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2
3 IN THE CIRCUIT COURT OF THE STATE OF OREGON
4 FOR THE COUNTY OF LANE

5 ELIZABETH DIANE DOWNS

6 Petitioner,

7 vs.

8 STATE OF OREGON

9 Defendant.
10

No. 22CV16308

DECLARATION OF JAMES MCGAUGH,
Ph.D

11 Pursuant to ORCP 1E, I, James McGaugh, Ph.D do hereby declare as follows:
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- 13 1. I am Distinguished Professor Emeritus, Department of Neurobiology and Behavior,
14 Center for the Neurobiology of Learning and Memory, University of California,
15 Irvine. I recognize Attachment 1 pages 1-47 of this declaration to be an up-to-date
16 copy of my curriculum vitae. I endorse the veracity of the information contained in
17 Attachment 1 by this reference.
- 18 2. I was contacted by attorney Venetia Mayhew to offer my assessment in the above
19 referenced DNA post-conviction case. Ms. Mayhew asked me to review materials
20 relating to Christie Downs' 1984 trial testimony that it was her mother Diane Downs
21 who shot her and her siblings.
- 22 3. I recognize Attachment 2 pages 48-51 of this declaration to be a 3-page report that I
23 generated on behalf of petitioner. In that report, I concluded that it is highly likely that
24

25 DECLARATION OF JAMES MCGAUGH Ph.D 1

VENETIA MAYHEW
PO Box 22026
PORTLAND, OR 97269
T: 503 490 0777

PET. EX. 25

1 the effects of the injuries Christie Downs sustained in the shooting prevented the
2 formation of any memory of the shooting. It is highly likely that her Dr. Peterson's
3 repeated encouragement to her to remember the event created a false memory. My
4 conclusions are highly consistent with extensive scientific findings concerning the
5 conditions that create and influence memory.

- 6 4. I hereby declare that the above statement is true to the best of my knowledge and belief
7 and, I understand it is made for use as evidence in court and is subject to penalty for
8 perjury.

9 Dated: this 18th day of November, 2024

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14 James McGaugh, Ph.D
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VITAE

James L. McGaugh

Education:

B.A., San Jose State University, 1953
Ph.D., University of California, Berkeley, 1959

Fellowships and Honors:

Abraham Rosenberg Research Fellow, 1955-56
National Academy of Sciences - National Research Council, Senior Postdoctoral Fellowship, Istituto Superiore di Sanita, Rome, 1961-62
Sigma Xi
Phi Beta Kappa
Distinguished Scientific Contribution Award of the American Psychological Association, 1981
Distinguished Alumnus Award, San Jose State University, 1982
Extraordinarius Award, University of California, Irvine, 1982
Distinguished Alumnus Award, School of Social Sciences, San Jose State University, 1984
Distinguished Faculty Lectureship Award, University of California, Irvine, 1985
Merit Award, National Institute of Mental Health, 1987
President, Association for Psychological Science, 1989-91
Member, National Academy of Sciences, 1989
William James Fellow, Association for Psychological Science, 1989
Fellow, Society of Experimental Psychologists, 1991
President, 1992-93, Western Psychological Association
Honorary Doctorate of Science, Southern Illinois University, 1991
Fellow, American Academy of Arts and Sciences, 1992
UCI Medal, University of California, Irvine, 1992
Establishment of James L. McGaugh Award for Excellence in Graduate Research in Psychobiology, University of California, Irvine, 1994
James L. McGaugh Endowed Scholarship, San Jose State University, 1993
Foreign Member, Brazilian Academy of Sciences, 1994
John P. McGovern Award, American Association for the Advancement of Science, 1996
Fellow, World Academy of Art and Science, 1997
Robert S. Dow Neuroscience Award, 2000
Corresponding member, Mexican Academy of Sciences, 2000
Laurea Honoris Causa, University of L'Aquila, Italy, 2001
McGaugh Hall, building named in his honor, University of California, Irvine, 2001
Establishment of James L. McGaugh Endowed Chair, University of California, Irvine, 2005
Lifetime Achievement Award, The Western Psychological Association, 2006
Norman Anderson Lifetime Achievement Award, Society of Experimental Psychologists, 2008
Karl Lashley Prize in Neuroscience, American Philosophical Society, 2009
Distinguished Visiting Scholar, School of Behavioral and Brain Sciences, University of Texas, Dallas, 2011
University of Louisville Grawemeyer Award for Psychology, 2015
Lifetime Achievement Award, Neurobiology and Behavior, UC Irvine, 2015

Major Interests: Biological Bases of Behavior: Neurobiology of Learning and Memory

Positions Held:

San Jose State University: Department of Psychology, Assistant Professor, 1957-60;
Associate Professor, 1960-61
University of Oregon:
Associate Professor, Department of Psychology, 1961-64 (on leave, 1961-62)
University of California, Irvine:
Associate Professor, *Department of Neurobiology and Behavior, 1964-66
Professor, *Department of Neurobiology and Behavior, 1966-74
Distinguished Professor, *Department of Neurobiology and Behavior, 1974-94
Distinguished Research Professor, *Department of Neurobiology and Behavior, 1994-2018
Distinguished Professor Emeritus, *Department of Neurobiology and Behavior, 2018
Founding Chair, *Department of Neurobiology and Behavior, 1964-67, 1971-74, 1986-89
Dean, School of Biological Sciences, 1967-70
Vice Chancellor, Academic Affairs, 1975-77
Executive Vice Chancellor, 1978-82
Director, Center for the Neurobiology of Learning and Memory, 1983-2004; Fellow 1983-

**Formerly Department of Psychobiology*

Memberships:

National Academy of Sciences
American Academy of Arts and Sciences
Brazilian Academy of Sciences
Society for Neuroscience: Chairman, Committee on Education, 1972; Council Member
1974-78
Association for Psychological Science, Charter Member and William James Fellow, 1988;
President, 1989
American College of Neuropsychopharmacology, Life Member
International Brain Research Organization (UNESCO)
American Association for the Advancement of Science (Fellow), 1973
The Psychonomic Society
Collegium Internationale Neuro-Psychopharmacologicum, 1994
World Academy of Art and Sciences, 1997

Advisory Positions:

Consultant Veterans Administration, 1964-72
Member, NIMH Committee on Behavioral Pharmacology, 1965-67
Member, NIMH Biological Science Training Review Committee, 1968-1972; Chair, 1971-72
Member, NIMH Preclinical Psychopharmacology Research Review Committee, 1975-78
Member, Advisory Council, Texas Christian University Research Foundation, 1976-78
Member Review Committee for Brain Research Program, McKnight Foundation, 1976-85
Member and Chair, Science Jury to Select the California Scientist of the Year,
California Museum of Science and Industry, 1976, 1977
Member, American Psychological Association Committee on Research Support, 1978-80
Member, National Academy of Sciences-National Research Council Committee on Aging,
1978-79
Member, W. Clement and Jessie V. Stone Foundation, 1979-86
Member, Executive Committee, Division 6, American Psychological Association, 1980-82

Member, National Academy of Sciences-National Research Council Committee on Research in the Behavioral and Social Sciences, 1983-85

Member, American Psychological Association, Task Force on the Structure of APA, 1985-86; Chief Scientific Advisor, 1986-88

Society for Neuroscience, Selection Committee for the Donald B. Lindsley Prize in Behavioral Neuroscience, member, 1987-90; Chair, 1989

U.S. National Committee for the International Union of Psychological Science (a National Research Council committee), Member 1985-92; Chair, 1989-92

Member, Federation of Behavioral, Psychological and Cognitive Sciences, Science and Public Policy Seminars Committee, 1988-91.

Member, National Science Foundation, Science and Technology Center Advisory Panel, 1988

Member, Society for Neuroscience, Selection Committee for the Young Investigator Award, 1988-91

Member, American Psychological Association, Ad Hoc Science Advisory Committee, 1989-90

Member, Executive Advisory Board, Dictionary of Science and Technology, 1989.

Member, Review Board, John Sealy Memorial Endowment Fund, University of Texas Medical Branch, 1989-

Member, External Advisory Review Committee, Beckman Institute for Advanced Science and Technology, University of Illinois, 1990-94

Advisor, Committee on Biopsychology, The University of Chicago, 1991

Member-at-Large, Section Psychology (J), American Association for Advancement of Science, 1991-95; Association for Psychological Science Representative to Section J, 1991-94.

Member, National Advisory Mental Health Council of NIMH, 1991-95.

Member, International Advisory Board, Adams Super-Center for Brain Studies, Tel Aviv University, 1993-

Section Chair (52) Psychology, National Academy of Sciences, 1992-94

External Reviewer, European Science Foundation, 1992-

Section Panel Member, American Academy of Arts and Sciences, 1993

External Reviewer, International Human Frontier Science Program, Strasbourg, 1992-93

Ad hoc Reviewer, National Institute on Alcohol Abuse and Alcoholism Board of Science Counselors, 1993

External Reviewer, Medical Research Council of Canada, 1993

External Advisory Committee, Center for Behavioral Neuroscience, State University of New York, Stony Brook, 1993-94

Board of Visitors, Center for Applied Psychological Research, Memphis State University, 1994

Member, California Council on Science and Technology, 1995-96; Fellow, 1997-

Member, Dana Alliance for Brain Initiatives, Charles A. Dana Foundation, 1997-

Member, Scientific Advisory Board, Cure Autism Now (CAN), 1997-

Member, NIMH Clinical Research Planning Panel, 1998

Presentation, President's Council on Bioethics, 2002

Member, Advisory Committee, The Brain Injury Foundation, 2003-

Member, Society for Neuroscience, Julius Axelrod Prize Committee, 2006-07

Member, Society for Neuroscience Public Education and Communication Committee, 2007-

Editorial Positions:

Editor:

- Behavioral Biology, 1972-78
- Behavioral and Neural Biology, 1979-1994
- Neurobiology of Learning and Memory, 1995-1998

Founding Editor: Neurobiology of Learning and Memory

Associate Editor: Communications in Behavioral Biology, 1969-71

Associate Editor: Cognitive Processing.

Editorial Advisory Board:

Oxford Psychology Series, Oxford University Press, 1979-96

Consulting Editor:

Journal of Experimental Psychology: Animal Behavior Processes, 1975-80

Behavior Research Methods and Instrumentation, 1969-82

Behavioral Neuroscience, 1989-95

Psychobiology, 1993-

Behavioral Neuroscience, 2003-

Co-Editor: Advances in Behavioral Biology, 1971-92

Executive Advisory Board: Encyclopedia of Human Biology, 1987

Associate Editor: Cognitive Processing, 2004-

Member of Editorial Advisory Boards:

Agents and Actions, 1969-73

Biobehavioral Reviews, 1976-77

Brain Research, 1974-80

Journal of Neurobiology, 1969-76

Neurobiology of Aging, 1980-90

Neuron, 1995-2000

Neuroscience and Biobehavioral Reviews, 1978-88

Psychopharmacology, 1966-78

Psychopharmacology Communications, 1975-82

International Journal of Memory, 1992-

Archives of Medical Research, 1998-

Peer J.com, 2012-

Ph.D. Theses Supervised:

- Alpern, Herbert P. Facilitation of learning by implantation of strychnine sulphate in the central nervous system, 1968.
- Krivanek, Jara A. The effects of pentylentetrazol in avoidance learning: A study in biological integration, 1968.
- Luttges, Marvin W. Electrophysiological dose-response effects of megimide and strychnine, 1968.
- Dawson, Ronald G. Memory storage processes: Implications of recovery of function for analyses of time-dependent storage of memory, 1971.
- Landfield, Philip W. Neurobiological correlates of memory storage processes, 1971.
- Zornetzer, Steven F. Electrophysiological correlates of retrograde amnesia in mice and rats, 1971.
- Van Buskirk, Roderick B. Modulation of memory processes in rodents by catecholamines, 1974.
- Handwerker, Mark J. The role of the nucleus locus coeruleus in avoidance learning and retention stability in rats, 1976.
- Liang, Keng C. The amygdala and memory modulation, 1982.
- Bennett, Mary C. Some behavioral effects of the selective noradrenergic neurotoxin, N-(2-chloroethyl)-N-ethyl-2-bromobenzylamine (DSP4), 1984.
- Cahill, Lawrence F. The amygdala and emotional memory, 1990.
- Nagahara, Alan H. GABAergic modulation of the medial septal area: Effects on learning and memory, 1990.
- Kim, M. Pharmacological analysis of involvement of amygdala NMDA receptors in learning and memory, 1991.
- Parent, Marise P. The amygdala and aversive memory: Modulation or mediation? 1993
- Dickinson-Anson, Heather. The role of the amygdaloid complex in benzodiazepine-induced amnesia, 1993.
- Coleman-Meschers, Karin. Differential involvement of the right and left amygdalae in emotionally influenced memory, 1994.
- Meschers, Michael H. The involvement of the amygdala AMPA receptors in learning and memory, 1994.
- Salinas, Juan A. The amygdala and learning and memory: Role in the response to changes in reward magnitude, 1994.
- Carmi, Osnat. The role of the stria terminalis in the mnemonic effects of benzodiazepine/GABA neurotransmitter systems, 1996.
- Setlow, Barry. Striatum, amygdala, and memory, 1998.
- Vazdarjanova, Almira. The basolateral amygdala and contextual fear conditioning -- memory vs performance, 2000.
- Power, Ann E. Multiple roles of the cholinergic system in basolateral amygdala-mediated memory modulatory processes, 2002.
- LaLumiere, Ryan T. The dopaminergic modulation of memory consolidation: Involvement of the basolateral amygdala and the nucleus accumbens shell, 2005.
- Malin, Emily. The basolateral amygdala, rostral anterior cingulate cortex and hippocampus: Interactions and differential involvement in memory consolidation for distinct components of a task, 2006
- Berlau, Dan. Emotional memory consolidation: The role of the basolateral amygdala on the acquisition and extinction of contextual fear conditioning, 2006

BIBLIOGRAPHY
James L. McGaugh

McGaugh, J. L. Some neurochemical factors in learning. Doctoral dissertation, University of California, Berkeley, 1959.

1. McGaugh, J. L., and Petrinovich, L. An apparatus for the study of instrumental learning in the rat. The American Journal of Psychology, 1956, 69, 660-663.
- 1a. McGaugh, J.L. Elements of Psychology--Student Workbook for David Krech and Richard S. Crutchfield. New York: Alfred A. Knopf Publisher. 1958. 141 pp.
2. McGaugh, J. L., and Petrinovich, L. The effect of strychnine sulphate on maze-learning. The American Journal of Psychology, 1959, 72, 99-102.
3. Breen, R. A., and McGaugh, J. L. Facilitation of maze learning with posttrial injections of picrotoxin. Journal of Comparative and Physiological Psychology, 1961, 54, 498-501.
4. Fehmi, L., and McGaugh, J. L. Discrimination learning by descendants of Tryon maze bright and maze dull strains. Psychological Reports, 1961, 8, 122.
5. Madsen, M. C., and McGaugh, J. L. The effect of ECS on one-trial avoidance learning. Journal of Comparative and Physiological Psychology, 1961, 54, 522-523.
6. McGaugh, J. L. Facilitative and disruptive effects of strychnine sulphate on maze learning. Psychological Reports, 1961, 8, 99-104.
7. McGaugh, J. L., Westbrook, W., and Burt, G. Strain differences in the facilitative effects of 5-7-diphenyl-1-3- diazadamantan-6-o1 (1757 I.S.) on maze learning. Journal of Comparative and Physiological Psychology, 1961, 54, 502-505.
8. Thomson, C. W., McGaugh, J. L., Smith, C. E., Hudspeth, W. J., and Westbrook, W.H. Strain differences in the retroactive effects of electroconvulsive shock on maze learning. Canadian Journal of Psychology, 1961, 15, 69-74.
9. McGaugh, J. L., Jennings, R. D., and Thomson, C. W. Effect of distribution of practice on the maze learning of descendants of the Tryon maze bright and maze dull strains. Psychological Reports, 1962, 11, 147-150.
10. McGaugh, J. L., and Thomson, C. W. Facilitation of simultaneous discrimination learning with strychnine sulphate. Psychopharmacologia, 1962, 3, 166-172.
11. McGaugh, J. L., Thomson, C. W., Westbrook, W. H., and Hudspeth, W. J. A further study of learning facilitation with strychnine sulphate. Psychopharmacologia, 1962, 3, 352-360.
12. McGaugh, J. L., Westbrook, W. H., and Thomson, C. W. Facilitation of maze learning with posttrial injections of 5-7-diphenyl-1-3-diazadamantan-6-o1 (1757 I.S.). Journal of Comparative and Physiological Psychology, 1962, 55, 710-713.
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32. McGaugh, J. L. Drug facilitation of memory storage. Proceedings of the Fifth International Congress of the Colloquium Internationale Neuro-psychopharmacologicum, Washington, D. C. Excerpta Medica Foundation, 1966.
33. McGaugh, J. L. Memory storage processes. Symposium on the relationship between long-term and short-term memory. Proceedings of the XVII International Congress of Psychology, Moscow, 1966, 9-17.
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45. Alpern, H. P., and McGaugh, J. L. Retrograde amnesia as a function of duration of electroshock stimulation. Journal of Comparative and Physiological Psychology, 1968, 65, 265-269.
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47. McGaugh, J. L. A multi-trace view of memory storage. In D. Bovet, F. Bovet-Nitti, and A. Oliverio (Eds.), Recent Advances in Learning and Retention, Roma Accademia Nazionale Dei Lincei, Quaderno N. 109 Anno CCLXV, 1968, 13-24.
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50. McGaugh, J. L. Drug facilitation of memory and learning. In D. H. Efron (Ed.), Psychopharmacology: A Review of Progress. U.S. Government Printing Office, Washington, D.C., PHS Publ. No. 1836, 1968, 891-904.
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54. Stephens, G., and McGaugh, J. L. Retrograde amnesia: Effects of periodicity and degree of training. Communications in Behavioral Biology, 1968, 1, 267-275.
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November 1, 2024

Venetia Mayhew
Attorney at Law
3333 SW Taylor St. #300
Portland, Oregon 97284

Re: Diane Downs Case

Dear Ms. Mayhew:

I have examined the materials that you provided concerning the case and offer my opinions concerning the reliance on witness memory.

My Education, Professional Experience, Research Focus

As is presented in detail in the attached Curriculum Vitae, I received a Ph.D. in physiological psychology from the University of California, Berkeley and did Postdoctoral research in the neuropharmacology of memory with *Nobel Laureate* Daniel Bovet at the Istituto Superiore di Sanita in Rome Italy. I was then a professor at the University of Oregon before joining the faculty of the newly created University of California, Irvine (UCI) as the founding chair of the Department of Neurobiology and Behavior. Subsequently I served as Dean of the School of Biological Sciences and Executive Vice Chancellor. I was also the founding Director of the Center for the Neurobiology of Learning and Memory at UCI.

I have published well over five hundred scientific articles reporting the findings of my research investigating brain processes underlying learning and memory and I have authored or co-authored over a dozen books on memory. I have received many distinguished national and international awards and honors for my scientific research on brain processes underlying memory, including:

- Member, U.S. National Academy of Sciences
- Member, Brazilian Academy of Sciences
- Member, Mexican Academy of Sciences
- Fellow, American Academy of Arts and Sciences
- President, Association for Psychological Science
- Distinguished Scientific Contribution Award American Psychological Association
- Merit Award, National Institute of Mental Health
- Fellow, Society of Experimental Psychologists
- William James Fellow, Association for Psychological Science
- Laurea Honoris Causa, University of L'Aquila, Italy
- McGovern Award, American Association for the Advancement of Science
- Karl Lashley Prize American Philosophical Society

I have served on many scientific advisory committees concerned with brain and memory, including:

Member NIMH Committee on Behavioral Pharmacology
Member NIMH Preclinical Psychopharmacology Research Review Committee,
Member, Review Committee for Brain Research Program, McKnight Foundation
Member, National Academy of Sciences Council Committee on Research
Member, National Science Foundation, Science Center Advisory Panel
Member, National Advisory Mental Health Council of NIMH
Member, International Advisory Board, Adams Super-Center for Brain Studies
Member, California Council on Science and Technology
Member, Dana Alliance for Brain Initiatives
Member, Scientific Advisory Board, Cure Autism Now
Member, NIMH Clinical Research Planning Panel
Member, Advisory Committee, The Brain Injury Foundation

Case Material Reviewed

My report is based on assessment of material concerning the case provided to me.

1. Notes and testimony of child psychologist, Dr. Carl Peterson
2. Christie Down's documented police interviews.
3. The Child Services Division reports and notes.
4. Trial testimony, including the State's and defense opening and closing arguments, and testimony of Christie Downs, Dr. Peterson, George Suckow and Dr. Douglas Hintzman (psychological scientist)).

Research Findings Relevant to this Case

As conclusions concerning the evidence considered in this case involves the validity of memory it is essential consider the extensive scientific evidence concerning the formation and assessment of memories.

1. The Creation of New Memories

- a. Lasting memories are not formed at the time of an experience. Experiences create memories that are initially fragile and subsequently, over time, become lasting or consolidated.
- b. Emotionally stressful experiences create strong lasting memories. They do not create either a temporary or lasting inability to remember such experiences.
- c. Brain injury occurring shortly after an experience can block the formation/consolidation of memory of the experience.
- d. Such memories do not recover either over time or with intensive efforts to induce recovery.

2. False memories can be created

- a. individuals can be induced to state that they remember events that never occurred.
- b. The creation of false memories can result from repeated suggestions to subjects that they can and should remember the events that never occurred.

The Focus of My Assessment

My assessments focus explicitly on the issue the statement of Christie Downs during the trial that she remembered that her mother, Diane Downs was the person who shot her, her brother and her sister. I have not addressed the many other issues presented during the trial that did not focus explicitly on the issue of reliability of Christie's memory.

As it was a very highly emotionally arousing event, the shooting would have, without the brain damage, created a very strong memory. Published findings indicate that witnesses to a shooting have highly reliable and long-lasting memories of the shooting. Initially, despite repeated efforts by Dr. Peterson to induce Christie to remember the shooting, she did not. This strongly suggests that she did not have a memory of the shooting experience. Rather, it seems very highly likely that the shooting caused effects on her brain processes that blocked the formation of memory of the experience. Thus, as the memory was not created it would be impossible to recover it.

Did Dr. Davidson's repeated encouragement of Christie to remember the shooting cause her ultimately to remember it? It seems highly unlikely. Highly emotional experiences are well remembered. They are not forgotten and then later remembered. It is much more likely that Dr. Davidson's repeated encouragement of Christie to remember the shooting induced Christy to ultimately have a false memory. That is, like subjects in many studies of induced false memory, Christie, may have, with repeated encouragement to come to believe that she remembered the shooting. There is no scientific evidence for the notion of "memory suppression" suggested by Dr. Davidson.

My Conclusions from the Information Provided

1. It seems highly likely that effects of the shooting on Christa's brain prevented the formation of any memory of the shooting experience.
2. It seems highly likely that Dr. Peterson's repeated encouragement of Christa to remember the shooting created Christie's false memory that she remembered the shooting.
3. These conclusions are highly consistent with extensive scientific findings concerning the conditions that create and influence memory.

Cordially,



James L. McGaugh
Distinguished Professor Emeritus
Department of Neurobiology and Behavior
Center for the Neurobiology of Learning and Memory
University of California, Irvine