

the Confabulist

What happens when your memory is so faulty you don't even know your memory is faulty?

by Amy Klein

■ Psychoanalyst Mark Solms hopes to accomplish what Freud attempted more than 100 years ago: to connect psychoanalysis, the science of the mind, with neurology, the science of the anatomical structure of the brain. This field is known as neuropsychanalysis.

Solms is a lecturer in neurosurgery at the St. Bartholomew's and Royal London School of Medicine, chair of neuropsychology, University of Cape Town, South Africa, and director of the Arnold Pfeffer Center for Neuropsychanalysis at the New York Psychoanalytic Institute.

He is the author of *The Brain and the Inner World: An Introduction to the Neuroscience of the Subjective Experience* (Other Press, 2003).

He was recently in New York and gave a lecture called "The Man Who Lived in a Dream" to Columbia University's Neuroscience Society. The following is a summary of the lecture, which attempts to show, through one man's experience, how psychoanalysis informs neuroscience. (In an upcoming issue Dr. Solms will discuss the field of neuropsychanalysis.)

DR. MARK SOLMS' INTRODUCTION

I think that there's something fundamental about how the brain works which we tend to neglect. And that fundamental proposition of the brain is its mental aspects, its psychological dimensions. When we consider brain disorders and brain mechanisms, either we tend to treat it as if it were another bodily organ, and we use the same basic concept and methods to brain functions as we might approach the liver or the heart, or we treat it as if it were an information-processing device of some kind, like a computer.

But the mental aspects of the brain are missed if you treat it as a body organ or an information processing device.

What do I mean by the mental aspects of the brain? I teach graduate science students. And I ask them, "What is

the mind?" and they have great difficulty telling me what a mind is, what mental properties are. And that's because these properties are an embarrassment to science because they are not provable.

There are three properties of the mind:

1. The mind is subjective.

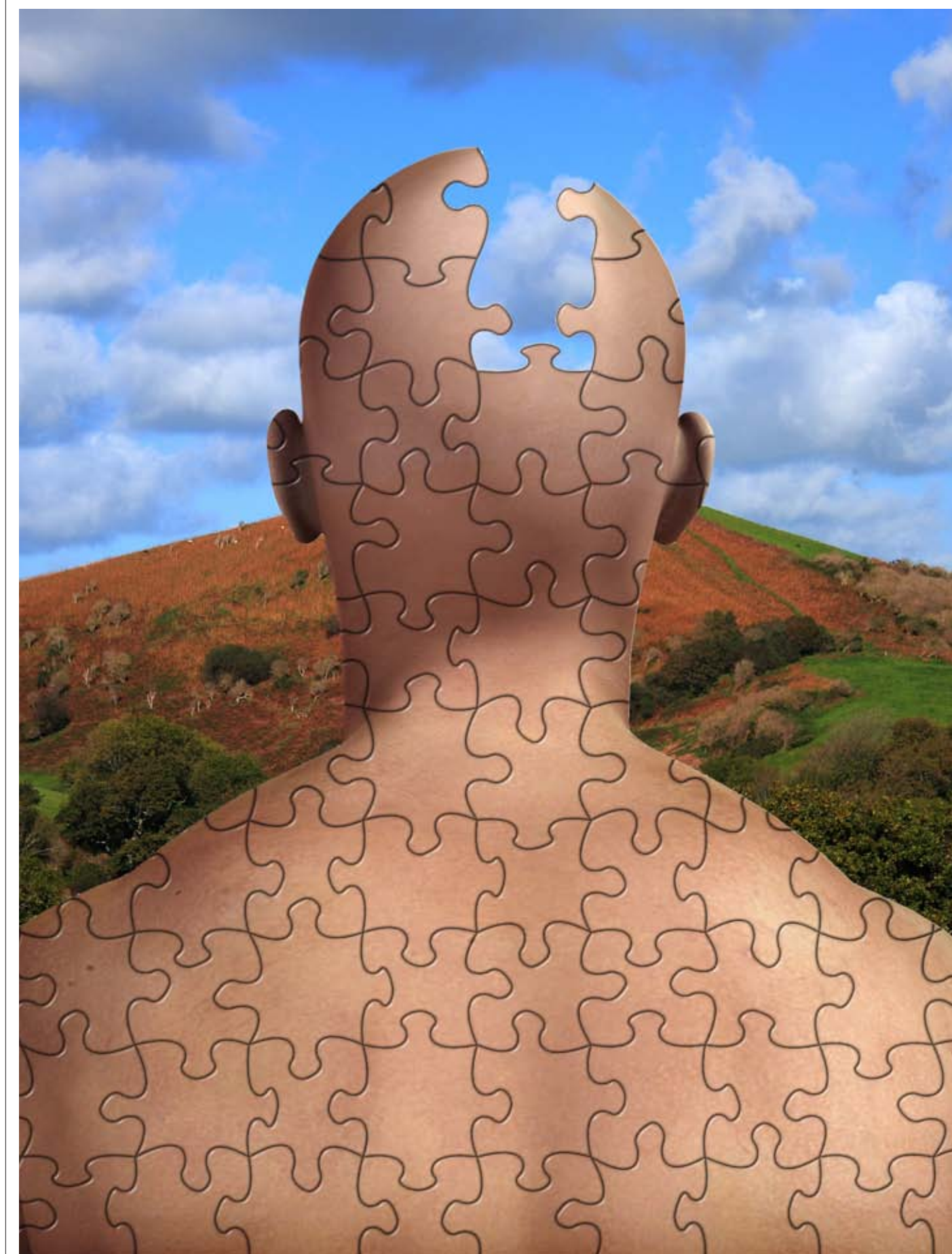
2. The mind is sentient. It feels like something. So to be a mental subject is to be a sentient subject. That is to say, to *feel* like something. To have consciousness, to have feelings, to have sentience.

3. The mind has intentionality. It has volition or will. It has desire or motivation, and this intentionality of the mind arises out of its feeling states. And its feeling states arise out of its subjective nature. These overlap and are inextricable.

THE PATIENT

My patient is a 56-year-old gentleman, an electronic engineer born in South Africa who had been married to a woman named Denise (this turns out to have some minor relevance). They got divorced and he remarried a woman named Vel, five years before I saw him. Two years after he married Vel, he had encroaching visual impairment and went and saw a doctor who sent him to a neurosurgeon, and the scans revealed a tumor growing on optic nerves. (It was a meningioma.) His tumor was resected, his visual impairment disappeared and everything was fine. So much so that he and Vel then had a child, a daughter. This was three years before I saw him. Then, two years later, he noticed the same visual-field defect recurring. So he went back to the surgeon, and scans showed the tumor was recurring, and the decision was made it would be resected a second time. This time, as can happen, when you operate in the same place a second time, during the second

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operation, things didn't go as smoothly as the first time, and the patient suffered an intraoperative hemorrhage. The tumor was contained and fully resected.

When he woke up from his operation he now suffered from a profound amnesic disorder. The amnesic disorder took the form of Korsakoff's syndrome, also known as amnesic-confabulatory syndrome. This is a syndrome which can arise from lesions more or less of any type, and more or less in this region of the brain. It has the following features:

The patient has great difficulty retrieving information, particularly retrieving new—that is to say, recent—information, particularly information that occurred after the onset of the brain lesion. There's some considerable retrograde aspect of the amnesia, and that shows a temporal gradient. By that, I mean the further back you go in time, the better the memory retrieval becomes. Even the more recent events prior to the onset of the lesion are very poorly retrieved, and certainly all those that occurred after the onset of the lesion and are appallingly badly retrieved.

The second striking thing of the amnesia is that the patient doesn't seem always to be fully aware that the memory retrieval is defective. So they retrieve memories which they think are just what they were looking for but in fact are hopeless, inappropriate memories and are frequently not memories at all—they're thoughts or fantasies or God knows what. Sometimes florid fabrications. But the patient behaves as if the retrieved memories are true and what was culled from this is what we call the confabulatory aspect.

I thought I would give you a tiny snippet as to how the patient presents. This is to illustrate the density of the amnesia and what aspects of memory are not affected by the amnesia. The second operation had been 10 months before he saw me. The neurosurgeon suggested to his wife Vel to make a trip from South Africa to come to London to see me. The patient was assessed by colleagues of mine, neuropsychologically, neurocognitively and neurologically, and my main interest was getting to know this patient as a person. I sat with him as one would see a psychoanalytic patient, six days a week, just talking to him for 50 minutes every day, trying to get some sense of who the person was that was presenting with the psychological syndrome. Then, after, I would see his wife.

I had seen him on Monday and Tuesday, and this is the Wednesday. Needless to say, he had no idea who I was. He had no idea that he'd met me



THERE'S SOMETHING YOU CAN SEE IF YOU LOOK AT THE PATIENT AS A PERSON, AS A MIND, AS A SENTIENT BEING WHO WANTS THINGS, WHO HAS DESIRES, WHO HAS VOLITION...

before or been in my office or in the clinic—all of this was news to him. This is what he said:

PATIENT: This is quite a nice little room.

DR. SOLMS: It may surprise you but you've been here before.

PATIENT: Could have been last year about the same time?

DR. SOLMS: No, you were here yesterday.

Long pause.

DR. SOLMS: Today's Wednesday, and you've been here twice before. Yesterday, on Tuesday, and the day before, on Monday. Do you have no memory of it?

PATIENT: I tell you what. I can't remember it.

DR. SOLMS: Well, that's the problem. Your memory isn't working properly at the moment.

PATIENT: No, I don't think I was here.

DR. SOLMS: I know, you don't think you were here because your memory isn't working properly. Your memory is misleading you.

PATIENT: No, but why, first of all, would I come here? It's about 10 to 30 kilometers from where I live, and it's a long drive, and I wouldn't come for nothing.

DR. SOLMS: You haven't come for nothing. The reason you've come to see me, why Vel brought you to see me, is because you're not remembering. And I'm the sort of specialist who deals with those difficulties, with those sorts of illnesses.

PATIENT: Vel brought me?

DR. SOLMS: Yes, she brought you.

Pause.

DR. SOLMS: She brought you here to consult me because she's concerned about your memory.

PATIENT: When did she bring me?

DR. SOLMS: You were brought a few days ago, in London.

PATIENT: In London??

DR. SOLMS: Yes, she brought you to London to see me. And this is the third time I've seen you, to talk to you, to understand what's happening with your memory, because it's definitely not functioning properly. That's why the things I'm telling you sound like news to you. Because you don't remember them having happened.

PATIENT: Well they *must* sound like news to me, because I haven't heard them before.

DR. SOLMS: That's right, it must be very difficult to believe me when I tell you that they *have* happened.

PATIENT: I agree. Now the problem is, am I going to have to agree on what's happened because people say it's happened, but meanwhile nothing's happened to me?

DR. SOLMS: That's right, it's very difficult.

PATIENT: Just a moment. Did you say we're

in London?

DR. SOLMS: Yes, that's right. Look out the window. [It was winter and it had in fact snowed two days earlier. It was unmistakably not South Africa.]

PATIENT: No, that—that doesn't worry me. I mean, I know I'm in J-burg [Johannesburg].

DR. SOLMS: You believe that?

PATIENT: I have to!

DR. SOLMS: Then why is it winter outside? We're in Europe, in London.

PATIENT: Yes, yes, just because we're eating pizza doesn't mean we're in Italy.

He's profoundly impaired in his memory. He has no idea who I am, that he's met me three times before, that Vel has brought him to London, etc.

To illustrate a point we've made, how we use cases like his: He's not *without* memory; there are *particular aspects* of his memory missing. For example, he's not saying, "Who am I?"; he's saying, "Who are *you*?" He's not unaware that he comes from Johannesburg. There's remote memory still available to him, semantic memory available to him. He still remembers how to speak. He knows how to walk. There's procedural memory, semantic memory, remote memory—aspects of knowledge which we don't even think of as memory are intact.

What's not intact is *episodic memory*—the memories or events which involve "me": *I* was there. *I* remember the event. It felt like *this*. That's what's missing for recent events.

We've known about this syndrome for decades. We've studied it with all weapons of neuroscience, and we've come to a general consensus about what we're dealing with, that the disorder has two components:

1. A memory search deficit: When the patient is searching for a target memory and can't find it. It's not that they shoot off into any direction and find something. They get into the right sort of region. They're looking for something that's *vaguely* in the right area, but they find the wrong thing. They find the wrong memory, which usually has some semantic association with the memory they're seeking.

2. Memory monitoring deficit: Having found the wrong memory, they monitor the output of their memory search inadequately. So the memory is found: "I'm in J-burg." He looks around and is clearly *not* in J-burg, but it's fine by him—J-burg is where he believes he is. The

point is there's an insufficiently critical or insufficiently honed attitude to, "Is this the memory I'm looking for?" First they find the wrong memory, secondly they don't *evaluate* the memory-search output—and so they're quite happy to stick with what they found, even though it patently doesn't fit the bill.

What interests me is the mind, is the subject, a sentient, feeling person who wants to do things—that's what minds are made of. So I'm sitting like a psychoanalyst with this man. I'm looking at him as a subject, as a mind or a self. Something that you and I experience ourselves to be. I'm starting with the prejudice that if you treat the patient this way, not as a device with a piece of its machinery broken, then the mental concepts brought to bear in this way and the proper psychological methods used in this way—as embarrassing as they are, given the rigors of what are required in science—are likely to bring to light something different about the disorder.

So with these assumptions, I saw this man every day, six days a week. He didn't know who I was or why he was there, etc. We spoke about things for 50 minutes every day and, to be honest, it was quite amusing where his mind wandered off to. Interesting things emerged.

One of the most important things, I think, was that he didn't just randomly talk about absolute drivel and new things every minute. There were certain themes that emerged again and again. The most common theme was that the reason he was sitting with me in in my office was because I was a client of his—he was an electronic engineer expert that I was consulting about something. So that was his default assumption as to what we were doing there. Another very closely related theme was that both of us were electrical engineers working on a common problem.

But also very frequently, he imagined or believed or behaved as if the two of us were young students at university, and either we had both just finished a rowing jaunt—we were on a rowing team together—or we had just finished playing rugby. So we would chat about the game, and he'd say, "Where's my beer?" and this sort of thing Or otherwise, we were at work, and we were dealing with the electrical matter, and either I was consulting with him or both of us were working together on this project.

I didn't know if he actually played rugby or if he was on a rugby team, so after I saw him I would interview with his wife. For example, once he said he brought his Ferrari in for a repair, and he was becoming alarmed...and it made a difference to know whether he had a

Ferrari or not. So I would ask his wife, "Does your husband own a Ferrari, or did he ever own one?" Obviously it made a difference.

So he had a terrible problem with his teeth, which was resolved with implants. This had solved his dental problems and he was delighted with the dental surgeon. He also had a cardiac arrhythmia which had been treated with a pacemaker, which was working just fine.

So on the ninth time I saw him, I went to the waiting room and he touches his head—the craniotomy scar, in his skull, and looks at me and says, "Hi, doc!" And I thought, *Wow! Today I'm not a rugby player or an electrical engineer, I'm a doctor. And what's more, I have something to do with his head.* And I was quite taken with this. And as we walked to my office, I thought, *I hope we can stick with that.*

As soon as we sat down, I said to him, "You pointed to your head when we met in the waiting room."

And he says, "I think the problem is a cartridge is missing. We just need the specs. What was it—a C-49? Should we order it?"

DOCTOR SOLMS: What does a C-49 cartridge do?

PATIENT: It's a memory cartridge, a memory implant. But I never really understood it, in fact I haven't used it for a good five or six months now. [The surgery was ten months before.] It seems we don't really need it. It was all chopped away by a doctor. What's his name? A Dr. Solms, I think...

[This is the kind of evidential basis for the view that these patient have a retrieval disorder. He encoded a Dr. Solms that he only met nine days ago, so there's new information getting in there, but it's being retrieved in the most weird fashion.]

PATIENT: ...but it seems I don't really need it. The implants work fine.

DR. SOLMS: You're aware that something's wrong with your memory, but—

PATIENT: Yes, it's not working 100 percent, but we don't really need it. It was just missing a few beats. [He then says he thinks he got knocked in the head, but that he has insurance and can keep playing.]

He suffers from the two deficits: the memory search deficit—he's searching for "something's missing." In his memory search, something's missing—it's a cartridge. It's a piece of elec-

CONTINUED ON PAGE 67

Confabulist continued...

tronic equipment that's missing. Or he's aware that there's been an operation, so he searches for "operation," and what he finds is the heart transplant, the pacemaker. Or he finds the dental implants, the other operation... He's not finding the right operation. He finds *Something happened to my head*, then he finds *I got knocked on the head*. This is what we mean by a memory search defect. He's in the right ballpark but not finding the right thing. You see what we mean by the memory monitoring deficit. He's looking for "something's missing," finds a cartridge missing and is fine with that, and says, "Should we order one?" which is clearly a ridiculous idea. He uncritically is very happy to accept all these things, the idea that something's happened to his head, and something must have happened on the sports field, and that he's going back onto the field. Clearly an inadequate judgment of the suitability of the material that he's found

DR. SOLMS' FINDINGS

Here's the main point: I think that there's something *absolutely* obvious that's missing from that account of how this patient's memory works. And I think that the reason we don't see it is that we start with this concept that what we're dealing with here is an information-processing deficit, there are parts that are broken.

If we started with different concepts, we might see different things—and there's something you can see if you look at the patient as a person, as a mind, as a sentient being who wants things, who has desires, who has volition, who has motivation arising out of the feeling states that he experiences from his subjective point of view.

And that's why I'm using this strange psychoanalytical type of methodology, because with all of its faults—and they are enormous—at least this is a method that allows you to study human subjectivity to get some sense of what it is like to be Mr. S., experiencing the world the way he does, generating feelings that he does when you're in his shoes, and what makes him want to do what he does.

Look at the search. He's looking for *I've had an operation*. And he doesn't find *I've had a brain operation*, he finds *I've had a dental or cardiological operation*. The crucially important thing, I think, is that those operations went swimmingly—he never misses a beat, implants went fine. I don't think that's irrelevant.

He's searching for *Something's happened to my head*, and what does he find? Not that *I've had a*

brain operation which is a permanent irreversible thing that's gone wrong. What he finds is, *I got a biff to my head, it's temporary and what's more I've gone to the best sports physician in the country and he's told me I can go back to the field now*.

Another example: "Something's missing. And this something has to do with memory." And that's right. But his very next statement is, "You can just order one of them, get the specifications, write to the shop that sells memory cartridges and buy another one." When that doesn't work, then he tries another one: "Somethings missing, it's a memory model, but you know what? You don't need it. One doesn't need these things."

See—the converging themes in all these memory searchers, which are indeed defective, and all these output-monitoring exercises—he is always turning it from *Gosh, this really bad into Nah, it's fine*.

There's an emotionally colored motivated element to the defective memory search which none of us is looking at, which is missing. This is a patient who is experiences something, who has feelings about it. And that makes him act in a certain way. He's turning a bad situation into a better one. They're wishful. They're distorting things in the direction of making things better for him.

SO LET'S TRY TO PUT OURSELVES INTO HIS SHOES.

My reconstruction: "Here's Dr. Solmes. He's the guy who has something to do with my head, something happened to it. That's why I have a scar here. It's got to do with my head, my memory's missing. Who is this guy?" He's just on the verge of getting the right information.

It's terrifying. It's disorienting. Just imagine—Jesus Christ, what's this? As you begin to think about this. And then it's like, "It's okay, no I never needed it, no the operation worked perfectly well, no it wasn't an operation at all." That's what I think we're dealing with. And you know what? If you think about it, because you are also a mind, this is not something unknown to us. We *want* things to be different from how they are. We get the news and think, "Oh jeez. No." Or, "Did I do that last night, no surely, I didn't, maybe I can just fudge it like this." We work like that. You believe it yourself. Memory works like that, the mind works like that. And so does his. In fact what we normally have, because we have intact frontal lobes, because we have intact memory search and memory monitoring mechanisms, as much as we want to remember things differently, as much as we

want to find things that aren't there, we have to *override* that. That's what the executive search is for. "You know, I *wish* it was like that, but it ain't like that." What do you say here in America? "Deal with it. That's how it really was."

With this guy, he doesn't have to deal with it because those mechanisms aren't working properly. So what emerges from inhibition, what is not properly overwritten is a more emotional, a more wishful, a more childish way, "I want it to be like that, so it's like that."

That's my very simple formulation about what's going on here. That's why I don't sound like a neuroscientist. I sound like a psychoanalyst. But that's the trouble—if the mind works like that, if the *feelings the mind has* affects the way it behaves, and affects its tangential acts, then that's the way the thing is. We can remove these factors. But then we removed some of the fun principles of how the thing works.

Fortunately, with a case like this you have a definite syndrome from a definite lesion inside the brain. Here, there's no question about it. There's thousands of patients like this. You get confabulatory amnesiac syndromes, and they're all the same.

We took 150 confabulating subjects. We got one set of raters to rate the mood of the patients, minute by minute, another where the confabulations occurred. What we found is that the mood is low when the patient makes the confabulation, and then rises after—so it even suggests the mechanism: It's helping the patient to upregulate his mood.

IN CONCLUSION

The point is if you approach the mind with a different set of concepts, you see things about these and neuropsychiatric and neuropsychological syndromes that you otherwise wouldn't have seen. And it reveals something different about what that syndrome is—it reveals something about what the mechanisms underlying it are, which reveals something different about how the brain works.

There is a motivational affective dimension to the organization of our memory-retrieval mechanisms, and we really are going to miss something fundamental that applies to the brain as a whole. If we leave out the motivational dimension as to how this thing works—which is what sets it apart from all the other bits—if we don't do that, we're making a big mistake and doing a great disservice to science. [bw]

For more information on this study, visit bit.ly/brainworld-confabulation