Published by the American Physiological Society – *Integrating the Life Sciences from Molecule to Organism*

THE PHYSIOLOGIST

aps American Physiological Society

March 2014 • Vol. 57/No. 2

87th President of APS

David M. Pollock

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Being elected President of the American Physiological Society (APS) is truly a humbling experience. I look at the individuals who have held this office over these 125+ years and see many pioneering giants in not just physiology but scientific endeavor in general. Groucho Marx is credited with the statement, "I don't care to belong to any club that will have me as a member." However, in my case, it is more like, "I can't believe this club would have me as a member." Nonetheless, I accept this role with tremendous excitement, and now it is my pleasure to explain my overall goals and aims for the coming year and beyond. My personal ambition is to do my best for the society and to be a proper spokesman for our discipline.

Background: Why Physiology?

Before highlighting some of the specific aims I will pursue as president, I want to explain some of my personal priorities through the years and how they are aligned with those of APS. We have all had parents, mentors, or advisors tell us to "find your passion" and pursue it. However, for many like me, a clear path was not obvious by the time I started college. I was an undecided major my freshman year at the University of Evansville in Indiana and was trying to choose between music and medicine. The music theory book a professor gave me to study over the summer before school looked too much like a cross between quantum mechanics and Latin, so it was quite intimidating at the time. Also, all the advice from friends and family was that music is a life of poverty, frustration, and difficulty finding secure employment. I very much enjoyed my science classes, so after my freshman year I signed on as a biology major.

Still in search of that "passion" to define my future, I was enjoying various advanced-level biology and chemistry courses, but with modest enthusiasm. It was when I took a senior-level human physiology course that my fate was sealed. My undergraduate professor, Dr. Eugene Schroeder, was so passionate and enthusiastic about physiology in the classroom that I was inspired to learn more. Although normally a reserved, quiet individual, in the classroom he was animated and full of energy. He had a way of convincing his students that physiology

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A Matter of Opinion

"They're Ba-aack!"

Or perhaps we should be saying, "We're ba-aack." After all, we were last in San Diego in 2012 and we will be back again in 2016, 2018, and 2020. Fortunately "we're ba-aack" does not evoke the same memories as the squeal of the little girl played by the late Heather O'Rourke in the 1986 movie about evil spirits invading a suburban home *(Poltergeist II)*. There are no evil spirits associated with Experimental Biology! Although some in San Diego might bemoan our arrival, most of us are exultant to be in San Diego from April 26 to 30 to silence the demons that have compromised our ability to address issues associated with disease processes. Our goal is to "transform the future through science."

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was important. Another aspect of this class that helped me know that physiology was my scientific home was using our required textbook, *Guyton's Textbook of Medical Physiology* (pre-Hall version). To an undergraduate student, it was easier to read than most advanced-level scientific textbooks. Finally, the relevance of physiology to what some call the "real world," and in particular, medicine, was so obvious. Other disciplines were more in the abstract, that is, dealt with things on a microscopic or molecular level that were more difficult to understand for an integrated, visual learner like me and definitely harder to personalize. (As an aside, this is a huge reason why we need more undergraduate physiology majors!)

Challenge #1

It is because of my experience at the undergraduate level that I started graduate school with a full respect for teaching undergraduate physiology and a desire to pursue that as a career. However, my undergraduate experience had never exposed me to a full, high-level research experience, which is what graduate training at the University of Cincinnati gave to me. Graduate school in the Physiology program at UC was again an eye-opening, life-changing experience. It was there that I was introduced to physiology research. My thesis advisor, Dr. Robert Banks, is an energetic renal physiologist who instilled an energy that I have attempted to emulate but find difficult to surpass. It was in his lab that I learned a basic maxim to always seek the truth and that no one should work harder than me to disprove my hypothesis. The target should be discovery of knowledge, not personal reward such as how I can get a paper in a high-impact journal. I believe the only way to sustain a strong, reputable, and successful research program is to focus on answering relevant questions, not in seeking notoriety. Although I would never begrudge anyone this type of success, it is not why we conduct research – it is not our purpose.

Because of the disparity of my own experience between my undergraduate and graduate programs, I have committed to personally provide an undergraduate research fellowship each summer to one student from my alma mater. As president, **I call upon all of our society members who have active laboratories to commit to an individual program beyond what APS or their institutions provide.** It has always been easy for me to support the wide range of initiatives in which the APS is committed, especially when one considers all the outstanding programs that we operate, but, in the end, our members must be individually active and not wait for others to carry the load. As a society, we cannot sit idly by and wait for others to support the initial recruitment of young scientists into physiology labs.

Advantages of Physiology

Education and research are what facilitated me becoming a physiologist. They are what moved me from an early start in the pharmaceutical industry back to academia. As detailed in the book by Daniel Pink, *Drive*, it is mastery, autonomy, and purpose that motivate individuals in jobs where higher-level, creative thinking is required. (I highly recommend this book, especially for those in leadership positions.) This is what draws people to become academicians, whether it is teaching, research, clinical service, or some combination of each of these. For me, this is the advantage of being a physiologist. I can more readily see the purpose of physiology as it applies to clinical medicine. It has allowed me to establish collaborations with investigators conducting human studies as a way of addressing mechanisms we have developed in various animal models. This provides purpose for what I do. This is what defines physiology as the science of translational research, and thus the science of medicine. The line between the bench and the bedside is quite often much shorter for a physiologist compared with many other areas of modern biomedicine. I certainly find this true.

The fact that education and research are highlighted in the APS Mission Statement is no coincidence: "The APS mission is to promote the discipline of physiology and thereby enhance human and animal health by disseminating research discoveries, facilitating research and scientific interaction, educating the public, and enabling future generations of physiologists." This statement is a perfect summary of what APS is all about and provides a clear goal for all we do as a society.

We Have a Real Strategy

Our most recent strategic plan was outlined in the August 2011 issue of *The Physiologist* (*The Physiologist* 54: 113, 2011). Although I know that the mere mention

of the term "strategic plan" makes many of us roll our eyes and presume we are about to be hit with a bunch of "admin-speak," I strongly recommend that you take the time to go back and review this relatively brief summary. Unlike so many universities' strategic plans that read more like vague goals rather than actual strategies (e.g., "attain national recognition" or "deliver excellent education"), I am impressed that the APS strategic plan provides very tangible actions for moving forward. The job of APS President is only a 1-year term, and so it does not allow any single office holder to focus on too many areas. However, here, I discuss how the plans outlined by the Society that fall into several aims I consider of highest priority. Each of the initiatives I propose will address several of these aims simultaneously.

Aim 1

The first aim is to *increase efforts to ensure awareness of, and advocacy for, the discipline of physiology.* The only way we are going to do this is if we as physiologists **stop complaining about a lack of respect and start taking action** that will deliver and bring physiology the respect it deserves. Of course, the obvious action is for individuals to be making frequent contact with elected officials at the local and national level. APS has an incredible staff that can provide information to make this a fairly easy, straightforward job. However, advocacy for physiology must go further.

As I write this, we are heading into an initial effort to develop an APS Leadership Institute that will work to help the membership develop leadership skills that will be critically important for this initiative. As a part of this initiative, I believe it is important for us as a society to **partner with emerging areas of biomedicine,** such as imaging, genomics, bioinformatics, stem cell biology, medical devices, etc., and work outside of our society and develop partners and collaborators rather than competitors. Through partners, we can more easily demonstrate our relevance. Do not forget that trendy terms such as "translational" research are physiology by another name. We need to engage those members who are leaders in these areas to develop networks that are required to maintain physiology in the forefront. An effort to engage more relatively inactive and even non-APS members in a variety of APS activities is critically important to prevent us from marginalizing ourselves. This can be most easily accomplished through our full range of scientific conferences and publications.

Aim 2

APS leadership has also agreed to *actively work to attract, meet the needs of, engage, and retain membership subgroups.* Our Latin American initiative has gone well to the point of expanding beyond just Latin America to now including other parts of the developing world. However, our efforts to reach out need not be limited to physiologists in other countries. Nor should we focus our outreach efforts exclusively on trainee programs, as is most often considered. Of course, these are extremely important efforts, but **we must broaden our net.** In keeping with what I said earlier about embracing those areas of the periphery of traditional physiology, we must find ways for APS to look outside the usual people and places to develop partnerships. We need to stop preaching to the choir and get out into the broader world of scientific endeavor.

The Experimental Biology meeting as well as **the conference program should be used to bring in the emerging/trendy areas of biomedical sciences to our society.** The conference program has the potential to have a major impact in our efforts to strengthen our discipline and should not be limited to a traditional physiology meeting. As one small example, several years ago we held a fall conference on Immunology and Cardiovascular Disease chaired by David Harrison at Vanderbilt. Harrison is a clinician whose research program in hypertension and vascular disease is leading an effort to bring cardiovascular physiology and immunology together. At his conference, he was able to reach out to leading experts working on the immune system but had never considered working alongside classic physiologists. This type of program generates tremendously positive exposure for APS and helps to open new avenues of research, not to mention the positive membership recruiting opportunity. The marketing potential of these activities is enormous.

Similarly, our journals need to seek **invited reviews and editorials from outside traditional physiology circles** while making a connection to our field. For example, hot topics such as the microbiome should not be limited to the GI section, since work in this area has great relevance for other areas, such as cardiovascular disease. Similarly, the concepts of epigenetics and early life origins of adult disease should be in the mainstream of physiological research. New initiatives should also include **publication of conference proceedings.** Having been involved in a number of conferences that publish proceedings, this is an opportunity to again provide exposure for APS and to reach out to scientists who would not usually think to turn to APS publications for this information. Publishing proceedings from our

conference program and compiling this information into a single location is an opportunity to *1)* increase awareness of physiology, *2)* engage membership and potential new members, *3)* enhance publications, and *4)* promote scientific interaction and exchange – which are perfectly aligned with four of our strategic initiatives.

Aim 3

The idea of linking publications with scientific meetings is consistent with our third priority, *to develop strategies to strengthen the Society's publications in a changing world.* Open access, impact factors, and issues of misconduct are the topics that dominate the conversation and remain issues that we must confront. Fortunately, having spent the past three years on the Publications Committee, I have full confidence in our editors and APS staff that the journals are in excellent hands. Nonetheless, **we must be creative and strengthen lateral structures in all aspects of APS activities** that include cooperation between different groups, departments, and committees within APS. I am excited about the new APS*select* "virtual journal" that will provide easy access to some of the top papers published in our primary research journals. This will allow our specialty journals to come together and highlight the outstanding work that is being published by APS. Other creative opportunities such as podcasts are going to be very important to develop as the publishing world continues to evolve.

Aim 4

My proposal to re-energize and re-task the conference committee to go beyond traditional boundaries also directly fortifies the fourth aim, *to enhance opportunities for scientific interaction and exchange.* I am a very strong believer that **the intangible benefits of face-to-face scientific communication are severely underestimated** and too easily disregarded. As the budget squeeze gets tighter, one of the first things to go is money for attending meetings. It is critically important for early career scientists to be active in scientific conferences, because meetings like EB are critically important for advancing knowledge and spawning new ideas, but equally important is the opportunity to get to know the individuals working in the scientific community, which allows for growth and development of a fully successful career. Over the years, this has been how I have discovered new job opportunities and research questions for myself as well as my trainees. APS already provides a large number of mechanisms for travel fellowships. I would like to see APS develop more opportunities for endowing travel awards for other career stages and for other individuals who would like to attend our conferences but do not have the financial resources.

Aim 5

The final aim, *to increase the visibility of physiology in life sciences and health sciences education,* is something that we cannot easily brush aside. Although I know the Education Committee and the APS Education Department are continually working on new ways to strengthen physiology education, we cannot expect them to do it all. I am calling on the individual members of APS to get more involved at the grass-roots level. **APS members must be active outside of their laboratories** through university leadership, local advocacy with community leaders and the local community itself, as well as working with local schools. How many of you have spoken to local business groups and explained what you do? For those of us in medical school settings, how many of you have a relationship with those on your campus that teach at the undergraduate level? Are there opportunities for your trainees to participate in teaching activities? If you want to help your trainees in their future, you must consider that teaching experience on most campuses (not all) is very difficult to come by. If you do not have an undergraduate campus, why not partner with a local college? Perhaps your own undergraduate alma mater would like your help. Identifying yourself as a physiologist will provide powerful visibility for your discipline.

Bring Out the New!

This brings me to a new initiative I would like to see developed in my term as president. The Executive Cabinet and Council of APS have discussed the idea of **hiring a development director** over the past several years. Although it was initially brought forth as a means of pursuing philanthropy to support APS, I would like to see a broader effort that combines marketing, communications, and fund raising under one coordinated umbrella. For example, the Physiological Society in the UK recently released a YouTube video that sells their upcoming annual meeting in much the same way that a trailer sells a movie. This is yet another example of what could be done to reach out beyond the core membership and broaden our reach. This office could also coordinate efforts to build the APS Endowment. APS Council recently approved a measure to endow some of the awards and add funds to the endowment such that some day we would hope to have all the award programs off our regular

budget and be fully endowed. If successful, this could easily support more programs beyond awards as well. However, without professional media and appropriate expertise to "sell" APS, such efforts will fall far short of our potential.

The 30,000-Foot View

APS is a strong society that is serving its purpose well. By all measures, it is a very successful scientific society. I know there are many aspects of APS life that I have not mentioned in this missive, but that does not mean I do not consider them extremely important. I see considerable strengths and opportunities for the Society in the years ahead. Unfortunately, in a wide range of meetings and conversations in recent years, I have heard too much fear and loathing from our members that physiology as a discipline is viewed as an "old-fashioned" or "outdated" science. The evidence they often cite is that more and more universities are eliminating their departments of physiology or merging them with other departments. There have been clear efforts to re-brand the departments by including trendy names such as "integrative biology" or "systems biology" and eliminating the use of the word "physiology." Also feeding into this fear of physiology's demise is that the education mission has evolved at most medical schools out of the domain of departments because of accrediting body requirements to integrate the curriculum, that is, move the curriculum away from traditional discipline-based education and more toward organ system or disease-based curriculums that encompass all of the traditional disciplines simultaneously.

Although I agree that we need to take steps to keep physiology research and education at the forefront where it belongs, I am also here to tell you that physiology is not going away. I would even argue that having very low walls between the traditional disciplines serves science for the better as opposed to having isolated realms that do not interact. However, in biomedical research, it is impossible to translate from the bench to the bedside without physiology. It is impossible to educate our biomedical workforce without physiology. It is impossible to be a good physician, dentist, physical therapist, biomedical engineer, etc. without a clear understanding of physiology. It has been my experience that re-branding efforts are all too often done by well intentioned, albeit misguided individuals who think that a name change will make them better. I have worked in several environments where names have changed, and I can assure you that this does not change the core of who you are. In the end, success depends on your ability to focus on what is important, whether it be answering relevant scientific questions in the laboratory or going beyond just knowing to rather gaining understanding.

Just Do It

Please do not misunderstand what I am saying. There are very real threats to physiology education and research. I am convinced that study sections and manuscript reviewers are far too enamored by techniques, technology, and minutia and marginalize the value of traditional basic physiology research. Still, all the hand wringing and complaining of my generation of physiologists are useless expenditures of energy. In order for physiology as a traditional discipline to maintain support, the APS membership at large must be mobilized. It is our actions that will define us, not our words. For example, I have called upon the membership to engage themselves in a variety of local efforts, such as building a relationship with your undergraduate institution. However, there is far more the membership can do. Are you serving on institutional committees that can impact initiatives for growing research? Are you engaged in the medical and graduate curriculum, and have you done all you can to keep physiology at the forefront of biomedical education? Have you met your congressmen and senators and explained to them the value of your work? Have you been a speaker at a Kiwanis Club meeting or church groups? Have you participated in a PhUn Week program? Have you mentored a trainee at the EB meeting? I could go on and on. The bottom line is that we all need to step up and play a role. We cannot complain about a lack of respect for our discipline if we are not doing all we can to help.

A Final Word

Serving as the 87th APS President is an honor that I never believed possible a short time ago. I have been fortunate in my career beyond my expectations. I have never been one to have a grand long-term plan for myself. My parents instilled in me the belief that if I worked hard and always did what I thought was right in serving others, my life would be filled with joy, success, and fulfillment. They were right. ●

Introducing David M. Pollock

David Pollock is professor in the Division of Nephrology, Department of Medicine at the University of Alabama at Birmingham. He serves as Director of the Cardio-Renal Physiology and Medicine section, a translational research program supported jointly by the Division of Cardiovascular Disease and Division of Nephrology. Pollock earned his PhD degree in physiology from the University of Cincinnati in 1983 with Robert Banks as his advisor. His thesis project comprised some of the first papers ever published on the renal actions of atrial natriuretic factor. He then completed a postdoctoral fellowship at the University of North Carolina at Chapel Hill under the direction of William Arendshorst in the world-famous micropuncture lab run by Carl W. Gottschalk. He conducted a series of studies related to mechanisms of autoregulation of renal blood flow and tubuloglomerular feedback. He then spent 2 years as a senior scientist at the Institute for Circadian Physiology at Harvard University in Boston, where he worked on a NASA-supported project studying fluid volume regulation in a ground-based model of weightlessness. In 1989, he took a position in the Drug Discovery Division of Abbott Laboratories in Chicago. While at Abbott, he worked on several projects, including atrial peptide analogs, angiotensin receptor antagonists, and endothelin receptor antagonists. Most of his work focused on proof-of-concept studies in various animal models of hypertension and renal disease.

In 1995, Pollock decided to move back to academia and accept a faculty position at the Medical College of Georgia (now known as Georgia Regents University), where he served as a faculty member in the Vascular Biology Center and eventually led the establishment of the Experimental Medicine section in the Department of Medicine. In January 2014, Pollock moved to his current position at the University of Alabama at Birmingham, where he is leading the development of a translational research group focusing on renal and cardiovascular physiology.

Pollock's research deals with the control of sodium excretion and the role of the kidney in blood pressure regulation. His long-standing interest in natriuretic factors has led to his active involvement in elucidating the actions of endothelin, primarily within the kidney but also in vascular and nervous systems. His research has helped to elucidate the opposing actions of endothelin A vs. endothelin B receptors in both renal vasculature and the tubular system. Recent studies from his lab have suggested that defects in the endothelin B receptor system contribute to salt sensitivity in hypertension. More recently, his research has included collaborators conducting human studies that address these same mechanisms. His work also includes the role of endothelin in glomerular injury, where his lab has conducted important proof-of-concept studies providing evidence that endothelin contributes directly to diabetic glomerular dysfunction and that ETA receptor antagonists exert therapeutic benefit, as recently shown in clinical trials. This work has extended beyond diabetes and now includes sickle cell nephropathy, a problem of rising incidence in subjects with sickle cell disease.

Pollock's research has been continuously supported by a series of National Institutes of Health and American Heart Association grants, including an AHA Established Investigator Award from 2000 to 2005. He currently serves as deputy director and project leader on a National Heart, Lung and Blood Institute Program Project Grant (PPG) focusing on stress in hypertension risk. He is also principle investigator on another PPG that investigates mechanisms of endothelin control of renal hemodynamics and excretory function. This work is a collaborative effort with fellow APS members including Jennifer Pollock, Edward Inscho, Donald Kohan, James Stockand, and Jennifer Sullivan. Since August of 2013, Pollock also serves as co-PI of a Center Grant (U01) investigating the role of endothelin in sickle cell nephropathy in both animal models and humans. He has also held a series of investigator-initiated grants from companies including Abbott Labs, Takeda, and Astra-Zeneca Pharmaceuticals, and has served as a scientific advisor for Abbott, Gilead, Speedel, and Astra-Zeneca. He has served on many NIH and AHA scientific peer review panels, including the AHA National Cardio-Renal study section, where he served as chair, and the NIH F10A panel on organ system pathophysiology reviewing individual training grants since 2005.

Pollock has authored 150 peer-reviewed papers along with nearly 40 invited reviews and commentaries and 11 book chapters, including one as book editor. Pollock recently completed a 6-year term as associate editor for the *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology*. He has been a topic editor for the renal section of Comprehensive Physiology for the past 5 years and recently accepted the assignment of

editor in chief. Pollock has also served as associate editor of *Vascular Pharmacology* as well as several other guest editorships. He also serves on the editorial board of the *American Journal of Physiology – Heart and Circulation*, *Hypertension* and *Nitric Oxide: Biology and Chemistry*. He has been a member of the APS Publications Committee for the past 3 years.

Pollock has been active in a wide range of national and international organizations. He has organized several conferences with APS as well as a FASEB Summer Conference, the International Conference on Endothelin, and a Forefronts Conference with the International Society of Nephrology. He serves as a founding member of the International Advisory Board for the bi-annual conferences on endothelin.

In terms of additional APS service, Pollock has served on the Career Opportunities Committee, the Liaison with Industry Committee, Committee on Committees, APS Council, as well as several posts within the APS Renal Section. At the Medical College of Georgia, Pollock served for nearly 10 years as the founding Chair of the Curriculum Committee for the Biomedical Sciences PhD Program. He has directed a NIH-supported institutional training program in cardiovascular biology for the past 10 years.

Pollock has received a number of honors and awards, including the Louis K. Dahl Award for hypertension research from the AHA in 2013. At the Medical College of Georgia, he has received the Outstanding Faculty Award and the Distinguished Basic Science Research Award, among several others.

Pollock has been married to fellow APS member Jennifer Pollock for nearly 35 years. Jennifer describes herself as a biochemical physiologist and serves as chair of the Water and Electrolyte Section of APS. The Pollock's have three children. The oldest is Luke, a recent graduate in mechanical engineering from Georgia Tech. Next is Sam, who graduated last year from Mercer University and is currently in graduate school at the Medical University of South Carolina, studying health care administration. Sam recently married the lovely Blair Fils, who works for Teach for America. Their youngest is Michaela, a junior at Georgia College who majors in business management. When he has time, Pollock enjoys following sports, playing golf, and a dram or two of single malt scotch whisky now and then. ●

APS News

Election Results

The American Physiological Society announces the results of the election of officers for 2014. Patricia Molina of the Louisiana State University Health Science Center is the new president-elect. The three newly elected councillors taking office on April 30, 2014 are Barbara Alexander (University of Mississippi Medical Center), Rudy Ortiz (University of California, Merced), and Bill Yates (University of Pittsburgh). The councillors will each serve a 3-year term. ●

Patricia Molina

Barbara T. Alexander

Rudy Ortiz

Bill Yates