

Memo to:

Dr. David Huizenga, Acting Assistant Secretary  
Office of Environmental Management  
Department of Energy

[REDACTED]  
[REDACTED]  
[REDACTED]

Bryan Bower, Director  
West Valley Demonstration Project  
Department of Energy

[REDACTED]  
[REDACTED]  
[REDACTED]

From:

Nuclear Information and Resource Service  
Diane D'Arrigo

Sierra Club Niagara Group  
Lynda Schneekloth, Chair

Citizens' Campaign for the Environment  
Brian Smith

Concerned Citizens of Cattaraugus County  
Kathy Boser, president

Hudson River Sloop Clearwater  
Manna Jo Greene

Beyond Nuclear  
Kevin Kamps, Radioactive Waste Watchdog

Bruce Peninsula Environment Group  
Ziggy Kleinau, Outreach director  
Lion's Head, Ontario, Canada

Citizens for Alternatives to Chemical  
Contamination  
Victor McManemy, Chair  
Lake, MI

Dorothy Shaw  
West Valley, NY

Francis J. Murray, Jr., President and CEO  
New York State Energy Research and  
Development Authority (NYSERDA)

[REDACTED]  
[REDACTED]

Paul Bembia, NYSERDA  
West Valley Site Program Dir.

[REDACTED]  
[REDACTED]  
[REDACTED]

Center for Health Environment and Justice  
Anne Rabe, Lois Gibbs

Coalition on West Valley Nuclear Wastes  
Joanne Hameister

Citizens' Environmental Coalition  
Barbara Warren

New York Public Interest Research Group  
Laura Haight

Home for Peace and Justice  
Joan McCoy, Coordinator  
Saginaw, MI

Lone Tree Council  
Terry Miller, Chair  
Bay City, MI

Solender Services LLC  
Suzie Rivo Solender  
Williamsville, New York

Erik Hahn  
Buffalo NY

Pat, Tom and Graeme Lawson  
Canada

Cc: West Valley ISP members: Drs. Clarke, Frechette, Whipple, Garrick;  
Dr. David Carpenter; Moira Maloney, DOE ; Lee Gordon, NYSERDA

DATE: March 30, 2013

**RE: Recommendation of Dr. David O. Carpenter to the West Valley Independent Scientific Panel** (Science Panel or ISP) for purposes of including medical public health risk perspective

Dear Mr. Huizenga, Mr. Murray, Mr. Bower and Dr. Bembia:

Our organizations have researched and interviewed numerous potential candidates to fulfill what we see an essential role on the Independent Scientific Panel (ISP) overseeing the West Valley nuclear site studies. Dr. David O. Carpenter is superbly qualified and potentially available. If the Agencies (Department of Energy and New York State Energy Research and Development Authority) desire legitimacy in this troubled ongoing process, adding Dr. Carpenter to the Science Panel would serve to allay some levels of serious concern about how the studies are being conducted and how they will be used in the end.

We fully respect the historic differences between NYSERDA and DOE with potential to flare up again but must insist that there is MORE at stake here and the public has every right to better representation in ongoing processes.

Recall we criticized the inadequacy of the Phased approach even before we understood many of the limitations that have become realities in past 2 years. These include but are not limited to:

- incomplete removal of the expanding radioactive plume, and no plan to slow, stop or prevent the radioactivity that is past the permeable treatment wall from getting offsite and into creeks
- failure to contract for necessary planning to get to the alleged source of the plume in less than 7 (or more) years
- decision to indefinitely store 275 high level radioactive logs outside with no shielding for weather or radiation and no structure beyond the casks, which have relatively short useful lives
- studies designed, staffed and overseen in a manner geared to Agency agreement, rather than objective information in the best interest of the public, environment and economic realities.

We raised concerns about

- the original set-up of ISP Science Oversight Panel, the Potential Areas of Study each with its Subject Matter Experts (SMEs) followed by the imposition of the 4 pages of rules with which the public must comply but had no role in creating (“guidance document”)
- having no input on the contractors
- lack of transparency regarding the missions of the studies and how they inter-relate
- lack of information on the basic assumptions, especially regarding the 5 newest study teams, which essentially disables meaningful suggestions for membership on the teams or study direction, input, etc.

We much appreciate the [www.westvalleyphaseonestudies.org](http://www.westvalleyphaseonestudies.org) website that is now up and the efforts at making meetings accessible by phone with materials in advance and the genuine hard work of staff, but remain frustrated at our inability learn specifically about and have an effect on the study goals, proceedings and membership. We seek more than the extremely rare, cursory DOE/NYSERDA supervised interactions with members of the study teams and science panel.

From the observations we have had thus far, the whole Phase 1 Study Set-Up appears to be arranged to allow tremendous “judgment” to be exercised at several levels that are not transparent to the public, with the Science Panel having the overseer role (under the Agencies).

We are on record expressing concerns about that Panel. At the point it became clear that DOE and NYSERDA were proceeding with a Science Panel to oversee the work, we requested the 3 DOE NYSERDA candidates be replaced with qualified candidates who have some history of service to contaminated communities and/or public and environmental perspectives. We continue to be grateful that a 4<sup>th</sup> candidate, Dr. Shrader-Frechette, was approved and that she agreed to join the Science Panel, but we remain concerned that there is no balance and that there is a lack of medical and public health perspective. To provide greater public confidence that the Science Panel is qualified to review all aspects of the West Valley studies and recommendations to the Agencies, especially in the arena of risk to public health, we ask that a 5<sup>th</sup> Panelist be added who has demonstrated skills and understanding of public health effects from environmental pollutants along with rigorous hands on experience with nuclear-exposed workers and the public. Dr. David O. Carpenter has these qualifications.

The role of the Science Panel as described in the phase one studies documents is to:

- “· Provide independent scientific guidance to DOE and NYSERDA and to the SME working groups during the identification and scoping of Phase 1 Studies
- Review study plans and activities, as needed
- Provide guidance to DOE, NYSERDA, and SME working groups to keep the Phase 1 Studies process moving, as needed
- Assist in resolving differences of opinion among SMEs and between the DOE and NYSERDA, as needed
- Consider stakeholder input
- Provide opinions, updates, and responses to stakeholder questions and comments
- ...provide guidance to the agencies and Subject Matter Experts on the potential areas of study, specific studies, progress and results.”

“The ISP will be a three member panel made up of “science statesmen” types, such as members of the National Academy of Science, able to mediate any differences between SME [Subject Matter Experts] and offer independent views. ISP are not intended to be experts in all the disciplines but are well versed-in both diplomacy and science to help the various SME groups move toward consensus. Members of the ISP will be available at public meetings to field questions and hear comments. The value in having independent mediators involved in the ISP process was discussed [at first Phase 1 public meeting] including candidates that are respected scientists that can help SME come to consensus.”

The Scientific Panel members now include 3 engineers with careers supporting the nuclear establishment and 1 ethicist with very broad skills in economics, sciences, philosophy who has some previous experience working on behalf of the public interest. Ideally there would be 2 more panel members with public interest experience but we are willing to settle for greater attempt at

balance with inclusion of this public health expert with experience in impacts of environmental stressors including radioactivity/radiation on human health.

The decisions at West Valley will boil down to how to protect people, the drinking water and environment at the lowest cost. We need someone we believe has similar values to the concerned public to be involved in studying and managing the studies. The 2 “risk experts” on the ISP have never defended a community against a polluter in their long careers. In fact they have been professional advocates of the nuclear establishment. Especially because we don’t know about the study team members which the studies contractor, DOE and NYSERDA selected for the last 5 studies, and cannot seem to get clarity on their missions, we more urgently need to have some ability to trust the ISP to watch out for us to some extent.

Short of fixing the whole process, and as a step toward doing so, moving the ISP toward greater public health concern by adding this superbly qualified expert who has earned public trust would be a major improvement.

These studies are purported to get information needed to determine whether there will even BE a Phase 2. Thus we cannot be silent about our concerns about the approaches to them. We strongly need a health professional who has exercised good judgment in the past and is qualified and experienced in environmental and medical effects of radiation.

Dr. David Carpenter is that person and is willing to serve. His resume is attached. Partial biographies are provided below.

We strongly encourage DOE and NYSERDA to add Dr. Carpenter to the West Valley Science Panel (ISP).

BIOGRAPHICAL INFORMATION below; CV attached

**David O. Carpenter**, Professor [School of Public Health](#)

[ From <http://www.albany.edu/news/experts/8212.php> ]

Department: [Environmental Health Sciences](#)

Department: [Biomedical Sciences](#)

Expertise: Human health effects of environmental contaminants, including metals and organic compounds.

Campus phone: [REDACTED]

Campus email: [REDACTED]

Biography:

David O. Carpenter serves as director of the [Institute for Health and the Environment](#) [<http://www.albany.edu/ihe/index.htm>] at U Albany's School of Public Health. He previously served as director of the Wadsworth Laboratory of the New York State Department of Health. Carpenter was recently named to New York's Renewable Energy Task Force, charged with implementing plans to reduce electricity use through new energy efficiency programs in industry and government. Carpenter, who received his doctorate from Harvard Medical School, has 220 publications, 37 reviews and book chapters and 12 other publications to his credit.

**New York Medical Society Cites David Carpenter for Outstanding Contributions to Medicine and Research** [ From: [http://www.albany.edu/news/campus\\_news\\_9152.php](http://www.albany.edu/news/campus_news_9152.php) ]

On March 8, 2010, Dr. David O. Carpenter was awarded the [Medical Society of the State of New York](#)'s Albion O. Bernstein, M.D. Award, given to the physician, surgeon or scientist who has made outstanding contributions to medicine or the prevention of disease during the previous calendar year.

He has done extensive research on environmental contaminants and participates in national and international activities in environmental health and served on the **National Advisory Committee of the National Institute of Environmental Health Sciences (NIEHS)**, and on the **Great Lakes Science Advisory Board of the International Joint Commission**.

**Environment as a Collaborating Center** [From <http://www.albany.edu/news/18150.php> ]  
ALBANY, N.Y. (October 24, 2011) –

Dr. David Carpenter heads U Albany's Institute for Health and the Environment, named a Pan American Health Organization (PAHO)/World Health Organization (WHO) Collaborating Center in Environmental Health.

The Pan American Health Organization (PAHO)/World Health Organization (WHO) has named the University at Albany's Institute for Health and the Environment as a Collaborating Center in Environmental Health. The criteria on which WHO based its designation of the Institute as a Collaborating Center is based upon its scientific and technical standing, how the organization works with its respective country's health, scientific or educational structures, its operational stability and its active participation in international activities related to environmental health. David Carpenter, M.D., director of the Institute for Health and the Environment and professor in the University at Albany School of Public Health's Environmental Health Sciences Department, is director of the Center. The Institute is the only PAHO/WHO Collaborating Center in Environmental Health.

In this role, the U Albany Center will provide WHO with technical support for the development of evidence-based policy based on local and international needs. Additionally, it will support global training in environmental health and investigate human disease caused by exposure to environmental chemical pollutants, electromagnetic fields, and ionizing radiation. The Center will also collect, collate and disseminate information, research, and training focused on chemical safety, environmental health and hazards, and non-communicable diseases.

"By naming the Institute for Health and the Environment a World Health Organization Collaborating Center in Environmental Health, WHO is recognizing the mission of the Institute and the dedicated scientists who define the research and academic enterprise at the University at Albany," said School of Public Health Dean Philip C. Nasca.

Currently, some 800 institutions in 80 countries are designated as collaborating centers, supporting the goals of PAHO/WHO through a system of multilateral networks. Centers

throughout the world work and collaborate with other regional and international institutions, opening opportunities for funding from WHO-partner organizations.

**Institute of Health and the Environment**

The Institute for Health and the Environment strives to promote interdisciplinary research among faculty of the University at Albany and local academic and research institutions who have interest in the areas of environmental science, ecology, environmental policy, environmental health, environmental law, geographic information systems, hazardous waste management, occupational health, risk assessment, management and communication, urban environmental health, and the social and psychological aspects of environmental pollution in regard to human behavior. Members of the Institute have active research and collaborative activities in China, Mongolia, Japan, Australia, Pakistan, Romania, Georgia, Russia and Uganda. Membership in the Institute is open to others with research interests in health and the environment, particularly those with international programs.

Full CV is provided in separate attachment.

Emails of recipients, senders and cc:s provided separately to facilitate removal for public posting of this memo on the westvalleyphaseonestudies.org website.

[Redacted text block containing multiple lines of blacked-out information]

From **Amended Declaration of Dr. David O. Carpenter, M.D.**

***CURRICULUM VITAE***

Name: David O. Carpenter

[REDACTED]  
[REDACTED]

**Positions Held:**

Director, Institute for Health and the Environment  
University at Albany

Professor, Environmental Health Sciences

School of Public Health, University at Albany

5 University Place, A217, Rensselaer, NY 12144

Education: 1959 B.A., Harvard College, Cambridge, MA

1964 M.D., Harvard Medical School, Boston, MA

**Positions Held:**

9/61-6/62 Research Fellow, Department of Physiology, University of Göteborg, Sweden with  
Professor Anders Lundberg

7/64-6/65 Research Associate, Department of Physiology, Harvard Medical School, Boston,  
MA under the direction of Dr. Elwood Henneman

7/65-2/73 Neurophysiologist, Laboratory of Neurophysiology, National Institutes of Mental  
Health, Dr. Edward V. Evarts, Chief, Assistant Surgeon, USPHS, currently a  
Reserve Officer in the USPHS.

2/73-3/80 Chairman, Neurobiology Department Armed Forces Radiobiology Research  
Institute, Defense Nuclear Agency, Bethesda, MD

3/80-9/85 Director, Wadsworth Center for Laboratories and Research, New York State  
Department of Health, Albany, NY

9/85-1/98 Dean, School of Public Health, University at Albany

9/85-Pres. Professor, Departments of Environmental Health Sciences and Biomedical Sciences,  
School of Public Health, University at Albany.

9/85-7/98 Research Physician, Wadsworth Center for Laboratories and Research, New York  
State Department of Health, Albany, NY

1/98-1/05 Adjunct Professor in the Center for Neuropharmacology & Neuroscience, Albany  
Medical College, Albany, NY

2001-Pres. Director, Institute for Health and the Environment, University at Albany, SUNY,  
Rensselaer, NY. The Institute was named a Collaborating Center of the World  
Health Organization in 2011.

2005-Pres. Senior Fellow, Alden March Bioethics Institute, Albany Medical College/Center,  
Albany, New York

**Editor-in-Chief:** Cellular and Molecular Neurobiology, 1981 - 1987

**Editorial Advisor:** Cellular and Molecular Neurobiology, 1987 - Present

**Editorial Boards:** Journal of Public Health Management and Practice, 1995 - 2002

International Journal of Occupational Medicine & Environmental Health 1996- present

Journal of Alzheimer's Disease – Associate Editor, 2007-2009

Reviews in Environmental Health; 2008-present

International Archives of Occupational and Environmental Health; 2009-present.

Journal of Environmental and Public Health, 2009-present.  
Environmental Health Perspectives, 2010-present

**National and International Committees:**

1978, 1981 Physiology Study Section (Ad hoc member)  
1979-1985 NIH International Fellowship Study Section  
1974-1981 Member, Steering Committee of the Section on the Nervous System, American Physiological Society (Chairman of the Committee, 9/76-4/80)  
1981-1989 Member, USA National Committee for the International Brain Research Organization  
1985-1986 Committee on Electric Energy Systems of the Energy Engineering Board, National Research Council  
1986-1987 Member, Neurophysiology Peer Panel for the National Aeronautics and Space Administration  
1987-1989 Member, Science Advisory Council of the American Paralysis Association  
1987-1990 Advisory Panel for the Electric Energy System Division, U.S. Department of Energy  
1985-1993 Committee #79, National Council on Radiation Protection and Measurements  
1986-1997 Member, Legislative and Education Committees, Association of Schools of Public Health  
1989-1994 Member, Neuroscience Discipline Working Group, Life Sciences Division of the NASA  
1994, 1995 Federation of American Societies for Experimental Biology Consensus Conference on FY 1995 Federal Research Funding  
1994-1997 Member, Legislative Committee of the Association of Schools of Public Health  
1997 Member, Executive Committee of the Association of Schools of Public Health  
1997-2000 National Advisory Environmental Health Sciences Council of the National Institutes of Health  
1998-Pres. Member, U.S. Section of the Great Lakes Science Advisory Board of the International Joint Commission  
2000-Pres. Member, Board of Directors, Pacific Basin Consortium for Hazardous Waste Health and Environment; Treasurer, 2001-2004, 2008-pres; Chair, 2004-2008  
2001-2008 United States Co-Chair, Workgroup on Ecosystem Health of the Science Advisory Board of the International Joint Commission  
2002-2003 Member, Committee on the Implications of Dioxin in the Food Supply, The National Academies, Institute of Medicine  
2003-2008 Member, United States Environmental Protection Agency, Children's Health Protection Advisory Committee  
2003-Pres. Chair, Advisory Committee to the World Health Organization and National Institute of Environmental Health Sciences on collaborative activities.  
2007-2011 Chair, Workgroup on Risks vs. Benefits of Fish Consumption, Science Advisory Board, International Joint Commission.

**State and Local Committees:**

1980-1987 Executive Secretary, New York State Power Lines Project  
1985-1989 Board of Scientific Advisors, Institute of Basic Research, OMRDD, N.Y.

1986-1989 Member, Steering Committee, Health Policy and Administrative Consortium of the Capital District  
1991-1992 Member, Connecticut Academy of Sciences and Engineering Committee on Electromagnetic Field Health Effects  
1991-1992 Member, Board of Directors of the Capital District Chapter of the Alzheimer's Disease and Related Disorders Association, Inc.  
1991-1992 Member, State Task Force for the Reform of Middle Level Education in NY State  
1992-1993 Member, State Needs Task Force on Health Care and Education  
1987-1998 Delegate-at-Large, New York State Public Health Association  
1991-1995 Member, Board of Directors of the Capital District Amyotrophic Lateral Sclerosis Association  
1994 Chair, Council of Deans, University at Albany, SUNY  
1997-2008. Member, Board of Directors, (Chair 1998-2004) Albany-Tula Inc.: A Capital Region Alliance  
2000-Pres. Member, Board of Directors, Healthy Schools Network, Inc.  
2000-2003 Member, Medical Advisory Board, Hepatitis C Coalition, New York  
2000-2004 Member, Environmental Protection Agency /National Association of State Universities and Land Grant Colleges Task Force  
2001-2008 Member, Board of Directors, Environmental Advocates of New York  
2004-2007 Member, Ad Hoc Advisory Group on Brownfield Cleanup Standards  
2005-Pres. Member, Schooling Chefs Curriculum Advisory Board  
2005-2008 Member, Board of Directors, Citizens Environmental Coalition  
2006-2009 Member, Board of Directors, Marine Environmental Research Institute  
2007-2009 Member, New York State Renewable Energy Task Force

#### **Honors, Awards and Fellowships:**

1959 B.A. awarded magna cum laude. Thesis entitled "Metamorphosis of visual pigments: A study of visual system of the salamander, *Ambystoma tigrinum*" (Thesis advisor, Professor George Wald)  
Elected to Phi Beta Kappa and to Sigma Xi  
1964 M.D. awarded cum laude for a thesis in a special field. Thesis entitled "Electrophysiological observations on the importance on neuron size in determining responses to excitation and inhibition in motor and sensory systems" (Thesis advisor, Dr. Elwood Henneman)  
1964 Awarded the Leon Resnick Prize given to a Harvard Medical School graduate showing promise in research  
1970 Awarded the Moseley Traveling Fellowship for study in England (Fellowship declined)  
1971 Invited as Visiting Professor of Physiology, Centro de Investigacion y de Estudios Avanzados, del Institute Politecnico Nacional, Mexico 14, D.F., Mexico, for 3 months  
1982, 1986 Visiting Professor of Physiology, Department of Physiology, Kyushu University, Fukuoka, Japan, for a period of three months each  
1989 Awarded Jacob Javits Neuroscience Investigator Award from the National Institute of Neurological and Communicative Diseases and Stroke  
1999 Awarded Homer N. Calver Award from the American Public Health

Association for studies in environmental health.

2001 Awarded 2001 Academic Laureate from the University at Albany Foundation.

2010 Awarded the Albion O. Bernstein, M.D. Award in recognition of an outstanding contribution to public health and the prevention of disease through lifelong research of environmental health hazards and for limitless devotion to medical education by the Medical Society of the State of New York.

**Federal Grants Held:** (Principal Investigator Only)

1980-1983 United States Air Force, "Mechanisms of Radiation-Induced Emesis in Dogs", \$76,847 total direct costs.

1982-1988 National Institute of Health, "Mechanisms of Desensitization at Central Synapses", \$464,786 total direct costs.

1984-1986 Defense Nuclear Agency, "Mechanisms of Radiation-Induced Emesis in Dogs", \$330,504 total direct costs.

1986-1996 National Institute of Health, "Mechanisms of Excitatory Amino Acids Actions and Toxicity", 1986-1989 \$231,848 total direct costs; 1990-1996 \$562,926 total direct costs.

1989-1993 National Institute of Health, "Mechanisms of Lead Neurotoxicity" \$373,576 total direct costs

1990-1995 National Institute of Environmental Health Sciences, Superfund Basic Research Program, "Multidisciplinary Study of PCBs and PCDFs at a Waste Site", D.O. Carpenter, P.I. \$5,783,419 total direct costs.

1995-2001 Fogarty International Center, National Institutes of Health, International Training Program in Environmental and Occupational Health. A Central/Eastern European Environ/Occup Training Program, D.O. Carpenter, P.I. \$657,520 total costs.

1995-2001 National Institute of Environmental Health Sciences, Superfund Basic Research Program, "Multidisciplinary Study of PCBs," D.O. Carpenter, P.I. \$12,653,709 total direct costs.

1998-1999 Environmental Protection Agency, Indoor Air Risk at Akwesasne - Pilot Project, D.O. Carpenter, P.I. \$9,996 total costs.

2000-2002 Association Liaison Office for University Cooperation in Development, Cooperative Program in Environmental Health between the Institute of Public Health at Makerere University, Kampala, Uganda and the School of Public Health, University at Albany, USA, D.O. Carpenter, P.I. \$96,432 total costs.

2001-2007 Fogarty International Center, National Institutes of Health, International Training Program in Environmental and Occupational Health. Multidisciplinary Environmental Health Training, D.O. Carpenter, P.I. \$850,000 total costs.

2006-2011 Pakistan-US Science and Technology Cooperative Program (US National Academy of Sciences). "Association of particulate matter with daily morbidity in an urban population," D.O. Carpenter, P.I., \$391,104 total costs.

2009-2013 Exploratory Center on Minority Health and Health Disparities in Smaller Cities. Project 2: Environmental contaminants and reproductive health of Akwesasne Mohawk women. \$387,825 for year 1. D.O. Carpenter, Co-PI.

2010-2013 Department of the Army, "Gulf War Illness: Evaluation of an Innovative Detoxification Program: D.O. Carpenter, P.I., \$636,958 total costs.

2010-2013 Higher Education for Development of the United States Agency for International Development, "Drinking Water Supply, Sanitation, and Hygiene Promotion :

Health Interventions in Two Urban Communities of Kampala City and Mukono Municipality, Uganda”. D. O. Carpenter, P.I., \$299,736 total costs. 2011-2016 National Institute of Environmental Health Sciences (1RO1ES019620), “Protecting the health of future generations: Assessing and preventing exposures.” PK Miller, FA von Hippel, CL Buck and DO Carpenter, Co-P.I.s, \$471,521 for the period 8/08/11-4/30/12, \$2,354,871 for the period 2011-2016.

### **Research Interests:**

- Exposure to persistent organic pollutants and risk of diabetes, cardiovascular disease, and hypertension.
- Cognitive and behavioral effects of environmental contaminants on children (IQ, ADHD) and older adults (dementias, Parkinson’s Disease and ALS).
- Ionizing and non-ionizing radiation biology.
- Effects of air pollution on respiratory and cardiovascular function.

### **Other Professional Activities:**

Host, The Public Radio Health Show (a 30 min public health information show carried on 170+ stations nationwide), plus the Armed Forces Radio Network and Voice of America, 1985-2001. Authored a biweekly health column in The Troy Record, a local newspaper, 1997-1999.

### **Major Peer-Reviewed Publications:**

1. Carpenter, D.O., Lundberg, A. and Norrsell, U. Effects from the pyramidal tract on primary afferents and on spinal reflex actions to primary afferents. *Experientia*, 18:337, 1962.
2. Carpenter, D.O., Engberg, I. and Lundberg, A. Presynaptic inhibition in the lumbar cord evoked from the brain stem. *Experientia*, 18:450, 1962.
3. Carpenter, D.O., Lundberg, A. and Norrsell, U. Primary afferent depolarization evoked from the sensorimotor cortex. *Acta Physiol. Scand.*, 59:126-142.
4. Carpenter, D.O., Engberg, I., Funkenstein, H. and Lundberg, A. Decerebrate control of reflexes to primary afferents. *Acta Physiol. Scand.*, 59:424-437, 1963.
5. Carpenter, D.O., Engberg, I. and Lundberg, A. Differential supraspinal control of inhibitory and excitatory actions from the FRA to ascending spinal pathways. *Acta Physiol. Scand.*, 63:103-110, 1965.
6. Henneman, E., Somjen, G.G. and Carpenter, D.O. Excitability and inhibibility of motoneurons of different sizes. *J. Neurophysiol.*, 28:599-620, 1965.
7. Henneman, E., Somjen, G.G. and Carpenter, D.O. Functional significance of cell size in spinal motoneurons. *J. Neurophysiol.*, 28:560-580, 1965.
8. Somjen, G.G., Carpenter, D.O. and Henneman, E. Selective depression of alpha motoneurons of small size by ether. *J. Pharmacol.*, 148:380-385, 1965.
9. Somjen, G., Carpenter, D.O. and Henneman, E. Response of motoneurons of different sizes to graded stimulation of supraspinal centers of the brain. *J. Neurophysiol.*, 28:958-965, 1965.
10. Carpenter, D.O., Engberg, I. and Lundberg, A. Primary afferent depolarization evoked from the brain stem and the cerebellum. *Arch. Ital. Biol.*, 104:73-85, 1966.
11. Carpenter, D.O. and Henneman, E. A relation between the threshold of stretch receptors in skeletal muscle and the diameter of axons. *J. Neurophysiol.*, 29:353-368, 1966.

12. Carpenter, D.O. Temperature effects on pacemaker generation, membrane potential, and critical firing threshold in *Aplysia* neurons. *J. Gen. Physiol.*, 50:1469-1484, 1967.
13. Chase, T.N., Breese, G., Carpenter, D., Schanberg, S. and Kopin, I. Stimulation-induced release of serotonin from nerve tissue. *Adv. Pharmacol.*, 6A:351-364, 1968.
14. Carpenter, D.O. and Alving, B.O. A contribution of an electrogenic Na<sup>+</sup> pump to membrane potential in *Aplysia* neurons. *J. Gen. Physiol.*, 52:1-21, 1968.
15. Olson, C.B., Carpenter, D.O. and Henneman, E. Orderly recruitment of muscle action potentials. *Arch. Neurol.*, 19:591-597, 1968.
16. Carpenter, D.O. Membrane potential produced directly by the Na<sup>+</sup> pump in *Aplysia* neurons. *Comp. Biochem. Physiol.*, 35:371-385, 1970.
17. Carpenter, D.O. and Gunn, R. The dependence of pacemaker discharge of *Aplysia* neurons upon Na<sup>+</sup> and Ca<sup>++</sup>. *J. Cell. Physiol.*, 75:121-127, 1970.
18. Kraus, K.R., Carpenter, D.O. and Kopin, I. R. Acetylcholine-induced release of norepinephrine in the presence of tetrodotoxin. *J. Pharmacol. Exp. Therap.*, 73:416-421, 1970.
19. Barker, J.L. and Carpenter, D.O. Thermosensitivity of neurons in the sensorimotor cortex of the cat. *Science*, 169:597-598, 1970.
20. Carpenter, D.O., Hovey, M.M. and Bak, A. Intracellular conductance of *Aplysia* neurons and squid axon as determined by a new technique. *Intl. J. Neurosci.*, 2:35-48, 1971.
21. Carpenter, D.O., Breese, G., Schanberg, S. and Kopin, I. Serotonin and dopamine: Distribution and accumulation in *Aplysia* nervous and non-nervous tissues. *Int. J. Neurosci.*, 2:49-56, 1971.
22. Hovey, M.M., Bak, A.F. and Carpenter, D.O. Low internal conductivity of *Aplysia* neuron somata. *Science*, 176:1329-1331, 1972.
23. Carpenter, D.O. Electrogenic sodium pump and high specific resistance in nerve cell bodies of the squid. *Science*, 179:1336-1338, 1973.
24. Carpenter, D.O. and Rudomin, P. The organization of primary afferent depolarization in the isolated spinal cord of the frog. *J. Physiol. (Lond.)*, 229:471-493, 1973.
25. Shain, W., Green, L.A., Carpenter, D.O., Sytkowski, A.J. and Vogel, Z. *Aplysia* acetylcholine receptors: Blockage by and binding of  $\alpha$ -bungarotoxin. *Brain Res.*, 72:225-240, 1974.
26. Pierau, Fr.-K., Torrey, P. and Carpenter, D.O. Mammalian cold receptor afferents: Role of an electrogenic sodium pump in sensory transduction. *Brain Res.*, 73:156-160, 1974.
27. Saavedra, J.M., Brownstein, M.J., Carpenter, D.O. and Axelrod, J. Octopamine: Presence in single neurons in *Aplysia* suggests neurotransmitter function. *Science*, 185:364-365, 1974.
28. Willis, J.A., Gaubatz, G.L. and Carpenter, D.O. The role of the electrogenic sodium pump in modulation of pacemaker discharge of *Aplysia* neurons. *J. Cell. Physiol.*, 84:463-472, 1974.
29. Brownstein, M.J., Saavedra, J.M., Axelrod, J., Zeman, G.H. and Carpenter, D.O. Coexistence of several putative neurotransmitters in single identified neurons of *Aplysia*. *Proc. Natl. Acad. Sci. (USA)*, 71:4662-4665, 1975.
30. Carpenter, D.O. and Gaubatz, G.L. Octopamine receptors on *Aplysia* neurons mediate hyperpolarization by increasing membrane conductance. *Nature*, 252:483-485, 1974.
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