Health Physics News

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The Official Newsletter of the Health Physics Society

In This Issue

The Birth of the HPS: A Look Forward

Mary Walchuk

We have spent the past year reviewing the first 50 years of the Health Physics Society. It has been an informative and interesting venture. This look at the past made us curious about the future so we asked HPS members to take out their crystal balls and other methods of divination and answer the following question: Where do you see the next 50 years taking the Society?

Ken Miller, CHP

Professor of Radiology and Division of Health Physics Director, Penn State Hershey Medical Center, Pennsylvania

My prediction is that in 50 years, there will not be a need for a Health Physics Society. By the end of that time, there will only be two roles for health physicists. One will involve environmental protection during the decommissioning of the remaining nuclear facilities and the other will be a custodial function, that is, guiding the robots that are taking care of the stored sources and radioactive waste.

Within the next 50 years, cancer will become a disease of the past. Procedures will be devised for altering genes, in utero, thus eliminating susceptibility to cancer, and other procedures will be developed that allow testing of the body and elimination of cancer cells before they become threatening. This will eliminate any concern over potential carcinogenic effects from low-level radiation exposure.

X-ray machines and nuclear medicine procedures will disappear from medical practice and be replaced by devices that can detect electromagnetic signals given off by individual cells. This will permit imaging based on physiological functioning, specific chemicals, or density. Preventive medicine plus the ability to detect diseases or cancer cells immediately upon invasion of the body will eliminate most of the need for diagnostic procedures as we know them, or radiation therapy. The result will be that uses for ionizing radiation will disappear from medical practice.

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A Look Forward

(continued from page 1)

Similarly, radioactive materials will disappear from research as they are replaced by nonradioactive substitutes and the new generation of cell signal imaging devices.

Nuclear power will become obsolete due to the new generation of hydrogen-oxygen recombiners of disassociated water molecules that provide inexpensive energy. These new devices will be available in all sizes, from ones small enough to be implanted to power mechanical hearts or other artificial organs to larger ones that will provide energy for transportation vehicles, space probes, homes, and industries. Within 30 years, there will be a new era of lasting world peace that will allow the elimination of all nuclear weapons. Their fissionable material will be converted to fuel and burned in the few remaining nuclear power plants that are kept online primarily for this purpose.

Ted Lazo, CHP

Deputy Head for Radiation Protection, Radiation Protection and Waste Management Division, Organisation for Economic Co-operation and Development Nuclear Energy Agency

The radiological protection community represented by the HPS is very diverse, including experts from the public and private sectors, from the research, education, industry, and regulatory realms, from all levels of educational and work-experience backgrounds. The weakness of such enormous diversity is the difficulty in developing true consensus. Yet I strongly feel that the diversity of our community is its most important strength. Any consensus we are able to reach must represent true, professional agreement. Any lack of consensus will most surely highlight the most significant issues yet to be resolved. To take best advantage of this strength, I see the HPS using the quickly developing mechanisms that will be provided by information technology over the next 50 years to build a functional "sounding board" to collect and inject the views of the profession into key policy, regulatory, and implementation decision-making processes. Such a proactive approach by the HPS would help to ensure that "excellence in the science and practice of radiation safety," as stated in our Mission Statement, is available to inform significant protection decisions. The HPS would increasingly integrate its radiation protection expertise into the broader social fabric of risk assessment and management, thus serving the profession and society at the same time.

Debra McBaugh, CHP

Environmental Radiation Manager, Washington State Department of Health, Past Chair of Conference of Radiation Control Program Directors

Heading into the second half of our first century makes us a young organization in a very young field of work. I see three significant differences coming in the next 50 years, the first of which is related to being in a young field. Most new members will not have lived through the early years of the Society and the beginnings of health physics. Currently many of us grew up along with the field of health physics, working with or knowing people who began the Society and created health physics. We worked alongside people who worked in those early days of medical uses, weapons production, and reactors. They taught us well.

A second difference is there were few women and few people of color. Hopefully this will change in the next 50 years. Even now the numbers of women have increased significantly over my early days (1970s). Then, I had no women mentors (several great mentors, but none women). How fun to play that role for young women now.

The third difference is fewer and fewer young people choosing to study science. This will impact our hiring practices. We may need to hire trained people from other countries and we may have to reduce our expectations for employees, something my program is considering for new hires now.

A final change related to these to-be-hoped-for young employees: the difficulty getting the few younger employees we have to take up the challenge of working with federal regulators and policy makers to address the new world of increased security, federal regulation of non-Atomic Energy Act material, and the need for energy requiring newly designed reactors and a new regulatory review structure. Employees' motives seem to be different than when we began working in this field. They do not so readily volunteer for this extra work. Perhaps in the first 50 years, the challenges of a new field invigorated us to work with great enthusiasm beyond our standard 40-hour week. The new challenges coming can equally inspire young people and our challenge is to have them there to be invigorated and take on the fun.

Mark L. Maiello

Radiation Safety Officer, Wyeth Research

I have to admit that I rewrote this "prediction" about five times. This was more difficult than I imagined. I even informally consulted several colleagues for their opinions. Most if not all thought that a resurgence of nuclear power was forthcoming. How else to deal with rising oil prices, unstable sources of oil, rising electrical demand, aging reactors, and global warming? Certainly, this is a most formidable collection of economic, political, and technical incentives ever arrayed in favor of nuclear power.

The clean-up and stewardship responsibilities for the many government nuclear weapons-related sites will be long-term commitments. The use of radiation in medicine, at least for diagnosis, seems to have a long life as well, although one colleague of mine thought gene therapy would be a viable cancer cure in the near future. Given that nuclear weapons will probably (and sadly) also be around, the threat of nuclear terrorism will linger as well. Given all this and the fact that the membership is (I think) generally at ease with the current HPS structure and mission, I suspect the HPS will still be around in 50 years, looking much the same as it does now. But the great thing about the future is its unpredictability! One horrendous nuclear-related catastrophe involving reactors or weapons could influence things quite radically, but even with that, I don't believe that the HPS would necessarily be seriously damaged by such a horrific event.

Now if you want a personal and hopeful prediction, I'd say that a national HPS meeting will be held in New York City once again. I think it appropriate given New York's involvement in 9/11, its world-class medical centers, its proximity to Brookhaven National Lab, and its hospitality to tourists from around the world. I just hope a New York meeting won't take 50 years to happen!

Armin Ansari, CHP

Health Physicist, Centers for Disease Control's Radiation Studies Branch

I think our Society will experience gradual but profound changes over the next 50 years both in substance and in form. I think these changes will be necessary if we are to keep up with and take advantage of the changing professional environment. In the near term, increased reliance on nuclear energy and increased use of radiation and radioactivity in medicine, along with the associated occupational and environmental activities, will remain the core of health physics practice. In addition, I believe the homeland security needs, at least for the next two decades, will place a high demand on our profession. As a corollary to all of this, we will hopefully expand our Society's public education and outreach activities significantly. In the long term (perhaps beyond 50 years), exciting developments in areas such as space travel will create their own demand for radiation health professionals. Perhaps at some point our Society will have a Space Radiation Section. New and still unforeseen applications of ionizing and nonionizing radiation as well as nuclear energy may also create new and exciting subspecialties for radiation protection.

Future HPS members, those expected to be a part of the Society in 2056, are currently in kindergarten or not even born yet. To attract their membership and to meet their needs when the time comes, we most certainly have to look and operate differently. Even today, there are many radiation health professionals in service, research, or industry who are not HPS members. Competition with other professional organizations in attracting and maintaining new membership will only get tougher. Future generations of professionals will have even more choices, but similar time and budget constraints. And I have a hunch the new generation will be a much more demanding one.

I think by 2056, new technologies will have changed the way we communicate, conduct the Society's business, and hold our meetings. I am certain that the third-generation Burk family will make sure it all happens smoothly as always. I also predict that by 2056 we may have a different name for the Society and have many international chapters and that our increased membership will represent an even wider spectrum of radiation health scientists and professionals.

Geoffrey Webb

Radiation Safety Consultant, Past President of International Radiation Protection Association

To coincide with the centenary of the HPS, a new brochure to boost the ranks of the profession is being produced. The main career opportunities featured are in:

Power reactors: Following the success of ITER and the three prototype commercial fusion reactors built in Mumbai, Addis

Ababa, and Jakarta, there is finally a major programme of reactor construction here in the United States. The health physics problems are very different from those in the old fission reactors, centering on the massive tritium inventories both in normal operations and especially in accident conditions.

Moon and space colonies: The huge demand for zero-G and hard vacuum production facilities has stimulated the massive increase in the numbers of people living in the orbiting stations and the moon colony. This will require new approaches to protection not relying on traditional shielding but on solar flare neutralisation techniques.

Nanotechnology: The proposed use of excitation state transitions as rechargeable power sources for medical nanobots could have implications for damage to the very cellular systems being repaired. This new development needs some innovative research and analysis. In a similar way, powering and operating the micro-CT scanners implanted in critical organs needs further assessment from a risk/benefit viewpoint.

Genetic predisposition: The interface between science, people, and politics is nowhere more obvious than in deciding how to handle the new ability to assign individual risk factors. The implications for employment, insurance, medical treatment, etc., are enormous.

Dispersed power sources: With the eventual recognition that the vitrified high-level waste (VHLW) from fission reactors was inherently stable, the design, manufacture, and—crucially—licensing of the new "everlasting power sources" using encapsulated VHLW is getting under way. This will involve all aspects of health physics.

Ken "Duke" Lovins, CHP

Health Physicist, Unicon Physics, Inc.

The viability of our Society and our profession will continue to be driven by the need for health physicists. We will lose many HP positions as the Department of Energy (DOE) facilities close and are remediated and as DOE legacy work is completed (that is, dose reconstruction programs). Jobs will be gained in the power sector as our country sees the need for construction of nuclear power plants and fuel reprocessing facilities. With the ever-increasing specialization in the medical field, there will be more HP jobs available for medical health physicists unless someone discovers the magic pills to cure cancer and heart disease. Radiation disaster health physicists will exist just due to the heightened concerns of the public, especially if anyone ever detonates a "backpack" nuclear device in the United States.

Because of the push for accreditation of medical (and other) programs, we will see specialty certification exams for medical health physicists, power reactor health physicists (yep, this one comes back), and possibly others.

Health physicists will gravitate toward the electronic office. All references will be online, including the *Health Physics* Journal and *Health Physics News*. Teleconferencing will be the norm via cameras and computers; continuing education will be completed at home or in the workplace using Internet learning. This will lead to less physical interaction among health physicists and other professionals; however, the annual meeting will continue as a place for health physicists to talk face-to-face.

Political correctness will explode on itself and we will finally bury any high-level waste that cannot be reprocessed.

The 100-year anniversary HPS meeting will be held at the site of the first meeting in Columbus, Ohio.

Fossil fuels will start to dwindle and NASCAR will use nuclear energy to power its race cars (creating the coolest health physics job position ever).

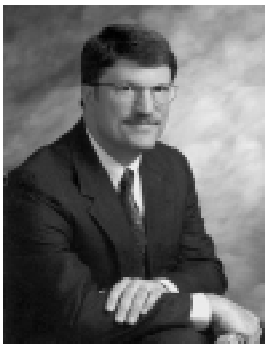
Our motto will become "Protecting Radiation From Unsafe Humans."

And, most importantly, the old *Radiological Health Handbook* will continue to be the best health physics reference publication ever!

J.M. Hylko

Integrated Safety Management Specialist, Paducah Remediation Services, LLC

In the next 50 years (or less!) Health Physics Society (HPS) membership will contribute to the US energy infrastructure.



The Edison Electric Institute (EEI, http://www.eei.org/) forecasts that electricity consumption will increase 49% by the year 2025. To meet short-term demands, existing power plants have gradually increased megawatt (MW) output. To postpone new construction, operating licenses have been extended; however, capacity margins have declined significantly over the last 20 years. In short, new power plants are needed to ensure adequate electricity supplies for the future. Putting this in perspective, 281 gigawatts of new generating ca-

pacity will be needed, which is equivalent to 703 new baseload 400-MW power plants. Compounding this issue of an energy shortfall is the overall age of our existing US baseload plants. Table I summarizes the number of US nuclear and nonnuclear plants and their percent of contribution to all existing US plants (16,770) for a particular MW range, along with their corresponding mean (average), median (midpoint), and mode (most frequently reported) number of years in operation through 2006.

Table I: U.S. Nuclear and Non-Nuclear Power Plants[1]

Number of U.S. Plants and Their Percent Contribution to All Existing U.S. Plants	Number of Nuclear Plants and Percent of MW Range	MW Range	Number of years in operation (Mean)	Number of years in operation (Median)	Number of years in operation (Mode)
4 or 0.02%[2]	3 (75%)[3]	1,400 – 1,450	18	19	20
12 or 0.07%	4 (33%)	1,300 – 1,399	25	24	33
23 or 0.1%	23 (100%)	1,200 – 1,299	21	21	21
22 or 0.1%	21 (96%)	1,100 – 1,199	25	23	22
5 or 0.03%	2 (40%)	1,000 – 1,099	31	31	-
32 or 0.2%	17 (53%)	900 – 999	30	31	31
72 or 0.4%	18 (25%)	800 – 899	29	31	33
52 or 0.3%	3 (6%)	700 – 799	29	29	34
96 or 0.6%	4 (4%)	600 – 699	31	31	24
126 or 0.8%	9 (7%)	500 – 599	31	32	32
112 or 0.7%	-	400 – 499	31	32	32
188 or 1.1%	-	300 – 399	28	33	5
488 or 2.9%	-	200 – 299	20	7	4
1,541 or 9.2%	-	100 – 199	23	12	4
13,997 or 83.5%	-	0.1 – 99	35	30	5

[1] Source: Energy Information Administration (http://www.eia.doe.gov/).
[2] The first line in Table I would read as follows: There are only 4 U.S. plants, which is only 0.02% of all U.S. plants, that are operating between 1,400 to 1,450 MW. Their mean (average) and median (midpoint) operating lifetimes were 18 years and 19 years, respectively, through 2006. The most frequent number (mode) of operating years reported was 20 years through 2006.
[3] The first data column would read as follows: There are only 3 U.S. nuclear plants, which is 75% of the four total U.S. plants, that are operating between 1,400 to 1,450 MW.

Based on this information, US baseload plants rated at ≥400 MW have already been operating approximately 20 to 30 years, with some operating even longer. Over the next 50 years, many of these plants, both nuclear and nonnuclear, will have reached their maximum design basis operating lifetimes. By comparison, investments in new construction have focused on building smaller "peaking" plants, normally reserved for operation during the hours of highest daily, weekly, or seasonal loads.

I expect that the HPS and its membership, either directly or indirectly involved with commercial nuclear power, will be at the forefront of contributing to our US energy infrastructure through new construction, policy implementation, regulatory enforcement, and continued safe operation of existing nuclear plants. As a scientific professional organization, we can, and must, recognize and acknowledge the significance of these issues today to ensure that we have adequate, affordable, and reliable electricity sooner rather than later.

Frazier Bronson, CHP

Vice President, Fundamental and Applied Research, Canberra

I feel flattered that someone out there thinks that I am young enough to care about what will happen when I am 112 years old. But here are my predictions:

- The HPS will still be trying to entice young folks to enter into the field, both here and on several other planets.
- We will still be explaining to the world what health physics is, and that it doesn't necessarily involve sculptured and tanned bodies.
- There will be many new measurement instruments for HPs to use, and they will still come with nice manuals that no one reads.
- Every radiation worker will have several implanted dosimetry chips that telemeter the results directly to the NRC.
- Many aspiring CHPs are studying all year for the ABHP exam, which now takes three days to complete.
- The HPS and AAHP title protection project has been very successful, and all states are covered except South Dakota and Alaska.
- The term CHP has been registered with the US Patent and Trademark Office, but is being challenged by a group of people in California with Smokey-Bear hats and guns and fast cars.
- Debates are still continuing about the scientific validity of the LNT hypothesis.
- Nuclear power has made a resurgence with the next-generation plants, however even painting them green hasn't convinced the nay-sayers that they really are.
- The new high-density but lightweight lead bricks made possible by nanotechnology have made life much easier for graduate students and HP techs.
- Yucca Mountain was opened and filled and is well on the way to a grand reopening as a spa offering radiation immune system stimulation and (self-powered) thermal treatments, thus avoiding the "dangerous" radon from earlier treatment methods.

Most of this is said with tongue firmly in cheek.

Lisa Bosworth

Medical Health Physicist, Medical Physics Consulting, Inc.

The past 50 years has been consumed establishing, defining, advancing, expanding, maturing, and redefining the Health Physics Society as we know it today. Reading through the past few months of the newsletter confirms my thoughts that

during this time the Society was extremely focused internally and the time was devoted to forming the Society for the benefit of the membership. Previously, physicists have contributed their knowledge, experience, and time to the HPS for professionals to use while practicing in the world of radiation safety. We have focused on our internal goals, enhancing the association for individuals to form a solid base which we can rely upon as a resource. I believe the next 50 years we will turn this focus to the outside with as much commitment and enthusiasm. We will not only continue to meet our internal needs for unity and continuity, but we will increase our visibility in the eye of the general public through education, knowledge, and leadership. I think this will be an exciting time for members to engage themselves in continuing the development for our profession as well as for the general good of society. Our communities will look to us for guidance to answer tough questions arising to the foreground of our everyday lives and I believe the Health Physics Society will play a defining role in those answers.

Mickey Hunacek

Columbia Chapter HPS Secretary, Health Physicist, Dade Moeller & Associates, CCHPS John Corley Meritorious Service Award

Back in 1967 a popular song was written that started with the lyrics . . .

In the year 2525
If man is still alive
If woman can survive
They may find . . .

Hum along if you like.

In the year 2055
HPs who are still alive
Celebrate and survive.
They may find . . .

The world has changed and atomic energy abounds.
More HPs are needed than are found.
Jobs abundant, pay is good.
Cleanup has expanded, too.

Our grandchildren are HPs now,
We know they'll make it somehow.
The Society still meets twice a year,
Drawing people from far and near.

Enough of humming along. The important hallmarks in the Health Physics Society are the sharing of technology and the dynamic relationships of the members. Disseminating information, that is, sharing technological advances, has been aptly accomplished by *Health Physics*, *Health Physics News*, the *Operational Radiation Safety* supplement, Standards, and other special publications, as well as at sessions during annual and midyear meetings. By 2055 the use of electronic transfer of information via a system like the World Wide Web will be so routine that the publications may actually become "paperless." Communication will be nearly instantaneous so that information will be gathered by the Society office and distributed to health physicists around the world on a daily basis, automatically being saved into a unique filing system, categorized so that it will be easily accessible and visually available upon verbal command.

An essential element of the Society is that deep need for personal contact wherein is provided an opportunity for fission and fusion of ideas. People are important, and that will not change, even by 2055. The Society will still need to meet in an organized fashion, and the deep friendships that have formed in the past will still be the types of bonds that hold the Society together for another 50 years.

Kevin Nelson, CHP

HPS President-elect Designee, Environmental Health & Occupational Safety Director, Mayo Clinic, Jacksonville

In my opinion, the answer to this intriguing question will hinge on a number of important variables, including whether our nation will continue to value the need for beneficial uses of radioactive material, and, secondly, the desire to protect individuals in the present and in the future from the harmful effects of radiation. When I was chair of the HPS Human Capital Crisis Task Force, our group determined that over the next 5 to 10 years the demand for radiation protection professionals will exceed capacity for most employment sectors. This was especially true in the nuclear power industry. With current energy and greenhouse gas concerns, I expect that this demand will increase even more as the next generation of reactors becomes licensed in the next 50 years. Long-term storage of waste will be less of an issue as the reprocessing of spent fuel elements becomes a more politically and economically viable alternative. I envision medical use of ionizing radiation to continue, although perhaps with a different emphasis due to advances in bioengineering. It is my sincere hope that in the next 50 years we will have enough scientific evidence to either

support or adjust the LNT.

I believe the focus of our educational programs will continue to be more inclusive of other disciplines. Such disciplines as industrial hygiene and medical physics will continue to be integrated into the health physics curriculum. Competition for students with other technical fields will remain an issue. Title protection and credentialing efforts will continue. As demanded by employers, health physics board certification specialization will be added for power reactors (again), medical physics, and nonionizing radiation. Radiation safety technologists will take on an ever-increasing role in the Health Physics Society.

The HPS will enjoy increased visibility largely through the efforts of individual members, our Government Liaison and Media Liaison programs, and an expanded role in public education.

Technology and a world-based economy will continue to foster relationships with health physics colleagues beyond our borders. Although I hope I am wrong, there will probably be an event or two in the next 50 years where this collaboration will be critical in addressing a major radiation safety issue.

Although we have experienced some growing pains over the first 50 years, I remain very optimistic regarding the future of our profession in the next 50 years!

The Last Word

Gen Roessler, Editor-in-Chief

The past is a source of knowledge, and the future is a source of hope.
Love of the past implies faith in the future.

— Stephen Ambrose

The Health Physics Society has completed 50 years of existence and *Health Physics News* has completed one year of "The Birth of the HPS: A Look Back" in its cover stories. This month a number of adventurous health physicists with a wide range of perspectives provide the last word in this 50th anniversary Society celebration with "A Look Forward."

Some of the predictions for the next 50 years of the Society are humorous but perhaps true, some are boldly farsighted, and some are thoughtful about both the past and the future. What can we make of this?

The Society will be made up of a more proactive and diverse group, we will have at least one meeting in New York City, and we will plan for our 100-year anniversary meeting in Columbus, Ohio. Our membership will be made up of people who have had no direct or even indirect ties to those who lived through the 50 formative years and there will be more women and people of color. However, fewer people will be studying science, thereby challenging the profession.

Without doubt we will have more nuclear power, perhaps fusion-type power, and other sources of energy that are nonnuclear. There is agreement that throughout the next 50 years we will still be dealing with decommissioning and with nuclear waste. However, waste storage may no longer be a significant problem as we process spent fuel elements.

Radiation disaster concerns will linger, particularly those associated with the threat of terrorism.

We will have colonies on the moon and in space and thus the need for an HPS Space Radiation Section. There will be more use of nanotechology and robots. And, we will become much more paperless because we will all have adjusted to electronic transfer of information which will be automatically saved into an easily accessible system.

We still won't know what to do with the linear no-threshold situation. We will also continue to explain what health physics is.

There are many things to think about. One that we can grab onto right now is the reflection that the Society's past has been necessarily focused internally in order to form the Society for the benefit of the membership. Now we need to turn this focus to the outside and increase our visibility as we emphasize public information and interaction.

It's clear that, as Mickey Hunacek said, "the Society will still need to meet in an organized fashion, and the deep friendships that have formed in the past will still be the types of bonds that hold the Society together for another 50 years."

Tidbits from the HPS Archives

Mary Walchuk

The *Health Physics News* staff spent many hours searching through folders from the archives of the Health Physics Society to find information for our "A Look Back" history series. As we were reading we came across many interesting tidbits. Some made us say, "My how things have changed!" Some made us say, "Some things never change!" Some just made us say, "Hmm, that's interesting." Which earned which response? We'll let you decide!

13 February 1956
336 people had paid $2 each for membership

24 June 1956
Board of Directors meeting: 672 membership fees at $2

24 June 1956
Board of Directors minutes: Some suggested names for the organization included:

- American Protection Society
- Society for Radiological Physicists
- American Radiation Protection Society
- Society for Radiation Protection
- Health Physics Society
- American Society for Radiation Protection
- American Health Physics Society

25 June 1956
Name chosen by vote, Absolute Majority, at Business Meeting which was attended by approximately 200 people: Health Physics Society. (The names on the ballot were Health Physics Society, Society for Radiation Protection, and Radiation Protection Society.)

26 June 1956
Informal meeting of the Board of Directors, Tuesday night, University of Michigan, Ann Arbor, 11 present, meeting adjourned at *1:45 a.m.*

22 October 1956
Letter from E. Jack Story and Joseph W. Neidinger to Dr. Karl Z. Morgan: "Interest (concern) has been expressed by several people here in the Health Physics book you are writing. Our plan of action is to encourage (needle) you from time to time since in all seriousness the book will be of considerable interest to health physicists."

14 November 1956
Letter from Morgan to Story and Neidinger: "I regret to say that my book has not been published but my publishers are beginning to put the pressure on me, and perhaps one of these days I will have to let other things go and finish the writing job I started many years ago."

[*Principles of Radiation Protection: A Textbook of Health Physics*, Karl Z. Morgan and James E. Turner, eds., was published in 1967.]

29 October 1957
Board of Directors meeting minutes: "It was agreed for at least the first year the editor may require that all articles published in the Health Physics Society Journal should be in English."

16 June 1957
Board of Directors Meeting, University of Pittsburgh, meeting called to order at 2 p.m., meeting adjourned at *1 a.m.*

17-19 June 1957
For the 1957 meeting of the HPS held at the University of Pittsburgh: registration, $3.00; banquet, $4.52; hotel single room, $3.50-16.00, double room, $7.00-18.00

8 June 1958
Secretary's Report, Board of Directors Meeting: membership at the beginning of the annual meeting in Pittsburgh, Pennsylvania, June 1957 was 748; Membership on 8 June 1958 was 993 (38 states and Washington, DC, represented and 16 countries besides the United States).

23 October 1958
Information in the Baltimore-Washington Health Physics Association History about the first formal organizational meeting:

"The speaker was Dr. Lauriston S. Taylor, Chairman of the National Council on Radiation Protection and Measurements, President of the Health Physics Society and charter member of the Association. His topic was 'Radiation Protection Standards'.

"Dr. Taylor was introduced by Allen Brodsky with the following words:

"'This will be the most absurd introduction I have ever given – introducing Dr. Lauriston Taylor to a group of persons in the field of radiation protection. It's like introducing Glenn Seaborg to the American Chemical Society. It is even more absurd that I should be introducing him. In 1928, the year I was born and turning out 60 diapers a day, Dr. Taylor was turning out one society after another. He had just helped to form the International Committee on Radiation Protection and was organizing the National Committee on Radiation Protection. Besides organizing committees, since 1927, Dr. Taylor has spent most of his career at the National Bureau of Standards, where he has done some of the basic physical research on standardizing radiation measurements.'"

19 June 1959
Board of Directors meeting, Gatlinburg, Tennessee: "Taylor moved (Beard seconded) to appoint an ad hoc committee to define 'health physicist and health physics.' Passed. Anderson appointed:
K.Z. Morgan, Chairman
L.S. Taylor
J.W. Healy
They were asked to report prior to the Fall meeting. Nolan moved (Cowan seconded) the Board approve these appointments. Passed."

28 October 1959
Definitions approved at the Board of Directors meeting at Oak Ridge: "Health Physics is a profession devoted to the protection of man and his environment from unwarranted radiation exposure." "A health physicist is a person engaged in the study of the problems and practice of providing radiation protection. He is concerned with an understanding of the mechanisms of radiation damage, with the development and implementation of methods and procedures necessary to evaluate radiation hazards and with providing protection to man and his environment from unwarranted radiation exposure."

26 October 1960
Board of Directors meeting, Oak Ridge: "There followed a lengthy discussion on whether the Health Physics Society should engage in the training of the public in general, or whether the Society should give itself to training new Health Physicist [sic] and promote the further training of existing Health Physicist [sic]. Although there was no complete agreement reached, it appeared that a slight majority of the Board members seemed to feel that the Health Physics Society had a duty to educate people in other fields (newspapers, magazines, etc.) on the facts of life about radiation protection."

29 June 1960
Board of Directors meeting, Boston: 1,371 members, 42 associate members, 6 affiliate members

21 April 1961
Letter from A. Wendell Carriker informing members that Dr. Elda (Andy) E. Anderson died of cancer on April 17th: "Andy was the underpinning of our society, training more of the world's health physicists than any other individual. Moreover her inspiration was encouragement to us all. She has been very much missed by all."

11 June 1961
Unapproved minutes, Board of Directors meeting, Las Vegas: "The main problem of the Local Arrangements Committee was the lack of written instructions and definite activities. In arranging for the meeting, there were a thousand decisions that had to be made on the spot. Mr. Sigoloff [chairman of the Local Arrangements Committee] suggested that some type of written instructions be given to future Arrangements Committees."

11 June 1961
Unapproved minutes, Board of Directors meeting, Las Vegas: ". . . the Board of Directors welcomed the French Section as the first overseas Section of the Health Physics Society. (The Board of Directors previously approved, at the 17 March 1961 meeting in New York City, the formation of the French Section pending that all questionable issues could be resolved.)"

1967
Baltimore-Washington History: "In 1967 criticality was achieved at the National Bureau of Standards first 10 megawatt reactor."

24 October 1968
Baltimore-Washington History: "At the October 24th Executive Committee meeting, the committee voted to increase Chapter dues from $3.00 to $5.00 a year. The annual dues of $3.00 were set when the Chapter was originally organized in 1958. At that time, postage for a one ounce, first class letter was 4 cents. By 1968, postage had increased to 6 cents, making it necessary to increase dues to cover mailing costs. Anyone remember when postage was 6 cents?"

15 July 1969
Letter from Charlie L. Bird, Assistant to the General Manager-Sales, Sheraton-Biltmore Hotel in Atlanta:

"Dear Mr. Stannard:

"I thought you might like to know that the multi-million dollar improvement program here has already created 600 new guest rooms, 600 new baths, 16 new meeting rooms, two new restaurants, a new lobby with up and down escalators from West Peachtree and a grand staircase, and some other things, too.

"The guest rooms are large. They have a gracious charm delivered from both their size and good taste in furnishings. The location is Atlanta's best, for it is on Atlanta's main boulevard, West Peachtree, yet only four minutes to the theatre and shopping district. The expressway is only 200 yards West providing door to door airport service and access without premium for motorists for I-75 and I-85 as well as I-20 East and West.

"We hope your plans will soon include a trip to Atlanta. If so, we would like for you to let us know so that complimentary space can be reserved for you and so that we may show you our dramatically new place."

[The Health Physics Society meeting was not held in Atlanta until 1977.]

1970
Baltimore-Washington History: "In 1970, the Bureau of Radiological Health began full life-testing microwave ovens."

February 1971
Health Physics Society Spectra, Greater New York Chapter, Vol. 3 No.1, Metropolitan:

"My Father, Health Physicist

"During the forthcoming NYCity annual meeting of the Health Physics Society, we would like to display drawings, paintings, sketches, etc., done by children of what they think their fathers, who are Health Physicists, do at work. The type of children's art asked for in many schools to show the child's idea of his/her parent at work is an example of this. We would like to obtain a number of such illustrations to display around the Exhibit area and possibly in the registration area.

"The theme will be, A Child's View of Health Physics, and will, we hope, indicate how well one segment of the public, our own children, understand what we are trying to accomplish. Drawings will be accepted up through and including age 16. At the moment we have not arranged for prizes by categories or age groups, but if sufficient entries are received, we will try to arrange for judging and awards.

"Please send entries to Saul J. Harris, DHEW, Public Health Service, 26 Federal Plaza, New York, N.Y. 10007."

[Editor's note: Does anyone know if anything ever came of this effort and did anyone draw health physicist mothers?]

1961
Baltimore-Washington History: "Our first of many sauerbraten dinner meetings was hosted by the W.R. Grace Company . . . The Chef at W.R. Grace Company prepared an excellent German dinner of sauerbraten, dumplings and red cabbage. To quote the minutes of that meeting, 'Enough free beer was served to reduce by half the effective half-life of any accidental tritium exposure that may have occurred during the past few days among those present'."

October 1973
Health Physics Society Spectra, Greater New York Chapter, Vol. 5 No.1, Metropolitan:

No News is GOOD NEWS . . . says *Spectra* Editor [Dan Howell]

"*Spectra* has resurrected the 'old saw', *No news is good news*, and given it new meaning by its overt inaction since April 1972. In closed session, the GNYC-HPS Executive Council admonished the Editor that 'a lot of water has flowed under the bridge' since April '72. The witty and garrulous Editor retorted with 'Your mother wears army boots' and 'So's your ole man', to the puzzlement of the Council. Upon reflection, it was concluded that reparté of this vintage is news to our young HP readers. Armed with this new incentive triggered by old clichés and with the flash of insight that often follows long periods of inaction and reflection, we immediately saw that our news has withstood the test of time, and is therefore history worth chronicling. Our hold out is over: we give you issue, not further inaction."

19 January 1975
Baltimore-Washington History: "The U.S. Atomic Energy Commission (AEC) was abolished and replaced by the U.S. Nuclear Regulatory Commission (NRC) and the Energy Research and Development Administration (ERDA) on January 19, 1975."

19 June 1977
Baltimore-Washington History: "On June 19th, Walter S. Snyder died. Walter was the 12th President of the Health Physics Society and a principal contributor to the ICRP and NCRP reports on internal dosimetry. His publication, 'The Reference Man', became a principal reference for decades."

1987
On the occasion of Dr. J.W. Thiessen's departure for a new position in Japan, Allen Brodsky wrote the following Limerick "On the Life of Joop Thiessen":

There was a young doctor named Joop
Who offered the Netherlands hope
That nuclear disaster
Somehow they could master
Since Joop knew its scope and could cope.

However, this Joop was no dope,
He was not one to tarry or mope.
After seventeen years, he removed Holland's fears,
So he could, to America, elope.

He's famous now as Dr. Joop Thiessen,
A speaker who's always in season.
After seventeen years
Of blood, sweat and tears
He's a man of broad vision and reason.
He's now saved our health and environment,
And defined every safety requirement.
So he's off to Japan
To do what he can
To avoid an early retirement.

1986
Baltimore-Washington History: "A new term was coined to describe irradiated food 'Picowave' versus microwave for microwave ovens."

18-19 September 1987
Baltimore-Washington History: "Georgetown University held a two day symposium on 'Nuclear Radiation and Public Health Practices and Policies in the Post-Chernobyl World', September 18-19. Dr. Ken Mossman of Georgetown University and a member of our Chapter was among the organizers. The conclusion of the many speakers was that much of the public has listened to the pros and cons of nuclear energy and decided they don't want it."

17 January 1990
Baltimore-Washington History: About the meeting "Chernobyl: Chronicle of Difficult Weeks"—"The speakers were members of a scientific team from the NRC which visited the Soviet Union and Chernobyl in September 1989. They showed a soviet film which shows the mobilization of emergency crews, evacuation of the total population, control measures for the damaged reactor and site stabilization efforts. The film director, Vladmir Shevchenko, died of radiation exposure after producing this documentary."

From the President

New Approaches for Progress

During the past month, the Health Physics Society (HPS) has been involved in several activities that are using new approaches and fresh ideas to address issues that are of significant importance to the Society. This included a meeting of the leadership of several radiation protection-related societies for exploring more sharing of resources, a meeting of representatives of several organizations to discuss a new path forward for the Homeland Defense Equipment Reuse (HDER) Program, and a major step in restructuring of the governance of HPS through a redrafting of the Rules of the Society.

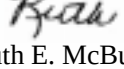
Collaboration on Professional Education and Training—One of the keys to doing things more efficiently is to collaborate with other organizations that have a similar focus. A couple of years ago, Ken Kase, who was HPS president at the time, brought together the leadership of several organizations with interests comparable to those of the Society. Representatives of many of those same organizations met in Bethesda for another Intersociety Forum on Sharing Resources on 6 April 2006.

The primary focus of the meeting was science education, professional education, training, and certification. Each of the organizations shared information on what they are doing in each of those areas. We also discussed ways in which the organizations could collaborate, including introducing radiation science into the K-12 curriculum. Some of the areas discussed for greater collaboration were science textbooks, working with the National Science Teachers Association, judging science fairs, and presentations that could be given at the local level. The group also committed to mechanisms for sharing educational resources, such as providing continuing education lectures at other organizations' meetings and cosponsorship of topical symposia.

Homeland Security—At the midyear meeting in Scottsdale, representatives from the Department of Homeland Security (DHS) proposed a change in the HDER Program. The proposal, which was approved by the Board of Directors, moves the coordination between DHS and HPS from a chapter-DHS to an HPS (National)-DHS interface. It establishes HPS State Volunteer Coordinators (HPSCs) who work directly with the State DHS Point of Contact and will maintain databases of volunteers for training, equipment maintenance, and calibration, volunteer HPs for response and consultation on radiation safety issues, and other resources that could be used in response to a radiological incident. In order to coordinate this effort, an HDER Restructuring Meeting was held on 6 April 2006 and included representatives from DHS, HPS, the National Registry of Radiation Protection Technologists, the National Council on Radiation Protection and Measurements, and the Conference of Radiation Control Program Directors (CRCPD). The participants discussed the revised program, criteria for choosing the HPSCs, and a method to get the program on a fast track. The group decided to hold a meeting in early May at the CRCPD meeting to select a few HPSCs in key states where there could be early progress shown. Gregory Bernard, manager of the HDER Program at DHS, is working to implement the program and emphasized that HPS involvement is crucial to its success.

Society Restructuring—In conjunction with the spring Executive Committee meeting, the chair of the Rules Committee and several committee chairs, Board of Directors members, and other Society members who are key to implementing the Society restructuring efforts met in Austin, Texas, to draft revisions to the Society rules. The Rules Workshop was highly successful in that, within two days of work, the team was able to identify all changes in the rules that needed to be made to implement the new Society governance structure (primarily in the committee rules). Director liaisons and chairs of committees who will be most affected by the change, such as Symposia, Program, and Continuing Education, worked together to bring about a smooth transition to the new structure. I truly appreciate the work that was accomplished by the group and Nancy Daugherty, Rules Committee chair, in pulling the resulting rule changes all together. By making most of the draft rule changes while locked away in a conference room in Austin, we will be able to present a complete rule revision packet needed to implement the restructured organization for approval at the Board of Directors meeting in Providence.

I believe we are making great strides in all of these areas. Our efforts and new approaches in organization and federal agency collaboration and in restructuring implementation are producing results that should improve our ability to carry out the mission of HPS more efficiently and effectively. Thanks to all of you in the Society who are helping to make this happen.



Ruth E. McBurney

Inside the Beltway

David Connolly
Washington Representative
Capitol Associates, Inc.

Sometimes in life we adopt guideposts or attitudes based on our perception of what something or someone should be. A case in point is my image of both what a United States senator should look like and what constitutes lobbying. For me, the late Senator Daniel Patrick Moynihan (D-NY) was the prototype of a senator—even his name fit my mental image! Furthermore, his manner of speaking, both his voice and attendant physical gestures, seemed to me just what the Founding Fathers envisioned when they created the Senate. Therefore, it is not hard for me to understand why my personal perception of "lobbying" is based on the picture of Senator Moynihan thanking a group of people for meeting with him on a pension issue with the emphatic statement in his lilting voice that they were "citizens rightfully petitioning their government!" A less dramatic image was created by the now Majority Leader of the House of Representatives, John A. Boehner, recounting his experience as a brand-new state legislator in Ohio.

Apparently, during his first few days on the job, someone came to visit him with the request that he cosponsor a bill that would mandate only one license plate for motor vehicles registered in Ohio. Since it sounded like a good idea, he agreed to be a cosponsor. No sooner was the bill introduced into the legislature then a stream of people was beating a path to Boehner's door. First, it was the school bus drivers association who told him that the two plates on cars helped the drivers report those motorists who did not stop when they were picking up children; the next group was employees from the company who made the plates who said that they might lose their jobs because their orders would be cut in half if the bill was passed; and, finally, the meter maids came in to protest. The point was that what sounded like a good idea proved not so good and this fact was brought to the attention of the legislator by people LOBBYING.

Despite the sinister media characterization, lobbyists are an integral part of the legislative process who supply legislators valuable information on the complex issues that they are called upon to consider. The following is a more relevant example of the lobbying process. After Dr. Dade Moeller's testimony before the Senate Environment and Public Works Committee on the Yucca Mountain repository, the Society's president-elect, Brian Dodd, was meeting with the staff of his home state's senator, Harry Reid, on a visit to Washington. Due to the interest generated by Moeller's testimony with the Senate, not only did the staff want to discuss it then but also a subsequent meeting in May was arranged here in Washington with more Society members meeting with Senator Reid's staff to further review Yucca Mountain. Ask yourself, isn't that the way the process should work here in the nation's capital? On the very technical issue of radiation safety, shouldn't the legislature consult with the experts in the field before making a decision on a high-level waste site? Yet this activity falls under the definition of "lobbying," an activity that is under review with a view towards possible restriction by both the House and the Senate.

More on this, including some "outrage" next month.

Agency News

Dale E. Klein Nominated for Commission

The Office of the Press Secretary on 27 April 2006 announced that the White House has sent the nomination of Dale E. Klein to the Senate to be a member of the Nuclear Regulatory Commission (NRC) for the term of five years expiring 30 June 2011.

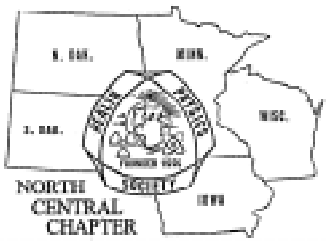
Dr. Klein would replace Commission Chairman Nils J. Diaz who announced on 10 April 2006 that he would not seek a third term on the Commission. In an *NRC News* statement, Diaz said he "plans to return to Florida after my second term expires on June 30, and enjoy time with my family."

Klein was sworn in as the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs on 15 November 2001. Prior to this appointment he was the Vice-Chancellor for Special Engineering Programs at The University of Texas System and a professor in the Department of Mechanical Engineering (Nuclear Program) at The University of Texas at Austin.

Chapter News

North Central Chapter

Marcum Martz, CHP



The spring meeting of the North Central Chapter of the Health Physics Society (NCCHPS) was held on Friday, 14 April 2006, at the Mayo Clinic Charter House in Rochester, Minnesota.

The meeting was sponsored by Ed Kolski of Duratek, Gary Beardman of Landauer Dosimetry, and Dale Elmore of Canberra Instruments. Dan McGrane, the NCCHPS president-elect, welcomed the attendees and introduced each of the speakers.

Glenn Sturchio provided an overview of bioassay programs utilizing ANSI/HPS N13.39 methods, with descriptions of the screening, verification, and investigation levels. Of interest to many listeners was the "real world" screening level table Glenn provided with activity values for commonly used isotopes.

"Taking Shelter Is Not Just for Tornados Any More" was the ominous-sounding title of the presentation by Daniel Whitcomb of Minnesota's Radiological Emergency Preparedness Division. Insightful planning has shown that evacuation of populations within the potential impact zones of Monticello and Prairie Island nuclear facilities during inclement winter weather is neither practical nor safe. Whitcomb also presented Minnesota's strategy for stockpiling and distribution of potassium iodide.

Gary Beardman of Landauer demonstrates the MicroStar Dosimetry System.

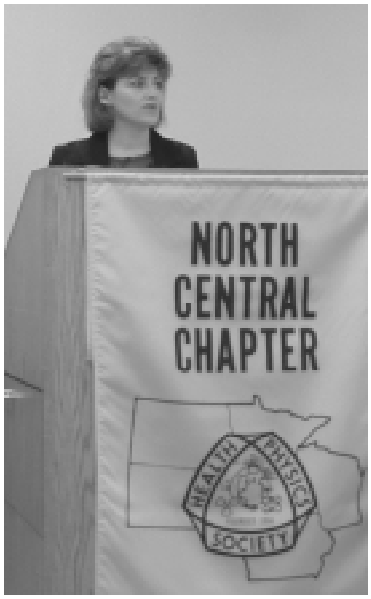
Dale Elmore (left) of Canberra Instruments and Paul Ward.

On 31 March 2006, Minnesota became the 34th Agreement State. George Johns, supervisor of the Minnesota Department of Health Radiation Control Unit, announced that 163 of the 170 total radioactive material licenses had been issued within two weeks. Licensees affected by Increased Controls, issued by the Nuclear Regulatory Commission, will have the same deadline, 13 May 2006, but under Minnesota jurisdiction. Minnesota will also have a program to pick up radioactive material from public schools for no charge. This program is being run with the cooperation of the University of Minnesota.

Sarah Field of the Rochester Area Math/Science Partnership and Amy Grover of the Southeast Service Cooperative gave a presentation on efforts to improve math and science education in regional school districts. The program, which has received a three-year, $120,000-per-year grant, combines both private and public school districts and the North Central Chapter is one of the sponsors.

After lunch and the chapter business meeting, Scott Quiggle, a project engineer from Nuclear

Amy Grover and Sarah Field discuss teaching partnerships with Mike Lewandowski.



Secretary-Treasurer Kimberly Knight-Wiegert at the chapter business meeting

Management Company, provided a look at Monticello Nuclear Power Plant's plans for onsite dry storage of spent fuel.

Alan Amundson gave a presentation on the work recently completed at the Mayo Clinic to commission a new ^{137}Cs gamma source for instrument calibration and the software database system that is used to track instruments and record results.

3M Corporation is constructing a new gamma sterilization facility in South Dakota, and Nick Bates provided some insight on ergonomic and dosimetric issues considered in the design of the facility.

2006 Chapter Officers: President-elect Dan McGrane and President Jeffrey Brunette

The results of elections for chapter officers were announced—President-elect Mike Lewandowski and Councilors Steven Simpson and Mary Ellen Jafari.

Finally, the North Central Chapter is planning two more Science Teacher Workshops in 2006: 11 August with the Rochester Area Math/Science Partnership and in October with the Wisconsin Association of Physics Teachers.

Western New York Chapter

John Pavel, CHP

The Western New York Chapter of the Health Physics Society held its Spring meeting on 21 April 2006 at the O'Brien and Gere Building in Syracuse, New York.

Supporting our professional activities were sponsors MJW Technical Services, Global Dosimetry, Safety and Ecology, and Landauer. O'Brien and Gere provided the meeting location. Thank you to all!

The chapter welcomes health physicists in western and central New York State to participate in our activities. Please contact Secretary Debra Koch at Debra.koch@viahealth.org.

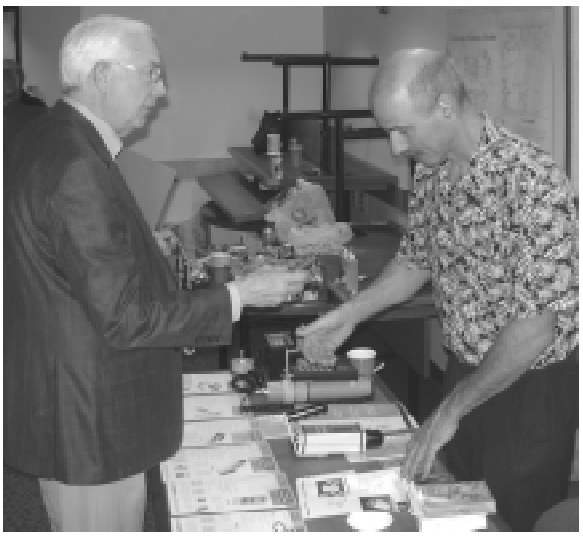
Left to right, speaker from the New York State Department of Health and chapter member Gary Baker, Chapter Past President Richard Harvey, speaker from Oregon State University David Hamby, Chapter President Jamie Prowse, speaker from O'Brien and Gere and chapter member Jeff Banikowski, and Chapter Treasurer John Pavel

Central Rocky Mountain Chapter of the Health Physics Society

Jim Langsted, CHP

The Central Rocky Mountain Chapter held a joint meeting with the Colorado Section of the American Nuclear Society on 25 April 2006 in Boulder, Colorado, to better understand the Energy Employee Occupational Injury Compensation Program Act (EEOICPA). Dr. Paul Ziemer presented a talk based on his experience as the Chairman of the US Advisory Board on Radiation and Worker Health. This presidentially appointed board met in Denver to accomplish routine business, as well as review EEOICPA activities with respect to the Y-12 and Rocky Flats plants. This provided an opportunity to assemble local chapter members and associates for an informative evening. Ziemer provided an overview of the regulation of the program along with the authority and activities of the Board. Questions and answers after the talk were lively, with many audience queries and comments based on their own participation and knowledge of the EEOICPA program.

Chapter President Ted Borst presided over the meeting, ably organized by chapter board members Margaret Ashton and Michelle Law. The informal meeting was held at the University of Colorado Environmental Health and Safety Center with food catered in from a local bistro. The meeting was well attended by 40 professionals and included students, members, guests, and two additional Advisory Board members, Genevieve Roessler and Wanda Munn. Ed Decker, representing Gamma Neutron Products, Inc., provided a display of products of interest to the membership.



Paul Ziemer and Gamma Neutron Products, Inc., representative Ed Decker

After several years of declining membership as the Rocky Flats Plant was decommissioned and permanently closed, the Central Rocky Mountain Chapter is looking forward to increased activity and interest. President-elect Ken Weaver has taken the reins as program chairman and is actively organizing future meetings. The chapter invites local radiation protection professionals or visitors to our area to attend our scheduled events.

Featured speaker Paul Ziemer

Notes

The Origin of Knoxville!!!

Alex Boerner, ETCHPS

As we get just that much closer to January 2007 and the midyear meeting in Knoxville, Tennessee, we welcome our history buffs in this monthly update (see also April and May newsletters) as we explore a few facts about William Blount and the origins of the city of Knoxville. William Blount fought in the Revolutionary War, served in the government of North Carolina, was twice a delegate to the Continental Congress, and helped to write and sign the Constitution of the United States. His efforts caught the attention of President George Washington, who appointed the statesman in 1790 to a three-year term as governor of a new territory becoming known as Tennessee. (When he informed his wife they would be leaving North Carolina, it is said she cried for days.)

One of his notable early successes was to settle a boundary dispute between Cherokee Indians and an increasing number of white settlers living on land that legally belonged to the Cherokee Nation. He negotiated a settlement near a place where the Holston River enters the Tennessee River (known as the "Treaty of the Holston"). Governor Blount's interest in this scenic area led him to move his family to a growing settlement around James White's Fort and the Holston River, which he later named Knoxville, after his immediate superior who was then-Secretary of War and Chief Administrator of Indian Affairs Henry Knox.

Governor Blount then began working to build a proper city which would serve as the territory capital and, while he was at it, his own house, a lavish home for the times that became the centerpiece of Knoxville. A small college started on a hill in the city in 1794 was named Blount College in his honor and evolved into what is known today as the University of Tennessee. Blount was struck with a fever in early 1800 and passed away at the age of 50 on 21 March of that year.

The Blount Mansion remained in the family until 1827 when, following the death of Blount's oldest son, the home passed out of the family. It remained the center of Knoxville social life as it served as the residence of two city mayors. During the Civil War years, it served as a hotel and boarding house for such notables as Confederate spy Belle Boyd.

In 1925, the Blount Mansion was slated to be razed by the city for downtown redevelopment, but was saved. Through the years, the Blount Mansion has become regarded as one of the best historical sites in East Tennessee and was eventually recognized as a National Historic Landmark. It hosts numerous annual educational programs showcasing the life and times of 18th century Knoxville.

"The Blount Mansion," according to Tennessee historian Sylvia Lynch, "is one of the most underrated historical sites in the South. Inside its compound lays the true story of Tennessee that many people have forgotten over the years. From the days of James White's Fort to today, it has remained a vibrant part of the community and is an almost-perfect looking glass into Tennessee's and Knoxville's past."

During the meeting, the East Tennessee Chapter of the Health Physics Society encourages you to visit Blount Mansion near downtown. Knoxville and East Tennessee remains the place to be in January 2007!

2007 Midyear Meeting Web Site
http://hps.org/newsandevents/meetings/meeting12.html

Welcome to Providence!

Tara Medich, CHP

At last, the New England Chapter of the Health Physics Society (NECHPS) can officially say "Welcome to Providence!" As the annual meeting of the Health Physics Society is approaching at the end of June, NECHPS is pleased to roll out the red carpet to welcome radiation protection professionals from around the world. The year-end celebration of the 50th anniversary of the Health Physics Society will be an event worthy of the milestone.

The facilities for the meeting, the Rhode Island Convention Center and the Westin Providence, are located in the heart of downtown. World-class restaurants and leisure activities are located within walking distance or a short taxi ride. With the wonderful social and technical programs that are planned, there is no shortage of things to do while you visit!

For those who have not pre-planned activities while at the meeting, and who will be looking for information and ideas on what is in the Providence and New England area, you are in luck. The Convention and Visitors Bureau is located on the first floor of the Convention Center and will be staffed each day of the meeting to provide local information. Any NECHPS member will also gladly assist you in finding activities to suit your interest.

The NECHPS wishes safe travels for all and extends a warm welcome on your visit to Providence. For any last-minute details, please visit the annual meeting Web site at www.nechps.org/HPS_Annual/hps_annual.html. You may also email Local Arrangements Committee Cochairs Ninni Jacob (njacob@lifespan.org) and Bob Scott (scottbob@cox.net).

Announcements

New IRPA Web Site

Richard Griffith
IRPA Publications Director

I am very pleased to announce the new International Radiation Protection Association (IRPA) Web site! It features all the content found on the previous Web site that came online late in 2000, plus some exciting new features. The new Web site has been redesigned by IRPA Webmaster Franck Levy, under the MAMBO system, which offers a significant increase in flexibility. The publications director and other officers will now have the ability to add or modify Web content remotely, thus eliminating the need to send such items to the Webmaster at Centre d'étude sur l'Evaluation de la Protection dans le domaine Nucléaire for posting. The content of the new Web site includes an Internet Resource Links page that provides direct links to several Web sites that offer a wide range of resources for the radiation protection practitioner. A wide range of resource material can now be accessed through these links, including radiation protection standards and regulations, guidance for the full range of radiation measurement tasks, isotopic decay data, chart of the nuclides, various calculation resources for radiation protection applications, software, and much more.

The new Web site retains the address www.irpa.net. The Proceedings of IRPA International Congresses have not yet been transferred to the new Web site, but can be found on the old site, now using the address www2000.irpa.net. You will be informed when that transfer is made. At that time, the old Web site will be removed from the Internet.

Another new feature, called "Syndicate," allows the user to subscribe to the Web site's Real Simple Syndication (RSS) feed to have news of interest delivered directly to the desktop. RSS is an XML-based format for sharing and distributing Web content, such as news headlines. Using an RSS reader, the user can view data feeds from various news sources, such as IRPA.net, including headlines, summaries, and links to full stories. This feature may be particularly attractive to associate society newsletter and journal editors who are tasked to prepare articles on current events in radiation protection.

Future consideration will be given to using the Web site for small IRPA associate societies that do not have the necessary technical and/or financial resources to maintain their own Web sites, but wish to provide information on their societies and activities to the radiation protection community and public.

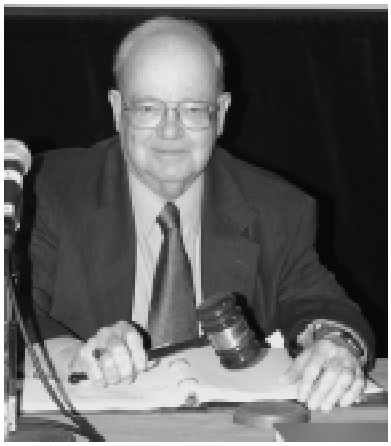
Inform your colleagues of the new Web site and encourage them to use it and provide us feedback. The IRPA Executive Council considers the Association Web site to be a dynamic resource that should be in a state of constant change and improvement.

NCRP
National Council on Radiation Protection & Measurements

"Chernobyl at Twenty"
Forty-Second Annual NCRP Meeting—3-4 April 2006

Meeting Speakers and Session Chairs

(abstracts of talks can be found at http://www.NCRPonline.org under "News and Events")

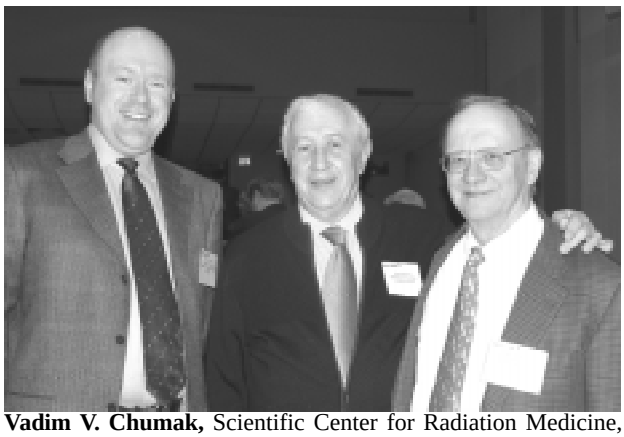


NCRP President Dr. Thomas S. Tenforde

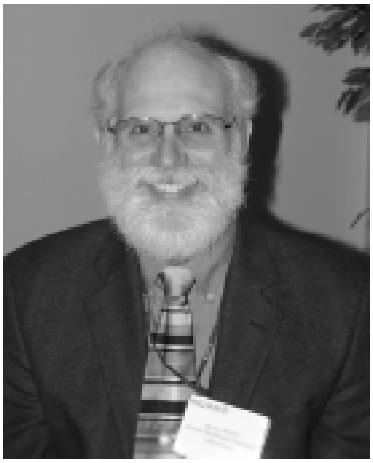
Mikhail Balonov, International Atomic Energy Agency, **Retrospective Analysis of Impacts of the Chernobyl Accident**

Rudolf Alexakhin, Russian Institute of Agricultural Radiology and Agroecology, **Chernobyl Radionuclide Distribution, Migration, Environmental, and Agricultural Impacts**

Thomas G. Hinton, University of Georgia, **Radiation-Induced Effects on Plants and Animals: Findings of the United Nations *Chernobyl Forum***



Vadim V. Chumak, Scientific Center for Radiation Medicine, Ukraine Academy of Medical Sciences, **Physical Dosimetry and Biodosimetry in Highly Exposed Emergency Responders and Cleanup Workers; Ilya Likhtarev,** Scientific Center for Radiation Medicine, Ukraine Academy of Medical Sciences, **Worker Health and Safety Issues in Reinforcing the Entombment of the Chernobyl Reactor; Lynn R. Anspaugh,** University of Utah, Session Chair for **Environmental Impacts and Mitigation of Residual Radiation**



Bruce A. Napier, Battelle, Pacific Northwest National Laboratory, **Cleanup, Containment and Disposal of Radionuclides Released by the Chernobyl Accident**

Elena Buglova, International Atomic Energy Agency, Session Chair for **Dosimetry and Health Effects in Emergency Responders and Cleanup Workers**

Fred A. Mettler, Jr., University of New Mexico, **Acute Health Effects and Radiation Syndromes**

Sergey Chekin, Medical Radiological Research Center, Russian Academy of Sciences, **Late Health Effects, Including Cancer and Noncancer Effects**

Lars-Erik Holm, Swedish Radiation Protection Institute, Session Chair for **Lessons Learned from Chernobyl**

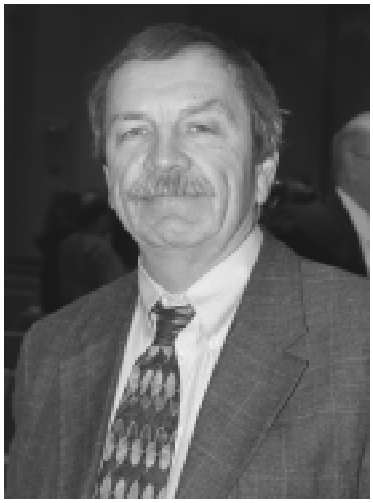
Geoffrey R. Howe, Columbia University, **Other Health Effects of the Chernobyl Accident, Including Nonthyroid Cancer and Noncancer Effects**

Elaine Ron, National Cancer Institute, **Thyroid Cancer Among Exposed Populations**

André Bouville, National Cancer Institute, **Radiation Dosimetry for Highly Contaminated Ukrainian, Belarusian and Russian Populations, and for Less Contaminated Populations in Europe**

John D. Boice, Jr., Vanderbilt University and International Epidemiology Institute, Session Chair for **Population Exposures and Health Effects**

Evelyn J. Bromet, State University of New York, **Psychological and Perceived Health Effects of the Chernobyl Disaster**

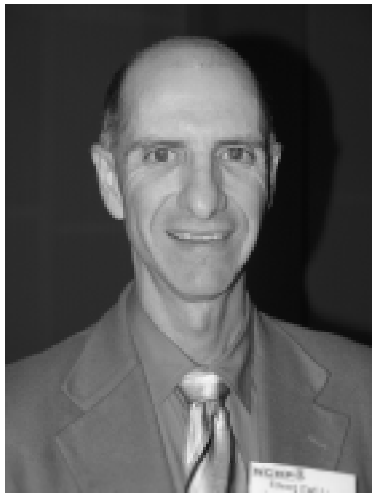


Thomas McKenna, International Atomic Energy Agency, **Lessons Learned from Chernobyl and Other Emergencies: Establishing International Requirements**

Abel González (left), Autoridad Regulatoria Nuclear, **The Chernobyl Aftermath vis-a-vis the Nuclear Future: An International Perspective,** and **Jacques Lochard,** Centre d'étude sur l'Evaluation de la Protection dans le domaine Nucléaire, **Rehabilitation of Living Conditions in Territories Contaminated by the Chernobyl Accident: The ETHOS Project**

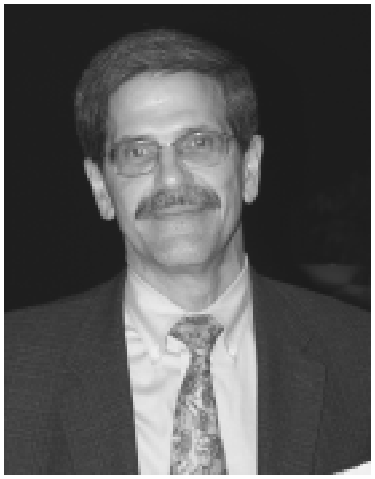
Shunichi Yamashita, World Health Organization, **Public Perception of Risks, Rehabilitation Measures, and Long-Term Health Implications of Nuclear Accidents**

Ralph Andersen, Nuclear Energy Institute, Session chair for **International Perspectives on the Future of Nuclear Science, Technology and Power Sources**



Edward Lazo, Organisation for Economic Co-operation and Development Nuclear Energy Agency, **Future Challenges for Nuclear Power Plant Development Research, and for Radiological Protection Sciences**

Elisabeth Cardis, International Agency for Research on Cancer, **Ongoing and Future Research Needs for Achieving a Better Understanding of the Consequences of Nuclear Emergencies**



Michael L. Corradini, University of Wisconsin, **New Reactor Technology and Operational Safety Improvements in Nuclear Power Systems**

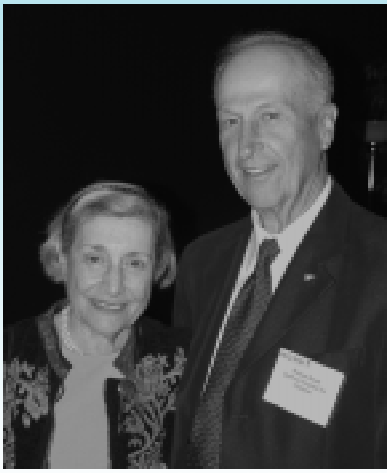
M. Granger Morgan, Carnegie-Mellon University, **Moving to Low-Carbon Energy Future: Perspectives on Nuclear and Alternative Power Sources**

Complete papers from the 2006 Annual NCRP meeting will be published in *Health Physics* in the second half of 2007.
Michael T. Ryan, Editor-in-Chief, *Health Physics*

Thirtieth Lauriston S. Taylor Lecture

Robert O. Gorson (left), Introducer of the Taylor Lecturer, and Taylor Lecturer **Robert L. Brent**, Alfred I. duPont Hospital for Children, **Fifty Years of Scientific Investigation: The Importance of Scholarship and the Influence of Politics and Controversy**

NCRP President Tenforde presents plaque and check to Taylor Lecturer Robert L. Brent



Lillian and Robert Brent

2007 NCRP Annual Meeting
Advances in Radiation Protection in Medicine
16-17 April

Editorial

Linear No-Threshold Hypothesis (We Need to Look at the Total System)

Dade W. Moeller, CHP, and Michael T. Ryan, CHP

For several decades, health physicists have had a spirited debate about the linear no-threshold (LNT) hypothesis. In retrospect, it is interesting to note that this discussion has been limited in two aspects: (1) emphasizing only the relationship between dose and health effects and (2) neglecting the major uncertainties in other components of the system. When viewed as a totality, the LNT hypothesis involves the relationship and associated uncertainties between (1) *exposure* and *intake*, (2) *intake* and *uptake/dose*, and (3) *dose* and *health effects*.

If the *exposure* is from airborne radionuclides, the *intake* will depend on the physical (particle size) characteristics of the materials, whether the exposed person is breathing through the mouth or nose, and whether he/she is sedentary or active, or wearing respiratory protection (workers). These variables will produce uncertainties and accompanying nonlinearities not only in the intake by a single individual, but also among the individuals within an exposed group. If the *exposure* is through the consumption of agricultural crops, the *intake* will depend on the amounts of various radionuclides in a given food product and the quantities and frequencies at which each of these is consumed by the person or group being evaluated.

Once a given radionuclide is taken into the body, the relationship between *intake* and *uptake/dose* will be highly dependent on the age of the individual and mode of intake. If the intake is by inhalation, the effective dose per unit quantity of ^{239}Pu for a one-year-old is 1.5 to 2.4 times that for an adult, depending on the rate of absorption from the respiratory tract into body fluids. That for a child less than one year old is 10 times that for an adult (ICRP 1996). Also playing a significant role is the chemical form (soluble or insoluble) of the radionuclide. The absorption coefficient for ingested ^{239}Pu that is soluble is 100 times that for the insoluble form (Eckerman et al. 1988). As these factors vary in magnitude, nonlinearities will abound. Also to be noted are the uncertainties and nonlinearities in the temporal nature of the accompanying doses to various body organs. In the case of the inhalation of insoluble airborne radionuclides, the dose to the lungs will be relatively prompt. In the case of the inhalation or ingestion of soluble radionuclides, the dose to various body organs will vary depending on the organ and the mechanisms involved in the process of the deposition, removal, and excretion of the radionuclides from individual organs, as well as from the body as a whole.

In the final stage, the number of *health effects* per unit *dose*, there are additional uncertainties and nonlinearities. These include bystander effects, radiation-induced genomic instability, and adaptive responses (Preston 2005). Even in cases where the end point is the occurrence of cancer, multiple differences exist. For example, the estimated number of excess cancers in a large population, per 10,000 person-Sv, ranges from 2 for the skin to 110 for the stomach; the minimum latency period between exposure and the appearance of cancer ranges from two to three years for leukemia, three to four years for bone cancer, four to five years for thyroid cancer, and to more than 10 years for other solid tumors; the years of life lost per fatal cancer range from 9.8 for the bladder to 30.9 for leukemia (ICRP 1991).

In short, when discussing the subject of the LNT hypothesis, one must look at the total system, not just one part of the process. If the focus is on basic radiation biology, effects from a given dose are important. If the focus is on radiation protection practice, all three components of the system must be considered.

References

Eckerman KF, Wolbarst AB, Richardson ACB. Limiting values of radionuclide intake and air concentration and dose conversion factors for inhalation, submersion, and ingestion. Federal Guidance Report 11, Office of Radiation Programs, US Environmental Protection Agency, Washington, DC; 1988.

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International Commission on Radiological Protection. Age-dependent doses to members of the public from intake of radionuclides: Part 5 – Compilation of ingestion and inhalation dose coefficients. Oxford: Pergamon Press; ICRP Publication 72; Ann ICRP 26:1; 1996.

Preston RJ. Radiation biology: Concepts for radiation protection. Health Phys 88: 6; 545-556; 2005.

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Article II, Section 1, of the Bylaws of the Health Physics Society declares: "The Society is a professional organization dedicated to the development, dissemination, and application of both the scientific knowledge of, and the practical means for, radiation safety. The objective of the Society is the protection of people and the environment from unnecessary exposure to radiation. The Society is thus concerned with understanding, evaluating, and controlling the risks from radiation exposure relative to the benefits derived." *Health Physics News* is intended as a medium for the exchange of information between members. *Health Physics News* is published monthly and is distributed to the members of the Society as a benefit of membership. Subscriptions for nonmembers are available. Libraries, institutions, commercial firms, government agencies, and any person not eligible for membership may obtain a subscription. A small inventory of recent back issues is maintained by the Society at the Office of the Executive Secretary to supply copies to new members not yet on the mailing list. Inquiries about back copies and about subscriptions should be directed to the HPS Secretariat.

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Odds and Ends from the Historical Archives

Paul Frame

Light Cover from Chernobyl

This plastic light cover was removed from the Chernobyl reactor control room shortly after the accident by a Soviet physicist who then gave it to Dr. Alvin Weinberg when the latter was visiting Moscow.

Wanting to know how contaminated the plastic might be, Dr. Weinberg sent it to me for an analysis. The initial gamma spec evaluation indicated the presence of ^{134}Cs, ^{137}Cs, and ^{144}Ce. Today, only the ^{137}Cs is detectable. Needless to say, it also has some pure alpha (for example, ^{239}Pu) and beta (for example, ^{90}Sr) emitters on it. The levels were low, but my desire to keep Dr. Weinberg's potential exposures ALARA meant that I had to keep the thing. I suspect he knew that he would never see it again.

Upcoming Events

2006 HPS Summer School
"Medical Health Physics"
http://nechps.org/SS06/ss06.html
18-23 June 2006
Brown University
Providence, Rhode Island

51st Annual Meeting
of the Health Physics Society
http://hps.org/newsandevents/meetings/meeting5.html
25-29 June 2006
Westin Convention Center
Providence, Rhode Island

40th Health Physics Society
Midyear Topical Meeting
http://hps.org/newsandevents/meetings/meeting12.html
21-24 January 2007
Knoxville, Tennessee

52nd Annual Meeting
of the Health Physics Society
http://hps.org/newsandevents/meetings/meeting7.html
8-12 July 2007
Doubletree/Convention Center
Portland, Oregon

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