AN INTERVIEW WITH PETER NAISH

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ABSTRACT

This paper is an edited version of an interview which took place between Peter Naish (PN) and David Kraft (DK) on 9 March 2019. During the conversation PN recalled his first introduction to hypnosis as a teenager and described his early interest in cognitive psychology – specifically, the topic of consciousness. He also makes reference to the early days of the British Society of Experimental and Clinical Hypnosis (BSECH). PN then provides readers with a critical analysis of the state/non-state debate, comparing evidence from the present day – studies which have used data from brain imaging – with past theoretical models. Further information is provided by PN on his own research which indicates a right-brain asymmetry which occurs during hypnosis – especially for highly susceptible subjects. He also draws on the links between right–brain asymmetry and both PTSD and schizophrenia. Finally, he outlines recent findings from epigenetics and makes some conclusions on the behaviour of individuals who have suffered childhood trauma or post-traumatic stress.

Key words: time distortion, brain scanning, schizophrenia, epigenetics

David Kraft: What initially led you to have an interest in hypnosis?

Peter Naish: I think that hypnosis and psychology probably emerged simultaneously. From quite an early age, I enjoyed reading and joined the local library. I got out all sorts of esoteric books, and so, psychological things interested me. And, I came across a book on hypnosis – I can't remember now who wrote it, but I tried hypnosis out on a friend, as you do. I would have been, I guess, an early teenager. By chance, this boy proved to be highly hypnotically susceptible, and I was astonished. I don't think that I did very much with him: I didn't make him behave stupidly or anything like that, but I was just intrigued about how he behaved. From that point, I had an interest in hypnosis and recognized that it potentially had therapeutic powers. I often thought that, if the first person I tried had been a 'failure', I would have probably thought that this was a load of nonsense and never thought of it again. But that's how it began.

When I was at school, I don't think that psychology was on any curriculum, as it is nowadays. I am not quite sure how people got into it really. So, I took a very obvious route for myself – my first degree was in the physical sciences, just following on from A Level. And, I went into teaching. However, always at the back of my mind, I had an interest in psychological phenomena. And this was enhanced somewhat when, at the school where I was working, they brought in an educational psychologist. Chatting to

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him was very interesting: when talking about the nature of his work, he mentioned that the route people took to become an educational psychologist was first to do a psychology degree, and then do a bit of teaching to get that side under your belt. Then one could become an educational psychologist. I thought perhaps I could do that backwards: I had done the teaching, so I could now study psychology. At that time, I was allowed to start in year two, and so do another degree in only two years. They asked me to sit in on some first year lectures, just to catch up, but I only managed a few. So, I always say that I am a bit ignorant of great swathes of psychology. I went on to do a doctorate and got very interested in research – I loved psychology. As a relatively young science, one could almost, in a step, be at cutting-edge level – this was not the case in a subject like physics, for example. And so, it was very easy to think of questions which were intriguing, and then to devise experiments which would address them. So that was the route that my work took me – doing research. And, in no time at all, I began to look at hypnosis. While I was doing the doctorate, a small article appeared in the *Psychological Bulletin* – it was Tony Gibson, one of the founders of the British Society of Experimental and Clinical Hypnosis – looking for members to join the society. England, at that time, did not have a hypnosis society for psychologists. And so, I was there at the beginning; and, I guess, the rest is history. I would just add that I think, increasingly, because of this notion of an altered state of consciousness, I found myself drawn to wanting to explore the mystery of consciousness.

DK: The beginning of your career seemed to coincide with the early days of psychology degrees. Does that sound right?

PN: Relatively so. I suppose I wasn't one of the first people. It was a time of the cognitive revolution. If there were a revolution now it would probably revolve around brain scanning. We can do so many things now with PET and fMRI, and it has changed the game. It also constrains us a great deal. In my early days, you could develop any theory really. Some knowledge of physiology would constrain you to some degree. You could build theories around problems that people had if certain areas of the brain had been damaged; one could conclude that a certain part of the brain must be involved in some particular function from the problems arising. But, broadly speaking, in cognitive psychology, you could theorize about how the brain processed information, go and devise an experiment and, hopefully, you would get the results that you were looking for. And the fun bit was that, someone else might look at your results and say, 'Ah, yes, but you could explain that *this* way instead'. And they might do an experiment to show that their explanation was equally as valid. There seemed to be careers built on thinking of new explanations and proving, by research, that their theories offer alternative possibilities. This was not always the case – we were gradually narrowing things down. They were happy days, I think.

DK: It is interesting that there seem to have been two revolutions in the history of psychology. The first was the behaviour revolution – probably starting in the 1920s with Watson and Rayner (1920) and then BF Skinner (1953) and Pavlov (Pavlov, 1928; Pavlov & Gantt, 1941). Shortly after, in the 1950s, there was a great deal of research which focused on the use of behavioural psychology and the effect that this modality had on phobic anxiety,

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for example (Kraft, 1970; Wachtel, 1975). And, then, we seemed to have had a cognitive revolution. When you did your psychology degree, you focused on cognitive psychology. What was it about cognitive psychology that was so interesting to you in relation to hypnosis?

PN: I suspect that the basic interest, before we get to hypnosis, was developed from having inspirational teachers. I remember Max Coltheart (Colheart et al., 1979) being around at the time and he was excellent. He was a very interesting man because he started as an English teacher – and so, I guess, his lectures were very good. Certainly, the papers that he wrote were beautifully written. I suppose that there was some identification. My background wasn't in English, of course, it was in physics – that sort of area. But, naturally, with my background, I was drawn more towards physical phenomena. I loved perception – auditory perception, in particular. With my educational background, I easily understood waves and the notion of Fourier analysis (see, for example, Howell, 2001) where a particular wave form could be built mathematically out of the combination of a number of sine waves. Notes from instruments have a particular frequency (440 Hz for concert 'A', say) but they also have other frequencies mixed in. These harmonics, as they are called, are multiples of the fundamental frequency – 2 times, 3 times, 5 times, for example. Different instruments have different mixes of harmonics – that's why a violin and an oboe sound different, even when they are both playing 'A'. Anyway, the intriguing thing is that, if we take away the fundamental and just play the harmonics, people still feel that they can hear the fundamental note. We now understand, both mathematically and physiologically, why that should be. So *that* I loved. But more on the cognitive end, I think that it was, in part, the philosophical side to the discipline that interested me the most – this ability to look at data and then to deduce what could be going on in the head which could plausibly account for the data. It was a fascinating conundrum. And soon curious notions were suggested. I remember Alan Allport being one of the proponents of the idea of a blackboard on which different parts of the brain could write up their conclusions, making them available to other parts of the brain (Allport, 1979). And, we still subscribe to something like this – it is perhaps not seen exactly in that way, but it is all about trying to get around these issues – that is to say, how does information come in through the senses and eventually represent something meaningful to us? With Max Coltheart, a lot of this involved the processing of print (see Davelaar et al., 1978). And he used to say, if we ever reached a full understanding of how seeing that collection of squiggles on a page eventually triggers knowledge, thoughts and ideas, then we would know all that there was to know about cognitive psychology. I think that we could probably go further and say that we would know everything about consciousness. So, my doctoral thesis was on reading, not on hypnosis. My interest in hypnosis, as I said earlier, came about when a new society was beginning to form while I was doing my doctorate. But, it is that same issue of how do we get from something pretty simple – a stimulus – to having this sense of knowing and awareness? And, hypnosis can distort this. Hypnosis can make you aware of something which is not really present; and there are, of course, people who can have vivid experiences which are based on nothing at all. Their experiences are entirely self-generated. It is a fairly odd system that can do that to itself. Initially,

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naively, one might ask, 'Why would it even want to do that to itself?.' It doesn't seem very productive to start having experiences which are not there. Why would we evolve like that? Is it just an accident – a sort of byproduct of evolution – or does it serve a purpose? So, hypnosis, very quickly, became an area which, naturally, was intriguing to me, something which was still in my head since those teenage years.

DK: *Now, I remember at the Royal Society of Medicine – and I joined quite a bit later than yourself – feeling that there had been a long history of a debate as to whether hypnosis should be viewed as a 'state' or a 'non-state'. When I joined, in 2002, it was very clear to me that some people thought that hypnosis was definitely a state; and then there were others, people like Irving Kirsch (Kirsch and Lynn, 1995), who were very much on the opposite side of this spectrum. He, like many others, spoke of hypnosis as being an 'altered state of awareness' (Kirsch and Lynn, 1995). I wonder where you sit on that continuum, and how this state/non-state debate helped to formulate your ideas about consciousness?*

PN: Yes. This is a difficult one. There was, of course, this debate. And, there would have been a period when I felt that one had to accept the non-state theory because the bulk of the scientific evidence seemed to point to this conclusion. There is a strong point that can be made by non-state theorists when they say that, surely, the brain is changing state all the time. My brain, at the moment, as I try to reflect and recall the order in which events happened, and what my thinking would have been at the time, is a different activity compared to chatting to some friends in the pub or standing up and giving a lecture. If our 'states' are always changing, why do we have to call one particular mindset 'hypnosis'. It seems to give it a status as if it is something quite different. Cutting a long story short, I do think that hypnosis is something quite different and it might as well have a name. But, during the so-called 'state/non-state wars', during the 1980s say, non-state theorists were not making unreasonable objections. However, I didn't stay with this rather sceptical angle for very long really (Naish 1999). Hypnosis did give all the appearances of being something a bit different. And, back before brain scanning days, the thing that tended to convince me – hence I did a lot of research in the area – was hypnotic time distortion (Naish 2001, 2003). After a hypnosis treatment or experiment has taken place, most people underestimate, quite significantly, the length of the procedure. It seemed to me that it must be a physiological kind of process: we know that we have something in the nature of an internal clock and that functions at the physiological level. In addition, hypnotic time distortion didn't seem to be something that could easily be faked. I'll explain why that's important. One of the big killers for the state theories was the fact that people could be asked to act as if they were hypnotized. And a skilled hypnotist, who had been in the field for many years – someone like Martin Orne, who set up that famous simulation (Orne, 1959) – found that he couldn't tell the difference between the actors and non-actors. The sceptic could then ask, 'How do we know the so-called non-actors weren't actually acting too?' – hence, the idea of compliance (Wagstaff, 1991). For example, people do not like to be awkward, so someone finding that suggestions had no effect might think, 'Oh dear, I bet this works for everyone else. I must put on an act so as not to mess things up.' So, there seemed to be every justification for claiming that nothing much really happened in hypnosis.

But, at the end of one of these 'performance' experiments, if someone asked how long did this hypnosis task last, how would an actor know what to say? They might perhaps think that, had hypnosis worked, the period of time would have felt interminable, so guess two hours! Non-actors, of course, don't do anything of the sort. They say ten minutes when it was really half an hour, the classic shortening observed in hypnotic time distortion.

DK: *The same thing happened when Asch (1955) tested participants in his famous line judgement task. These social experiments are helpful for our understanding of compliance, conformity and peer pressure*.

PN: Yes, it was easy to interpret hypnosis as an example of Asch-style compliance, but time distortion seems to show the interpretation was wrong. It seemed to me that, during hypnosis, the brain must have shifted in some sense, in a way which happened to impact the inner clock. Coming up to the present day, of course, we know that the brain has shifted, with evidence from brain scanning and so forth (e.g. Rainville et al., 2002; McGeown et al., 2009).

The sceptical approach was an attempt to strip away aspects of hypnosis which were more 'window dressing' than functional. For example, we do this elaborate induction procedure, but it seems just to be part of the showmanship of the event; you don't really need to do it. However, very recent research (two papers at the 2018 ISH Congress: Mark Jensen, 'The role of brain activity in symptom management: Enhancing response to self-hypnosis training' and Krisztian Kasos, 'Electrodermal laterality and hypnosis') has shown that the brain, as it were, settles into a 'state' over the course of some minutes, which immediately provides us with the justification for having an induction. So, more and more, the science has been catching up with the practice – that is to say, with the view of the clinicians, who have generally believed that hypnosis was 'real' (whatever 'real' means).

But there have been funny turnarounds and switches of positions between the two communities. I don't know whether, during this time of scepticism, the people who used hypnosis therapeutically felt that they should almost water it down in order not to be seen to make wild claims. Nowadays, scientists have shown, really, that there is quite a lot going on, and have almost jumped to a more exciting position compared to the practitioners! An example that I have been thinking about is that, very often, clinicians, or people training clinicians, will talk about just conducting themselves in a hypnotic way – for example, using the appropriate language when talking to a patient. For instance, it is said to be a good idea not to talk about pain but, rather, to focus on 'becoming more comfortable', because the word 'pain' might lead patients in the wrong direction. There is probably something to be said for this approach, but in a way it feels almost prosaic; let's tell people that hypnosis is doing far more than that. On the other hand perhaps, once again, the clinicians are out on a limb, making all sorts of weird and wonderful claims. To say that one has to use special language is not too far removed from saying that a therapist's voice is 'magical', and if he talks to you, wonderful things will happen. So, I can't decide which of these is going on. Either clinicians have been left behind by the science and they are being a little bit cautious by saying that, 'We don't

really do much but we are careful of the language that we use', or they are saying that they are doing amazing things and 'we don't even need to spend time doing inductions – just the very words we use control people and change the way that their brains work!' And, to me, inductions appear to be a valuable part of the process, although I wouldn't deny the fact that a person, who had had lots of practice at being hypnotized, could probably go into hypnosis very quickly.

DK: It is interesting that the confounding variables which experimenters try to limit or even eliminate in the laboratory setting are the same attributes that are so important in the clinical setting.

PN: Absolutely!

DK: For example, expectation, compliance, and so forth. I think that this new 'hypnotherapy revolution', if we can call it as such, has an important part to play in re-evaluating our understanding of the nature of hypnosis. Most lay hypnotherapists would probably believe that hypnosis is the therapy; whereas my view – and I am sure that we are in agreement here – is that it is an adjunctive tool. So, as a clinician, I have lots of expectation that hypnosis is helpful for effecting change, working in the limits of what we are doing in the behaviour therapy. And there are many other psychological approaches which are so helpful when working with people. I tend to stack all of these techniques together in a tailor-made approach – and this is really why it is so effective. And, I use my theoretical understanding to inform my practice – for example, the idea of left and right brain processing. I wonder how the work that you have done on right-brain asymmetry has helped you to formulate your ideas on your understanding of hypnosis generally?

PN: Well, I guess this is another little piece of evidence that supports the notion that the brain really does change in hypnosis; for example, highly hypnotizable people make quite big shifts to the way that their brains function. We know that now from brain scanning and we can analyse this in some detail with this technology – looking at parts of the brain which are changing and so on. But, with my own measure, which is a very simple one, I have measured the relative speed of processing, in the right and the left hemispheres. I have noticed that, for most of us, most of the time, there is a degree of asymmetry, and sometimes it can be quite large, with one hemisphere in some sense working harder than the other. A well-known example of this is with post-traumatic stress disorder (PTSD) where people seem to have put, pretty much, all the eggs into the right hemisphere basket. The right hemisphere seems to be associated with fear, escape and that kind of thing. People with PTSD seem to be permanently in that sort of mode – on the lookout for danger. A variety of different experiments have shown that this activity is predominantly in the right hemisphere. Now, what that actually means in practice is not known – clearly, both hemispheres are working. For example, they will need their left hemisphere to control their right arm. If they shake hands with you, they are using their left hemisphere (presuming that they are right handed). But, it does seem to be the right hemisphere which predominates in some sensory tasks.

Now, with my own research (Naish, 2010) all that happens is that two lights flash – one by each outer corner of the two eyes. So one light is out to one's left-hand side,

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and one is to the right. The way that our retinas are connected to the brain produces a cross-over. The far left light is observed initially by the right hemisphere, while the light on the right is picked up by the left side of the brain. If the two light flashes appear very closely in succession – flash, flash – when you ask the person which flash came first, they can't tell. They know that the flashes are not simultaneous but it is very hard to work out which one came first. However, if you back off a bit and make the gap between a little longer, participants can get to a stage where they can tell that the left one appears first in a left–right sequence; whereas, if you present the opposite sequence (right–left), at the same speed, the same participants might again say that they can't tell which one was first. So, there is some asymmetry there. That is just an example – some people might be quicker with right–left. If one thinks the logic through, when the left–right sequence is the one where a person can detect the faster sequence, it is that first left light which gets to the right hemisphere first. Then, if they need things slowed down when the left hemisphere gets the first flash, it would suggest that the right hemisphere is working faster than the left. In effect, when the faster hemisphere gets the first flash, it is stretching the gap for you and making it more visible. All that is clear and indisputable, but to go beyond that and say what the implications are of having one hemisphere seeming to process faster than the other, becomes conjecture. There is a lot that we don't know. For example, I would love to do some work using brain-scanning research alongside my task, because all I can say is that one hemisphere seems to go faster than the other.

A significant unknown is where in the brain we compare the flash arrival times to see which was first. If one were an engineer designing some apparatus that detected two lights, and looked for simultaneity of the light, or which one was leading the other, one would place a detector near each light, the connections running to the comparator. That would sit bang in the middle with equal path lengths out to the two detectors, so that one side didn't have the advantage of a shorter path. Now, in the middle of the brain is the corpus callosum, joining the two hemispheres: this is just a bundle of nerve axons which transmits information between the two hemispheres so that they are not totally independent. The middle of the corpus callosum doesn't know anything: it is like a telephone cable and it is the people on each end who know things. Similarly, it is each individual hemisphere which holds data, and it doesn't know what has happened to the other hemisphere until information has been passed across. So, does that mean that one hemisphere waits for the information to come across from the other side and says, 'Yes, I have got a light as well'? That would seem to be a tricky way of doing things, because, somehow, one has to know how much time to allow for the signal to come over. It's as if each side says, 'I have seen my light but it has come the quick way, so I will allow a certain number of milliseconds for the longer distance that the other light takes'. Do both hemispheres do something like that and then compare the gaps? Who knows how it is done? But we do know that, when people experience fear, the right hemisphere becomes quicker. Coming back to hypnosis, for many, but definitely not all, the ones who are highly susceptible, tend to be quite asymmetric. Very often, it is a fast left hemisphere when they are not hypnotized, while they seem to move towards the right when they are in hypnosis – to the extent that some high hypnotizables seem to switch over so that the right hemisphere starts to process really fast. This is possibly due

to the fact that this hemisphere is more readily involved with visualizing, and hypnosis often involves picturing visual information. For example, going to your special place and visualizing a beach scene may enhance right hemispheric activity. The right hemisphere is possibly the more top-down hemisphere. It perhaps more readily relinquishes true information coming from the senses, generating its own sensory information, which has nothing to do with outside reality – it may be something to do with that. But, you could equally say, 'Well, if that hemisphere is busy doing all of those things, how has it got time to process flashing lights'? Why is it so quick? And, if it is so quick, how does that fit with the *slow*-running clock idea for people under-estimating time during hypnosis? There are lots of unknowns, but one certainly sees these hemispheric shifts taking place; so, if nothing else, it is one more piece of information which indicates that brains in hypnosis really do change quite a bit.

DK: Of course, the amygdala is in both hemispheres.

PN: Yes. Most things are sort of replicated across the two hemispheres.

DK: LeDoux (1995) spoke about the 'quick and dirty route' to the amygdala, but it seems to be the more critical parts of the brain – particularly, the prefrontal cortex – which are involved in assessing whether there is a real threat or whether it is a false alarm. This would make sense from an evolutionary perspective. If, for example, you hear a tiger approaching, you may have adequate time to escape; however, once you see the animal, it is presumably too late to take action. So, this would perhaps account for the fact that we tend to be hypersensitive to sounds and smells. And then, I suppose, the prefrontal cortex would be involved in assessing whether there is an actual threat or an imagined one. Very quickly, all the physiological responses associated with fight or flight – sweating, increase in heart rate, raised blood pressure and getting enough oxygen pumping around the body – will remain present, if needed, or dissipate.

I wonder if, at this point, we could briefly look at how your theories relate to psychiatry? As a critical psychologist, and protagonist of the writings of RD Laing (see Crossley, 1998; Laing, 2012), I believe strongly that 'schizophrenia' is a psychiatric entity (Roberts, 2012); and, without this classification, there would be a lot of pharmacologists and psychiatrists out of work. I believe that there is a reason for delusion – that is to say, one's propensity to exaggerate or alter visual or auditory phenomena. And, what tends to happen in psychiatry is that patients are labelled as being 'psychotic'. This means that the psychiatrist doesn't have to do any exploratory work into the source of the psychological disturbance or the reasons for the delusions or unexplainable behaviours. Indeed, this is a very important subject in critical psychology. A few years back, as President of the Section of Hypnosis and Psychosomatic Medicine at the Royal Society of Medicine, you asked Richard Bentall to speak, and his research helped us to understand a little bit more about what the brain was doing with people who had been labelled 'psychotic' (Bentall et al.1991). My question to you is, how does your notion of right-brain/left-brain systems fit in with your view of 'psychosis'?

PN: It is an obvious topic to be looking at for someone with my interests. If hypnosis is fascinating because it can give people conscious experiences of things which are not

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present, then, obviously, one can look further a field and say, 'Look, isn't this what happens in the psychoses when one hears voices, sees demons or whatever?'. We have seen this link a number of times. For example, John Gruzelier (Gruzelier, 1996; Laidlaw et al, 2005) published research which showed that people who scored highly on the schizotypy scale tended to be more hypnotically susceptible. It is legitimate to ask just how far do these parallels go? Someone with 'schizophrenia' doesn't turn it on and off as readily as a person who has just been hypnotized. And, physiologically, there must be differences. There is evidence from tractography (Oh et al., 2009) – a specialized form of fMRI. Using this, it is possible to detect the flow of water molecules and these would be running down the major neural tracts through the brain – important inhibitory tracks, for example. When this measurement is carried out on people suffering from schizophrenia, there appear to be breaks in the links which would normally be there. In addition, curiously, in hypnosis, similar sorts of effects are observed. Obviously, there won't be permanent breaks because, after the hypnosis, people go back to 'normal'.

This may be showing up with 'phase locking' or its reduction (Haig et al., 2000) which is a concept that I should like to expand on briefly. The brain is quite modular and it processes different sorts of information and different levels of information in different regions. The process takes place across the brain and somehow the results of each analysis need to be united to get a comprehensive experience. This appears to be brought about by the brain's oscillations in different locations, being made to occur in a kind of synchrony, although they are not synchronized in the sense that marching soldiers keep in step. If you think of the brain oscillations as simple waves, then in one place they might be going up while, in another place, they are going down. But, they are locked together in overall timing. The waves, therefore, are in step, but the opposite side of the step. And this is called 'phase locking' – they don't drift apart and produce different frequencies. This seems to be the information-uniting mechanism across the brain, and it becomes less extensive in hypnosis and in psychosis. So, there is something definitely going on there. One theory (Caligiuri et al., 2005) suggested that one of the problems in the psychoses is that the left hemisphere is unable to keep the right significantly locked into the here and now, as if it is not adequately dominant to control it. It may be that the right hemisphere becomes a bit too active at this point, and does its own thing in an uncontrolled kind of way. So, when earlier, I was saying that possibly in hypnosis the right hemisphere seems to be working harder, this is generating a reality for the hypnotized person without being a slave to incoming information. Maybe, in schizophrenia, there is a degree of this happening in a completely uncontrolled way, thus producing a new reality for people.

Another one of these revolutions, a purely physiological revolution, but it is still relevant, is epigenetics. We now have a pretty good understanding of epigenetics – 'epi' in the sense of being above – which is a system which rides on top of genetics. We know that disorders such as the psychoses have a strong genetic link. This is not 100 per cent. For example, if both your parents have blue eyes, you will also have blue eyes. This would not be the same with schizophrenia, but the incidence goes up a lot, so there is obviously a link. The reason why the results are not 100 per cent is because there are influences from the environment which can have an impact on our genes. One doesn't get a new set of genes when this happens, but we may change which ones are

effective. Research in epigenetics has shown that not all of our genome is getting read out – that is to say, not being 'expressed' at any one time. It seems that some of the genetic 'words' in there are redacted, while others are used to describe you. However, in certain circumstances, this situation can be switched around, so that some of the genes that were being used become inaccessible, and some bits of your genome, hitherto hidden from view, become exposed and start to exert an influence. We do know that a particular set of genes tends to be quite vulnerable to traumatic experiences and, not surprisingly, they are brain-related genes – ones that govern the production of neurotransmitters, for example. And, this isn't surprising because, during life, the only thing worth changing is your brain. If you lived in a threatening environment, it would be jolly handy to be able to grow another two or three inches and put on a lot of muscle in order to protect yourself, but this isn't going to happen. It takes a while to grow, and once growth has finished, that is it. But, the brain is plastic – it is how we learn. And, every time we learn something new, there would have been some little changes in our synapses. So, it is not mysterious that the brain remains changeable, although it is only recently that we discovered how great the changes can be, post trauma. This had been commented upon in the hypnosis world. Thus, Theodor Barber (Barber, 1964, 1999) noted that, very often, people who are highly hypnotizable are people who have had pretty grim childhoods. At the time of this observation, before the genetic processes were understood, this was accounted for by saying that abused children learnt to 'take themselves elsewhere' by dissociating, so that they weren't, in a sense, suffering from what was actually going on. They were able to distance themselves from the traumatic situation. And I think that this does remain true – it is just that this old theory was an unsophisticated version of the story. We now know that people who have had severely abusive childhoods actually experience these epigenetic changes and their brains are different as a result. We also know that a high proportion of people suffering from psychosis will report that they had been abused as children. So, there does seem to be an immediate link between high hypnotizability and psychosis – going via the epigenetics.

DK: *It is interesting, coming back to my biased opinions on what psychosis represents, that people who have been abused tend, as a coping mechanism, to invent altered realities which somehow become real for them. However, we know from the research of Marianne Barabasz, that bulimics are highly hypnotizable (Barabasz, 1991), and the aetiology of this condition tends to be childhood abuse (Buliket al., 1989; Andrews, 1997). A lot of bulimics talk about this feeling of their reality not being real during a binge–purge cycle. Many complain that they seem to be on automatic mode, as if they are out of control (Kraft and Kraft, 2009). So, this seems to be very similar to schizophrenia. And, of course, PTSD is a form of abuse because people are very frightened. For example, in a war zone, in order to cope with being on constant alert, and coping with a very real threat of danger, as well as seeing your friends in awful situations, one needs to invent some coping strategies, or even alternate realities, in order to deal with the real situation. I would go further to say that any medically unexplained symptom could be construed as being an altered sense of reality.*

PN: That's a good point.

DK: And one could go even further to say that hypnosis, and all the spontaneous phenomena that some people are able to experience, are also examples of people's ability to change their perception of reality – for example, revivification, time distortion, loss of sensation, analgesia, and so forth. My next question is as follows. With all the work that you have done in research over the years, what would you consider to be the next stage for you?

PN: For me, now, it is trickier to do research because I am allegedly retired and I don't readily have access to laboratories and people to test. So inevitably, research is more collaborative. Right at the moment, the research that I am hoping to do is to promote a large-scale, fairly simple study across Europe to show the value of therapy via hypnosis – that it genuinely works very well. Perhaps, this will show up which kinds of conditions are responsive to hypnosis and also, along the way, it will help us to discover whether there are characteristics we can measure in a person, in advance, to determine whether they are likely to be hypnotically susceptible or possibly better suited to treatment via mindfulness. The two approaches seem to be opposite sides of the coin, and they do lead people in opposite directions.

Some of your earlier points about PTSD being similar and so on are apposite. It is the case that this, too, produces epigenetic changes, and some of the symptoms are a bit like the ones that you get from abusive childhoods – by the time victims grow up. But, there are differences, and the epigenetic changes don't overlap apparently. Different genes get changed. And, PTSD, fairly often, and with the right therapist, can be resolved. It can be resistant as well, but hypnosis is pretty good with it. So, it is not a death sentence at all – it shouldn't be, I don't think. PTSD is psychosis-like but it is not the same thing. By contrast, people who have suffered from childhood abuse and who experience some of the typical effects of psychosis, are much more challenging to treat.

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