



**OLIVER SACKS**

**Hallucinations**

**September 21, 2009**

**Celeste Bartos Forum**

**LIVE from the New York Public Library**

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**PAUL HOLDENGRÄBER:** Well, it's wonderful to start again. My name is Paul Holdengräber. I'm the Director of Public Programs here at the New York Public Library, now known as LIVE from the New York Public Library, as you know. My goal at this

institution is to make this institution levitate. I've always wondered how much it weighs; I want to make it dance. I welcome you all to this season, the fall season 2009.

Before welcoming to the stage the President of the New York Public Library, Paul LeClerc, just a few words. The upcoming season, you will all have received this little brochure—it will give you a sense of what we're doing. Do also log on to our Web site to find out what's happening. This week, for instance, we have Peter Coyote speaking with Rebecca Solnit. We also have an evening with Ryan Adams and Mary-Louise Parker. Then we have a big event with Creative Time—we have some forty artists coming in one day, so it's really speed dating with artists. I will be interviewing Peter Gelb, from the opera, also Javier Marías, and many, many other goodies, so check it out. I also encourage you all to join the Library, become a Friend of the Library. For just forty dollars a year, you become a Friend of the Library and instead of paying twenty-five dollars per ticket, you pay fifteen dollars per ticket.

I will not be introducing Oliver Sacks tonight. That pleasure will come to Robert Silvers, one of our most treasured trustees and also the editor of the *New York Review of Books*, one of the most high-minded, extraordinary publications not only in America but in the world. I wish I could introduce Oliver Sacks—I am tempted to introduce Oliver Sacks, **(laughter)** in fact I will—no, I will not introduce Oliver Sacks. But I would like to just mention one piece by Oliver Sacks that maybe many of you do not know. It is a marvelous piece by Oliver Sacks and it happens to have appeared not in the *New York Review of Books*—some good things appear in other publications—and in this particular

case it appeared in the *New Yorker* in 1997. It's online, get it. It's called "Water Babies" and it is a wonderful, meditation, exploration of Oliver Sacks's pleasure. Wherever he goes in the world, he looks for a place where he can swim. He will tonight not talk about swimming, I don't think so, but he will be speaking about hallucinations, about what it means to wander mentally, about lucid hallucinations, maybe also about the taboo around hallucinations, what it means to hear voices, and it is a great pleasure to welcome him, but before welcoming him, let me welcome my own President of the New York Public Library, Paul LeClerc.

**(applause)**

**PAUL LECLERC:** Thank you very much, Paul, and thank you for the dynamism, the energy, the brilliance, the passion that you bring to organizing LIVE at the New York Public Library, the best lecture series that there is in New York City, we all know. I, too, would like to introduce Dr. Sacks tonight, **(laughter)** but that pleasure, quite deservedly, falls to the wonderful Robert Silvers, in whose honor this lecture series is named. This is the eighth annual Robert B. Silvers Lecture at the New York Public Library here in the Celeste Bartos Forum, and on behalf of all of the Library's trustees and staff, and I'm delighted that our former chairman Marshall Rose, who first brought me to the Library, is with us tonight, as well as a number of other trustees, I'm really, really happy that you're here. This is a place of learning, it's a place where ideas are born, our readers using our materials are continuously reinterpreting the world through their own experiences and their creativity, and it's wonderful to have so many of you as Friends of the Library. If

you are not already a Friend—Paul has talked about this, but I’ve got to drive it home, because this Library depends very, very substantially on private sector support for its programs, its collections and its services. Become a Friend, it’ll cost you the same price as a good haircut, I guess, forty dollars, and that’s tax deductible, so you can become a Friend at a higher level, but one way or the other, do be a Friend, and if you wish to do that as soon as you get home, nypl.org will take you there.

Our guest this evening is Dr. Oliver Sacks, the brilliant Oliver Sacks, a physician, a professor of neurology and psychiatry at Columbia University Medical Center and also the University’s first artist in residence. The *New York Times* has referred to him as “the poet laureate of medicine.”

This series came into being nine years ago, through the generosity of Max Palevsky, who unfortunately can’t be here with us here this evening— he’s on the West Coast—but Max Palevsky is a wonderful philanthropist, and like Bob Silvers himself is a graduate of the University of Chicago, and he has a keen and deep appreciation, as I’m sure all of us do, for what Bob Silvers has done to enhance the intellectual life of America through his work at the *New York Review of Books*. And so Max somehow wanted to recognize Bob’s contributions in effect to world culture, and his first idea was to pay for a statue to be created and cast and erected in Bryant Park, and that would have been charming, but it would have been static, and those of us who live in New York like dynamism, and so Bob very modestly said, “No, no, no, but let’s do something at the Library, let’s do like a lecture series,” so we have this lecture series now, and it has attracted not only wonderful

audiences such as yourself but, through Bob's choosing, some of the most brilliant minds at work today, writers and thinkers such as Joan Didion, John Coetzee, Ian Buruma, Michael Kimmelman, Daniel Mendelsohn, and last year Zadie Smith. Their individual and collective brilliance I think reflects the diversity of Bob's own interests as well as his unflagging championship of the arts, letters, and the sciences.

Robert Silvers, of course, is the cofounder, together with Barbara Epstein and Jason Epstein, and now he is the sole surviving member of that wonderful group of three, and the sole editor of the *New York Review of Books*, the publication that has been the standard-bearer for literary and aesthetic criticism here in America and around the English-speaking world for more than forty years. But I think we will all agree, those of us who are passionate readers and subscribers to the *New York Review*—and if you're not a subscriber, like if you're not a Friend, you should be a subscriber—the years have not mellowed the *Review*, as we all know. It is still the best incubator for fierce opinions and peerless insights and remains a source of revelation to thinking people the world over. Robert Silvers's commitment to the intersection of literature and scholarship is also evident in his work beyond the *Review*. He is a book editor, anthologizer, translator, editorial adviser to the Italian *La Rivista dei Libri*, the first foreign-language edition of the *Review*. He is a member of the Council on Foreign Relations, and I'm very, very proud to say has served ably and wisely and in a most devoted kind of way as a trustee of the New York Public Library since 1987. He's been honored for his good works both in this country and abroad in addition to being a Fellow of the American Academy of Arts

and Sciences, he's been named a Chevalier de l'Ordre Nationale du Mérite and a member of the French Legion of Honor.

I'm delighted that this evening brings together both Robert Silvers and Oliver Sacks at the Library. And before asking Bob to come up, I'm told that I must give praise and acknowledgment to the LIVE's corporate sponsors, Sutherland, for their generosity in helping us make this entire series possible. And now, ladies and gentlemen, please welcome the great, incomparable, the one of a kind, Robert Silvers.

**(applause)**

**ROBERT SILVERS:** Thank you. Thank you, Paul, very much, and before these lectures happened, I felt that editors like myself should on the whole work with writers, should stay out of sight somewhere in the middle distance, you might say. And then Max Palevsky made this truly startling suggestion to do something in my name, and I was not only touched by his generosity, I also felt an editor's impulse to do something to honor writers I greatly admire, and do so in a way that would involve the two institutions that have meant the most to me, the *New York Review*, now in its forty-sixth year, and the New York Public Library, which seems to me one of the most admirable institutions we have. It is a truly democratic source of the mind of the city. And so I have to say thanks to the Library and thanks to Max.

Now, after our lecturers, running from Joan Didion to Zadie Smith, I must say that when Oliver Sacks said he would give this lecture, it was the realization of a fantasy of mine, or perhaps I should even say a hallucination. **(laughter)** For an editor like myself, he's been a true hero of contemporary thought. He's our most intrepid explorer of the mysteries of the mind. Now, looking back, I remember his first book on migraines. It was 1970. It was reviewed for us by none other than W. H. Auden, who underlined what he found to be the cardinal rule of the book and of Oliver's approach, that one must listen and listen closely and then more closely to the patient, for, Auden wrote, "if migraine patients have a strong and a legitimate complaint, it's that they are looked at and drugged and charged but not listened to."

And since Auden's review, I see that Oliver has contributed more than thirty pieces to our pages. His first essay appeared in 1984; it was called "The Lost Mariner." it was about a former sailor called Jimmy who was in his fifties. He lived at the home for the aged where Oliver was then working. He was a man whose brain had been so damaged that he still thought that he was nineteen years old. And he was in his fifties and he was still living in the world of 1945. And he could remember hardly anything since, forgetting from one day, or one hour, to the next what happened to him. Now Oliver recounts how he was so puzzled by this case that he wrote to Moscow, to the great Russian neurologist A. R. Luria, about Jimmy, who seemed, he said to be surrounded by a moat of forgetting. And Luria wrote back saying, and I quote, "A man did not consist of memory alone; he has will, he has feelings, sensibilities, moral being, and you may find ways to touch him." And Oliver soon after observed Jimmy in the chapel of the home, and he was taking

communion, and he suddenly saw that Jimmy was wholly absorbed by that moment, and, building on that observation, he found that Jimmy could also be absorbed by music and by flowers and gardening. And he went on to tend the garden of the home for the aged. And in his essay about this case, Oliver wrote, “When there is a great organic damage and dissolution there remains,” and I’m quoting him, “the undiminished possibility of reintegration by art, by communion, by touching the human spirit, and this can be preserved in what seemed a hopeless state of neurological devastation.”

Now, before and after that essay, Oliver has inquired into an astonishing variety of mental experience. When there was a protest at the school for the deaf in Washington, he went down there to report for the *New York Review*, and then he wrote a long, definitive book on the nature of deafness and on sign language, as he has also written books on autism and Tourette’s and famously on people awakening from sleeping sickness, and on his own experience when a bull smashed his leg to the point where it rendered it quite alien to him and he has in his book *Doctor Tungsten* described growing up in a London family of physicians and scientists and his early outdoor adventures, biological adventures, with his longtime friend Jonathan Miller. And looking at these articles and his ten books, I’ve only mentioned a few, I come back to his story of Jimmy and how he found that the empirical science of neurology, of which he is a technical master, took no adequate account as he wrote of what constitutes, of what truly constitutes, personal being. It is this perception of the human spirit that I believe runs as a continuing theme through his many works and that is why, as Paul said, at Columbia he’s not only called a



professor of psychiatry, but the university artist. And that's why he's very rightly known as our poet laureate of medical science. Oliver Sacks.

**(applause)**

**OLIVER SACKS:** Thank you very much, Bob. Bob and I go back a long way and we were originally introduced by Jonathan Miller in 1962 when Jonathan was here for *Beyond the Fringe*. When Bob saw my manuscript of "The Lost Mariner," he said he wanted to see my original notes as well. And when he saw the original notes, he said that he thought a lot of them were much better than the so-called finished writing and the—Bob is the most—not only the most sensitive but the most hardworking and meticulous editor I have ever known. On one occasion he phoned me when I was in New Zealand about a semicolon. **(laughter)** And I have called on him at odd times—at three in the morning, on Christmas Day, on Yom Kippur—he is always there, practically hidden behind gigantic towers of books. There's no one like him, and I feel very honored at giving this Bob Silvers Lecture, and also very delighted to be here at the Library, because when I grew up in London, libraries were my home and my education. I was rather bad at school. I—I'm not good at being taught. I need to feel out information and knowledge and understanding in my own way, and libraries were crucial to me, and books allowed a communion with the dead and with everyone, and, in particular, everything I've written, if it has stemmed partly from clinical experience or personal experience, has stemmed equally from books and often old books.

And so but my first book *Migraine*, this was very much inspired by a book called *Megrim* written in the 1860s, and since I'm talking about hallucinations today, one of the inspirations is this 1824 book, *Sketches of the Philosophy of Apparitions*. In 1824 the term hallucinations was not used in its present sense. One had apparitions, phantasms, specters, ghosts, the term "hallucinations" only took on its present, slightly disquieting meaning in the late 1830s. This is actually—if you don't trust gravity, what can you trust? **(laughter)** This is one of the earliest English books to—to disburden itself of the supernaturalist feeling about ghosts and apparitions and spirits. Until the 1750s or so, anyone who hallucinated was seen as inspired by God or a demon or a muse or whatever, and of course there was a huge, and still there's a huge folklore, of all sorts of extra-natural beings—angels, aliens, ghosts, elves, little green men now, which are probably to some extent—I'll come back to this—been inspired by dreams and hallucinations.

The—maybe one—before I go any further, one needs to say—I need to say what I mean, or roughly what is meant by a hallucination. I—you seem a fairly sober audience, **(laughter)** but I'm sure a lot of you hallucinate. **(laughter)** It's rather evident when someone hallucinates. They listen, they look, there's a sudden overwhelming feeling of a sound, a smell, a vision from outside. And this is not at all like an image. Your imagination is your own. You recollect and you put things together, whereas a hallucination tends to appear suddenly, full blown, involuntarily, and not apparently anything to do with you, and it's only when you cannot find an outside source that you start to think in a bewildered way that something is going on out of control and automatically in you. If I can quote William James, he says that hallucinations are often

mistaken for images, He says but where hallucinations complete it is much more than a mental image, a hallucination is a strictly sensational form of consciousness, as good and true a sensation as if there were a real object there. The object happens to be not there, that's all." **(laughter)** It's so much fun reading William James, one goes back again and again. You can never exhaust the *Principles*, it's a marvelous, marvelous book.

The term "hallucination" was introduced in the context of mental illness and delusion in the late 1830s and, unfortunately, for many people it continues to have that connotation. And this is a reason why many people who have nonpsychiatric hallucinations are afraid to mention them and keep them to themselves. In the 1840s other sorts of hallucination were freely described. Of course de Quincey and Coleridge and others had been talking about opium dreams and hallucinations. Hashish became very popular and Baudelaire and many others spoke about that. The-Also there was great attention from the 1840s on to the strange images or near-hallucinations which can occur when one closes one's eyes at night and lets the mind go quiet and passive, but is not asleep, and then—and I'm sure this happens with many of you—various patterns or images may rise in the mind very quietly. You're not yet dreaming, you still have a reflective consciousness and you can observe these.

The—although there were thoughts that hallucinations were produced somehow by the brain, and the brain of the individual, and therefore mirrored the particularities of their experience and so forth, this couldn't be confirmed until about fifteen years ago, when one got ways of imaging—doing an imaging of the brain as people were hallucinating,

but I'm going to come back to this later, and I think now I need to sort of start to tell you some stories. The—although I came to medicine through zoology, no animal—no nonhuman animal—can tell you about its hallucinations, although I'm sure some of them have hallucinations, as well as dreams. You're—if you don't hallucinate yourself—I do hallucinate a little bit myself—you have to listen very carefully and nonjudgmentally and quietly and tactfully to what people may say.

When I saw Jim, the lost mariner, some years ago he was a patient in an old-age home run by nuns, the Little Sisters of the Poor, where I have worked for more than forty years. There are many elderly people there, who, though intellectually intact, are somewhat deaf and somewhat blind. I am now among them. **(laughter)** And it came to me some years ago that those who were visually impaired or hearing impaired were prone to hallucinations. I didn't realize *how* prone at first, for, as I've said, people are often frightened to mention these. They may be afraid that they are going mad or others will see them as mad, and it's only when they get to know you well that they may bring this out. Well, about two years ago I got a call from Little Sisters about one of their patients, Rosalie, a woman in her mid-nineties, previously well behaved, but they said she said, "She's now hallucinating, she sees things everywhere, she's gone crazy, and we've called a psychiatrist, but they said, but maybe she has Alzheimer's, maybe she had a stroke, so we're calling you, the neurologist, as well," so I—they omitted to tell me, or certainly to emphasize, that she was blind.

I went in to see Rosalie and she was a physically and intellectually robust old lady, very sane, and very puzzled and rather frightened. And she said that she had been almost blind for some years and then but a few days before, she'd started seeing things, so I said, "What sort of things?" and she said, "People in Eastern dress, in drapes, walking up and down stairs; a man who turns towards me and smiles, but he has huge teeth on one side of his mouth. Animals, too. I see this scene, it's snowing, a soft snow, it's swirling, I see this horse in a harness dragging snow away, and then, one night, the scene changes again. I see cats and dogs walking towards me. They come to a certain point and then stop. And then it changes again. I see a lot of children, they're walking up and down stairs, they wear bright colors, like Eastern dress." And she'd been seeing this for several nights. I asked her if the experience was like a dream, and she said, "Not in the least." She said, "It's like a movie," she said, "a silent movie, it's colored, it's three-dimensional, it's silent, and it's rather boring." **(laughter)** She says, "All these people walking up and down stairs. All this Eastern dress." And she said that these visions, they came and went, they seemed to have nothing to do with her, she'd never experienced anything like this, and she hadn't in fact mentioned them to the nurses, but obviously they'd seen her looking around.

She thought the visions—she didn't recognize any of the people or the places or the animals in her visions, and the visions didn't seem to have anything to do with her, with what she was thinking or doing or even saying, and, although she was curious and amused and fascinated and slightly frightened, the visions didn't seem to carry any particular emotional charge. She was not in the middle of them as one is in the middle of

a dream, she was observing them in her room. And—but she was frightened, she'd never had anything like this, she'd never heard of anything like this. She wondered if she was losing her mind or having a stroke, whatever. So I went over her carefully. She was in good health, she wasn't—I couldn't find anything the matter. She wasn't on any medication which might produce hallucinations, but she was manifestly blind and had a retinal condition called macular degeneration, and I said, "I think I know what's going on." I said, "and this proneness of blind people to hallucinations was vividly described 250 years ago by a Swiss naturalist called Charles Bonnet." And I said, "You have Charles Bonnet syndrome." And she was very—"and there's nothing wrong with your brain and the rest of you and this is a fairly benign syndrome and it will probably disappear in a few days and even if it doesn't, you will learn to live with it and maybe enjoy it." So she was very reassured and also tickled that there should be a proper name, a Swiss name, **(laughter)** attached to her condition. And she said, she said, "Who was this Charles Bonnet? Did he have it himself?" And she said, "Tell the nurses that I have Charles Bonnet Syndrome. **(laughter)** I'm not one of your regular demented, I have Charles Bonnet Syndrome."

Well, in fact, Charles Bonnet did not have it at the time he wrote about it, but his grandfather did. **Charles** Lullin. His grandfather was an eminent magistrate, approaching ninety, who'd had cataracts and operations and was losing his vision, although not totally blind like Rosalie, and Charles Bonnet induced his grandfather to dictate an account of the hallucinations. This amazing account, which fills eighteen pages of a notebook, was lost for a hundred and fifty years, but found at the beginning of the twentieth century, and

Charles Bonnet himself only made a brief summary of the enormously rich situation his grandfather was in. His grandfather recognized some of the hallucinations as such. So when he saw a blue handkerchief in midair, he knew it was a hallucination; you don't have blue handkerchiefs in midair. But when his granddaughters came to visit him, and he said, "And who are these handsome young men with you?" they looked downcast and said, alas, there were no handsome young men, and the handsome young men disappeared after a minute or so, as the handkerchief did. These Charles Bonnet visions are fugitive, they come and go. The—sometimes they are of different sizes. On one occasion, **Charles** Lullin saw a carriage, a hallucinatory carriage, approaching which got larger and larger until it towered above the tops of the houses. On—there was a huge variety. Transformations were typical, so on one occasion there was a swarm of specks that turned into a flight of pigeons and then dancing butterflies. And on one occasion he saw an elderly man in a bathrobe smoking a pipe and realized that was himself.

So the hallucinations and the misperceptions can be very remarkable. One of my patients, a visually impaired but very bright woman who has in fact just finished her latest book, has had all sorts of hallucinations, on one occasion she said, "I saw what—" I asked her to keep a journal of her hallucinations and until she did this she said she had no idea that there were so many and so many each day, and certainly one tends to forget these, so on one occasion she said, "I saw what looked like a teenage boy on the front hood of our car leaning on his arms with his feet up in the air. He stayed there for about five minutes. Even when we turned, he stayed on the hood of the car. As we pulled into the restaurant parking lot, he ascended into the air, up against the building, and stayed there until I'd got

out of the car.” Occasionally she would have complex replications. She described how on one occasion there was a—she was in a restaurant with her husband, a man was paying at the cash register, a man with a striped shirt, and he turned round and divided into six or seven men, all in striped shirts, and all with the same gestures, who walked towards her and then collapsed concertina-like into a single person. So there can be very, very strange hallucinations and misperceptions with this Charles Bonnet, though on another occasion this lady was looking at the television and saw people were descending from a plane, but then their descent continued down the console of the television set onto the carpet as tiny Lilliputian people. And, again, these hallucinations are purely visual, and even though dogs may appear to bark, and people’s mouths may move, there’s no sound. Silent, silent movies.

The—so now Charles Bonnet syndrome was regarded as quite rare, very rare indeed, until about 1990, and this surprised me, and in fact one of the things I wanted to write about in my *Hat* book in ’86 but I didn’t, I wrote about musical hallucinations then, and I wanted to write about this analogous form of visual hallucinations. Indeed, I was going to to. There’s a little episode at that time when I had a fall and I broke an arm and a leg, and as I was being taken into hospital and into the emergency room, the resident said, what’s that written on your hand, and I said, “oh, that’s a patient with Charles Bonnet syndrome, I’m on my way to see her,” and he said, “no, you’re not, you’re the patient now,” and so I was, and so Charles Bonnet didn’t get dealt with then.



There can be all sorts of strange juxtapositions and confluences, so, for example, **Charles** Lullin described some people would have on bizarrely elaborate headdress, bigger than they were, some of them might have a box on their head, sometimes they might have a bird on their head. One of my patients tends to see little mannequins coming out of the cheek. In general the hallucinations are strange or bizarre but not directly threatening. They have—you have no interaction with Charles Bonnet hallucinations. The—and some people can feel fairly comfortable with it. One man who sent to me a very delightful account, said in his account, he imagined—he describes his hallucinations being altogether friendly and he imagines his eyes saying, “Sorry to have let you down. We recognize that blindness is no fun, so we’ve organized this small syndrome as sort of coda to your sighted life. It’s not much, but it’s the best we can manage.” **(laughter)** I’m very touched by this. It’s—I think it’s a very gallant, gallant thing to say. With **Charles** Lullin, in the months that he had this, would often go into a dark room in order to have a quiet showing of his hallucinations. **(laughter)** And his grandson said, “his mind makes merry with the images, the brain is a theater where the stage machinery puts on performances which are all the more amazing because they are unexpected.” And so again here this is a poetic metaphorical but also neurological notion of these. Charles Bonnet didn’t imagine for a moment that, you know, the visions were coming from outside. He realized that something was going on in what he took to be the visual parts of the brain, of which he thought to be the parts normally involved in the visual perception and the visual imagination, but this notion had to wait nearly—more than two hundred years to be confirmed.

There've always been descriptions of people having visions in situations of darkness and silence and isolation, whether they are holy men in caves or prisoners isolated. The term "prisoners' cinema" got into the literature around 1920 for the sort of hallucinations which people could have in these circumstances. After World War II, there were a lot of unexpected accidents, especially with high-flying aviators facing a featureless blue sky for hours and hours and sometimes truckers facing an endless white road, and this set off experiments on sensory deprivation and the—and in the early experiments was really a totally sensory deprivation—people were not only in dark rooms or blindfolded, they, the rooms were soundproof, there was no speech, they had cuffs on, and—but even with pure visual deprivation, just wearing a blindfold, everyone starts getting hallucinations within a few hours, hallucinations, visual hallucinations, which become, can become almost continuous after three days.

And this brings home the fact that in something like Charles Bonnet syndrome you don't have to have an actual disease or pathology of the eye or the optic nerves or the visual parts of the brain, it's sufficient to be, to have impairment of input, and what it brings up, as dreams bring up in another way, is that the brain is always active. The old notion used to be that when you are asleep, the brain shuts down. On the contrary, it is more active in dreaming than at any other time, but it's a different sort of activity. And this is also true of the perceptual systems. If there's no visual input, the visual system doesn't shut down, it becomes hungry, it wants activity, it has to keep going, and it will start to generate images or hallucinations of its own.

And the—and one can show, that with visual deprivation or visual impairment, the visual parts of the brain become hyperactive, and in particular those parts of the brain which—which would perceive particular things. There are different parts of the brain involved, say, in the perception of faces, of animals, of landscapes, of lighting, and of this and that, and if one does imaging, as one can do, on someone, while they are experiencing hallucinations, when they say, “I see a face,” or whatever, or maybe like Rosalie, the greatly enlarged teeth on one side, you will find activity, a sudden surge of activity, in that particular part of the brain. There’s also quite recently been a description of particular cells in the brain which are involved in the perception of, or recognition of, faces, landscapes, and these too become active.

So I think what one has to envisage normally one’s visual lexicon and there must be visual lexicons at many, many levels. This is a fairly primitive one where the visual hasn’t yet been correlated with memory, with emotion, with other senses. This is a purely visual part of the brain. Normally one has no consciousness of this, because they are seamlessly integrated into your perception and your imagination, but, with these hallucinations, suddenly you have a release of these parts of the brain and they become anarchic and explosive and they’re shooting off hallucinations in all directions. You will perhaps do your best to give some meaning or some narrative to the hallucinations as perhaps you do in dreams, but whereas with dreams you can only recollect and only recollect a few fragments, with hallucinations like this, you can give a blow-by-blow account, and some of the best accounts I’ll read you a little bit have been given by people who have a tape recorder and just murmur into it as the scenes go on, but here you really

have an amazing revelation of what goes on in parts of the brain, you know, which are normally inaccessible.

If I can find what I want—there is a poet whom Bob published some poems of in '96, Virginia Adair, and Virginia Adair wrote many poems. She was born in 1913, she wrote many poems in her twenties and her thirties, but then she opted for a life of scholarship and her poetic voice became silent for fifty years, nearly fifty years. In her late seventies she started to lose her vision and to have hallucinations and this reignited, inspired and reignited her poetic voice, and in fact her first book of poems, *Ants on the Melon*, was published when she was eighty-three. I was sent an astounding journal and I fear, I fear I cannot find it now. For many years she kept an amazing journal, which I think was partly whispered and dictated, of her hallucinations, so this is the raw material, and hallucinations in someone this gifted and with this rich an imagination can be very astounding, and then this led to various poems.

Now I want to talk a little bit about another sort of hallucination where you don't have to be blind or visually impaired. And I mentioned this before, these are the hallucinations one may get as one's dropping off to sleep. The so-called hypnagogic hallucinations. I want to read you a little bit from a letter I got from a correspondent in Australia. For me correspondence is absolutely crucial. I can only see a few patients a week, a handful, a dozen, but I get hundreds of letters. I will also say that the best correspondents are in Australia, **(laughter)** and the best readers. I get more interesting, intelligent letters from Australia, really, than the rest of the world. So here is one letter and when I get these

letters I put them away and if they're interesting, so in fact this letter arrived in 1992, but it has just sort of come back into my mind.

So this man describes how his visions occur “at the moment when the head hits the pillow at night, the eyes close, and instead of a turbulent darkness I see imagery. The images—” and he says “whatever is first glimpsed is transformed in the most extraordinary ways at great speed. Shapes are seen, replicated, multiplied, reversed in negative, shown in three dimensions, squeezed into lines, curved into new shapes. Color is added, tinted, subtracted. Textures are the most fascinating. Grass becomes fur, becomes hair follicles, becomes waving, dancing lines of light, and a hundred other variations that my words are too coarse to describe.” Incidentally, when Galton, Darwin's cousin, wrote about these hallucinations in his 1882 book, he said that if he had been asked “Do you see anything when you close your eyes at night?” he would have said no, but that he then started thinking about this, and the more he observed, the more he observed, the more he had, although he said what he got was too elaborate and too fugitive to be described—too elaborate and too fugitive.

This correspondent of mine, he continues, he says “there are absolutely no emotional overtones. The transformations occur without any apparent direction, but there is an associative logic to them. The whole experience seems to be devoid of meaning. I'm reminded on the one hand of the lines from Goethe's *Faust*, ‘formation, transformation, eternal minds, eternal recreation,’ but on the other hand, the whole experience is characterized by purposelessness. It is as if the mind had been put into idle mode and one

had accidentally lifted the cover of the image-producing engine of the brain and there was a great flywheel still spinning without the gears engaged.” I love this letter, and when I wrote back to him in ’92, I said “I hope on some occasion I can quote your letter,” and then about a month ago I wrote to him again, saying, “the time has now come,” **(laughter)** and this often happens with me, and so I got an amazed and charming letter back in which he said, you know, “quote all you can.”

I’m going to—I should have said this at the start. I’m not going to speak about the hallucinations of schizophrenia, about psychiatric hallucinations, even though the term “hallucination” was given this particular meaning in the 1830s. The hallucinations of psychosis or schizophrenia tend to be verbal, or considerably verbal, they are addressed to one, they accuse, they seduce, they cajole, they whatever, and—and they embody feelings and passions and thoughts and beliefs and delusions, sometimes. None of this is the case with the sort of hallucinations I’m talking about, which blind people may get, or all of us may get as we’re falling asleep. I also won’t say much of—about dreams, because they’re so gigantic a subject, although I think I will say that there is a division between what one might call the Freudian view of dreams as embodied ideas and feelings, often disguised and conflicted, and Allan Hobson’s idea that dreams are basically a sort of hallucinatory explosion which occurs in one’s sleep and which one tries to give meaning to. For Freud, meaning is primary, for Hobson, meaning is added. I partly go along I think with both of those. **(laughter)** I’m a compromiser, I’m always in the middle, or I like to sort of use a phrase of “lightness in the center of perspectives,” that sounds better than “compromise,” which sounds cowardly.

Well, dreams. There can also be hallucinations of a rather different sort as one wakes from sleep and these may be rather more—have a rather different quality, and be a little scary and so here is a letter from another Australian correspondent—they’re all there. He said, “I’m plagued by the most terrifying malady—horrible hallucinations, brilliantly clear, and very real. I wake from a calm sleep and perhaps a fairly normal dream with a shock, and there before me is a creature that even Hollywood couldn’t create. The hallucinations fade in about ten seconds, and I can move when I have them. In fact, I usually jump about a foot in the air and scream.” He mentions this because there’s a condition called narcolepsy in which one is prone to overwhelming sleep and to the—and to sudden dreams and to the hallucinations before and after dreams, that may also go with a so-called sleep paralysis where you can’t move, and he’s saying that he *doesn’t* have this. He said “the hallucinations are becoming worse, now about four a night, and I’m becoming afraid of going to bed. The following are some examples of what I see: A huge figure of an angel standing over me. A rotting corpse lying next to me. A huge crocodile at my throat. A dead baby on the floor covered in blood. Giant spiders—very frequent.” I agree—they *are* very frequent. **(laughter)** I haven’t had that particular one myself, but at least half a dozen people have brought up spiders. I think they must be hard-wired somewhere, you know, arachnophobia in the brain. “Clouds of smoke.” This is a very Australian thing, I don’t know what it means. “Inside a huge fuse box.” **(laughter)** Well, anyhow, unlike the delicate hallucinations as one falls asleep, where, you know, you know these are just quiet apparitions, these hypnogogic ones *can* be frightening. If you wake up and there’s a pterodactyl two foot above your face, you know, your heart

beats suddenly. Sometimes these hypnopompic hallucinations, as they're called, seem to be waking dreams, continuations of nightmares into the waking state, but not always. And they can occur at any age. They're probably younger, in childhood. A friend of mine has had a patient, a ten-year-old boy, who woke up—a ten-year-old boy, who was really a rather atheistic, secular boy who loved chemistry, rather like someone I know, but this boy woke at night and he saw a tall, radiant woman by his bed who resembled his departed grandmother and who intimated to him somehow—I don't think there was actual speech—that she was his guardian angel. And he turned on the light, and she was still there, and he ran out to his parents and when he came back, she had gone. Now, he's having a lot of difficulty integrating this experience. He doesn't believe in angels. He doesn't believe in the supernatural, though it's better to have a guardian angel than a—than a—whatever, a pterodactyl. **(laughter)** But it's—Now one begins to see how a belief in spirits and ghosts is likely to happen if this occurs in youth or in other communities.

Now I think if I can find it—yeah, there are many literary accounts and literary analyses of hallucinations of all sorts. There's an immense literature on drug hallucinations from the—you know, there's a beautiful book called *Opium and the Romantic Imagination* and then, of course, there's all the recent psychedelia. The—However, some of the authors of that time were almost satisfied with hypnogogic imagery. So, for example, Edgar Allan Poe writes, “there is a class of fancies of exquisite delicacy which arise in the soul only at its epochs of most intense tranquility and at those mere points in time where the confines of the waking world blend with those of the world of dreams. I'm aware of these fancies



only when I am on the brink of sleep with a consciousness that I am so,” and Poe in fact was very punctilious about this, and would not himself drift into sleep but would wake himself up and transcribe these fancies and use many of them in his own works. So hypnogogic imagery was important for him, as Charles Bonnet hallucination was important for Virginia Adair. There are wonderful descriptions by de Quincey and Coleridge—again, not so much of pure drug states but of the heightening and prolongation of hypnogogic states with drugs, and for De Quincey and Coleridge and Wordsworth, who also had very startling hypnogogic imagery, and Southey, and for Baudelaire and others in France, this sort of thing was an analogue of the creative process, but at a very primitive level, and that there would be a swarming of involuntary figments which would then come together, juxtapose themselves in various ways, and sometimes form simple scenes or stories. For them this was sometimes a direct antecedent and certainly an analogue of the creative process.

Now, I—I think I need to wind up a little bit. I mean, as a neurologist, I encounter people, people come to me with stories of hallucination, or I elicit stories—hallucinations can occur in many other conditions, in Parkinson’s disease and Alzheimer’s and various—various medications—with people who are on steroids, my function as a neurologist is first to clarify and reassure. Very, very crucial. There are hundreds of thousands of people who are having visual hallucinations who are terrified of it and really they need to be reassured. As a scientist or physiologist, I am fascinated at this window into the brain, into a primitive, image-forming part of the brain and as it were seeing the brain at play, a primitive part of the brain at play. Beyond that, I can’t help wondering how much this

gets into common discourse as folklore and as belief in spirits, and apparitions, and so forth. I am—very particularly common in the hallucinations are Lilliputian hallucinations, little people, and in every culture, you have elves, fairies, gnomes, leprechaun sprites. I think the little people of the world may come from hallucinations. I think this is also so of angels and aliens, but I would hesitate to tell that to the eighty percent of the population who believe in them. Well, I think at this point I've probably stretched your patience enough and so I will—I mean, I'd be happy to go on for hours, but for the moment I think I've said enough, and I thank you very much.

**(applause)**

**Q:** Hi. A lot of your research is personally based—a lot of your books are case-by-case basis and a lot of the research today seems to be technology based, and, you know, there's a lot of neuroimaging research and considering the prominence of technology like fMRI and the statistical questions about statistical rigorousness. How has this affected the way you conduct your research and do you have any sort of skepticism towards the way the field works?

**OLIVER SACKS:** Well, I think there's a—yeah, I share it to some extent, and I think there is a sort of new reductionism in the air which will say, whatever, hallucinations are just activity *here*, morality is just activity *there*, God is just activity *there* and the—it's tremendously important to have these neural colorers and I will say I've jumped into a functional imager several times myself in relation to music and also in relation to vision

but I—Buber said many years ago ‘we must humanize technology before it dehumanizes us.’ I mean, I think there is a risk of diminished attention and feeling for the person, and you just may want to get them into the MRI as soon as possible. I do think that sort of doctor/patient relationships, but beyond that, the—just the appreciation of the sheer complexity of mental states is—can feel slightly threatened by crude technology but I—hopefully we’ll find a balance.

**Q:** I was just hoping that this would be the subject of your next book.

**OLIVER SACKS:** It is. **(laughter)** Or rather it is one of the subjects and the next book is going to be about vision—visions and it will deal with many other things as well. Visual imagination and stereo vision and the sort of strobe vision which I wrote about in the *New York Review of Books* and even a little bit on my own vision which has changed a lot since I lost an eye and started having some quiet hallucinations of my own.

**Q:** It’s fabulous to hear you speak. Thank you so much. My question is regarding seizures and hallucinations. I’m wondering if you think there’s any sort of relationship between some types of seizures and epilepsy and hallucinations?

**OLIVER SACKS:** Yeah, there are—yeah, one of my chapters is about epileptic visions and some sorts of seizure which include visual components and sometimes consist exclusively. Some of these are very simple seizures where someone will see a little glittering ball, say, somewhere up to the right for a few seconds, but then they also,

especially if the temporal lobes of the brain be involved, there may be much complex hallucinations which are of dreamlike intensity and involvement and also have strong elements of memory and fantasy, which the Charles Bonnet ones don't have. And some of the temporal lobe ones may also go with a strong mystical feeling. There's—we have great detail about Joan of arc and her visions and she was particularly calm and eloquent and thoughtful describer and it's probable that she had temporal lobe epilepsy and epileptic visions. I was initially rather skeptical of any sort of meaning or theological significance, but, yeah, I think certainly—and some of these epileptic visions, if people come to surgery, one may find particular parts of the brain which are involved. There's a recent, well, a moderately recent book by I think by Mark Salzman and the title is either *Insomnia* or *Lying Awake*—which is it? Well, something like that, **(laughter)** but anyhow it's but it describes a nun who has visions of God and is then found to have a brain tumor and the question arises as to whether the removal will remove her visions. I leave you to read the book. **(laughter)**

**Q:** Thank you so much.

**Q:** Hello, Professor Sacks, first off, it is absolutely wonderful to hear you speak in person. I have read a great many of your books, I have a great many questions for you, actually, but it seems we have a bit of a queue going, so I'm going to have to limit myself. My first question is has it never really happened that a visual hallucination or an auditory hallucination was also accompanied by a hallucination in the other sense, in the

other modality? Has it ever happened that there was sort of an auditory element to a visual hallucination or vice versa?

**OLIVER SACKS:** When one is say, falling asleep, in Charles Bonnet, are exclusively visual, but as one is falling asleep, there can be auditory hallucinations as well. Although interestingly the auditory and the visual are usually not correlated, so you may see people with their mouths moving, but no voice and voices and no faces—so it's always as if there is a separate stimulation of the visual, the auditory, the tactile, the olfactory, whatever, but at a higher level, especially the level of temporal lobe epilepsy, which the last person brought up, then all of these are brought together and you may have full scenes in which it's a Monday evening in Manhattan somewhere near the Public Library and it's late in September and, you know, an entire scene with all its—and the smells of chestnuts in the streets, **(laughter)** in which every sensory mode and every emotion can be brought together. You have this typically at the higher order hallucinations and, of course, you can have this in some of the drug hallucinations. The drug hallucinations, if one has them, typically occur at every level, at the simplest level they may just be sort of patterns, hexagons, tessellations, mandala figures, whatever you like to call them, and going up to higher and higher levels, all being in a way simultaneously and sometimes independently going on. Now you had some other question you wanted to ask.

**Q:** The other question is simply sort of more academic question. I'm currently studying psychology and neuroscience and I was just wondering if you would have any readings in music perception that you might be able to recommend. It's a little self-serving.

**OLIVER SACKS:** Reading in music perception, I am going to leave music alone tonight. Listen, why don't you to read the book by my colleague Dan Levitin, *This is Your Brain on Music*? I saw a manuscript of Dan's book at the same time as he saw one of my book, and we agreed that we were complementary, so if you read *Musicophilia*, read its complement.

**Q:** Thank you so much.

**Q:** Good evening. Can a high fever cause hallucinations?

**OLIVER SACKS:** Yeah, indeed. Yeah, a high fever can cause all sorts of things—it can cause seizures, but certainly hallucinations and one of my correspondents mentioned to me that whenever he had a fever he saw musical notation —musical notation, by the way, or seeing writing, is a rare form of visual hallucination anyhow, but he invariably had this when he had a fever, and indeed if he started to hallucinate music, he knew a fever was coming on. **(laughter)** And I think that's generally the case.

**Q:** I'd like to join those before in expressing my admiration and ask you can and or do those born blind hallucinate?

**OLIVER SACKS:** They can't hallucinate visually. There's no visual experience, no visual memory, no visual images, and in a way no idea of vision. This is discussed partly

in a fascinating exchange of letters between two philosophers, one sighted and one congenitally blind, it was just called *On Blindness*. Having said that, one does wonder what is happening to the visual parts of the brain in those born blind, whether they've been—there's much to show that they are reallocated to other functions. For example, the reading finger, the Braille-reading finger of someone congenitally blind, has an enormous representation in the visual cortex. And—but one wonders if there might be some way of stimulating visual parts of the brain other than through the eyes. There's something which comes to my mind here, it's really in regard to the phenomenon of synesthesia where different senses may be coupled and, for example, people may see colors when they hear music or when they read letters, and there have been descriptions of people who are partly colorblind who say that when they are synesthetically stimulated they will see colors they have never seen with their eyes, one such person spoke of “Martian colors,” and there of course have been some descriptions of congenitally blind people taking LSD and things like this and saying they see. I think the answer isn't quite clear but by and large, I would say they can have hallucinations of any other sort.

**Q:** Thank you.

**OLIVER SACKS:** And it's similar with congenitally deaf people. If, for example, they become schizophrenic, they may say they hear voices but probably messages are—this is probably only a manner of speaking. Sometimes the messages are signed to them explicitly and some are just intimated without being auditory.

**Q:** Thank you.

**Q:** After your hundred and twenty more years of life and when your brain is dissected and everything is discovered that made you such a splendid thinker and conveyer of your thoughts, it occurred to me that people may now want to know what's up there, an MRA, for instance, or any other kind of examination of your brain?

**OLIVER SACKS:** Well, in some sense, I am in my brain as everyone is in their brains, but I think that's not entirely—but one also wants to say that one only exists in one's actions and when one does things. Now people have when Gauss died the great mathematician, people looked at his brain very closely. It was actually a rather small brain, but the convolutions were said to be exceptionally tight. **(laughter)** Of course then in the 1850s, there'd really been—there was no notion of nerve cells and no microscopy. When Einstein died, his brain was filched by the pathologist and little bits were farmed out here and there. In fact there's a very strange book called *Driving with Albert*, **(laughter)** which is about a cross-country journey with part of Einstein's brain in the trunk of the car, and it's been thought that part of there may have been an extra parietal lobule or something in Einstein's brain which went with his power of spatial thinking. Be that as it may, I mean one can imagine that many other people have such a lobule and have not even—have not been Einstein. I don't think a brain alone is sufficient—you need nurture and a culture and circumstances and everything else. Now also, microscopy, just looking at the anatomy of a brain isn't going to be enough. There are hundred billion neurons and each neuron is connected to a thousand or ten thousand others. There are



inconceivably complex networks in the brain which are continually going on. The world's computational capacity is probably not much greater than what goes on in a single brain. And if one put that as a correlate of a person, not the postmortem tissue and how much of that one can ever catch, I don't know. We are catching things at a crude level now so you can tell, for example, that people are indulging in musical imagery or visual imagery, but you can't go much further than that. By the same token, although Freeman Dyson talked about electronic telepathy, it seems probable that the coding of experience and reality is individual in everybody's brain, so that even if you could have a complete brain print from me, you wouldn't know how to interpret it.

**(applause)**

**Q:** Thank you.

**PAUL HOLDENGRÄBER:** We'll take one more question.

**Q:** Thank you very much for your talk. My question is do you think that all the religious visions that have been described are hallucinations or do you make distinctions in those descriptions and if you do think that they are hallucinations have you discussed it with, I don't know, some church authorities? **(laughter)**

**OLIVER SACKS:** I have to excuse myself tonight. I've really not dealt with visions, either at the psychiatric level or, if you want, the spiritual level and I don't equate those,

although they sometimes go together, so that when, say, George Fox, who was both a religious genius and a bit nutty, approached Litchfield and said “Woe to the bloody city,” and saw the streets of Litchfield running with blood. But the—Blake obviously had a lot of visions. In some cultures it’s much more allowable to have visions, or if you want to call it hallucinations, and although I’ve been speaking about a sort of a fairly primitive, physiological, you know, bottom-up sort of hallucination obviously when thoughts and feelings become more and more intense, they can engender something like hallucinations, which may be religious, which may be scientific. I mean, if one reads Faraday’s journals, I think he hallucinated lines of force and magnetic fields, it was getting that vivid.

I don’t know how to put this. In a way I’m—I mean, this also comes back, perhaps, to the business of reductionism. In my first book I wrote about Hildegard of Bingen. Hildegard, this twelfth-century nun and mystic, had visual migraine and some of the zigzags and other geometric figures which she saw in her migraines she interpreted as the ramparts of the city of heaven; she gave a spiritual interpretation to her migraine visions. Now, I—this doesn’t mean—this is no reason to dismiss that, to say, “well, you know, this was just migraine.” For her it was *not* just migraine, but migraine inspired if you want a vision of the heavenly city. I think that any—all spiritual matters if you want, you know, have to be dealt with on their own grounds and not on the physical basis. It really doesn’t matter whether—you know, a vision may be epileptic, may be drug induced, it may be associated with blindness. If it carries any value, its value will be intrinsic to it and nothing to do with the physical basis. And I think I will leave it there.

**PAUL HOLDENGRÄBER:** And before you giving you Oliver Sacks, who will be signing some books that 192 Books is presenting today I would like to ask you very quickly one question. The relationship between insomnia and hallucination, because the lack of sleep which you believe is such a productive space, if you suffer from insomnia, what does it do to your hallucinations?

**OLIVER SACKS:** Well, there are at least two sorts of sleep. There is the sleep which is the so-called REM sleep, which is associated with highly visual dreaming, and other sleep. And if you are deprived of sleep, and if in fact you are just deprived of REM sleep alone, which can be done if one is hooked up to a machine and you wake the person every time they start dreaming, then the impulse to dream, the need to dream, will become greater and greater, and it will finally burst into the conscious state as hallucination, and although there are easier ways, if you want to hallucinate, **(laughter)** you know, one can stay up for a week, but it's easier to smoke some pot or something.  
**(laughter)**

**PAUL HOLDENGRÄBER:** Thank you very much!

**(applause)**