2012 11 04 Elie Wiesel and Eric Kandel with Gail Saltz

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(applause)

M1: Leading our conversation tonight and offering some context to this evening's program is Dr. Gail Saltz. Gail is a clinical associate professor of psychiatry at New York Presbyterian Hospital and Cornell Medical Center, and she's a psychoanalyst with New York Psychoanalytic Institute. Of course you'll know her from her work on CNN, NBC, the *Today Show,* and of course we know her as a much loved and supportive board member of the 92nd Street Y, Gail Saltz. (applause)

GAIL SATLZ: Thank you. Thank you for coming out this evening. And I'm really honored to be with such luminaries this evening. You're in for a real treat. This is a quite original and creative evening. We're going to be talking about memory. [00:01:00] Memory is a diverse group of cognitive abilities by which we retain information and reconstruct past experiences, usually for a present purpose. Memory is one of the most important ways by which our histories inform our current actions and experiences. Memory is also a key part of our personal identity. The human ability to conjure up long gone but specific episodes

of our lives is both familiar and mystifying and is a key aspect for us of who we are. It is the source of acquiring knowledge. We remember experiences and events which are happening now, so memory differs from perception. We remember events which really happened, so memory differs from pure imagination. But in practice, there are close interactions between remembering, perceiving, and imagining. Remembering is often mixed with emotion. [00:02:00] It's closely connected to extended mood states such as love and grief, and social practices like committing and commemorating. Memory is essential for reasoning and decision making, both individual and collective. Much of our moral and social life depends on our use of memories, and in this way memory shapes history. Memory also goes wrong in small or sometimes in dramatic and disastrous ways. So tonight we will try to examine memory through a biological, psychological, and philosophical lens in order to see its impact on our identities, relationships, experience of time, and how we behave now and in the future. So I wanted to start [00:03:00] with the fact that both of you had early life experiences that shaped very much who you became, particularly with the Holocaust, and I wondered if both of

you could talk about how early memory shapes who you are, who you'll be in the future. (laughter)

ERIC KANDEL: First of all, to compare my experience during the Second World War to Elie's you have to begin by saying *l'havdil*. Elie had a terrible experience, lost many of his relatives, saw his father die, many of his close relatives die, and survived to become an extraordinary human being who represents all that is wonderful that survived from the Holocaust. My encounter with it was more modest but nonetheless [00:04:00] extremely profound. I was born in Vienna. I was eight years old when Hitler came into Vienna in March of 1938, and I didn't leave until 14 months later. I experienced Kristallnacht in Vienna. We were kicked out of our house. We came back. There was absolutely nothing left, and my research interest has focused on memory. And that is because I think one of the most powerful lessons of the Holocaust is never forget. And that has had a terrific impact on my life. I've had sort of an obsession with that, and my wife Denise, who was in hiding in the South of France in a convent, had a more powerful experience. We keep on coming back to that. And one of the reasons who thought each other out as partner 56 years ago -- although she looks like we just got married a few years ago (laughter) -- is that this was a bonding

experience for us. [00:05:00] And I sort of see that experience and my reaction to it as one way of dealing with a post-traumatic stress disorder. One way is to fall apart, and Elie and I have not chosen to take that route, and the other is to master it, and to some degree both Elie and I have done that.

ELIE WIESEL: Well, my childhood is not Vienna. My Marion's childhood is Vienna, my wife Marion. And mine was a little town, Sighet. And we heard about Vienna because many, many of Hasidic masters -- actually, even Vizhnitz, I come from Vizhnitzer rebbe. They used to go to Vienna to see doctors (inaudible), usually doctors, doctor in Vienna. (laughter) But otherwise I didn't know anything about it. I even discovered Freud much later. You know, a marvelous -- speak Freud, you cannot not tell a joke about him. [00:06:00] A true story, Freud and Herzl lived on the same street, Theodor Herzl and Sigmund Freud, and they never met, thank God. (laughter) Can you imagine Theodor Herzl knocking at the door and say, Dr. Freud, I have a dream? (laughter)

ERIC KANDEL: That's wonderful. (applause)

ELIE WIESEL: As for my childhood, I have a very Jewish, religious childhood, very, very religious from a Hasidic family, Vizhnitz. And that comes into my life to

this day. The end of that childhood, of course I wrote about it, and I write about my childhood to this day.

GAIL SALTZ: And those memories, those early memories, to this day you feel informed, things that you do today, how you feel about yourself today? [00:07:00]

ELIE WIESEL: Yeah, I wouldn't do what I do had I not been a child -- had I not remained, in a way, the child that I was.

GAIL SALTZ: So they linger on, the memories, and they keep informing our behavior. Dr. Kandel, could you tell us a little bit about -- I'm sorry, Eric, could you tell us a little bit about, of course, your work in terms of how do memories stay biologically in the brain?

ERIC KANDEL: It's actually quite interesting. The first thing to realize is that memory is not a unitary faculty of mind. There are two major classes of memory, and they have different functions. One is called explicit, and the other's called implicit. Explicit is what you commonly think of of memory. It's the conscious recall of people, places, and objects. So when I think of first meeting Elie Wiesel or going to Petra with him, it's a conscious recall. And this is stored in a particular region of the brain [00:08:00] called the hippocampus. And if you lose the hippocampus, as you do, for example, in

Alzheimer's disease, you no longer recall information that is stored about conscious events. Yet you're perfectly capable of still carrying out implicit memory storage. Implicit memory storage are a set of perceptual and motor skills that don't involve the hippocampus. They're emotional memories that involve the amygdala. There are memories that involve the prefrontal cortex, the striatum, in some cases even the reflect pathways themselves. Take a great painter like de Kooning, advanced Alzheimer's disease. He'd walk around his house. He'd fumble. He wouldn't remember people's names. He went into the studio. He would still paint wonderful, wonderful paintings, not quite the highest quality he was at the peak of his career, but still excellent work that sold exceedingly well. And this is commonly the case [00:09:00] that people who no longer have the capability to recall memories still have the other kinds of storage. You lose that if you have lesions, for example, of the amygdala or if you have a lesion of the striatum, then you lose the ability for implicit memory storage. And emotional memory partakes of both of that. It has a very powerful impact, and this is why it sort of stays with you for so long. And both Elie and I have, in different ways, suffered from that. But it also carries with it the conscious details that surround

it, the context in which it occurred, where you were first frightened. I will never forget a police officer coming to our house on November 9, two days after my birthday, November 7, knocking on the door and saying you've got 20 minutes to get out of this apartment. And when we came back a week later everything of value was gone. One of the most frightening experience of my lifetime. Crossing the Atlantic just my brother and [00:10:00] myself. My granddaughter's here. Now, granted, she's 16 and a half years old. I don't worry about crossing the street. But when she was my age I would worry about crossing the street. We went across the Atlantic just my brother, five years older, and myself. So these are very difficult experiences. And it turns out that even though these involved different systems, the logic, the biological logic underlying them is quite similar. Your brain is made up of nerve cells, and they speak to one another through special connections called synapses. And what my colleagues and I have found is that learning involves a change in the strength of synaptic connections, how effectively nerve cells communicate with one another. And this holds true for both implicit and explicit memory storage. The rules are identical. It's the systems in the brain that vary. If you look up a telephone number or you remember something

very briefly, you're introduced to somebody, you forget the name soon after, there's just a transient functional strengthening [00:11:00] of the synapse. There's no anatomical change. There's no major biochemical change. But if you remember something for a long period of time, because it's either very important to you or because it's repeated, you give rise to a long-term memory. That's profoundly different. That gives rise to an anatomical change in your brain. So you remember anything of what Elie Wiesel tells you tonight, it is because you will walk out of the Y tonight with a somewhat different brain than you walked into it. And one can actually with imaging experiments really detect these anatomical change if they're really profound. So for example, if you play a musical instrument, the right hand doesn't do very much, you know, it just moves the bow, but the left hand does the fingering. If you play the violin you'll have a much larger presentation of the left hand than will people who don't play an instrument. If you're a taxi driver in London where unlike New York you have to know your way around, your hippocampus enlarges. [00:12:00] And the longer you drive the larger within reason the hippocampus gets. And the reason this occurs is because they're alterations of gene expression in your brain. Now, this

makes people very nervous. They say to themselves, particularly the young people, oh, this is terrible. Alterations in gene expression, I'm going to go home tonight, I'm going to make love to my partner, we're going to have a baby, and we have to remember the conversation that happened at the Y? Not to worry. This does not occur in the sperm and the egg. This occurs in specific nerve cells of the brain. It is not a mutation. This is transient alterations in gene expression. But this is simply to indicate they're profound changes that occur. And what is the meaning of this? Briefly stated, we would hope that for the major psychiatric disorders, including post-traumatic stress disorders, we would be able to have molecular markers, anatomical markers with imaging [00:13:00] to see one particular area lights up when you have a particular kind of -- or another kind of area lights up when you have another kind of difficulty. And with depression you can actually see that. There's an area in the brain called area 25 that becomes hyperactive when you become depressed. If and only if you respond successfully to psychotherapy, that abnormality reverses. If and only if you respond successfully to antidepressant medication, that abnormality reverses. So really, these anatomical changes are not only sort of interesting from a basic

science point of view but have a lot of clinical implications.

GAIL SALTZ: Thank you. So we understand that memories are something that is a result of brain changes, basically. But can you talk to us a little bit about the value of memory? That, you know, memories change individuals. Memories change communities, but even painful memories do. So could you say a little bit about the value [00:14:00] of that?

ELIE WIESEL: Well, without it there would be no human being, there would be no culture, no civilization, nothing.

ERIC KANDEL: Nothing.

ELIE WIESEL: Of course, the question to me is really not only how to choose which memory I want to retain but the excess of memory. What happens when the memory is almost too much, the excess of it? How do you handle that? And of course, my generation, and of Eric's too, my generation, our generation is that we want to remember more and more and more. We are afraid that if we forget one detail it will be sinful because we are then unfair towards that detail. I like to think always, I repeat it many times, probably at the Y too, that life is not made of years but of moments. It is a sum of moments that define

my destiny, some good, some dark, [00:15:00] but moments. But moments belong to memory. So therefore, I would like actually my memory to retain those moments I want to keep. Do I also want to reject certain memories. And there of course I had some memories that are so painful and so dark that I don't want to reject them. I want to remember every single spark of the fire. I want to remember every single tear. I want to remember every moment of fear that I had, and even in those times. Which means it's not that I live in my past, but I want my past to live in me. If not, what am I doing in this world under the sun? Furthermore, always we cannot forget that we are Jews. And the Jewish people, because of our attachment to exile and exile to us, [00:16:00] that we want to remember more and more. The most important word in the Bible is remember, *zakhor*, just remember. I think no other word appears that often as that one, remember. Now, we always go further, and we plead, we plead with God, on Rosh Hashanah, Yom Kippur, please remember us. Come on, really, who are we to tell God what to do really? And furthermore, if God -- since God is God, doesn't He remember? So we even say *zokher kol ha-nishkhachot"*, God remembers everything that is forgotten. Why do we say that? It's not that God needs to hear that. But I need to hear myself say it on Rosh Hashanah. And

therefore, for me, of course, because I write and because I teach and because I have written certain books that deal with memory, but all of my books deal with memory. I have published almost 60 books. All of them deal with memory. [00:17:00] You know, one book, you heard earlier *Night*. All my other books are jealous of it. (laughter) In fact, they give me nightmares, the other books saying, why are we worse than others? You know, why only *Night*, only *Night*? But every book of mine, even if I write about the Talmud and the Bible, about Hasidism, a key word is always memory. Without it I wouldn't be here and surely not enjoy the company of my good friend Eric.

GAIL SALTZ: And me. (laughter)

ELIE WIESEL: And you.

ERIC KANDEL: Can I elaborate a little bit on that?

GAIL SALTZ: Yes, please. Actually, and I was going to ask, you know, in that vein, sometimes we do sort of choose to forget, or maybe it's not even a conscious choice, but we forget something that has been put into our long-term memory, but maybe it's that painful that we -- and I wondered if you could maybe elaborate on how --

ELIE WIESEL: Just let me first -- I don't mind the pain. [00:18:00] Even if it's painful I would take it. Anything but forgetting.

GAIL SALTZ: Anything but forgetting.

ELIE WIESEL: Anything but forgetting. Which means if the price is pain, okay, go ahead.

GAIL SALTZ: You know, there's been this terrible devastation here in New York, the tri-state area, and for many people, as occurs often with huge loss and trauma, there's the feeling of, you know, at some point can I make these memories dimmer or not so available to me? And I wonder --

ERIC KANDEL: You see, Elie is very unusual insofar as I can speak in psychological terms about Elie . You have enormous inner strength, so you can tolerate these horrible experiences that you've had, that our people have had, without it destroying your functioning. Not everyone is that fortunate. And many people who suffer from [00:19:00] what you and to some degree, much smaller degree I've suffered from, which is stress of very significant degree, develop post-traumatic stress disorder. And they have to be helped to forget. I mean, one simple way to do this is if something terrible happens to you in a particular context, a terrible noise occurs to you, if you show the same experience to people without the noise, so they learn to associate this in a neutral environment, they after a while will habituate this. And this is one way.

It's called desensitization treatment. You can reduce or eliminate that. So I think there are. I mean, this is a very frightening experience for many people, as was 9/11. And there will be, there's no question, there will be a significant psychological aftermath for many people. Losing a house, these are horrendous experience. So these people will need help. Many people will need help.

GAIL SALTZ: And [00:20:00] part of the help, as you're pointing out, is sort of almost a way of helping them forget, or actually there are sort of new potential treatments on the horizon in attempt to perhaps even give people a medication or a treatment immediately following a trauma that may help them to sort of not put the memory --

ERIC KANDEL: You make a very good point. The help should be as soon as possible. I've asked myself, how come post-traumatic stress disorder is so much more common now than it was after the Second World War? In the Second World War Menninger was in charge of psychiatric care of soldiers who got into difficulty, and he had analytically oriented psychiatrists at the front so they could see soldiers as soon as they began to develop stress disorders. And just talking to people is extremely helpful. And we don't have that kind of a therapeutic approach at this

point. Psychotherapy's extremely helpful under these [00:21:00] circumstances.

ELIE WIESEL: Eric, after the war in France I was in a children's home. We were 100 youngsters, adolescents. All of us went through that experience. From time to time the OSE which took care of us sent a psychiatrist, and we looked at them as out of space people. Come on, what do, really -- they began talking to us, showing us all kinds of Rorschach tests and so forth. Really? Come on, we have other problems.

ERIC KANDEL: But that's not their approach, yes.

ELIE WIESEL: That's really not. So therefore, a problem after the war was not that the survivors couldn't speak. The problem was that people didn't want to hear. And if some of them had needed psychiatry [00:22:00] or psychological help it's because at least those people listened. People didn't want to hear. When the survivors came to America, for instance, or Palestine at that time, everywhere to families they would say, forget it. You suffered so much. Don't think about it. You are now in Palestine. It's a Jewish land, or in America it's great. Think of today. Forget. Turn the page. Turn the page. And that's what they didn't want, what I didn't want.

GAIL SALTZ: They didn't want you to talk.

ERIC KANDEL: I think there are two issues. You make a very good point. I think there are two issues here. One is, if I remember correctly, you yourself for 10 years did not want to talk about this.

ELIE WIESEL: Right.

ERIC KANDEL: You wrote *Night* sometime after your experience. Now, that's number one. So it's a normal, you know, period of internal recovery. The second thing here, kind of therapy Gail and I are talking about is not Rorschach blots. It's saying, it must be terrible to have [00:23:00] an experience like this. And allow people to share with each other feelings they had, empathy, and it doesn't work for everyone, but it can be very helpful under some cir--

ELIE WIESEL: No.

ERIC KANDEL: Might not have worked in your case, but it can be very helpful.

ELIE WIESEL: No, no, in general. I speak now about the others. About myself, I rarely speak like that. But I'll tell you, we were young. The youngest was seven or eight, and I see them occasionally. And what they felt, what we all felt when these older people -- older, they were 20 or 30 (laughter). And really you want to teach us

what life is all about? You want to tell us that you know the meaning of life?

ERIC KANDEL: This is not the point.

ELIE WIESEL: No, there was a certain -- we couldn't take it.

ERIC KANDEL: This is -- Elie, you were approached in a wrong way.

ELIE WIESEL: My luck was that I had then a great teacher of Talmud. I love the Talmudic studies. So I plunged myself into study of Talmud there in the --

GAIL SALTZ: So you found your own --

ELIE WIESEL: -- children's home. [00:24:00] Of course. But the other children, they didn't want to hear about it.

GAIL SALTZ: Religion for you and the spirituality was sort of, I mean, can be very therapeutic, can be almost like therapy for some people. You know, one interesting phenomenon of early memories, and I think many people find this, actually when they come to a therapist they often -- you know, we call it a primal memory, a first memory -- have a memory that may or may not have happened. And I wonder if both of you, from each of your vantage points, could comment on, you know, when a memory is a real event but sometimes a memory is not a real event. It is

something that someone has discussed with you or told you happened, or maybe you saw a photograph of yourself somewhere, and you've constructed essentially a memory around it to fill in. And I think often when there's trauma that [00:25:00] happens, but also I'm curious biologically, what is going on there?

ERIC KANDEL: We know a lot about this. We know a lot about this biologically. It's amazing how veridical memory is considering the fact that it's so sensitive to influence. There's a process called reconsolidation. Every time you remember something it becomes susceptible to distortion. So if you remember something in a very different context in which it occurred you may incorporate elements of the place where you remembered it rather than from the original scene. And this is, of course, the difficulty with eyewitness testimony, any testimony in court based on only a single witness, that it's hard to know to what degree that person is remembering things. They can be speaking completely honestly, as far as they're aware, but it's difficult to know. I mean, there are kinds of --

GAIL SALTZ: Is the same thing going on in the brain, or are --

ERIC KANDEL: Yes, you can show that in fact after a memory has been recalled it becomes extremely sensitive [00:26:00] to disruption. And we've -- actually, I'm working on this right now -- identified certain key molecules that are essentially for the maintenance of memory. They become disrupted when you recall it and then reconstitute themselves.

GAIL SALTZ: So the recollection becomes the new, laid down memory.

ERIC KANDEL: That's right. If it's not interfered with the memory becomes strengthened. But if there's any slights, you know, new thing that gets incorporated, it can be distorted. Sometimes the distortion is trivial and sometimes it's significant.

GAIL SALTZ: So sometimes these are innocuous memories, but sometimes these are really difficult memories that have occurred, you know, earlier in life. Sometimes when you're talking with people, like you're mentioning in France in early days, you know, and then they've left that situation, and people are coming in and asking them about it, and two people might have been in the same exact situation, but they remember it differently. What are your thoughts about that?

ELIE WIESEL: It's not only my memory but what happens to [00:27:00] those who listen to my memory? Again, we are both teachers. We try to transmit, to communicate what we know, and our knowledge is based on our memories. Furthermore, what happens when you see your memory actually has entered somebody else's memory so much so that to someone else your memory has become his or hers? I'll give you a stupid example, maybe. I write about it. I had a little sister. And I write in *Night*, actually, I write that I've seen her the last time in Birkenau wearing her red coat that she got as a gift for Pesach or Passover, the last gift. And that was the last holiday we had in our town. And one night we saw a screening, private screening, Marion and I, of *Schindler's List*. [00:28:00] And there they show a little girl with a red coat. Now, is it possible that that girl also received -- that little child, a red coat. Is it also possible that they had a bad night and they decided it's very nice to have this kind of red.? So where is memory in all that? Can memory enter imagination and still maintain its purity? Does it influence imagination, which is okay? But if imagination influences memory, which is not. And there of course it's only you really who knows because you know how it works. I

don’t. I know what to say. And you tell me how it’s being said. (laughter)

ERIC KANDEL: Well, you can imagine how additional facts get incorporated into memory. If you recall something in a new context in which you see a clock in front of you, you may think that the original memory involved having a clock [00:29:00] in front of you. And we can show this in experiments very easily, that this is exactly what occurs. The amazing thing is that it’s veridical. But it is not surprising, Elie, because what is not fully appreciated is that your brain and everybody’s brain is not a photographic plate. It’s a creativity machine. When we look at each other we don’t take a photographic picture of each other’s face. We recreate in our head, using rather limited information, what we look like to one another. So the brain does an amazing job in putting things together. So imagine with memory how it works. It also puts this together. And any time you do something like this you can be tricked. With perception, illusions deceive you completely as to what you’re looking at. And so with memory you can also be deceived.

ELIE WIESEL: Do I remember more now than I knew then? [00:30:00] It always worries me. Maybe I don’t

remember enough. I want to remember more and more and more.

ERIC KANDEL: Well, part of it may be that you're reducing repressive influences that didn't make them accessible to you. Now that you're more comfortable with all of these things, I mean, you've had a remarkable life, and your memory has been such an important part of your success. You're the memory of our generation. And you've used this in a creative and marvelous way. So that may encourage you, your own success with this may encourage you to look more deeply to allow these things to emerge. I mean, I think one of the things that's unusual about you is that you can tolerate dealing with this stuff. Must people would have shut it off a long time ago. We're grateful to you.

ELIE WIESEL: I couldn't live without it. Come on. I'll give you an example. A few years ago -- I had two older sisters and little one, older one. [00:31:00] The oldest one spent time in Israel. She had a son in Israel, and she died two years ago. Her son found -- I didn't go back to Sighet, my town. I came straight to France because I thought, everybody died, so why should I go back? Then I found out it's a different story. And her son found a little notebook which belonged to me. And he sent it to

me. I showed it to Marion. I want you to know I got palpitations. It showed I wrote it in Hebrew. At that time I studied Hebrew, *Lashon Kodesh* the sacred tongue. And I saw the date, tav-shin-alef. On the eve of Rosh Hashanah 1941 I was 13 years old. And there, there were *hirhurim*, meditations, on the mystical element in the High Holy Days prayers. You know, the most important object now in my life is this little -- at one point the little [00:32:00] book has also a page without these things. I use it for something else, Akiba Drumer six bottles, and something like that. We had a grocery store, and a few times before the High Holy Days we all helped my father and mother in the store. They didn't trust me to handle all that, so I had to keep simply who owes what. And there I wrote Akiva Drumer. If you read *Night*, I describe Akiva Drumer from Sighet, who at one point came to my father and myself and said, "I was chosen during the selection. Three days from now I will be dead. Please say Kaddish for me." And here it says that he owes me six bottles for something. And the whole page is like that, who owes what. So I had to [00:33:00] remember, and I did, of course. I remembered all of a sudden. I saw when he came into the store, and I gave him the bottles, and I wrote down six.

GAIL SALTZ: And does that bring more memories?

ELIE WIESEL: More, what do you mean? I tell you, I got palpitations. This is the most important thing -- that's my life. Everything that remained from my childhood is this little notebook.

ERIC KANDEL: That's fantastic.

ELIE WIESEL: Meditations on mystical (inaudible) really. Without it I would have forgotten it. Without that little book I would have had to go deep down in my memory to remember about all that.

ERIC KANDEL: This is actually the wonderful thing of having diaries and documents that you can go back to. We all experience this. Denise finds things of her mother that she recalls early experiences which move her tremendously. But I think we can put this in a larger context, and you're in a better position than [00:34:00] I am. Memory's important to everyone. But memory has particularly meaning to the Jewish people because we are probably more aware of our history than other religious groups. And so this takes a heightened meaning for people like yourself and myself.

ELIE WIESEL: I'll tell you, a few years ago, maybe 10, 15 years ago I got a telephone call from the Dalai Lama. You remember him? He always comes to our conferences. And I was so touched because when I was young in Paris,

studied mystical literature, I was taken by Buddhism. I went to India. I was very --

ERIC KANDEL: And he's a marvelous man, the Dalai Lama.

ELIE WIESEL: I knew by heart the Upanishads, the Vedas, you know. He wants to see me. I came to see him. And I said, what can I do for you? And he said, oh yes, he said, you can. He read some of my writings. He said look, you belong to a people that left [00:35:00] its homeland 2,000 years, and yet it's still here.

ERIC KANDEL: (overlapping dialogue; inaudible)

ELIE WIESEL: My people is just leaving its homeland, but I know the road will be very long. Tell us, give us the art of survival. And then I spoke to him about memory. The book and the memory.

GAIL SALTZ: But I mean, in terms of broadening it to any group that has suffered such trauma, repeated, repeated trauma and the need to survive, there's something, as you point out, extraordinary about your resilience, really. Obviously somewhat, I think, probably an inborn resilience but also through your experience that you welcome the painful memories, that when you read the book and you said you got the palpitations, it's really -- but it makes you feel more alive, more --

ELIE WIESEL: I wouldn't say alive. [00:36:00] I simply -- it makes me feel privileged.

GAIL SALTZ: Privileged.

ELIE WIESEL: That means we live. Our life is almost defined by the privileged moments that we have, like really when two persons meet, the encounter, and they can talk, share memories. That's a privileged moment. And at the end, how many privileged moments do we have now alive? They are precious.

GAIL SALTZ: Let's talk a little bit about memory loss. Because I think that even though we hope to hold on to all the memories that we can, you know, many people are often worried about, as they age, will they lose memory, or will they be one of the many, many people who develops Alzheimer's or some condition where potentially there's even earlier memory loss. Could you say a little bit about the biology [00:37:00] of memory loss, which I think many people think that aging means you will lose memory, and actually we know that in fact it doesn't necessarily mean that at all. It depends on the other conditions that are surrounding aging. And so maybe, you know, biologically, what is going on, and what do we feel when we lose memory?

ERIC KANDEL: So from a biological point of view it's sort of useful to divide loss of memory into two major

categories. Age related memory loss, I would sort of disagree with you. I think it's almost impossible to age and not to have some weakening of memory with age just as there's physical weakening with age. It may come much later to some people than to others, but there usually is some weakening. And that occurs in a specific region of the brain. It's in the hippocampus. It's an area called the dentate gyrus. It actually, [00:38:00] my colleague Scott Small and I have identified molecules that are critical for that. And that is actually a rather hopeful syndrome in a sense that we know some things that are helpful in preventing that. So if you exercise, you're in good physical shape, if you daven regularly, (laughter) you do things like Elie does, this protects against age related memory loss, being socially engaged, being physically active, and having a healthy diet. But the other more serious path is dementia. And that again falls into two categories. There's something called frontal temporal dementia, which occurs in people in their forties and fifties, and it leads to peculiar behaviors. It involves the prefrontal cortex and the temporal lobe, and it leads to people acting irresponsibly. So it's quite different than Alzheimer's disease. And the epidemic, which occurs later on in [00:39:00] life, is Alzheimer's disease. Both

of those things are progressive diseases for which we, at the moment, know neither a prophylactic approach to it, how to prevent it, or do we have any therapies that are really effective. There's significant hope because our understanding of what underlies it is growing. Frontal temporal dementia, I indicated where it occurs, Alzheimer's disease begins in something called the entorhinal cortex, which is the input region to the hippocampus. It turns out that when people first show symptoms of Alzheimer's disease the disease has been present for over 10 years. So if we could see when plaques first appear in the brain, which is the sign of Alzheimer's disease, either by doing brain scanning or having spinal fluid measurements or something like that, and those things are coming along, we could start treatments much earlier. And take colon cancer, breast cancer, if you start 10 years after the disease has started, you're in deep, deep trouble, [00:40:00] if the patient is still alive. Here, if we could start treatment earlier we would be much more effective. And that's what the current attempt is directed toward.

ELIE WIESEL: I wrote a book about it called *The Forgotten*. It's about Alzheimer. And I worked on it for many, many years because I think it's not a disease, it's a curse. A real curse. And I actually compared, in my

novel, I compared the patient to a book. I compare everything to a book. And every day you tear out a page and another page and another page. At the end there are no more pages, just the covers. And again, in my novel it's one of the saddest novels I have ever written or even read, with Alzheimer.

GAIL SALTZ: And it's the thing that people are in some ways most afraid of, is losing their memory.

ERIC KANDEL: Absolutely. You're right, [00:41:00] it's a complete tragedy. I mean, other diseases are tragedies also, but this is particularly painful.

ELIE WIESEL: But not like that, yeah.

GAIL SALTZ: But particularly for someone like you who feels that every memory is so valuable. I want to make sure that we get to ask some of our audience questions. We have 18 centers joining us, so we have a question from Sedona, Arizona and Glastonbury, Connecticut, both. Can either panelist comment on how the pace of life and the incredible influx of technology in our lives, especially for young people living in the moment, may affect our ability and acumen for long-term memory? And if it does have a negative influence, are there suggestions for combating this? So we move from thing to thing, I mean, with social networking and texting, and people have tons of

-- young people have so many sort of gadgets and things they're looking at, and your description of the biology, that things can be in our short-term memory but it takes more to move them to our long-term memory and [00:42:00] the fact that people are moving around so much and not attending for any length of time, what is your thought on that?

ERIC KANDEL: Now, there's no question there's a major change in how people assimilate knowledge. And it's going to affect the way kids learn in school and how they use knowledge. Whether this affect is going to be beneficial or detrimental is too early to know. It's a little bit like the discovery of the printing press. When people for the first time had text to read it was a completely different experience than having an oral tradition in which you learn how to recite and other people learn how to recite, and you listen to that. So different kinds of memory process were recruited. Now young people do much more multitasking than Elie and I would be comfortable with, at least that I'm comfortable with. And they don't have to rely on their memory to the degree that Elie and I had to because you go to Google schmoogle, you can get anything you want at your fingertips, so it's a very, very different kind. Actually, from a research point

of view it's a very different kind of experience. [00:43:00] But you can look up immediately what we used to have to schlep to go to the library in order to look these things. It's a completely different experience. In fact, people will stop having libraries by and large. They will carry this with them, and they'll be able to look everything up. Whether or not this will make for better human beings or worse human beings, it's hard to know. It's really too early. Certainly I see in terms of my grandchildren, who are quite adept at this, they're no way inferior to us, so I have no reason to believe there's going to be a malevolent outcome. But it's really too early to evaluate this.

GAIL SALTZ: I don't know if I can trust a grandfather's assessment of his grandchildren on that, but okay. (laughter)

ERIC KANDEL: I agree with you, although I am completely unbiased in terms of my four children.

GAIL SALTZ: I'm sure. (laughter) I'm sure. I don't know if you have any comment on the social aspect of what's going on, how young people are connecting now through social media. I mean, a moment ago you were saying it's those moments I meet you face to [00:44:00] face and we have a moment. Well, now for many people that moment is

via a screen, and there is no face to face unless it's Skype maybe. But any thoughts on the fact that this younger generation is doing so much of their connecting via social media?

ELIE WIESEL: If you say social media, personally it's okay, but if it's only the machines, I don't like machines to talk to one another. We are moving towards that. Machines will talk to each other, and we will be there actually only as bystanders, even if it means that those machines will deal with our destiny, without future, with our life. No, I am afraid of machines. To this day, really, to this day I don't really know how to use a computer. Can you believe it? I don't know how. I write. I write the notes by hand, and then if I type it, two fingers or something, but I don't know. [00:45:00] On the other hand, I know that it's enough for me to punch something and I will have the information I need to find books. But you know what, I prefer to find it in books like that, you know, turn the page and something.

ERIC KANDEL: But that's a generational thing. I mean, that clearly is changing. But I think there's one important thing. It's sort of a biological thing that's quite important. Darwin pointed out that, the obvious point, we're extremely social creatures. And we

communicate that emotion in our social interactions through our face. Face is extremely important because you read in somebody their feeling state, their level of integrity, their depth of experience and things like this. And this is deeply important, built into the genome of humans, and I don't think people are going to substitute any computer [00:46:00] for the human interaction. It's just inconceivable. Yea.

GAIL SALTZ: Amen. Well, I mean, and in addition, there is a lot of misreading that goes on, and therefore a lot of miscommunicating. Professor Wiesel, what did you do in order to move on from what you experienced? You went through such a difficult time and were able to move on with your life. What do you think was the most help in terms of being able to do that?

ELIE WIESEL: Again, remember that immediately afterwards we went to France. And that children's home, I was there for at least two years or so. And I really became very religious, even more than before, which is something. Maybe I wanted to prove to God, look, maybe you don't deserve it, but nevertheless, my parents deserve it, and my grandfather deserves it. I shall [00:47:00] follow in his footsteps. So I really became more than before, and I mean, before I was rather religious, for two years or so

until I began studying philosophy, and it changed a little bit, nevertheless. But today I am still. I go back. I don't want to break the chain of my parents and grandparents and great-great-great-great-grandparents. We go back to Rashi. According to our tradition that I am a descendant of the great, unique Rashi. So that's what helped me then. It's not that I felt better, but I felt closer to truth.

ERIC KANDEL: Elie makes an interesting point about the Jewish religion, and that is, you can experience it in many levels. And he writes often about this, that in one discussion he was [00:48:00] asked whether or not he believes literally in whether or not this book was written by one person or two persons. He said he doesn't care. You know, Abraham, Isaac, and Jacob, my parents believed in it. My grandparents believed. This is a tradition I've grown up with. So it's really the history of the tradition of the Jewish people that he identifies with, and I think this is a wonderful thing. How you feel about God is an important issue, but I think what holds most Jews together to the religion is the fact that they identify with this tradition and the wonderful values that it has, the fact that we were the first people that were universally literates. We were the first ones in which, you know,

after the destruction of the Second Temple, one realized in order to pray to God you couldn't do it through the priesthood. You had to learn how to read Chumash, right, since for every man had to learn how to read the Bible. After women learned to read it. So we were the first ones to do this. And many things that have made Jews [00:49:00] the way the are is in part of the tradition they were excluded from certain things. They never did agrarian work, so they went into intellectual work.

GAIL SALTZ: Do the brains of --

ELIE WIESEL: We are the people of the book. Do you know who called us the people of the book? Muhammad.

ERIC KANDEL: He should know.

GAIL SALTZ: Yes. (laughter)

ELIE WIESEL: The question is if his descendants know. (laughter)

ERIC KANDEL: They may not read the book as carefully as our descendants have read it.

GAIL SALTZ: Do the brains of geniuses remember things differently? And, as example --

ELIE WIESEL: Ask a genius.

GAIL SALTZ: Yes, yes. (laughter) I'm sitting with -- do you both remember things differently?

ERIC KANDEL: You know, it's difficult to speak of geniuses. People have different strengths. There is no universal approach to excellence. [00:50:00] I mean, Elie's a perfect example. He has a very almost poetic, philosophical approach to knowledge. Others will have a quantitative approach to knowledge. And people have to learn that creativity involves playing to one's strengths, sensing what one is good at. I like the example of Chuck Close, the portrait artist, who is face blind. This is the only artist in the history of Western art who paints portraits, but he can't recognize the person a week later. He said, I lived with a woman for two and a half years, and I bumped into her on the street six weeks after we broke up, and I couldn't recognize her. He said, this is not a good idea, he said. (laughter) And he's dyslexic. But what he has found out is what he does well, which is he draws, and he, you know, brought this on himself. There are multiple kinds of intelligences, and the important thing is to try to find out what [00:51:00] you really enjoy, what you're good at, and to develop that.

ELIE WIESEL: I accept.

GAIL SALTZ: You accept that. (laughter) Could you comment on jellyfish protein as an aid to help preserve memory? Well, maybe we'll broaden that to, you know, are

there things beyond jellyfish but other things that you believe in preserve memory?

ERIC KANDEL: Not in terms of a specific drug or drug-like substance. I think what preserves memory are the things we talked about before, being in good health physically, that is treating hypertension if you have it, treating adult-onset diabetes if you have it, keeping your weight low, eating healthy diet, controlling your cholesterol. Being socially involved is extremely important, coming to the Y, listening to discussions like this. (laughter)

GAIL SALTZ: But really because learning new things [00:52:00] and challenging your mind --

ERIC KANDEL: And to continue. Don't retire.

GAIL SALTZ: Don't retire. I'm -- yes.

ELIE WIESEL: It's learning, really.

GAIL SALTZ: It's learning.

ELIE WIESEL: Learning helps memory. Just learning.

GAIL SALTZ: I was going to ask you, what is your secret? Because clearly you --

ELIE WIESEL: Learning.

GAIL SALTZ: Learning.

ELIE WIESEL: I learn every day.

GAIL SALTZ: You learn every day.

ELIE WIESEL: Literally every day. I never stopped learning. Even during the war, inside that place of malediction, because I knew enough Talmud by heart, and I had one co-worker who was a former rosh yeshiva, head of a Talmudic academy, and we were carrying stones, for instance, and discussing the Abbaye and Rava, meaning a page in the Talmud about something that happened 2,500 years ago, whether the high priest wore that kind of vestment or another kind of vestment. And it was so important to us to know what he did 2,500 years [00:53:00] ago. That learning.

GAIL SALTZ: That learning.

ERIC KANDEL: Linda Fried has done a very nice study -- she's a dean of the school of public health at Columbia -- in which she showed that if you take women who are 70 years old and ask them to help young children in schools learning to read, their intellectual function will be maintained much better than an equal number of 70-year-old women who did not under go that, so this is a controlled study. And I think what Elie says, continuing to be intellectually active, continuing to learn is essential for keeping cognitively intact is right.

GAIL SALTZ: And you said the social piece because social interactions require you to be spontaneously

responsive so that it's not just like, rote learning or rote memorization. You need to be creatively responding to the situation, and that is also known to be very helpful. Why do you think there's an increase -- actually, this question is also from Sedona, [00:54:00] Arizona. Why do you think there is an increase in Alzheimer's and dementia?

ERIC KANDEL: Simple, when I was a medical student we never spoke of Alzheimer's disease. People didn't live long enough to get it. There's been a remarkable increase in longevity. Look at Elie and myself, for God sakes. We're having a wonderful life, and we're in our -- he's in his sixties, but I'm in my eighties. (laughter)

ELIE WIESEL: You wish. (laughter)

GAIL SALTZ: So we're diagnosing it now.

ERIC KANDEL: Because people are --

GAIL SALTZ: Living longer.

ERIC KANDEL: This is a disease of the elderly.

ELIE WIESEL: Who was Dr. Alzheimer, after who we called it? Who was that guy?

ERIC KANDEL: Alois Alzheimer was a German psychiatrist who worked in Kraepelin's department, and he saw a young woman -- a woman, actually, she had early onset, about 55 years old, who actually presented by being extremely suspicious about her husband, but with [00:55:00]

time her worries changed, and it was clear she had severe memory loss. When she died he did an autopsy, and he found all the three characteristic features of Alzheimer's disease. There are accumulations of plaques extra-cellularly, the intercellular tangles, and there's a shrinkage of the brain. It was a remarkable thing. And Kraepelin, who was this sort of department chair, named the disease after him because he realized this was such a powerful discovery, yeah.

GAIL SALTZ: Can you speak about the relationship between remembering and re-remembering, putting back together that which is broken apart?

ELIE WIESEL: We do that all the time, actually. Without even knowing it that's what we do. Look, again, in our tradition, I can give you a description of the destruction of the Temple as if I had been there witnessing it when the Romans, before the Babylonians. I can. Is it my memory? Because we believe [00:56:00] also in hereditary memory. We are supposed to believe that we, the three of us, left Egypt maybe together at the same time. How can we? But that is -- we believe in that. So therefore, if I know so much about the past it's because I learned, because I remember what I learned, so again, memory enters into the picture. If I forget it will be

terrible. Like everybody else, I would be terri-- I am so afraid of forgetting. If I forget where I put my pen I will look at Marion, say I forgot where I put my pen. Can you -- it doesn't mean just like that. Who knows? I have to ask Eric, what am I doing there or something. But if I could actually give a word for our work is celebration of memory. Just a celebration of memory. [00:57:00] Celebration of remembering. And by accident, really by accident, it so happens that years and years ago I became the founder of the Holocaust Museum, and we called it Holocaust Remembrance Museum or something, just the remembrance, of course, how to remember. There, how can we remember? How can we make people remember things that they did not live? It wasn't easy.

GAIL SALTZ: Well, to some degree, right, it's a way of holding on to those.

ERIC KANDEL: It also shows how important this is historically. Because to have this detailed documentation that the Holocaust Museum and other museums that have taken up the same theme now -- Houston has an excellent museum of the sky -- is it completely confronts this nonsense about Holocaust denial. I mean, you have such unbelievable evidence that somebody has to be psychotic to try to deny anything here.

GAIL SALTZ: Well, it's very interesting. We're living in a time [00:58:00] where many people deny things where there's plenty of evidence to the contrary, and hope that they can simply -- by stating it, right it will live in our memory. We will incorporate that and believe it to be true.

ERIC KANDEL: He and I are not going to incorporate that in our memories, I promise you.

GAIL SALTZ: You have to battle that. You have to battle that.

ELIE WIESEL: But, you know, a few years ago, I think three years ago, I was a victim of an attempted kidnapping by a young student who had just finished college, brilliant student, and he then admitted to the police. He said, I followed Professor Wiesel for months, and finally I got him alone, and I have everything ready, and I wanted to take him into my "custody," quote unquote, and force him to admit that the Holocaust didn't exist. Can you imagine a young boy to destroy his future on that? [00:59:00] But he believed in it. Which means he must have had teachers. Which means there must be, and there are, in California groups that still believe in denying the Holocaust.

ERIC KANDEL: Meshugas has been with us as long as the Chumash and the Talmud. (laughter)

ELIE WIESEL: It is meshugas, very dangerous meshugas.

GAIL SALTZ: Yes, dangerous. An audience member asks, all week long -- and I'm sure there are many people who are feeling this way -- I've been looking at images of New York City after Hurricane Sandy. We've been inundated with information and with pictures. How will this impact my memories over time? In other words, just, you know, whether you are present, it's there for you, or you're watching it and you're around it, how does this impact your memories over time?

ERIC KANDEL: Well, powerfully, but one has to remember that the three of us sitting here [01:00:00] will respond to the same event in memory somewhat differently because we incorporate it in terms of our experience, other disasters, other very frightening events. So number one, there's not a universal response, even to the same aspect of it. Second of all, it is graded in terms of its severity. To, God forbid, lose a loved one or a friend is obviously more serious than to lose power for a day or two. So there are gradations of this. But this is clearly a catastrophe. I mean, you know, for a civilized country to be brought to its knees in this way, to lose so many people, to lost so much property, and even though there was

an attempt at preparation, to be so poorly prepared so that many people are stuck without power, gasoline lines forming, this is a horrendous [01:01:00] situation.

GAIL SALTZ: So the intensity, though, does have to do with the proximity to how big the loss.

ERIC KANDEL: We certainly respond to disaster that occurs in in the neighborhood more than we -- in a country that's very far away. Although, I mean, you know, one has empathy for tragedies all over the world, there's an immediacy that is added by being people that you know and perhaps, you know, have connections with.

ELIE WIESEL: I don't have that memory simply because on that Sunday I left for Israel and came back Thursday. So all I had, actually, is on the telephone I had the reports. I spoke to Marion almost every hour, and that's how I got a kind of secondhand memory of what's happening here. But at the same time I remember the fall, the destruction of the towers.

ERIC KANDEL: Nine-eleven. [01:02:00]

ELIE WIESEL: Nine-eleven.

ERIC KANDEL: Terrible.

ELIE WIESEL: Every minute of it. We were together, Marion and I, in the car coming from the train. And while

we were in the car the second tower came down. So every second, every moment I remember it.

GAIL SALTZ: Let's see. Why do motor skills eventually deteriorate in Alzheimer's disease if implicit memory is retained?

ERIC KANDEL: Implicit memory is retained longer, but ultimately everything goes. It's originally focused around entorhinal cortex, hippocampus, then other areas of cortex that involve the memory, but ultimately the whole brain goes. Speech goes. Motor movements go. That's why it's a complete tragedy.

ELIE WIESEL: I met a few when I wrote my [01:03:00] novel. Everything is gone. Literally everything.

GAIL SALTZ: At what point in your life did you view yourself changing from victim to leader?

ELIE WIESEL: I'm not a leader. Why am I leader?

ERIC KANDEL: I'm sorry, can you say that again?

GAIL SALTZ: At what point in his life did he view himself as changing from victim to leader?

ELIE WIESEL: I am neither. If I have to define myself I would say I am a witness, a writer, and a teacher, but never would I say I'm a victim or I'm a leader. I am not a leader. I am not a victim.

GAIL SALTZ: So the fact that, I mean, many people do look to you to provide some guidance, to provide thought, but teachers is how you would --

ELIE WIESEL: Teacher, I am a teacher, yeah.

GAIL SALTZ: You said synaptic connections strengthen with [01:04:00] repetition. Is this true with one-time event, basically? I think this person's asking how much repetition do you really have to do to make something stick and move from short-term to long-term memory?

ERIC KANDEL: It various tremendously about the nature of the task and the nature of the person. Some people do this much more effectively than others. And if certain experience like 9/11 or Hurricane Sandy, one event is enough because it is so emotionally charged it carries all kinds of overtones. It recruits both systems at the same time, and it can persist for a very long time even though it's only one event, not a repetition. Yeah.

GAIL SALTZ: So if memory is so tied to certain areas of brain function, as you described, let's see, this person asks, can you hold to a [01:05:00] strict theory of consciousness of the mind? Let's see.

ERIC KANDEL: Consciousness is a fact of life, right. When we pay attention to each other we're consciously aware

of that, and that comes from the brain, so certainly it's strict. Do we know much about the biology of consciousness? No. We're beginning to learn something. So Stanislas Dehaene, a very famous French neurobiologist the College de France, is studying how information moves from being unconscious to conscious. So if I take a picture of Elie Wiesel and I expose myself to that picture while my brain is being imaged and I have a brief exposure lasting only, you know a few milliseconds, and a masking stimulus, my occipital cortex, which processes faces, lights up, but nothing else lights up. But if I allow myself to see the face for a longer period of time, start recognize that it's Elie consciously, it propagates forward, involving almost the rest of the brain. And this [01:06:00] broadcasting function is a characteristic feature in all modalities when information moves from unconscious to conscious. Elie was speaking before of Freud and Herzl. By the way, Freud, my guess is, would have been extremely interested in Herzl's dream. Freud, although he was not a practicing Jew, never gave up the fact that he was a Jew, unlike many Austrian Jews who were that much to the border, spoke to the B'nai B'rith, considered himself very comfortable being a Jew. He

pointed out that most of our life is unconscious, and this is, c'est vrai, an absolute truth.

ELIE WIESEL: He had a lot of quarrels with his wife, Freud, because she wanted to light Shabbat candles, and he didn't let her. Can you imagine, to have quarrels over that? [01:07:00] But he did.

ERIC KANDEL: I want to tell you, this does not surprise me. (laughter) Freud had many insights, but insights into women's psychology is zero.

GAIL SALTZ: No, it was definitely not one of them. (applause) This is true. Well, he did, he said women were the dark continent for him. He did not understand.

ERIC KANDEL: I can tell you why, but this is probably not the audience to do this in. (laughter)

GAIL SALTZ: So that was a fantastic sort of biologic explanation of the unconscious into the conscious. And I wonder in your teachings, since you said your experiences with therapists were not too positive, they were Rorschach tests, but what about the idea of things that are in your unconscious [01:08:00] and how available they are to you, how important that is.

ELIE WIESEL: Well, having said what I said, I studied psychology. I studied philosophy. And in France you cannot study philosophy without studying psychology.

It's part of philosophy. It's all about conscious, subconscious, unconscious. I studied all that, even about the brain and the function of the brain. Look, I love to learn to this day. In my class I'm the best student. If not the best teacher, I'm the best student. I love to learn. And we are told in the Talmud that more that I have learned from my teachers I learned from my students. And I do learn. I learn from every person. I learned tonight from you, and of course from Eric, naturally. So the questions remain questions. But we must continue. That's what I learned in life. All the questions I asked about God, about people, [01:09:00] about culture, these are very important questions. You know, how could a cultured people do what it did, and how did God allow things that happened and that did? These are very good questions, and they deserve a very deep introspection as well. But they remain questions.

GAIL SALTZ: Well -- yes.

ERIC KANDEL: Can I elaborate? This is a very profound point that Elie's -- one of the problems that I've struggled with is, how can people listen to Haydn, Mozart, and Beethoven one day and beat up on the Jews the next? And how is this possible in Vienna, to have Vienna 1900 where Jews and non-Jews interact in the most fantastic way

to bring about a completely new way of thinking, and then 30 years later they're the most anti-Semitic people alive? Well, part of it is they've been anti-Semitic all along, and there was just a magical period in which this was overcome. But it also confronts you, [01:10:00] and I'm curious to get your reaction to this, to the very sad truth that all of us are capable of doing terrible deeds. This is built into our genome, and it's part family structure, religion, social context that sets us in one direction or another. Reinhold Niebuhr once said the capability of people for good makes democracy desirable. The capability for evil makes democracy necessary. Democracy is a safeguard, not perfect. There's no safeguard that's perfect, but a strong safeguard against having these horrible things occur. But I mean, we see even Jews doing terrible things. I mean, this is not something which is, you know, genetic -- you can be genetically a psychopath, but many people who do terrible things do it because the environment encourages, they're opportunistic. You know, if you kick out half the medical faculty at the University of Vienna and you're a young assistant professor, you can move up, right. So [01:11:00] there are many social factors --

GAIL SALTZ: But each of you have chosen to, to some degree, use memory to add to the fabric of society and the desire to keep bad things from -- from people using their evil side of nature, to have them remember the things that hopefully --

ERIC KANDEL: We believe in democracy.

ELIE WIESEL: No, well, Eric, one thing I do not think, for first time tonight I don't agree with you. I don't think that we -- you say we could become they. We cannot become. I don't think so. Unless we became they. What I discovered in my studies later on, many of the arch killers had college degrees, had PhDs in philosophy and humanities and medicine, and they became killers of children. I said, what? I almost gave up on education. [01:12:00] I covered the Eichmann trial. I was then a journalist. At that time some writers, I think including Hannah Arendt, and I'm not sure she went that far, saying actually there is an Eichmann in all of us. All of us could be. No. No. Only Eichmann was Eichmann. Unless we had done or had the urge to do what he had, no. It would be too terrible to think that there is an Eichmann in me or in you or in Gail. No way. No way. It's too dangerous even to imagine, not only to think, that that could happen. It would also diminish Eichmann's guilt to say that he

actually, he became what I could become. I wouldn't say that. I would never accept that.

ERIC KANDEL: When one reads the literature in this period, and I've done a fair amount of reading in it, [01:13:00] there is no question that there are psychopaths. There are people who are genetically predisposed to be capable of doing these horrible things.

GAIL SALTZ: And it's starting to look like their brain differences.

ERIC KANDEL: But they bring with them, for a variety of reasons, opportunism, social pressure, intimidation. You know, to protect Jews took courage. In France, for a variety of reasons, they had much more courage than in Austria. Very few Jews were protected in Austria. Robert Lifton has done a extensive study, Nazi doctors. He asked physicians, how could you, you know, who took the Hippocratic oath to protect human lives, how could you go out and kill? And he says very simple, these people were vermin. They were not human. This was a different race. Hitler practiced racial anti-Semitism. [01:14:00] And to get rid of them was what society needed. This was what Hitler wrote in *Mein Kampf*. It's not a question of their being badly behaved. This way if we just convert them, this was the Spanish position in the Inquisition, if they'd

just convert, they'd be fine. Hitler thought conversation is nothing. This is why if you're one-tenth percent Jewish you were Jewish, out. Because this was built into your genome. And these people went along with this. Now, many of these people, if you look at their children, their grandchildren, they're perfectly fine. This is not something genetically carried on from generation to generation. There are terrific social pressures that can force people to act in terrible ways.

ELIE WIESEL: Still, I want to believe that neither you nor I would ever submit to such pressures or that anyone in this room could ever submit to such pressures to become an Eichmann. No way.

GAIL SALTZ: Well, we like to believe that, but we also --

ERIC KANDEL: We like to believe that, but there are the facts that argue against it.

ELIE WIESEL: No. Why the facts? What have -- look, [01:15:00] even in America we have done some terrible things, terrible things in certain places, true, Vietnam and so forth, but not like that. There was a war going on, but otherwise Eichmann, to take -- you know, Eichmann went the afternoons, he heard music. He told the story in the trial. Listen to music, and the same day he could give

orders to kill children or Mengele, same thing. I don't think that any Jew could do that. I don't think that any American could do that.

ERIC KANDEL: Wait a second, I'm sorry. I didn't -- what I said, Jews can do terrible things. I didn't necessarily mean of this nature. No, I'm sorry. I didn't make myself clear. I didn't suggest that Jews could ever set up a concentration camp, God forbid, *chas v'chalila*. I didn't mean this at all. I said Jews are capable of doing evil.

ELIE WIESEL: Everybody's capable of doing evil.

ERIC KANDEL: That's the point I was making.

ELIE WIESEL: Since [01:16:00] God gave evil --

ERIC KANDEL: Elie, this is the point that I was making. This is the point that I was making. Our culture is so that even the most deranged of us will have certain limitations. But other cultures, those limitations may not exist. That's why I say culture is what ultimately determines --

ELIE WIESEL: Correct.

GAIL SALTZ: Got you. Well, could each of you, perhaps to close, say something about what you think the most important question really looming about memory -- what needs to be looked at? What needs to be harnessed and

understood in something that we're really talking about tonight of this depth of importance?

ERIC KANDEL: So I've been doing brain science for about 60 years. And this has been a wonderful growth of brain science. We went from knowing relatively little about the brain, [01:17:00] having relatively few people studying it, and now it's become the most popular area in biology, in fact, one of the most important areas in all of science. And it's grown a lot. Compared to what we need to know in any topic, consciousness, unconsciousness, perception, learning, and memory, you know, the beginning of a great mountain range, most is still to come. So Elie and I are very lucky. We have a lot of learning ahead of us. (laughter)

ELIE WIESEL: What could replace memory? Nothing. If there is one area in human nature and in life that has no substitute, it's memory. And therefore I turn it almost into a religious [01:18:00] faith and a religious belief. But my religion is memory. But I want memory to be an agent to bring people together rather than setting them apart.

GAIL SALTZ: And so you have made it. Thank you so much. Thank you both. (applause) Very interesting evening.

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