EXHIBIT 7

A Crop Of Apples That Is Alar-free Without The Controversial Chemical, They Are Not As Pretty Or Long-lasting, And Some Types Are Not Nearly As Abundant.

By Marilynn Marter, Inquirer Food Writer
POSTED: November 08, 1989

You can't judge an apple by its color. Not anymore, at least.

You may have noticed that some Red Delicious apples of late have more variegated coloring, even stripes. There is less fruit that has the deep, dark-red gloss we've come to know and love in that popular variety.

The apples you're seeing now in stores are part of the nation's first crop in two decades totally grown and harvested without the aid of Alar, a growth- regulator.

Alar made headlines in February when 60 Minutes aired a news program on the possible cancer risk to children from pesticide residues in foods, based on a report from the National Resources Defense Council (NRDC), an environmental- advocacy group. Just days before, the U.S. Environmental Protection Agency (EPA) announced a ban on the chemical, effective next year.

The near hysteria that followed the program (only to be compounded by the subsequent cyanide-grape scare) caused a drop in apple sales, lower prices, canceled orders and major losses for growers and processors. The fallout hit even those growers who had ceased using Alar years earlier or who had never used it. In Washington, which produces 60 percent of the nation's apples, losses in the spring were estimated at more than $100 million. The industry also reported that sales of apple juice and applesauce were down 30 percent.

In June, Uniroyal Chemical Co., the manufacturer of Alar (the trade name for the compound daminozide), removed the product from the U.S. market. It seemed the only way to convince an alarmed public that apples would be safe to eat.

What is this safety from what activist Ralph Nader calls a "cosmetic chemical" costing us?

In part, just that: the cosmetics. Some apples won't be as pretty, as deeply colored or as big as before. Also, they won't stay crisp as long in storage. And more apples will rot on the farm because of early dropping and split skins.

There will be fewer McIntosh apples available, and fewer Staymans and other Winesap types. Those that are marketed will likely be less ripe.

"The Stayman has two defects that Alar helped with," explained grower Gary Mount of Terhune Orchards in Princeton. "Cracking is much more prevalent in the Stayman, and it tends to drop off the tree before it's ready to harvest. Stayman and McIntosh are the two varieties that have this problem more than others."

Stayman and other Winesap strains, he notes, are grown widely in New Jersey and Pennsylvania; McIntosh is the major variety in New England.

"I've known growers who've had as much as 80 percent loss in Stayman Winesaps," Mount said of the Alar-free growth, adding that

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losses can be reduced by picking the fruit earlier. But, he points out, "if you have to harvest two weeks early, you lose a lot in flavor and color and attractiveness as well as some size."

Because the mid-Atlantic region produces only a small share of the total crop, a share that is sold mostly in the fresh market and thus requires little shipping or storage, Alar had only limited use here.

Still, its absence is being felt. In Virginia, where Stayman apples make up about 10 percent of the crop, growers are trying new varieties to take up the slack.

In New York and New England, which together supply almost 15 percent of the harvest, the McIntosh crop came up about 15 percent short of expectations. Experts predict that McIntosh's current 55 percent share in Northeast orchards will fall closer to 40 percent in coming years.

The shortfalls here have been offset somewhat for consumers by a bumper crop in Washington. But that doesn't help individual growers, particularly some in New Jersey who have been particularly hard hit by bad weather. Eliminating Alar made things worse for the few growers who had continued to use it on their apples.

"It is making a very large difference as far as New Jersey growers go, particularly as far as the Stayman Winesap apples," said Mount, about half of whose crop is Stayman Winesap. "The Stayman Winesap is our most popular apple, but we will be growing fewer of them in the future."

All this comes even though the use of Alar had already dropped about 75 percent since 1985 (when the EPA first tried to ban Alar) because of voluntary bans instituted by grocery chains, processors and growers.

Alar was linked to cancer in test animals shortly after it came on the market. It is a systemic additive; it cannot be washed or peeled off. Scientists agree, however, that a child would have to eat thousands of apples or drink thousands of quarts of juice to equal the exposure levels used on laboratory animals.

Actually, depending on where you shopped and what type of apples or brands of products you bought, there is a very good chance that you've had little or no contact with Alar in years.

That's because many growers and processors stopped using Alar years ago, after it first came under suspicion and after the halfhearted EPA attempt in 1985. Though the EPA reversed that decision in January 1986, pending more tests, public pressure forced the widespread voluntary ban.

Safeway, Acme, Pathmark, Giant, Grand Union, Kroger and A&P (including Super Fresh) all bowed to public pressure.

"In 1986 we notified all our suppliers and packers of products that we would not accept any apples or products made from apples treated with Alar," said Robert Wunderle, a spokesman for Pathmark.

"We demanded and received certification from all suppliers, and we have done that every year in subsequent years."

With the market for Alar-treated apples severely limited, growers and processors quickly fell in line. Without monitoring, the good-faith promises were not enough. When the Alar scare resurfaced in the spring, the chemical was being used, by various estimates, on 5 to 15 percent of the crop. The residues detected in raw apples or in apple products (where concentrations could occur) were slight but they were there.

Tests conducted in the spring by Consumers Union, the nonprofit parent and publisher of Consumer Reports magazine, showed residues of Alar up to 1.8 parts per million (ppm) in 33 of 44 juice products from the '88 crop. Most had residues of less than 0.5 ppm, while traces in juices marketed for babies were barely detectable. The EPA tolerance level for Alar is 20 ppm.

Alar, of course, is not the only chemical of concern in the food supply. And consumers clearly are worried about the safety of the foods they buy. A recent study conducted by the Food Marketing Institute (FMI), a Washington- based grocery trade group, showed that confidence in the safety of fresh produce had dropped from 81 percent in January to 67 percent in August, by which time Alar was off the market.

Even the industry now is calling for more government regulation, inspection and testing in order to allay public fears.

In the meantime, we will adjust to apples without Alar. And growers will gradually change their orchards.

Without Alar, yields of Stayman and McIntosh will decline. As those trees reach the end of their 30-year life cycle, Mount suggests, growers may replace them with heartier, more productive varieties. That changeover takes up to eight years because of the time needed to renew the soil and grow trees.

Mount sees one advantage, in having some trees from older, hardier, strains with fruit that is more resistant to cracking. "But they are not as attractive and not as salable as the others," he said. "I would think hard before planting more Stayman or McIntosh."

A is For Apples, Alar, and Antibiotics

...and A Call to end antibiotic use in apple and pear production, especially organic

Eds. Note. To most organic consumers, finding out that antibiotics are used in organic and conventional apple and pear production will come as a surprise. The fact has not been hidden –many members of the National Organic Standards Board in their public decision making process have been attempting to remove these antibiotic uses (the only currently allowed in organic production) for nearly a decade. Despite its very public decision making process, it's fair to say that most consumers are not aware of the Board's work to oversee the National List of Allowed and Prohibited Substances and advise the Secretary of Agriculture on all issues related to the Organic Foods Production Act. With the growth of the organic market to $30 billion and increasing public scrutiny of organic practices however, most consumers may assume antibiotic use in apple and pear production was disallowed when their use was prohibited from organic animal and dairy production in 2000, as federal organic standards were taking shape. The agricultural use of antibiotics –in this case for a bacterial disease known as fire blight (Erwinia amylovora)– represents a serious public health concern. Its use contributes to bacterial resistance in human pathogens that are increasingly difficult to control with the same antibiotics when they are life-threatening in a medical setting. Beyond Pesticides wrote about this subject in the Summer 2011 issue of Pesticides and You, after the NOSB took up the topic earlier that year and established a 2014 phase-out of antibiotics that is up for reconsideration.

By Terry Shistar

The National Organic Standards Board (NOSB) in April 2013 is again considering whether to eliminate antibiotics used in organic apple and pear production.[1] The Washington State Horticultural Association, California Pear Advisory Board, and U.S. Apple Association, representing organic apple and pear growers in California and the Pacific Northwest, petitioned the NOSB last year to allow oxytetracycline's continued use. The Board also received a petition in 2013 from the same group of petitioners, joined by the Michigan State Horticultural Society, to continue the use of streptomycin, which it will take up at its November 2013 meeting. The debate is reminiscent of what happened 23 years ago when the "Alar scare" threatened conventional apple growers. It is ironic that the now-thriving organic apple industry, which grew from the collapse of the apple industry during the Alar "scare" is now ignoring a similar threat to not only organic apples, but perhaps public trust in the organic label. Peter Montague, PhD, then-director of the Environmental Research Foundation, referred to the events surrounding Alar in apples as the "Alar rebellion."[2] Will we now see an "Antibiotics rebellion"?

A is for Apples (and Alar)

The growth regulator daminozide, or Alar, was first registered in 1968.[3] Its function was to prevent apples from falling off the tree when they ripened, which benefited apple growers, providing a longer harvest period and fruit that had fewer blemishes. Daminozide was contaminated with a reactant, unsymmetrical 1,1-dimethylhydrazine (UDMH), which was also produced when Alar was digested or when it broke down with heat –such as when apples were made into apple sauce or juice.

In 1973, concerns started surfacing about the health effects of Alar, particularly the UDMH metabolite/contaminant. A study published in the *Journal of the National Concer Institute* found that UDMH causes cancer in mice. In 1977, another mouse study confirmed the first, and research was published showing that it causes cancer in hamsters. The following year, there was a study

conducted by the National Cancer Institute (NCI) providing evidence that UDMH causes cancer in rats. Although these studies should have been enough to ban Alar, it was not until 1985 that EPA announced its intention to initiate cancellation of Alar —after UDMH had been judged a "probable human carcinogen" by the International Agency for Research on Cancer (IARC), the Carcinogen Assessment Group within the U.S. EPA, and the U.S. National Toxicology Program (NTP).

EPA backed down in 1986, saying it needed more studies. Nevertheless, some grocery chains and processors of juice and baby foods announced they would not accept Alar-treated apples, and the Washington State Apple Commission encouraged growers not to use the growth regulator. In spite of the announcements, 30% of the apples sampled at one of those grocery stores in 1988 did contain Alar.

In 1989, the Natural Resources Defense Council (NRDC) issued a report that looked at the hazards of 23 pesticides found in fruits and vegetables commonly consumed by children under the age of six, concluding that the pesticide regulatory system was inadequate to protect children. The CBS documentary show *60 Minutes* featured one of those chemicals –Alar, which was still being used in spite of the actions of processors and grocery stores– in a segment called "A is for Apples." Notwithstanding industry claims that Alar was used on only 5% of apples, independent samples found residues of Alar and UDMH in 22-79% of apples across the country. The public reacted swiftly, cutting apple purchases by 50%.

Despite their warnings to apple growers three years before and the letter they had received from acting EPA Administrator John A. Moore, PhD, stating, "There is an inescapable and direct correlation between exposure to UDMH and the development of life-threatening tumors in mice," the Washington State Apple Commission and other apple industry groups attacked the NRDC report and the *60 Minutes* segment. Prior to the public backlash and adverse economic impact on the apple growers, their representatives principally sought to block regulatory action year after year on a chemical that EPA had targeted for cancelation. (See if this sounds similar to the current situation with antibiotics, discussed below.) Following the *60 Minutes* broadcast, they were forced to hire a PR firm to run ads using the claim of the chemical's manufacturer, Uniroyal, that you would have to eat a box-car-load of apples each day to be harmed by Alar. On November 28, 1990, apple growers in the Washington state filed a libel lawsuit against CBS, NRDC, and the PR firm. The case was dismissed in 1992, the court's opinion stating, "[T]he growers have failed to raise a genuine issue of material fact as to the falsity of the broadcast."[4] We will see the failure to address issues of material fact again.

The apple industry claimed that only a small percentage of apples was treated with Alar, but the public reaction affected all apple growers. That season Washington growers reported the industry had suffered a $100 million loss by May. The drop in the price of apples put many growers out of business.[5]

The Explosive Growth of Organic Apple Production

Dominick Bonny, writing for the *Wenatchee Business Journal*, said:[6]

> It was a seminal moment for Washington state apple growers and Roger Pepperl, marketing director for Stemilt Growers said the reason for Stemilt's investment in organics goes back to '89, Alar, and Meryl Streep.
>
> "She was talking that everyone that ate apples was going to

get cancer from eating Alar residue and she ended up being wrong, it was an approved substance and later on they found out she was dead wrong. It wasn't carcinogenic and it almost killed our apple industry," he said. "So in 1989, Tom Mathison, who was our founder, said he was going to work on never being held captive by people and chemicals again."

(Notice the continued denial of the facts about Alar.) Since then Stemilt's organic program has grown so large it accounts for 26 percent of Washington's organic apples and 32 percent of the Pacific Northwest's organic pears.

David Granatstein, statewide coordinator for the Center for Sustaining Agriculture and Natural Resources at Washington State University, has studied trends in organic apple production, especially in Washington state. Mr. Granatstein said,

> [T]he effect of the Alar incident is obvious in the Washington data. Growers were motivated to try organic production in 1990 due to low demand and prices for conventional apples. At the time, the organic program rules required only a 1-year transition, but the rule was slated to change to a 3-year transition over the next 2 years. Thus, many growers withheld conventional treatments after harvest in 1989 and, by following the organic production regime, had a certified crop by autumn 1990. Significant attrition of these new organic growers occurred in 1991 and 1992, mainly due to problems controlling codling moth in apples and to reduced prices for organic apples, caused by the rapid increase in supply.[7]

According to Mr. Granatstein's data, acreage in organic apples in Washington state increased from 807 acres in 1993 to 14,790 acres in 2010.[8] As he has also shown, the growth of the acreage in organic apples comes largely from the transition of nonorganic apple growers to organic. While we can only applaud the large-scale transition to organic practices, the fact that such a high proportion of organic apple growers originated as conventional growers –and may still have dual operations– has implications for current practices and dependencies.

Apple growers making the transition to organic practices do not just start off with new orchards. They have trees planted according to the conventions of chemical-intensive orchard management. This means that varieties are the current favorites in the conventional market, grown with antibiotics because they are very susceptible to fire blight. Other practices, such as the spacing of trees, that have an impact on the movement of the fire blight bacteria, are also carryovers from chemical-intensive management systems.

Similar to those representing chemical-intensive apple growers during the Alar controversy who issued statements denying the cancer causing chemical's threat and accused public health advocates of using "scare tactics," those petitioning for continued antibiotic use in organic apple and pear production seem to be dismissing the seriousness of a public health problem.

A is for Apples (and Antibiotics)

Apples and pears are susceptible to the bacterial disease fire blight, caused by *Erwinia amylovora*. Although fire blight is a problem for apple and pear growers throughout the U.S., growers in the arid areas of eastern Washington do not have to contend with so many other diseases, so fire blight stands out as a problem there. In addition, fire blight can destroy whole trees, especially younger trees, in a short time frame, so it is considered a more serious disease than those that affect a season's productivity.

Tetracycline and streptomycin are both registered for use in fruit trees, and both are currently allowed for use in organic apple and pear production to control fire blight. In recent years, there has been a trend toward greater dependence on the antibiotics and a greater concentration of susceptible varieties grown in high densities on susceptible rootstocks.[9]

The Connection to Antibiotic Resistance

At the same time, antibiotic resistance is a real and urgent public health threat. Both tetracycline and streptomycin are considered

by the World Health Organization to be "critically important" to human medicine.[10] They are used in a way –broadcast spray on trees– that exposes bacteria in the orchard, particularly in the soil, to the antibiotic.[11] Current science shows that environmental exposure to antibiotic use in the environment is the major cause of development and spread of antibiotic resistance in human pathogens.[12] The spread of antibiotic resistance does not require contact between the antibiotic and human pathogens because the major means of spreading antibiotic resistance is through the transfer of genes between different bacteria.[13] Nevertheless, there is a tolerance set by the U.S. Environmental Protection Agency (EPA) for the antibiotics on the fruit, which allows its food production use and residues in the orchard and the fruit. Antibiotic uses resulting in low residues (sub-therapeutic or sub-inhibitory levels from a medical perspective) can create a high health risk.[14] Tetracycline and streptomycin resistance is evident and expected to grow if urgent use precaution is not exercised.[15]

An article in the Summer 2011 issue of *Pesticides and You*[16] includes a short history of the debate before the National Organic Standards Board (NOSB) over antibiotic use in apples and pears. In short, the use of tetracycline and streptomycin was approved reluctantly in 1995 by the NOSB, and each time they have come up for review, the Board has warned growers that it intends to end their use. Just as apple growers ignored early warnings about the findings showing that Alar/UMDH causes cancer, the representatives of organic apple and pear growers now respond to the concerns of the medical and scientific community regarding antibiotic resistance with the insistence that it is necessary or essential to production. To the extent that the petitioners for continued use have addressed antibiotic resistance in their petition,[17] they have ignored current science regarding gene transfer and the impact of sub-therapeutic doses. In ignoring the threat of antibiotic resistance, they dismiss a critical public health threat.

Alternatives to Antibiotics

How great is the need for crop use of antibiotics? As pointed out in the Summer 2011 article, many, if not most, growers have ignored basic organic principles –like the choice of cultivars and density of planting. On the flip side, however, over a third of the production of Washington state organic apple and pear production are raised according to rules that prohibit antibiotic use, a prohibition required for fruit exported to the European Union.[18] New materials and methods are being developed, and the growers continue to point to something that is just around the corner. However, the tools and varieties are currently available.

Organic Integrity?

When faced with the looming loss of Alar, apple growers ignored the public health threat. As a result, when the word got out, they suffered huge losses. Now the stakes are higher –consumers understand (or think they understand) that organic products are free of antibiotics.[19] Organic dairy producers in particular have sought to distinguish themselves from others through the "Organic means antibiotic-free" claim. During the Alar rebellion, apple growers using Alar brought down apple growers who didn't use Alar. Will organic dairy and the organic label's value be hurt this time?

What You Can Do

At its April meeting, the NOSB will be deciding whether to uphold the 2014 expiration date of tetracycline's use in organic production. For information about how to send your comments, see the Keeping Organic Strong section of the Beyond Pesticides website: http://bit.ly/XDoVJS. In addition, see the shopping hints in the Summer 2011 issue of *PAY*. In addition to submitting comments to the NOSB, let the National Organic Program at USDA and the U.S. Secretary of Agriculture know how you feel about the use of antibiotics in organic apple and pear production.

BEYOND PESTICIDES
701 E Street, SE ■ Washington DC 20003

EXHIBIT 8

CURRICULUM VITAE

Name: David O. Carpenter

Home Address: 2749 Old State Road
Schenectady, New York 12303

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

Honorary Professor
Queensland Children's Medical Research Institute
University of Queensland
Brisbane, Australia

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
2011-Pres.	Honorary Professor, Queensland Children's Medical Research Institute, University of Queensland, Brisbane, Australia

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

Editor-in Chief:	Reviews on Environmental Health 2012-present
Editor-in-Chief:	Journal of Local and Global Health Sciences 2012-present
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; 2008-2012
	International Archives of Occupational and Environmental Health; 2009-present.
	Journal of Environmental and Public Health, 2009-2013
	Environmental Health Perspectives, 2010-present
	Global Health Perspective, 2012-present
	Environment International 2013-present
	PLoS One, 2014-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.
2004-Pres.	Member, Blue Ocean Institute Curriculum Advisory Board.
2007-2011	Chair, Workgroup on Risks vs. Benefits of Fish Consumption, Science Advisory Board, International Joint Commission.
2013	Invited Expert, International Agency for Research on Cancer, Panel for Monograph 107, Carcinogenicity of Polychlorinated Biphenyls.
2013-present	Member, Global Burden of Disease Panel

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-Pres.	Member, Advisory Board, Healthy Child Healthy World
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
2013-present	Member, Medical Society of the State of New York (MSSNY)
2013-present	Member, Preventive Medicine and Family Health Committee, MSSNY

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
1987	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 though lifelong research of environmental health hazards and for limitless devotion to medical education by the Medical Society of the State of New York.
2011	Awarded the Rodney Wylie Eminent Visiting Fellowship 2011 at the University of Queensland, Brisbane, Australia for a period of four weeks.
2013	Awarded the Annual Kenneth V. Dodgson, M.D., Lectureship at the University of Rochester Department of Occupational and Environmental Medicine Grand Rounds.

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. ACentral/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, AIndoor 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, ACooperative 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. AMultidisciplinary 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.

Member of the Ethics Board, Town of Guilderland, 2013 – present.

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 inhibitibility 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.
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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.

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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^+ 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^+ and Ca^{++}. J. Cell. Physiol., 75:121-127, 1970.

18. Kraus, K.R., Carpenter, D.O. and Kopin, I. R. Acetylcholine-induced release of norepin-ephrine 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.

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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.

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