, and evolution. But as the year progressed I basically went where my reading led me.

So, what can you expect in the coming year? Well, for one thing I will probably be doing more interviews. I already have an interview with Edward Taub recorded, so that will be the first episode of 2008. I've also got interviews scheduled with Maryanne Wolf, the author of *Proust and the Squid*—a book I [reviewed a few weeks ago](#) that talks about reading and the brain—and also György Buzsáki on the role of oscillations in the brain.

Topics that I have wanted to discuss that haven't really had much attention yet include evolution and language, and I'm hoping to be able to get into these in more depth next year. And I'm still looking for a good book about vision, so if anyone finds one, don't forget to let me know.

Which reminds me, I really appreciate your ideas and suggestions, even though I can't promise that I will use every suggestion. I'm going to continue to try to read as many new books as possible and then share the most interesting ideas with you.

As the *Brain Science Podcast* becomes more well known I hope to make more contacts within the neuroscience community, with a view to finding potential guests that are good at explaining what they do to non-scientists. One of the things I hope to do next year is to attend the Society for Neuroscience meeting in November. That's the biggest neuroscience meeting of the year. So, that's a brief look back and a brief look ahead.

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This last part of today's podcast is really aimed at those of you who have been listening to the podcast for awhile. First of all I want to thank you for all your emails and other supportive feedback. Don't forget, if you haven't done the audience survey that's on the website, you can do that. Just go to brainsciencepodcast.com and look for Audience Survey up in the left-hand corner and you can do that.

The *Brain Science Podcast* has had a successful first year. It's hard to tell the exact size of the audience, but I know that as of December 21, 2007, I have at least 1500 regular listeners, with somewhere between 3000-5000 downloads per episode. I realize that's pretty modest, but I've been told that anything over 1000 is actually considered pretty good.

Of course, I can't compete with the big fan podcasts or well-known guys like Leo Laporte—I think he has hundreds of thousands of downloads—or Steve Novella's show, *Skeptics Guide to the Universe*. He has 30,000 subscribers. I realize that the narrow scope of this show might limit the audience a little bit, but I am sure that there are a lot of people out there that would enjoy the show if they ever heard about it.

And that's where you come in. I really need your help to reach more listeners. Now, this is something that I don't talk about in every episode like some podcasts do. But today I'm going to take a few minutes to encourage you with some specific suggestions. Some of these suggestions appear on my website under the tab, 'How You Can Help.'

First of all there is no substitute for word of mouth. I appreciate it when you talk about the *Brain Science Podcast* to your friends. Surprisingly there are still a lot

of people who haven't discovered podcasts, so sometimes the first thing you have to do is explain what a podcast is.

But you can also feel free to burn CDs and share them with others. Take your favorite episode and give it to a friend. And then when they come back and say, 'How do I get more of these?' you can show them how to download podcasts.

If you have a blog it really helps me if you link to my website, and the best way to do this is to link to the Show Notes of your favorite episode. Because the more links I get to my site the more likely people are to find me. That's how Google works. Your ranking is dependent on the links into your website.

Right now if you were to Google 'brain science'—and this is what I found a couple days ago, so it might have changed—but the last time I looked the *Brain Science Podcast* website was on the second page of Google. Which is not too bad, but obviously the higher up you are, the better. And that's all dependent on links. So, every time one of you links to me it helps.

If you use the website Digg, don't forget to Digg episodes that you like. I don't have a Digg thing at the end of the Show Notes of every episode, but if you go into Digg I do have a page in Digg for both of my podcasts and you can leave comments there and also vote. There's also a link to my pages on that tab I was talking about, 'How You Can Help.'

Of course, there are all the podcast directories. I guess the biggest ones are still Podcast Alley and Podcast Pickle. You can vote for me in these. And I don't think I have any reviews in either one of these sites, so reviews are very helpful. If you have another podcast directory that's your favorite, the first thing to do is to make sure that the *Brain Science Podcast* is listed. And then, submit it if it's not. If it's already there, vote for it or leave a review.

And last but not least, if you use iTunes, don't forget to post a review to iTunes. I do have several reviews in iTunes, but I don't think there are any that have been put up recently.

One of the things that sets podcasting apart from things like radio is a sense of community. Of course, the *Brain Science Podcast* doesn't lend itself to the same sort of community that some other kinds of shows do, but I have put up a few things on the Internet to help nurture connections.

The one that I have given the most attention to is the Discussion Forum, which is at brainscienceforum.com. Besides having sections for discussing topics and specific episodes there is a section in the Discussion Forum for people to introduce themselves to each other, and even a place for you to leave links to your website. That's perfectly legitimate as long as you do it in the right section of the Forum.

If you're a person who enjoys Flickr I have a group on Flickr, and that's at flickr.com/groups/brainscience. I would love for people to leave a picture or two of where they live, because we have listeners all over and I think it would be really neat to have pictures from around the world.

More recently I've put a Brain Science Podcast Group up on Facebook, because Facebook seems to be a pretty active place, where I've actually made some contacts. And I want to thank those of you who have already gone on there and joined that Facebook group.

But when it comes to promoting the podcast, the most important thing is still going to be word of mouth; just telling people. I mean if each one of you got one other listener, then we would have twice as many subscribers.

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I guess I can't end without taking a brief look at the issue of money. Recently I announced that I was accepting PayPal donations in the model of NPR public radio, but I have to tell you that so far the results have been fairly disappointing. So, if you are thinking about making a donation and you just haven't gotten around to it, I want to remind you that it would make a big difference, because what I'm trying for is to get a lot of people to give a small amount so that no one is really putting out very much.

Again, I don't really talk about money much during the average episode. But I think I need to be clear that while many people podcast as a hobby, my long-term goal—to be perfectly blunt—is to retire from emergency medicine and make a decent income doing something related to podcasting. This means that eventually the *Brain Science Podcast* has to start to bring in money, or I'm going to have to do something else.

I've already mentioned that I have doubts that advertising is the way to go because the amount of advertising you get is so dependent on having a really, really large audience. Most of you have said that you appreciate that I don't water down the content of the show; and you can imagine that's the kind of thing you need to get a big audience and a lot of advertising.

If you've been to my website you know that it has an ad for [audible.com](https://www.audible.com). Audible.com is still sponsoring. If you haven't done so, you can still get a free audiobook by going to [audiblepodcast.com/brainscience](https://www.audiblepodcast.com/brainscience). But the thing about the Audible ad is that they pay me a very small flat fee.

Now, I have a little mini-store on Amazon.com which some of you have used. And the way that works is if you buy something from Amazon through that store I get a small commission, which for this year adds up to a credit for stuff on Amazon of less than \$20. Of course, that's again the sort of thing that depends

on volume. If I had a huge volume that would add up. But I'm just not thinking that things that depend on volume are ever going to bring in enough money.

I'm not going to constantly be harassing you with requests for donations. But I just hope that you will consider how much time and effort goes into each episode and whether or not you think it's worth something to you.

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So, this episode is kind of the close-out episode for the year. And it hasn't been a long one, but to be honest I felt that a lot of people were not going to be having much time for listening to podcasts during the holidays and it seemed like a good time to do a year-end summary.

The next episode of the *Brain Science Podcast* will be out on schedule in a couple of weeks, and it's going to be an interview with Dr. Edward Taub, whose work was mentioned by Dr. Doidge in [Episode 26](#). Dr. Taub has pioneered a new method for stroke rehabilitation that takes advantage of neuroplasticity.

Meanwhile I hope that you had a safe and happy holiday season, and I look forward to talking to you again soon.

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In a world where evil super villains run amuck and corrupt superheroes care more about their hair than justice, one woman is caught in a web of manipulation. Keepsie Branson just wants to run her bar. She doesn't want to

think about her old dreams of being a superhero or her tired ambitions to save the world. But the facts remain that Keepsie and her friends have powers too, and they will soon be needed as Seventh City falls into chaos and no one knows who are the good guys and who are the bad. Playing for Keeps is a free audiobook from Mur Lafferty, available at playingforkeepsnovel.com.

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Mur Lafferty was my inspiration for getting into podcasting, so I hope you will check out *Playing for Keeps* and her other books on podiobooks.com.

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Transcribed by [Lori Wolfson](#)

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