A New Perspective on ADD and Asperger's Katja Swift - CommonWealth Center for Herbal Medicine www.commonwealthherbs.com

Forget everything you think you know about Asperger's and ADD/ADHD: let's look at this another way.

First, let's agree on some basic foundations:

Your head-brain isn't your only brain – there is also your heart-brain and your gut-brain. These aren't figurative analogies, as Joseph Chilton Pearce so nicely explains:

The idea that we can think with our hearts is no longer just a metaphor, but is, in fact, a very real phenomenon. We now know this because the combined research of two or three fields is proving that the heart is the major center of intelligence in human beings.

Molecular biologists have discovered that the heart is the body's most important endocrine gland. In response to our experience of the world, it produces and releases a major hormone [. . .] that profoundly effects every operation in the limbic structure, or what we refer to as the "emotional brain."

[N]eurocardiologists have found that 60 to 65% of the cells of the heart are actually neural cells, not muscle cells as was previously believed. [. . .] Quite literally, in other words, there is a "brain" in the heart, whose ganglia are linked to every major organ in the body, to the entire muscle spindle system that uniquely enables humans to express their emotions. About half of the heart's neural cells are involved in translating information sent to it from all over the body so that it can keep the body working as one harmonious whole. And the other half make up a very large, unmediated neural connection with the emotional brain in our head and carry on a twenty-four-hour-a-day dialogue between the heart and the brain that we are not even aware of.

If you google "gut-brain axis", you'll find a very enormous pile of similar statements about the neural plexus in your guts. The digestive system has exponentially more neurotransmitter production and receptors than does the brain, which is part of why St. John's Wort is so effective, but best when taken as tea: your gut-brain needs to taste it.

All three brains are critical, and in order for us to be healthy, they need to be in some sort of balance, which may not be equal! I would argue that we probably need our gut-brains and our heart-brains to be stronger

than our head-brains, but for the moment I'll just leave it with "some sort of balance".

While we're here, let's also acknowledge that this balance is not one single point, but instead a range: people who are balanced more in favor of the gut will have particular talents in certain areas – perhaps they will be better at making very quick decisions or handling emergency situations. People who are balanced more in favor of the head may be better at writing software or databases. Those balanced in favor of the heart may have stronger powers of empathy. You might initially be thinking about where you think your balance point is, and perhaps you're wishing it were somewhere else – but it's just like any other constitutional balance. We need fiery people, we need watery people, we need all of us.

Second, let's establish that there is no such thing as "neurotypical". Neurotypical is the word we invented so that we weren't comparing folks identified as Asperger's, ADD, and other things to people who are "normal" – which was an important step. But it turns out that neurotypical is in fact still too constricting: it still carries an implication that there is something more normal, at least by merit of being more common, than something else.

Let's work instead with the concept of "normative". Normative is defined as: of, relating to, or prescribing a norm or standard; based on what is considered to be the usual or correct way of doing something; conforming to or based on norms.

For example, "children should eat vegetables", and "those who would sacrifice liberty for security deserve neither" are normative claims. On the other hand, "vegetables contain a relatively high proportion of vitamins" and "a common consequence of sacrificing liberty for security is a loss of both" are positive claims. Whether or not a statement is normative is logically independent of whether it is verified, verifiable, or popularly held.

Relevant to our discussion, we can consider neuro-normative, or socionormative, or culturally normative – each of these describes a state that is considered normal or appropriate by society in this moment in this location, but that norm is volatile. It is "trendy". The norm itself does not imply absolute value, only that in this moment and in this time, a certain this is valued by a certain segment of society.

The word normative is, again, a range. Think about your friends – they come in many flavors. Even the ones who are normative to whatever scale you are using – even they fall into a range. Let's use, for example,

the normative range of people who are herbalists. Within that norm, you might find an RN at a family practice who often suggests herbal supplements to her patients and educates parents that it's ok for a child to run a fever. You might find a pharmacist who has studied herbalism and stocks cranberry extract tablets for UTIs and turmeric capsules for inflammation, and drinks tea instead of coffee from his travel mug. You might also find people who have no room in their cubbards for plates and bowls because there are too many jars of herbs in them. You might find some people who grow long hair and move out to the country to grow herbs and raise goats and sheep and don't even have a cell phone. Some will be vegetarian, some will be paleo, some will eat gluten and some will not. All of these people would fall into the spectrum of Herbalists, and could be identified in the broader scale as herbalist-normative. But within herbalist-normative, you see, there's still quite a broad range.

Why is the shift in language so important? Because with our current standards of "normal" vs. ADD, or even "neurotypical" vs Asperger's, we are making a statement that something is wrong with one of the people in this equation. But if we establish the idea of three brains (who knows, maybe there are more!), and we look at them the same way we would look at someone's constitution, we realize that there isn't anything wrong with someone who is "normal" or not, ADD or not. There is no disease or condition or diagnosis, there is just a person. There is nothing "wrong" with the person; there is simply an imbalance, just like any other imbalance. If you consider your friends, is there anything wrong with the one who has a fiery temper? It might not always be convenient, but there's nothing wrong. In fact, sometimes it can be quite handy to be fiery. If you consider your friend with the watery emotions, is there anything wrong? Perhaps that person doesn't like violent movies, but there is nothing wrong. What if we consider someone with dry skin? Here we can still say, there is nothing wrong with the person, they are still a person, just one who has an imbalance in the direction of dryness.

People who can be grouped as "Asperger's", which is itself a normative scale, may have very strongly developed head-brains, and may have damaged or compromised gut-brains. We know from observation that people diagnosed as Asperger's and ADD tend to fall abnormally into the high end of gut dysbiosis, and that they fall into the high end of gluten/casein sensitivity. But is there anything wrong with the person here? I contend that instead what we really have is a person who's head-brain is full speed ahead but that they don't have the grounding balance of their gut-brain due to damage and impaired development in the gut. To take that further, this person's heart-brain might also be suffering, because, due to the permeability in the guts, the heart may be simultaneously too open – because of the heart's inability to build healthy walls due to underdevelopment tied to the gut issues, or simply

because the heart is too busy trying to compensate for the damage in the gut-brain. (Much like the HPA axis in the endocrine system – I suggest that the brains each try to compensate when one is functioning below its optimal level.) This may result in either the person feeling emotions too intensely, or, for protection, shutting them down altogether. I suppose we could identify the damage to the gut as something "wrong", and if we're looking for something diagnosable, then that would be the thing. We can diagnose a fever, too, but each person will respond to that fever according to their constitution: our firey person will sweat it out fast, one who runs cold may need help to get it hot enough. This isn't enough to say there's something wrong with a particular person, it only identifies them constitutionally.

Another factor in this puzzle is zonulin, a hormone that is responsible for tight junctions in the body. These are present in the intestinal lining, but also in the skin and the brain – the blood-brain barrier. An upregulation of the hormone zonulin (caused by the ingestion of milk proteins, gluten, or other factors we haven't figured out yet) causes the holes in these permeable membranes to become larger. We have identified that folks with Asperger's and ADD have higher rates of gut permeability than folks not diagnosed, and we can recognize that the permeability of the gut is tied to the permeability of the brain. Which gives us our tie-in: where there is leaky gut syndrome, there is "leaky brain syndrome" – a brain with a filter whose holes are too big. Too much can get in or out, too easily. We acknowledge this even in our speech - "he has no filters" is something we often say about people on this spectrum. But to me, this also looks a lot like anxiety - too much is able to leak into the brain, and a person is unable to hold it out because the filters aren't working. And so this damage to the gut-brain ends up affecting even the way that our head-brains develop.

Regardless, there is nothing about this person that needs to be cured. There is simply an imbalance that, if restored, can make it more comfortable for this person to get through a day. Much like our person with dry skin – when we restore moisture to the person, they feel less itchy.

It's also worth noting that Aspy's and folks with ADD are not the only ones who have imbalances in this way – it is simply that they have imbalances that follow a reasonably identifiable pattern which has been labeled as outside the current norms. Folks with Asperger's, for example, typically have their imbalance inclusive of a very strong head-brain development – which means that the imbalance shows up in a certain more obvious way. Someone else might have similar imbalances in their

gut-brain and heart-brain but without the over development of the head-brain, and that person is not necessarily going to fit into the norm of Asperger's or ADD. They might get by as "neuro-normative", because so much of society today has compromised guts and hearts: this person wouldn't stand out. It doesn't mean this person isn't experiencing discomfort because of their imbalance, but they are not diagnosed with a problem because they fit in with the general trend towards imbalance in our society.

Which is a very important point: this type of imbalance is uncomfortable for everyone! Perhaps, if we were all in perfect balance with our brains, if everything was functioning appropriately, it wouldn't be the case, but as it is, interpersonal relationships are difficult for everyone! Just look at the whole series of commercials centered around men's inability to express emotions - "I love you, man!". That inability is a reflection of this imbalance, and how we got there is of course another whole discussion. But that imbalance is socially acceptable enough that it will sell beer. Just think about the last week in your own life: little misunderstandings, little annoyances, little grudges - getting along with each other is hard for everyone. If we can identify a particular group of people who have this difficulty in a roughly similar way, we can have a few reactions to that. We can label that group as flawed and try to cure them, which is what is currently happening. We could also identify that this group of people is more highly sensitized to a problem endemic in society right now, just like a person who lives in a highly polluted area might have more sensitive skin or more sensitive lungs - we can put them on steroids, or we can change the imbalances that are causing the problem: change their environment, improve their sleep and nutrition, give them supporting herbs to rebuild and strengthen compromised tissues... The latter takes longer, but in exchange, the person doesn't have to worry about not being able to get their steroids when the zombies come!

Our current cultural obsession with normativity itself is also a problem. Everyone is not actually supposed to be the same. We're SUPPOSED to have different skills and different talents. A person who can be identified as ADD – maybe that person would feel comfortable and happy as a forest ranger, but because we live in a society where only certain types of jobs are respected, that person is raised to try to fit into a place that is uncomfortable and poorly suited to his nature. We can consider two developments that are socially acceptable: one a NFL football player, one a lawyer. Each of these people, during their maturation and training, will choose parts of their nature to develop, even to over-develop. The result is socially acceptable, and so they are considered "normal". These imbalances are considered acceptable, those are not - there's a very arbitrary factor in what is considered "normative".

Stimming falls into this category as well. The definition of a stim is simply a repetitive habit, often a body movement, for the purpose of self-calming. Socio-normative society says that rocking or flapping the hands isn't an acceptable method of self-calming - but smoking is. Going to a bar is. Playing Grand Theft Auto is. The reality is, everyone self-calms. Let's consider rocking chairs – it used to be every house had one! Rocking as a form of relaxing or feeling calm was acceptable for most of American history, but today it's either a quaint antique or a stigma.

In my case, and for others I know, I like to press my nails into my palms. I've done it ever since childhood, but recently a friend who is an acupuncturist noticed. It turns out that the place where your fingernails meet your palm is actually an acupuncture point used in cases of adrenal depletion! All along, my self-calming behavior was actually acupressure. Perhaps instead of telling people their stims are not socially acceptable, we should learn about them – our stims might be telling us something.

By this point, I hope you're with me on a foundation here: what we currently identify as Asperger's or as ADD/ADHD are just imbalances, like any other constitutional imbalance, and not a disease that must be cured. Like any other imbalance, this imbalance can have some advantages, but may also cause discomfort.

Lots of times people will call or write asking for my "protocol for Asperger's" or my "treatment plan for Asperger's". I don't have one! No one who can be grouped in the spectrum of Asperger's is the same – each is an individual, and each feels the advantages and discomforts of their personal situation differently. This is true for anyone – take two people who were raised poor. One perhaps grew up with a chip on the shoulder, and strove to earn lots of money and buy fancy things. Another maybe didn't mind much and goes around with the attitude "we make our own fun". In my family both of these are represented, and the nature of each one is drastically different, despite that the initial situation was the same. In the same way, two people with Asperger's or two people with ADD will have different priorities. One may feel great discomfort in a situation where another does not, and it is those discomforts that must drive the way I work with each person. It's not up to me to say, "oh, we better fix this about you, so that everyone will think you're normal". Instead, I simply ask about what would make a person feel more comfortable in their world.

I go about this the same way that I would for any other client – we use the same "compass" that we do for any imbalance. What can we do in a person's diet, sleep habits, and lifestyle to create more comfort, and what herbs can we use to support those changes? And at this point, we're back to being "boring herbalists", as Paul Bergner teaches. There's nothing new here. Once we realize that everything is just a matter of getting closer to constitutional balance, we realize that all the answers are the same – north is still north. How each client gets there will be different, and how we can be creative in our encouragement and motivation of each client will be different, but moving towards balance itself will continue to be the same old "boring" work (yes, please!).

We can look at the compass we used this year at the Herbal Resurgence Rendezvous for the Detox class, and see how easily it can be adapted to this situation. You could do the same with the compass we used for the Chronic Illness class the year before – if you prefer an elemental compass, use this year's model, and I'll draw that out next. If you prefer a directional compass, use the model from the Chronic Illness class.

Earth :: nourishment

In our practice, we always start with food – there is always some improvement we can make there. Folks with Asperger's and ADD have been identified as having more gut dysbiosis, and higher levels of gluten and casein sensitivity. And we know that we're looking at imbalances in the three brains, so we're of course going to try to strengthen the gutbrain. We will almost always suggest going gluten-free and dairy-free very first, along with any other allergens that the individual may have. Also we're going to suggest removing stimulants – when we know there's imbalance, we don't want to be pushing it further along by stimulating one or more parts of the axis. Stimulants aren't just caffeine – we'd also look at sugar, sodas, additives, other foods with engineered supersaturated flavors...

In each of these cases, there is always a negotiation. The goal here is not to build a new norm to convince this person to adhere to! The goal is to bring a person to their own balance, to bring a person to a place where they can get comfortably through their day. They may occasionally still eat some cheese, and recognize that for a couple days afterward they feel a lot of discomfort – that's part of the journey. Someday that might convince them it's worth cutting it out entirely, or maybe they decide that sometimes they can live with the discomfort.

We're also going to emphasize full-spectrum nutrition (protein, fats, minerals, vitamins) required for all the body's systems to function

optimally, and boosted for the repair of tissues that are damaged. We'll encourage a person to eat lots of colors, to eat consciously, to focus on as high quality as is attainable. In this case, we're also going to stress a couple of supplements, most notably D3, which, among many other things, functions as the counterpoint to zonulin: once zonulin has opened the tight junctions in the permeable membranes, D3 closes them back down again. Magnesium is another that we regularly recommend, as even with an organic diet high in green leafies, our soils are so depleted of magnesium that it's difficult to achieve the levels the body needs with food alone.

Herbs can be food, and we include many in this category! Specifically green ones – nettle, dandelion, red clover, horsetail – all very high in minerals. Horsetail in particular is interesting as I have been studying lately about its ability to impact connective tissue – I have been making it a point to include in all my mineral formulas for folks with impaired gut function.

Burdock root, dandelion root, codonopsis root, and small amounts of solomon's seal root are another base blend great for building nourishment. We like folks to put these roots in a bone broth soup, preferably with seaweeds added. Solomon's Seal root in the broth is a new trick I've been playing with since hearing Karyn Sanders speak about it: previously I only used Solomon's Seal as tincture because it is not an abundant plant. However, in some recent workshops she's given, Karyn has talked about using small amounts in broth, and specifically for people who don't know how to be true to themselves. To me that phrase really sounds like Asperger's and ADD - you could be true to yourself, but society says that's not ok. Even if you can drop into yourself, the brains aren't in balance, there's some internal turmoil. What is myself? In my notes from that workshop, I wrote "equalizes the balance of power - even within yourself!" - all of which boils down to lately, I've been adding a little Solomon's to the mix, and both I and my clients really like it.

One other blend that falls into this category is not here for its own nutritive merit, but for its vulnerary merit: that is the standard Gut Heal blend we learned from Paul: Calendula, Plantain, Chamomile, Catnip, and Mint. We change this up quite a bit depending on the situation, and for my folks with Asperger's and ADD, Self Heal and Violet often make it into the mix – these are two that I feel reach out from the gut-brain up to the heart-brain and start to stitch the whole back together. Sure, both have some vulnerary and lymphatic action as well, so physiologically they're great, but it's their sweetness in the delicate repair of the threads between gut and heart that I love most. St. John's Wort is another we love to add here – such a supreme digestive system healer!

Water :: relationship & recovery

Relationships are our deepest sources of psychological nourishment. At this year's conference, James Snow was talking about studies that have been done recently that show that feeling alone, out of relationship with our pack, causes biologically measurable inflammation and stress. But it's not just relationships with other humans that affect us. Our relationships, or lack thereof, with our environment - with the plants and animals and rocks and waters around us, with all the non-human intelligences of the world - these relationships make it possible for us to understand who and what we are. Cross-reference ideas like Nature Deficit Disorder and the new phenomenon of Forest Bathing, and the fact that a majority of children today grow up more in the virtual world than they do in the world of nature, and we see a very fundamental cause of the imbalance in our brain axis. Many of us as herbalists see this - in our friends and clients on the spectrum who "self-medicate" by spending time outdoors, with animals, and in nature, and who feel calmer and more comfortable in their lives because of it. (Again and again we see that Asperger's and ADD are just the very noticeable part of a larger trend in society.)

In general, we want to help folks (not just folks with Asperger's and ADD!) build relationships that are nurturing and sustaining. Once they meet that criterion, there are no other criteria for "rightness" – the relationships can be with horses or horsemint, adults or children, whatever is comfortable. We can start with relationships that are the most comforting, and slowly work through to relationships that are desirable but difficult. Recognizing that interpersonal relationships are difficult for everyone, we don't blame this difficulty on the Asperger's or the ADD. We just acknowledge that they are difficult and find creative ways to cope. Some tricks I have used here are emulating a role model (what would someone I respect do?) and good old fashioned scout work: if you have to go into an uncomfortable situation, learn as much about it ahead of time as possible. Figure out where the bathrooms are from someone who has been there before, or request the guest list ahead of time from the host. Plan a place that feels safe to start out in, so that you can get comfortable before you have to be in the middle of things. This works great at a party, for example: I feel comfortable in a kitchen, so I always take guacamole to a party. It has to be made fresh, so I have a "socially acceptable" excuse to spend time in the kitchen with my hands busy, getting comfortable in a new place before I really have to talk to anyone.

There are lots of herbs we can use to help out here – one of my very favorites is Wood Betony (Stachys, though we recently got some Pedicularis for the first time, and that seems to also have beneficial

effect, although differently). Wood Betony, more than any other plant, gives me a sense of being in my body – in other words, that my gut-brain and my heart-brain are in control. Some other allies here are Hawthorn, Linden, Violet, Tulsi, and Mondarda, especially when you feel like everything is buzzing like a swarm of bees. Sage can be excellent too for overwhelming situations. Ryn would say I should add Kava to the list, and though I don't love it most of the time, Kava is tremendously useful for lots of folks.

Flower essences are so useful here, too. There are so many, but one in particular that stands out is Indian Pipe. It's calming, anchoring, and helps feelings of disconnectedness. Indian Pipe flower essence is also fantastic for anxiety, and feeling overwhelmed.

Sleep falls into this arena as well. I don't know anyone who handles situations well when they're tired. It's just a normal fact of life! If we have a person with a known imbalance that is causing discomfort, and part of the discomfort is coping with interpersonal situations, then it's only logical that we should make sure this person gets good sleep! Again, this may call for creativity on the part of the herbalist – for some people simply explaining that adults need 9-12 hours of sleep per night (and children even more!) is enough. For others, various sleep hygiene routines will need to be put in place to ensure that sleep comes more easily.

Fire :: movement & expression

In our current sedentism-normative, productivity-normative culture, finding time for movement and expression can be difficult even for people who fit in to that culture. For many kids (and adults) diagnosed with ADD, a lifestyle that focuses on movement and eschews the sedentary can be enough to find a balance point. Asperger's has been linked in some research with Neanderthal DNA – if this is true, then perhaps those of us who fall into that category are simply suffering from the lack of our evolutionary norm of walking 6-9 miles a day. We could in that case consider ADD and Asperger's not diagnoses, but simply evolutionarily-normative, as opposed to sedentarily-normative!

Not only that, but expression is important! Society accepts expression in an extremely limited form right now, which is a problem not just for folks labeled ADD and Asperger's – we talk about this problem as it affects men and women individually, as it affects our national levels of education now that arts are more and more widely cut from public education, as it affects anyone with a heart. Art is what it is to be

human: there is no group of humans anywhere who did not make art. Music, dance, painting, drawing, ritual and ceremony, weaving, sculpting – even their work was art. This was still true even up until some relatively recent point – just look at the architecture. At some point, buildings stopped being ornamented: that ornamentation was the art of the workers.

In these areas, we can encourage movement according to individual nature: one might prefer walking, another dancing, another climbing trees (or playground equipment, or rock gym walls, if no trees are available). We can encourage expression according to nature too – it doesn't matter if it's poetry or pottery, and it doesn't even matter if it's "good", but humans must make art and we must be expressive. As herbalists we can help our clients (Asperger's, ADD, or otherwise!) to make room in their lives for these things, and sometimes act as an advocate with schools and employers to make appropriate space for these things.

Adaptogens can be very helpful for motivating movement, and when expression is difficult, herbs that protect the heart – expression is a risk! – are so useful. Flower essences are useful here too, one in particular being Fleabane, which is excellent for expressive blocks. Sometimes though, the best support is simply someone who appreciates the expression, and the risk it took.

Air :: stress regulation

Writing about stress would be another entire article, but a foundational factor at play here would be the impact of stress on the physiological function of the three brains: stress, and prolonged exposure to cortisol, impairs gut function, constricts heart function, and degrades hippocampus function, among other things. (The hippocampus being particularly important, as this is where we convert short term memories to long term memories – in other words, this is where we "get over it". Prolonged exposure to cortisol makes that process extremely difficult.) In the case of folks with ADD and Asperger's, where there is already a shift in the balance in favor of the head-brain, often the response to stress is going to be falling further into the direction of "airiness". Some may meet stress by pushing harder with cerebral productivity, for example, or by engaging in cerebral stimulation as a self-calming exercise – using television or a movie, for example, to tune out the other noises. Neither one of these things is inherently bad, but they can be done to discomfort, and that can cause trouble.

Also, it turns out that humans respond better to stress with their gutbrain and their heart-brains. Head-brains are useful for some types of work, but they're not ideal for dealing with stress. So in stressful situations, a person who is out of balance in favor of their head-brain is likely to experience more than average discomfort.

In many ways, the work done in the first three elements will help here drastically: getting better sleep helps us deal with stress better. Having relationships we can lean on in times of stress help us cope. Eating nourishing foods and working to heal gut permeability help us to restore our gut-brains and also the heart-brains. Most any nervine will help here too, used appropriately for the person in question, and Tulsi in particular has an important role to play here. However, there are also some habits that, if we develop them, will help us bring our head-brain back into its rightful place, as well.

Change how you think: meditation, affirmation, forgiveness, compassion practices – these practices start in the head-brain, but their purpose is to weave our head-brains back into balance with our heart-brains and gutbrains. Healing the gut will allow the gut-brain to pull our head-brains back towards balance, but exercises like compassion meditations turn our head-brains into willing participants in the journey towards balance.

Similarly, think less and live more - attain presence; practice intuitive living skills. Oh, dear, even if you're not entirely sure what that means, to anyone who is head-brain centric, those words are can initially be quite uncomfortable. How on earth is it even possible, in our current culture, to think less and live more? We're all tied to computing devices most of the day! That's a good place to start – reign in your computer and let your body run free a little more often. Going outside more will help – and if that's difficult, adopting a dog will help! Lots of dogs need loving homes, and a dog provides a relationship with a non-human intelligence that will help you get outside and moving more often!

As practitioners, we must recognize that people can't do this by fiat: making these choices starts not with self-control, but with self-care. As we learn to care for the self, we are building relationship with our bodies – something many folks with ADD and Asperger's have never done before. Draw on the other elements to help this: nourishing, flavorful food engages our attention; fulfilling emotional entwinings hold us in the now; artful movement practices teach us to fully inhabit our bodies.

All of the grounding herbs will help here – pulling us down from the air and into the body. But this is a place where some of the more decadent preparations are quite useful! I find that when I encourage people to take time to drink tea as self-care, compliance is spotty. But when I teach

people how to put herbs in wine and enjoy an appropriate glass of herbed wine as self-care, suddenly this is an easy task! Elixirs are another lovely way, as well as mixing herbs with chocolate. These are ways that we can feel pleasure in our bodies, which makes them more inviting to the mind who is only lightly tethered.

And that's it. That's all there is. The secret is, that's all there is for anyone. Recently I learned that Asperger's is being taken out of the DSM, in favor of a return to "high functioning autism" – proof of how arbitrary all this stuff really is. Getting through a day in our current society is difficult for everyone. If it's hard for you in a particular way that you have in common with others, that doesn't mean there's anything wrong with you. It just means you have friends on the journey.