Sixty-Seventh President of APS

Brian R. Duling

It was the best of times and it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair.

Dickens, A Tale of Two Cities

I would like to challenge the members of the American Physiological Society to think about change and about how an organization with massive inertia such as ours can function in the current high-g environment. What follows is a personal view of the times and their meaning for the Society. The account is personalized because I believe that the psychology and sociology of biomedical research are as much an issue in our current world view as is the NIH budget or the state of our science.

The vigor of biomedical research is remarkable. The news media trumpet a cure a day. Our journals report new signaling pathways faster than most of us can assimilate them. We have within our grasp the tools to create transgenic, designer animals with physiology structured by genes carefully selected to test a favorite hypothesis. Computers, molecular biology, fluorescence chemistry, optics, and nuclear magnetic resonance provide the physiologist with opportunities to explore biological processes in ways that the founders of the Society could not have imagined. Even those outside the research disciplines recognize that something new is happening. The entrepreneurs have discovered biomedical research, and the gold rush is on. The money sharks sense new life on the reef and they can commonly be seen cruising the banks of academe. Can anything be other than wonderful in such a scientific environment?

Apparently, because daily we read or hear of something that predicts the end of biomedical research as we know it. We meet a colleague in the hall, whose work we respect, and are told that despite a priority score of 1.5, he was not funded. A young investigator, whom you believe to have a bright future in research, tells you that she has decided to go to medical school and become a general practitioner rather than "stay in the rat race". A clinical colleague tells us that he will have to shut down his laboratory because financial pressures

(continued on p. 51)
CONTENTS

67TH APS PRESIDENT
Brian R. Duling 49

LCME
Accreditation, Curricular Change, and Other Disturbances of the Steady State. D. G. Kassebaum 56

APS NEWS

Awards and Fellowships
Research Career Enhancement Award 50
APS/Genentech Fellowship 59
Bowditch Lecture Award 60
Walter B. Cannon Lecture Award 60

Meetings and Conferences
Understanding the Biological Clock: From Genetics to Physiology 61
Regulation, Integration, Adaptation: A Species Approach 62

Membership
Senior Physiologists News 64
Warren S. Rehm (1907–1994) 65

PEOPLE AND PLACES 65

PUBLIC AFFAIRS
APS Asks Congress for NIH Funding Boost 66
Administration Looks Toward Science Policy 68
Random-Source Animals: An Endangered Species? 69
APS Gives Views on NIH Guide 70

POSITIONS AVAILABLE 71

BOOKS RECEIVED 71

BOOK REVIEWS 72

ANNOUNCEMENTS 76

APS Research Career Enhancement Awards

Statement of Purpose: The APS Research Career Enhancement Awards are designed to enhance the career potential of our members. The awards will provide up to $4,000 to allow individuals in the early phases of their careers to obtain special training and in later phases of their careers to develop new skills and to retrain in areas of developing interests.

The Awards can be used to support
- short-term visits to other laboratories to acquire new scientific skills
- attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

Application Procedure: Candidates, who are members in good standing, may submit an application form including a curriculum vitae, justification for requesting an award, description of enhancement activity and current research program (not to exceed 2 pages), and anticipated budget for the proposed program of enhancement. The applicant must also include a letter of support either from his/her department chair, host laboratory or other appropriate individual.

Application Deadlines: February 15 and August 15.

Additional Information and Application Material: Martin Frank, Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: (301) 530-7118; fax: (301) 571-8305.
Introducing...

Brian R. Duling

Brian R. Duling is the 67th president of the American Physiological Society, succeeding William Dantzler. Duling has been active in Society affairs since 1971. He was born Pueblo, Colorado, and received his bachelor's degree from the University of Colorado. He received his PhD from the University of Iowa in 1967. His PhD training was followed by a postdoctoral fellowship with Robert M. Berne at the University of Virginia. Duling has remained at the University of Virginia, where he is now Professor of Physiology and the Director of the Cardiovascular Research Center. He is currently the holder of the Robert M. Berne Chair in Cardiovascular Research.

Duling has been an active member of the Society, participating in a variety of committees and in governance. He has served on the Membership Committee, the Education Committee, the Committee on Committees, and the Awards Committee. He was president of the Cardiovascular Section in 1986 and served on Council from 1989 to 1992. Duling has been active in a variety of other organizations, including the American Heart Association and the Microcirculation Society, of which he was president in 1984. He served on the Cardiovascular B Study Section from 1979 to 1983. Duling is the recipient of a number of professional awards, including the Established Investigators Award of the American Heart Association, the Robert Bennett Bean Award for Teaching Excellence, Von Humboldt Fellowship, the Philip P. Dow Award, the Philip Bard Award, the George Brown Award, the Eugene Landis Award, the Abbott Award, and recently, a MERIT Award from the National Institutes of Health.

Duling has been active in both research and teaching. His classroom activities include the teaching of renal, cardiovascular, and respiratory physiology to medical students, and a variety of graduate courses on the microcirculation and on vascular biology. Duling’s research has focused on the interaction between oxygen utilization and regulation of blood flow. He has authored 130 publications in the field. His particular contributions have focused mainly on the role of oxygen in regulating vasomotor tone and on the microvascular determinants of tissue oxygen delivery. The most recent research concerns the role of the glycocalyx in regulating red cell distribution, the cellular basis for conducted vasomotion in the arteriolar wall.

The NIH Trends report also asserts that 29.1% of the grants reviewed were funded. This may be numerically correct based on some calculus of the bureaucracy, but it is impossible to reconcile with the fact that our colleagues are delighted if they get a grant funded at the 15th percentile. What happened to the other 14.1%? The effects of such disparities on the morale of the research community are devastating, and the discrepancies must be explained. We in the research community must establish a clearer view of the root causes of our inability to get our best research funded.

I certainly do not have the answers to these questions, but the changes have occurred and we must understand them. Moreover, our Society must find out how to become more involved in determining the fate of the research dollar. RFAs provide one means by which special needs of both the NIH and individual investigators might be met. How can we find the right research opportunity among the large number of RFAs that appear? Who has a say in determining what RFAs shall be issued?

A pressing issue for us now is to understand where within the NIH system the money is going. Is the money flowing into NIH and then out to targeted research in which we don’t fully participate, to pork barrel activities, to special interest projects, to project and/or center grants? We see the appearance of new activities being funded by the NIH and most of us know little of these. What is a U01 grant? Did you know that $82 million was spent by the NIH on SBIR grants in 1992? We cannot accept simple answers to complex questions, whether they come from the NIH, the Congress, or our colleagues. The Society must have something to contribute to these issues, both in terms of explaining to its members who is doing what to whom, and in determining how the Federal money pot will be divided.

The Meetings

The traditional fall meeting has been eliminated and replaced by the APS Conferences. So far we have had five of these and all have been successful. The meetings are topical, and they respond to the demand for small assemblies with a focused theme. These conferences show every indication of becoming an outstanding series, and, with appropriate coordination of programming, can serve as a model for the meetings of a modern research society.

The spring meeting, on the other hand, labors on despite the best efforts of some to kill it and ignoring the efforts of others to revitalize it. Over the past decade or so, it seems
that each meeting of Council has resulted in some modification of the meeting structure. We have tried to stem the tide of departing groups, we have tried to raise the quality of science, and we have tried to restructure the relation of the Society to the Federation. Finally, we just renamed and repainted the thing, but it appears that everyone knows that inside the 1994 Experimental Biology is really a 1962 Buick.

If things go according to the current plan, in 1996, the Experimental Biology meeting will host the Physiologists, the Pharmacologists, the Anatomists, and the Nutritionists, surely not a representative group of modern biological research. In 1997, the Pharmacologists will depart, apparently for good, and the Immunologists and the Pathologists will return. Once again, a change of some basic nature has occurred, and the Society must move into the new reality no matter what it may be.

What is the purpose of the spring meeting in this new era in which we find ourselves? Obviously, there are still some groups that find the Experimental Biology Meeting eminently suitable as their primary scientific vehicle. These members of our Society need the support of all of us to have a successful meeting of some kind. Many other members of the Society find little of interest in the meeting and are appalled at the prospect of another trip to Anaheim. They continue to go mainly to attend the various symposia and for the fellowship, a not insignificant element in view of the comments above regarding development of younger members. These needs might be met by simply having a spring meeting of the Society as a whole as the Pharmacologists have decided to do.

Why then continue a spring meeting managed by the Federation? The idealistic reason is that this meeting has the potential to bring together a stunning variety of scientists, at a single venue, supported by the logistic capacity of the Federation, and able to adapt year by year to the shifting needs of a variety of disciplines. If it could be made to work, most would agree that it would be a major contribution to science. The Federation has not been able to do the job, however. I propose that the reason for this is a combination of the destructive activities of the warring feudal lords who have overseen the activities of the Federation and the inability of the Federation machinery (designed in the 1960s) to adapt quickly enough to the needs of the modern research community. I need not recapitulate the past divisive history of the organization, as the new regime is, in principle, dedicated to quite a different set of principles. However, the representatives of the various societies are often more involved in societal self-interest than in blending the best of science into a phenomenal meeting. Old habits die hard, but if this organization does not adapt quickly and move on from the past, it will die anyway.

Why should any of us in the American Physiological Society care about the survival of the Experimental Biology meetings? Put simply, money and mass make it in our interest to try to sustain this organization. Money is at issue because of the exhibitors. Many of us find the exhibitors to be a major source of motivation when thinking of the spring meeting because within a day we can get caught up on all the latest in supplies and equipment. The exhibitors are interested in coming to such a meeting in direct proportion to the mass of people that may attend. As the size of the spring meeting declines, the interests of the exhibitors decline in proportion. Not all of our members appreciate that the Society also derives income from the exhibitors. At Experimental Biology 1993, the income amounted to $284,000! Though the number is large, no one wants to continue a failed scientific activity just for the money, but it is a real part of the mix.

Mass is critical in thinking about the meeting, by virtue of the fact that research is not done in self-contained compartments. Diversity is essential to the conduct of modern research, and any one society is unlikely to be able to provide the breadth necessary in the long term. However, an organization such as the Federation provides the opportunity for individual societies to sustain their special interests and at the same time share in the strengths of the other organizations. The Federation still has the potential to function in this role, but only if the protectionistic attitudes of the member societies are abandoned, and if the Experimental Biology rules are structured to provide maximum flexibility to the participating groups at the meeting and to allow all the participants to share maximally in the earnings from the exhibitors.

The Best or Worst of Times?

Whether physiology is in the best of times or the worst of times is, I think, in the eye of the beholder and dependent on perspective. If one looks from the perspective of the power of the tools with which we can probe the ways of organisms, then this is surely the best of times. If we focus on the stability usually thought necessary to give us the freedom and peace of mind to promote good research, then this is a rather bad time. From the point of view of teaching, these are not necessarily either good or bad times; rather they are uncertain times, both for the art of teaching and for the discipline of physiology. The funding situation appears to be a source of enormous confusion, and though it is certainly one of the worst of times for the pursuit of the RO1, the total budget suggests that our government is supportive of our efforts and that we must exert greater influence on how the money is distributed.

The point that I intended to argue is that very real changes have already transformed unalterably the face of our
discipline, its relation to departments of physiology and to science as a whole. Our responsibility now is to recognize those changes and to develop plans to respond to them that are positive and effective. After all, there is no rule that says that only members of the American Physiological Society can do the most important physiological research or be the major voice in teaching. Those things are true only if they are true.

During the next year, I hope that the leadership of the Society will take a fresh look at some of the opportunities that are presented to us and at the role of the Society in the future of physiological research. I will be asking the NIH leadership to clarify the issues raised above regarding funding so that we can be effective representatives of the needs of the physiological community. Council will consider appointing an ad hoc committee to review the status of the teaching of physiology and to make recommendations as to how we can respond to the changes in our universities. We will also explore the possibility of obtaining realistic quantitative data on the employment opportunities for physiologists today and over the next decade. Also we will obtain more accurate demographic information on the characteristics of the employment situation of our membership, and on the current trends in training physiologists and/or integrative biologists.

Perhaps most important, we will explore the significance of the spring meeting to APS membership and to the scientific community as a whole. My personal feeling is that if the Federation streamlines and computerizes its management style to provide full flexibility to the participating societies and allows all to share in the income from the meetings, then a new meeting might evolve in which many small and large societies can affiliate with the spring meeting and be able, at the same time, to maintain their autonomy. The result might be an exceptional meeting that would provide the broadest presentation of the best of biomedical research. The alternative is, of course, for the Society to "take its business elsewhere" and hold a free standing meeting at which we focus on integrative biology. In order to explore these possibilities, the fall retreat of Council will focus on the opportunities and liabilities of the spring meeting.

I will be asking many of you to help with committee work in these efforts. Most important, I solicit input from the entire membership, both by way of defining changes that have occurred in proposing solutions to the problems that confront us.

Most important, I solicit input from the entire membership, both by way of defining changes that have occurred and in proposing solutions to the problems that confront us.

Accreditation, Curricular Change, and Other Disturbances of the Steady State

Donald G. Kassebaum
Vice President, Division of Educational Research and Assessment
Association of American Medical Colleges
AAMC Secretary to Liaison Committee on Medical Education

As the public has demanded greater accountability of educational programs subject to the accreditation process, some in the academy have wondered whether accreditors may be overstepping their role and expertise. The Council of the Physiological Society recently suggested that the LCME may be moving medical education toward problem-based learning and having a negative effect on physiology and other basic-science disciplines. And I have been asked how accreditation surveyors who are not basic scientists can properly size up basic-science teaching in medical school.

The LCME

The Liaison Committee on Medical Education (LCME) was an outgrowth of WWII mobilization two months after Pearl Harbor, when the AMA and AAMC, which had approved medical schools separately for half a century, combined forces in 1942 to economize on the labor of inspecting medical education programs. Today there are 17 members of the LCME: six each appointed by the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC), two medical student participants, two public members, and one Canadian member. The LCME accredits 125 US and 16 Canadian medical schools and is administered by twin secretariats, at AMA headquarters in Chicago and at the AAMC in Washington, DC.

Value and Purposes of LCME Accreditation

Medical school accreditation permits US students to take medical licensing examinations, to be licensed in the country's 54 licensing jurisdictions, to have unqualified access to graduate medical education, and to obtain staff privileges in most hospitals. LCME accreditation confers eligibility for federal loan and grant programs under the Higher Education and Public Health acts. The LCME itself must petition the Department of Education for renewal of recognition every five years and show its compliance with the “conditions of recognition” in the US Code of Federal Regulations.

The purposes of accreditation are to foster institutional improvement and to provide assurance that approved programs of medical education leading to the MD degree meet national standards for organization, function, and performance.

LCME Surveys

Accreditation surveys are conducted at least every seven years, employing ad hoc teams of four to six members selected from a pool of educators, practitioners, and health care administrators, supplemented by LCME members and staff and by faculty fellows nominated by medical school deans. A number of medical schools have additional, interim site visits focused on accreditation concerns; most schools are required to file interval progress reports; and every school must complete an annual report on its educational program and financial status. Accreditors are selected for their experience with medical education, curricular design and evaluation, the practice of medicine, and the management of educational and healthcare institutions. There are not enough basic scientists in the pool of over 100 surveyors; neither are there enough basic science faculty members involved in curricular design, evaluation, and planning in medical schools, the proving ground for accreditors.

Accreditation Standards and Assessment

Accreditation standards are proposed by the LCME and forwarded for endorsement to the AMA Council on Medical Education and the AAMC Executive Council. The process of deliberation and redrafting usually takes a year and includes

This paper is an adaptation of a talk given at the November 1993 American Physiological Society Council Retreat on Education in San Francisco, CA.
notices of intended “rule-making” in AMA and AAMC publications, solicitation of comment, and two national public hearings. The administrative board of the AAMC’s Council of Academic Societies—representing the Physiological Society and the Association of Chairmen of Departments of Physiology—casts its votes in the Executive Council to ratify new standards. The LCME rarely proposes accreditation standards without reasonable confidence that there is a mandate for their adoption, such as the AAMC’s 1984 Report of the Panel on the General Professional Education of the Physician (GPEP), the Josiah Macy, Jr. Foundation’s 1989 Clinical Education and the Doctor of Tomorrow, and the 1992 report of the Robert Wood Johnson Foundation Commission on Medical Education: The Sciences of Medical Practice, Medical Education in Transition.

LCME standards acknowledge that the faculty is responsible for the design, implementation, and evaluation of the curriculum. Beyond that, the LCME says that the overall curriculum must be a coherent and coordinated effort to educate future medical doctors and should accomplish the behavioral objectives that the school has established for that purpose.

To see to the “corporate” accountability for a coordinat-ed and coherent curriculum, there must be “integrated institutional responsibility,” i.e., a curriculum committee of the faculty, empowered to rise above parochial departmental interests, to get the job done.

Accreditation standards say that the curriculum committee is expected to oversee departmental monitoring of the content of each discipline, the objectives of courses, and the methods of teaching and learning. And medical schools must use a variety of measures to evaluate the effectiveness of their education program.

For example, accreditors assume that the objectives of a physiology course for medical students are that students learn the basic principles of medical physiology, develop habits of enquiry and self-learning, and gain skills in hypothetico-deductive reasoning from first principles in physiology.

Toward these ends, the faculty is expected to impart factual information by didactic teaching, by evoking study of information sources, and by posing problems to be solved by enquiry and hypothesis generation and testing. And the faculty is expected to construct opportunities to engage students in the practice of deductive reasoning from first principles. Accreditation standards stress that the faculty should foster in students the ability to learn through self-directed, indepen-

**APS Members and the LCME: Taking Cooperative Steps Toward Excellence in Medical Education**

At the November 1993 APS Council meeting, the issues raised by Donald Kassebaum were discussed, which resulted in two recommendations for action—one by the APS Council and the other by individual APS members. These actions have the potential to establish better lines of communication between the physiology education community and the LCME and to better represent the concerns of the physiology community on accreditation panels and curriculum committees.

**Increase the representation of basic scientists on accreditation review panels.** LCME review panels are composed primarily of deans and associate deans, clinicians, and students, but include few faculty members in basic sciences. According to Kassebaum, this is because the names of few basic scientists are put forward for appointment to review panels. At Kassebaum’s invitation, the APS Council is sending a letter to Kassebaum and to Harry Jones at the AMA, providing the names of basic scientists who could serve on accreditation review panels. In one year, the APS will follow-up to determine whether there has been an increase in the number/proportion of basic scientists on the panels. Additionally, the APS will make an effort to let scientists in other fields know of our efforts and encourage them to do the same.

**Increase the involvement of basic scientists in curriculum development and revision.** Some Council members believed that the LCME seems to be encouraging deans to be included in curriculum design and coordination but, at the same time, says that curriculum design should be under the purview of the faculty. APS Council members suggested that 1) change is needed in medical education; 2) faculty must be key players in this change; 3) multiple modes of change should be acceptable as long as there is solid evidence of their effectiveness; and 4) LCME must confront and deal with the fact that increasing and unresolvable demands are being made of basic scientists and clinicians. APS members are encouraged to become involved in institutional curriculum committees so that the ideas, suggestions, and concerns of basic science faculty are included in curriculum design.
dent study. Teachers can foster that behavior only if they provide the opportunities to practice it.

Accreditors assume that evaluations of medical students will employ written examinations to test cognitive achievement, essay examinations or oral colloquy to evaluate reasoning and communication, and observation of students' problem-solving skills.

There is nothing in the accreditation standards mandating any particular organization of basic science departments, courses, or methods of pedagogy. There is no mention of problem-based learning programs or tracks, although it is hard not to employ problem-based methods in some measure as a way of teaching hypothetico-deductive reasoning, since it cannot be learned only from lectures and multiple-choice testing. If we do not teach deductive reasoning from principles of science, logic, and probability, it will be necessary for medical students to memorize countless "sickness scripts" to prepare themselves for the clinical conditions that they will encounter in practice.

Accreditation Evaluations of Physiology Courses

LCME surveys usually find physiology courses able to mix lectures with small group conferences and clinical correlations. The accreditation reports on 13 medical schools surveyed in 1993 showed that all of the physiology courses in these schools were taught by the departments of physiology, although one department taught neurophysiology in an interdisciplinary course. Except for a couple of departments in the act of reducing lectures in favor of small group teaching, they mixed lecture and interactive formats and employed case correlations and problem-solving. Several were introducing computer simulations. And virtually all were well regarded by students.

The faculty of these physiology departments devoted from 10% to 45% of their time to teaching medical students, and the percentage teaching time had no consistent relationship with the dollar size of departmental research. The departments taught in disciplinary blocks and in interdisciplinary organ-system courses.

LCME surveyors offered no criticism of any of the physiology courses and made no recommendations for needed changes beyond reforms that the departments indicated were already planned or underway. This is not to say that the LCME surveys ignored the excesses of didactic teaching and passive learning in the first and second years at some schools: curricular "dense-pack" is diagnosable even without a basic scientist on the survey team. And accreditors observed on a number of occasions that, at a time when the advances of knowledge outstrip our ability to incorporate them into the curriculum, teaching efficiencies might be found in curricular coordination and integration.

Cognitive Dissonance

Why should physiology departments give the LCME a bad rap when there is little evidence that physiology courses have been a target of criticism by accreditors? Physiology faculties may blame the LCME for pressure on the dean’s office or curriculum committee for more labor-intensive instruction of medical students. And, from time to time, a school’s curricular stewardship may evoke the specter of the LCME to bolster its own arguments for curricular change.

But I think that the angst in physiology departments derives from more than resentment of the LCME as the bete noire making them adopt teaching methods against their will. The teaching of medical students may be the preoccupation of the LCME, but it is not that for the academic departments of a medical school. On average, departmental faculty—basic science and clinical—spend 15% of their time teaching medical students. When I ask a basic science chair what drives the department, the answer always is the same: research and the graduate programs. So the concerns of physiology departments are more likely to arise from dwindling institutional support—theoretically for teaching, after all—and the difficulties acquiring research grants and financing the graduate programs when greater self-sufficiency is the order of the day. And teaching organ physiology and integrated control is a problem for some departments operating largely in the reductionist world of molecular biology.

Coping With Accreditation and Other Imperatives for Change

By and large, the LCME audits the performance of a medical school against the objectives that the school sets for itself. Physiologists will protect their interests by exercising academic citizenship on the institutional committees that define the school’s educational objectives and the matrix for curriculum integration. Basic scientists also can work the accreditation process to better advantage by highlighting the sufficiency of resources needed for teaching medical students in the institutional self-study and during their meetings with accreditors on site visits. In the assessment of educational quality, it would be a mistake if the LCME ignored in its survey report any critical shortage of instructional resources.

The teaching of medical students increasingly will employ adult learning principles. Faculties will adopt more labor-intensive, interactive methods. And the science education of medical students will include more behavioral, social, probabilistic, and information sciences. The question for basic science departments is how best to adapt to these inevitabilities.

Where problem- or case-based learning has been employed successfully by physiology departments in US and Canadian medical schools, it often has been possible to enlist
the collaboration of clinical faculty members with basic science grounding to serve as tutors for small-group conferences. And the value of student self-instruction and use of interactive computer programs has been confirmed; in this day and age, it behooves academic departments to become familiar with computer innovations in medical education and to learn how to develop programs de novo. In a growing number of medical schools, educational innovation stands as original scholarship that counts toward academic advancement.

According to the LCME's 1992-93 survey of US medical education, there were 1,863 full-time physiology faculty members, 103 part-time faculty, and 462 volunteers, together with 349 masters candidates, 1,401 doctoral candidates, and 786 non-degree fellows and postdoctoral students. The first-year enrollment of the nation's medical schools in 1992-93 was 17,079. This gives a ratio of students to faculty/graduate trainees of 3.4:1, a quick and dirty statistic of practically no value other than to punctuate the importance of marshaling the faculty/graduate student instructional workforce and recruiting the partnership of clinical colleagues as a first principle in adjusting to change in basic science teaching.

Finally, the coordination and integration of the curriculum called for in accreditation standards will themselves yield teaching efficiencies. Along with editing-down the curriculum to first principles and making room for greater student self-instruction, these adjustments ought to help preserve the educational steady-state and still leave room for research and graduate training.

---

**MAMMALIAN ORGAN SYSTEM PHYSIOLOGY POSTDOCTORAL FELLOWSHIP**

**SPONSORED BY**

THE AMERICAN PHYSIOLOGICAL SOCIETY AND GENENTECH, INC.

**CRITERIA:**

- Project must use the tools of cellular and molecular biology in the setting of the whole animal.
- Identify a laboratory and sponsor under whose supervision a project in mammalian organ system physiology and molecular biology can be combined.

**AWARD:**

- Two year annual stipend of $32,000
- Trainee allowance of $3,500

This program has been designed to promote careers in mammalian organ system physiology.

**CONTACT:**

APS/Genentech Postdoctoral Program
The American Physiological Society
9650 Rockville Pike
Bethesda, MD 20814-3991
TEL: (301)530-7118
FAX: (301)571-8305

**DEADLINE:**

**MAY 15, 1994**
Awards and Fellowships

Call for Nominations

Bowditch Lecture Award

The annual Bowditch Lecture honoring the first elected President of the American Physiological Society, Henry Pickering Bowditch, has been given at the annual meeting since 1956. The first Bowditch Lecture, "Role of the Red Blood Corpuscles in the Regulation of Renal Blood Flow and Glomular Filtration Rate," was presented by John R. Pappenheimer.

The lecturer is selected by the President with the consent of Council from among the regular members who have achieved outstanding work and are under 40 years of age at the time of presentation. The award is for original and outstanding accomplishments in the field of physiology. Originality of approach, clarity of data presentation, and the general significance of the results are important criteria. The award conveys an honorarium of $2,500 plus travel and per diem expenses to attend the spring meeting, and the recipient is invited to submit a manuscript for publication in one of the Society’s journals.

Nominations should be accompanied by letters from two nominators describing the importance of the candidate’s work, a brief sketch of the nominee’s professional history, papers or manuscripts that substantiate the excellence of the candidate, and a curriculum vitae. The nominators should clearly state the contributions of candidates to any jointly authored manuscripts and papers, documenting the independence of the nominee’s work. Nominations should be submitted by October 1 to the APS Bowditch Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Physiology in Perspective

Walter B. Cannon Memorial Lecture Award

The Cannon Memorial Lecture honors Walter B. Cannon, President of the Society from 1913 to 1916 and one of the century’s most distinguished physiologists. The plenary lecture is presented annually by a distinguished physiologic scientist, domestic or foreign, at the spring meeting on a subject that addresses some aspect of the concept of homeostasis as enunciated in Cannon’s classic work, The Wisdom of the Body. The lecture, sponsored by the Grass Foundation, is selected by the APS President with the consent of Council.

The recipient receives an honorarium of $4,000 plus travel and per diem expenses and is invited to submit a manuscript for consideration of publication in one of the Society’s journals.

Nominations for the Cannon Lecture Award should be adequately documented to demonstrate the candidate’s contributions to physiology. A curriculum vitae should accompany the letter of support describing the nominee’s achievements. Submit nominations by October 1 to the APS Cannon Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991.
Meetings and Conferences

APS Conference

Understanding the Biological Clock: From Genetics to Physiology

July 8–12, 1995
Dartmouth Medical School
Hanover, NH

Within the past 20 years the field of biological rhythms has coalesced and moved into the mainstream of research. In metazoans the neuronal pathway of photic entrainment is generally known, and the diversity of nonphotic entrainment cues has been established. Elements linking oscillators to behavior are being identified. Anatomical and physiological studies have pinpointed dominant tissue oscillators in a number of animals, including mammals, and in several cases the oscillators have been resolved to the cellular level. This now allows a fusion of two intellectually dominant but sometimes separate lines of clock research: vertebrate physiology with invertebrate and microbiol genetics. The emergence of molecular genetics as a tool has allowed the exploitation of promising genetic groundwork that was laid in the 1960s and 1970s, with often spectacular results. Clock components are now known, and optimists predict a molecular description of an oscillator before the millennium.

Throughout the development of rhythms research as a field, a unifying principle has been belief in a comparative physiological approach. One goal of the meeting is to review the fruits of the comparative approach, both physiological and molecular, to the study of biological time, and to promote discussion of where chronobiology as a field has been and where it is going.

The scope will be wide, ranging from microbiol genetics to neurophysiology to human studies as they reflect on general truths. A second goal is for a select group of invited participants to assemble a reference work of lasting value concerning knowledge on biological timing as of the summer of 1995.

Medical School Review Recruits Lecturers

The National Medical School Review is recruiting medical school faculty members to serve as lecturers in review courses preparatory for United States Medical Laboratory Examination (USMLE) Steps 1 and 2 exams. Compensation will include generous honoraria. Interested faculty should contact Victor Gruber, Executive Director, National Medical School Review, 4500 Campus Drive, Suite 201, Newport Beach, CA 92660; tel: 800-533-8850; fax: 714-476-6286.
## APS Intersociety Meeting

### Regulation, Integration, Adaptation:

**October 30-November 2, 1994**

<table>
<thead>
<tr>
<th>Sunday, October 30 AM</th>
<th>Sunday, October 30 PM</th>
<th>Monday, October 31 AM</th>
<th>Monday, October 31 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15-9:15 am</td>
<td>1:00-3:00 pm</td>
<td>8:15-9:15 am</td>
<td>1:00-3:00 pm</td>
</tr>
<tr>
<td><em>Plenary Lecture</em>: Evolutionary matching of physiological capacities to natural loads. J. Diamond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>1:00-3:30 pm</td>
<td>9:30 am–12:30 pm</td>
<td>1:00-3:30 pm</td>
</tr>
<tr>
<td>Symposium: Neural modulation of muscle properties. E. Arbas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>2:00–5:30 pm</td>
<td>9:30 am–12:30 pm</td>
<td>2:00–5:30 pm</td>
</tr>
<tr>
<td>Symposium: Biomedical applications of marine mammal physiology: adaptation to an aquatic world. M. A. Castellini</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>5:30–8:00 pm</td>
<td>9:30 am–12:30 pm</td>
<td>5:30–8:00 pm</td>
</tr>
<tr>
<td>Symposium: Evolution of endothermic metabolism. A. J. Hulbert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>8:00–9:00 pm</td>
<td>9:30 am–12:30 pm</td>
<td>8:00–9:00 pm</td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symposium: Advances in reptilian and amphibian osmoregulation. S. Yokota and S. Benyajati</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Poster boards are on display Sunday through Wednesday from 8:00 am to 9:00 pm.

- **Plenary Lecture**: Evolution of physiological function: insight on endothermy from fish. B. Block
- **Plenary Lecture**: Evolutionary matching of physiological capacities to natural loads. J. Diamond
- **Plenary Lecture**: Energy to burn: optimizing fuel and $O_2$ pathways for running animals. C. R. Taylor
- **Workshop**: Phylogenetic approaches in comparative physiology. T. Garland, Jr. and R. Huey

**Plenary Lecture**: From myxine to man: the physiology of blood volume regulation. K. Olson
This meeting is a collaborative effort of The American Physiological Society, American Society of Zoologists (Comparative Physiology & Biochemistry Division), The Canadian Society of Zoologists (Comparative Physiology & Biochemistry Division), German Society of Zoologists, and Society of Experimental Biology

### A Species Approach
San Diego, California

<table>
<thead>
<tr>
<th>Tuesday, November 1 AM</th>
<th>Tuesday, November 1 PM</th>
<th>Wednesday, November 2 AM</th>
<th>Wednesday, November 2 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15–9:15 am</td>
<td>1:00–3:00 pm</td>
<td>8:15–9:15 am</td>
<td>1:00–3:00 pm</td>
</tr>
<tr>
<td><em>Plenary Lecture:</em> When does morphology affect performance? Feeding, smelling, and swimming with hairy little legs. M. Koehl</td>
<td><em>Poster Defending</em></td>
<td><em>Plenary Lecture:</em> Phenotypic and evolutionary adaptation. A. Bennett</td>
<td><em>Poster Defending</em></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>1:00–3:30 pm</td>
<td>9:30 am–12:30 pm</td>
<td>1:00–3:30 pm</td>
</tr>
<tr>
<td><em>Symposium:</em> Comparative respiratory neurobiology II. N. J. Smatresk and G. Mitchell</td>
<td><em>Exhibit Viewing</em></td>
<td><em>Symposium:</em> Subzero temperature adaptations of poikilothermic organisms. J. Duman</td>
<td><em>Exhibit Viewing</em></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>2:00–5:30 pm</td>
<td>9:30–12:30 pm</td>
<td>2:00–5:00 pm</td>
</tr>
<tr>
<td><em>Symposium:</em> Environmental and physiological determinants of muscle performance capacities. H. Guderley</td>
<td><em>Discussion:</em> Evolutionary design of functional capacities: how much is enough but not too much? R. K. Suarez</td>
<td><em>Symposium:</em> Neurohormonal peptides in invertebrates—a model approach. M. C. Thorndyke</td>
<td><em>NSF Workshop:</em> Funding opportunities in comparative/integrative/evolutionary physiology and special Foundation programs</td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>5:30–8:00 pm</td>
<td>9:30 am–12:30 pm</td>
<td>3:00–6:00 pm</td>
</tr>
<tr>
<td><em>Symposium:</em> Ontogeny of cardiovascular systems I: mechanisms. W. Burggren</td>
<td><em>Free Time</em></td>
<td><em>Symposium:</em> Ontogeny of cardiovascular systems II: diversity in developmental patterns. W. Burggren</td>
<td><em>Free Time</em></td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td>8:00–9:00 pm</td>
<td>9:30 am–12:30 pm</td>
<td>6:00–8:00 pm</td>
</tr>
<tr>
<td>9:30 am–12:30 pm</td>
<td></td>
<td>9:30 am–12:30 pm</td>
<td>8:00–9:00 pm</td>
</tr>
<tr>
<td><em>Symposium:</em> Ecological physiology of endangered animals: physiological contributions to the preservation of biological diversity. M. S. Gordon</td>
<td><em>Symposium:</em> Adaptations to high and low oxygen stress. M. Grieshaber</td>
<td><em>Symposium:</em> Adaptations to extreme environments. N. Hazon</td>
<td><em>Scholander Award Lecture:</em> The Scholander legacy: from simulated diving to microchips on mesopelagic seals. P. W. Hochachka</td>
</tr>
</tbody>
</table>

Vol. 37, No. 2, 1994


Membership

News From Senior Physiologists

Letters to Ralph Kellogg

Ralph R. Sonnenschein writes that he retired from the UCLA Department of Physiology in 1988. Since then, "I have been fortunate to keep an office in the department. I go to the university one or two days a week for department and occasional committee meetings, lunch and conversation with old colleagues, and some seminars, mainly in linguistics, an old interest. At home I spend much of my time with my collection of portrait medals of scientists (over 1400 pieces): searching out new ones, corresponding with other collectors, cataloging the collection, etc. (I would be pleased to hear from any APS members who have medals of this sort.) My wife Pat and I, fortunately still in moderately good health, do a bit of traveling, including in recent years the IUPS Congresses in Helsinki (along with travel in Germany and Poland) and Glasgow. In April of this year we are visiting friends in the Czech Republic and Germany, and attending a meeting on medallic art in Budapest, where we also have several old friends. While I miss active research work, retirement has generally been satisfying."

Eduard Schönbaum writes from The Netherlands: "I obtained my PhD degree at McGill University in 1955 on in vitro studies of rat adrenal metabolism, having been trained by people like Saffran, Clegorn, Birmingham and Selye. I was then fortunate to be able to join E. A. Sellers' group in Charles H. Best's Department of Physiology at the University of Toronto, to work on endocrine changes during acclimation to cold. Thermoregulation was a very active area in Canadian biomedical research; it was a privilege for a young post-doc to meet physiologists like Sellers, Stevenson, Burton, LeBlanc, and a clinician such as Bigelow, a pioneer in surgical hypothermia. Most of these Canadians were also members of the APS and happily, they introduced me to the APS and to its very active temperature regulation group.

"Working in an area where physiology and pharmacology meet convinced me that physiologists did not really understand how to use drugs as effective research tools and that pharmacologists never fully exploited the opportunities pharmacology offered to study homeostatic regulations. This conviction led Peter Lomax at UCLA (recently retired) and me, together with several other colleagues, to start symposia on the pharmacology of thermoregulation. The first one was in San Francisco in 1972. The 9th symposium, organized by Eugen Zeisberger and us, will be held in August 1994 in Giessen, Germany, in honor of Kurt Brück who, most Unfortunately, left us far too early.

"In the late sixties I joined industry, first in Canada and since 1973 in The Netherlands; I retired in 1988. All the time up to then I had managed to keep up with major developments in thermal physiology, although not working experimentally myself. After retiring from industry I worked at 'catching up' because I wanted to get back to the laboratory. Victor Weigant and I started the nth attempt to find out something about the role of ascorbic acid in the adrenal, so far without success. Several months ago I started collaborating with E. Ronald de Kloet's group in the Division of Medical Pharmacology at Leiden State University. It is a great pleasure to work again with—highly motivated—students on various aspects of the central actions of corticosteroids, with respect to thermoregulation. Keeping up with the literature, occasionally writing or helping to write a paper and, most important, coaching students, trying to give them a sense of the importance of the logic of the freedom and the continuity of biomedical research, based on the responsible and ethically justified use of animals, is most satisfying. I hope I will be able to continue in that manner for some time to come; I can recommend it."

Nominations for Honorary Membership

Members are invited to submit nominations for honorary membership. Send nominations and documentation of the candidate's contributions to the APS Honorary Membership Committee, 9650 Rockville Pike, Bethesda, MD 20814-3991.
Warren S. Rehm (1907–1994)

Warren S. Rehm, a pioneer in the application of biophysical and physical approaches to the study of membrane transport processes, recently died. He became a member of APS in 1945.

Rehm earned his PhD in 1935 from the University of Texas and his MD in 1941 from the University of Chicago. He was affiliated with the University of Louisville and the University of Alabama at Birmingham. He continued to contribute at Louisville until his passing.

Intensely active, Rehm’s method was socratic. The first meeting with him usually entailed his request for help with a puzzle of a request to “go through it once more slowly.” The ensuing debate was an educational experience that would never be forgotten. Rehm was directly responsible for the training of many, and in turn they and their students are involved in the conduct and success of modern physiology.

Contributions to the Warren S. Rehm Memorial Fund for Furtherance of Studies of Epithelial Transport may be sent c/o John Cuppoletti, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, OH 45267-0576.

APS Membership

Membership applications may be obtained from APS Membership Services, 9650 Rockville Pike, Bethesda, MD 20814-3991. Applications are reviewed and approved by Council on a regular basis throughout the year.

PEOPLE AND PLACES

Timothy A. Jones has moved from the University of Nebraska Medical Center to the Department of Surgery, Division of Otolaryngology, Health Sciences Center, Columbia, MO.

David Mendelowitz has accepted a position as Assistant Professor in the Department of Physiology and Biophysics at the University of Tennessee, Memphis. He was formerly at the Baylor College of Medicine.

APS member Joseph W. Barnard has moved to the Department of Pharmacology, Rush Presbyterian St. Luke’s School of Medicine, Chicago, IL. He was formerly at the University of South Alabama.

William J. Federspiel has moved from Boston University to ABIOMED Research and Development, Danvers, MA.

Mumtaz A. Dinno has accepted a position as Professor and Chair of the Department of Physics, East Carolina University, Greenville, NC.

Ryo Hosotani is now at the First Department of Surgery, Kyoto University, Japan. Hosotani was formerly at Kobo General Hospital.

Earl Wood has returned from Canada to the Emeritus Department, Mayo Clinic, Rochester, MN.

Thomas A. McCalden has moved from the University of Nevada to the Department of Environmental Health, Colorado State University, Fort Collins, CO.

Ruth T. Moore is now with Cardiology at Harper Hospital, Detroit, MI. She was formerly at Wayne State University.

Formerly at Texas Tech University Health Sciences Center, Mario Feola has moved to Biorelease, Salem, NH.

Formerly at the University of Nebraska Medical Center, Israel Rubinstein is now with the Department of Medicine, Section of Respiratory and Critical Care Medicine, University of Illinois at Chicago.

APS member Jean-Francois Liard has relocated to the Office of Scientific Affairs, Otsuka America Pharmaceuticals, Rockville, MD. Liard was formerly at the Medical College of Wisconsin.

Peter J. Morgan has moved from the Worcester Foundation of Experimental Biology to the Department of Pharmacology at the University of New England, Biddeford, ME.

Kay-Pong Yip has relocated to Brown University from UCLA.

APS member Robert L. Hesslink, Jr., has accepted the position of Vice President, Research and Training at ABLE Ergonomics, San Diego. He was formerly at the Naval Health Research Center, San Diego, CA.

People and Places

People and Places notices come almost exclusively from information provided by members and interested institutions. To ensure timely publication, announcements must be received at least two months (by the 15th of the month) before the desired publication date. Send all information to The Physiologist, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991.
APS Asks Congress for NIH Funding Boost

The American Physiological Society asked Congress to continue its strong support for the National Institutes of Health and basic biomedical research. The plea came in testimony to the House Appropriations Subcommittee on Labor-HHS-Education. Although the February 11 appearance of APS Executive Director Martin Frank before the Subcommittee was cancelled due to an ice storm, his statement was provided for the hearing record.

Frank urged the subcommittee to improve upon the $11.483 billion requested by President Clinton for the NIH in FY 1995. While the Clinton proposal would provide a 4.7% increase, Frank asked the subcommittee to consider the larger increases recommended by the recent FASEB Consensus Conference and the Ad Hoc Group for Medical Research Funding.

The APS testimony emphasized the importance of medical research to the ultimate success of health care reform. “I earnestly believe—as I am sure that you do—that a strong program of medical research is a key to giving the American people a better, healthier, and longer life,” Frank told the subcommittee. He urged the panel to “continue the historical tradition of NIH support for a far-reaching program of research into fundamental biological principles, as well as targeted attacks on specific problems.” Applied medical research offers “great promise” for reducing chronic health care costs, but fundamental research is important because “in many cases, we do not yet know the basic information required to find the answers to critical health problems,” Frank said.

APS pointed out several specific areas of concern about the President’s budget. The Society asked the panel to reconsider a proposed decrease in the NIH grant portfolio. Although the administration has proposed nearly 7,300 new and competing grants, the total portfolio is expected to decline by almost 100 grants because of an unusually large number of grants coming up for competing renewal.

The Society expressed concern that $122 million of the $317 increase proposed for NIH would only become available during the last days of the FY 1995 fiscal year. These “delayed obligations” would, in effect, count against FY 1996 funding, placing further financial pressure on NIH in the next budget year. APS also provided its statement to the Senate Appropriations Subcommittee on Labor-HHS-Education.

Although in past years modest NIH funding proposed in the President’s budget has often been transformed into substantial increases with the help of NIH supporters on Capitol Hill, that may be much harder to do this year. Agreements made last year to reduce the massive federal deficit leave a total of $8 billion less this year for all discretionary spending programs, including not only NIH but also every other federal biomedical research program. This has been dubbed a “negative sum budget,” meaning that there will be funding “losers” even before there are any “winners.”

Constituency groups all over the country are gearing up to let Members of Congress know what programs they consider to be important. Scientists, too, need to write to their Representatives and Senators to urge continued support for biomedical research.

### President Clinton’s Budget Proposals

**FY 1995 Appropriations for Biomedical Research**

(dollars in millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NIH</td>
<td>$10,966</td>
<td>$11,483</td>
<td>+4.7%</td>
<td>$11,934</td>
</tr>
<tr>
<td>Research Project Grants</td>
<td>$7,938</td>
<td>$6,210</td>
<td>+4.6%</td>
<td>$6,527</td>
</tr>
<tr>
<td>[ # of noncompeting]</td>
<td>[17,782]</td>
<td>[16,598]</td>
<td>[-1,184]</td>
<td></td>
</tr>
<tr>
<td>[ # of new and competing]</td>
<td>[6,149]</td>
<td>[7,293]</td>
<td>[+1,090]</td>
<td></td>
</tr>
<tr>
<td>NSF</td>
<td>$3,018</td>
<td>$3,200</td>
<td>+6.0%</td>
<td>$363</td>
</tr>
<tr>
<td>Research Programs</td>
<td>$2,220</td>
<td>$2,418</td>
<td>+8.9%</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>$288</td>
<td>$314</td>
<td>+9.0%</td>
<td>$325</td>
</tr>
<tr>
<td>VA Medical Research</td>
<td>$252</td>
<td>$212</td>
<td>-15.9%</td>
<td></td>
</tr>
</tbody>
</table>
New A-21 Regulations and Animal Care Costs

APS President William H. Dantzler wrote to NIH Director Harold Varmus to bring to his attention reports that the January 1 changes in A-21 indirect cost reimbursement regulations may be having a disproportionate negative effect on some animal research.

The latest changes to A-21 were intended to standardize what would be charged as direct and indirect costs. The provisions require that all animal care per diem costs become direct charges. However, researchers with continuing grants at institutions that had previously given indirect cost subsidies for animal care costs may run out of funds if they now must pay increased per diem charges out of direct costs.

The Society also raised this issue in its congressional testimony on FY 1995 funding for NIH. It was suggested that Congress or the NIH might ease the transition to direct charging of animal care costs by allocating additional funds or allowing renewals to exceed the 4% limitation on increases imposed by NIH's cost management plan.

Dantzler has contacted the members of the Association of Chairmen of Departments of Physiology to solicit their views on the seriousness of this problem. Based upon responses to that questionnaire, the Society will determine what further action may need to be taken.

Hillary Clinton Visits NIH; Harkin-Hatfield Trust Fund Launched

Hillary Rodham Clinton came to NIH's Bethesda campus on February 17. After visiting children who were undergoing medical treatment and meeting with Director Harold Varmus and several top researchers, Mrs. Clinton spoke to an overflow crowd of NIH staffers in Mazur Auditorium. She told the audience that "medical research and health care reform go hand in hand" and urged the research community to "take a stand on behalf of what you know and what you care about." Researchers, she said, would "have more credibility than many of the voices arrayed against the changes we seek."

Mrs. Clinton said that the administration recognizes that biomedical research has been underfunded for the past decade and promised that the president would give NIH resources and set priorities for research "without tying your hands." She said that the President "believes strongly in the need for continued support of research and academic health centers."

In making the case for health care reform, Mrs. Clinton said that her husband's plan would make the benefits of biomedical research advances accessible to the American people, millions of whom presently have no health care coverage at all. She said that only the Clinton plan would require health care plans to contract with academic health centers to provide specialized care services. It would also require plans to cover the costs of clinical trials, which most insurance does not cover.

On February 28, Mary Tyler Moore was the celebrity headliner at an event to kick off a public campaign in support of the Harkin-Hatfield Fund for Health Research. This proposal, sponsored by Senators Tom Harkin (D-Iowa) and Mark Hatfield (R-Oregon), would create a trust fund to supplement regular NIH appropriations by placing a 1% tax on all health care premiums. The fund could also receive contributions through a check-off box on tax forms. The measure will either be offered as an amendment to health care reform, or offered as separate legislation.

The APS has endorsed the Harkin-Hatfield proposal. APS members are urged to contact their own Senators and Representatives to ask them to cosponsor the Fund for Health Research to assure that medical research is has the funding needed to assure progress.

European Parliament to Study Animals' Status

On January 25 the European Parliament adopted a report by Gianfranco Amendola of the Italian Green Party calling for establishment of an advisory committee for the protection of animals. The committee, which is to include representative of animal protection societies from each state, will report on the welfare and status of animals within the European Community. According to Reuters, the Amendola report also deplores the fact that the Maastrict Treaty has not modified language that puts animals in the category of "agricultural products" and calls for them to be reclassified under European Community law as "sentient beings."
Schachman to be NIH Ombudsman

NIH Director Harold Varmus has appointed Howard Schachman, a former president of FASEB and the American Society for Biochemistry and Molecular Biology, to be an ombudsman for NIH-funded basic researchers.

In his February 11 announcement of the appointment, Varmus said that Schachman would travel to campuses throughout the country to meet with “people at all levels of expertise and status, asking for opinions about how NIH conducts business.” Varmus said that Schachman would “be there to answer questions, to take suggestions, and bring them back to me to put into action.”

Schachman, who is an active scientist and teacher, is professor emeritus in the Department of Molecular and Cell Biology at the University of California, Berkeley, and is expected to fulfill his ombudsman duties on a part-time basis. A second ombudsman for clinical scientists was expected to be selected shortly.

Administration Looks Toward Science Policy

Leading figures in national science policy met in early February at a forum convened by the National Academy of Science, the federal Office of Science and Technology Policy (OSTP), and the American Association for the Advancement of Science. The gathering was called as part of an effort by the Clinton administration to develop a policy on fundamental science similar to a white paper on technology policy developed in February 1993. The draft policy paper is expected later this spring.

Presidential Science Advisor John Gibbons, the Director of OSTP, called for a vision of science and technology based upon national goals. Gibbons’ call echoes a theme that has been sounded for the past few years by Rep. George Brown and other congressional leaders in the science and technology field. Gibbons reminded his audience that the reasons scientists do science is not the reason the public funds science.

Trends in Animal Activism

Several recent studies point to a rise in acceptance of the views espoused by extreme animal activists. The Los Angeles Times published a poll last year in which nearly half of the respondents agreed with the statement that animals are “just like humans in important ways.” The poll was designed to measure the degree to which the animal activists’ beliefs are gaining acceptance.

Forty-seven percent of those surveyed agreed with the statement cited above. Fifty-one percent disagreed, and 2% had no opinion. Responses to additional questions showed that those who believed animals to be similar to humans thought that animals’ emotions and even their reasoning abilities were comparable. According to demographic information about those polled, these beliefs were most common among women (52%–45%) and among people in the 18–29 age group (61%–38%).

“The fact that almost half the respondents say that there is no fundamental difference between humans and animals is alarming,” said Foundation for Biomedical Research President Frankie Trull. “I think it indicates how isolated most Americans have become from the world of science. This trend is making it harder for the medical community to ensure that people recognize the importance of animal research.”

The Chicago-based Teen Research Unlimited conducted a study that found that one in four teenagers is vegetarian, and the majority say that their concern for animal rights led them to give up meat and poultry.

In another development, Western Carolina University psychologist Harold Herzog has conducted several studies to develop a profile of the typical animal activist, according to an item in the January issue of Lab Animal. Based upon questionnaires distributed at a 1993 animal activists’ march in Washington, DC, Herzog found that two-thirds to three-quarters of the activists are women, 95 percent are white, and the overwhelming majority have no children. Only 4 percent claimed to be involved in lab animal “liberation.”

Herzog also administered ethical attitude questionnaires to another group of activists and found them to be predominantly what he called “absolutists” with a universal sense of morality.

Berosini Judgment Overturned

The $4.2 million libel judgment against the People for the Ethical Treatment of Animals for defaming entertainer Bobby Berosini was overturned by the Nevada Supreme Court on January 27. In a film clandestinely made backstage at the Stardust Hotel in Las Vegas, Berosini was seen striking his trained orangutans. The entertainer had initially won a suit alleging that PETA defamed him by secretly making the tape and then releasing it to the media.

But the Nevada Supreme Court Justices ruled 4-0 that the tape accurately portrayed how Berosini disciplined his animals, and that opinions as to whether that constituted cruelty could not be construed as defamatory. The court also rejected the entertainer’s claim that his privacy had been invaded on the grounds that he could already be seen and heard by a number of people.

Joan Berosini, the entertainer’s wife, said that they would appeal the ruling to the US Supreme Court.
Random-Source Animals: An Endangered Species?

Access to random-source animals continues to be a serious problem. In a number of states, researchers can no longer buy pound animals. Now there is growing popular controversy about Class B Dealers, those individuals who have USDA licenses to sell to research labs dogs and cats that they did not breed and raise themselves.

There are over 1,100 Class B Dealers in the United States, but the recent controversy centers on the actions of a handful. After the publication of Stolen for Profit by Judith Reitman, several television news programs did segments portraying Class B dealers as pet thieves against whom USDA takes no action.

Last fall some 30 members of Congress sent a letter to Secretary of Agriculture Espy requesting that USDA inspectors enforce the law prohibiting pet theft by Class B Dealers. It is now being rumored that Class B Dealers will be a focal point of attention by animal activists when the farm bill comes up for reauthorization next year.

The USDA recently proposed new regulations to tighten up its enforcement of Class B Dealers. The new regulations would provide that when a Class B Dealer applies for a license renewal, he will be sent a copy of the regulations and asked to sign an acknowledgement that he intends to comply. The proposed regulations also seek to improve enforcement by requiring dealers to use two specific forms for record-keeping. In the past, poor record-keeping has frequently hampered investigations of Class B dealers.

But the larger issue of ensuring research access to random-source animals remains. The research community should pursue this goal both by ensuring that Class B dealers can continue to provide these animals, and by maintaining or reestablishing access to pound animals. In both cases, public education is required. The American people need to understand that for certain kinds of biomedical research (i.e., studies of cardiovascular disease or aging) it is necessary to use stray dogs and cats. Furthermore, the cost of purpose-bred animals would effectively halt progress on research in many areas. Many people are unaware that dogs and cats comprise less than 2% of all the animals used for research, and that strays rather than pets are sought. Nor are they aware that the number of animals needed for research is less than 1 percent of the number of strays and unwanted animals destroyed by pounds and shelters.

With animal activists giving renewed attention to random source animals, it should not be surprising that along with the national debate over Class B Dealers, local controversies about pounds and shelters continue. Houston, Texas, has recently been a battleground of the pound animal issue.

Late last year the Houston City Council decided that it would no longer sell pound animals to research institutions because of its interpretation of the federal Pet Theft Act that just went into effect. Animal activists then vowed to cut off access to pound levels also at the county level. However, at a February 1 meeting, the Harris Commissioners Court decided to continue to make pound animals available to the University of Texas, the University of Houston, Baylor College of Medicine, Texas A&M University, St. Joseph Hospital, and Sargent's Wholesale Biologics.

Expect further activity on pound animals and Class B Dealers in the future.

Witnesses Jailed in New WSU Probe

Kimberly Trimiew, 22, and Deborah Stout, 25, were both found in civil contempt on February 18 for refusing to answer questions before a newly convened grand jury investigating the August 1991 break-in and arson at Washington State University that was claimed by the Animal Liberation Front. After the two women twice refused to answer grand jury questions in January, US District Court Judge Fremming Nielsen ordered them to the Spokane County Jail until they "change their position" about testifying.

Trimiew was imprisoned for two weeks in October 1993 for refusing to answer the questions of a grand jury whose term expired shortly thereafter. Trimiew and Stout could remain imprisoned for up to 17 months until the term of the current grand jury expires. They are under investigation for ALF break-ins in several other states, and their lawyers argued unsuccessfully that their immunized grand jury testimony in Washington State could be used against them elsewhere.

Now Appearing on the APS "Gopher" Information Server:

APStracts

an on-line publication of the abstracts of manuscripts accepted for publication in the APS journals. This pilot project will start with the publication of abstracts from the American Journal of Physiology: Cell Physiology.
APS Gives Views on NIH Guide

The National Academy of Sciences panel charged with revising the NIH Guide for the Care and Use of Laboratory Animals held two more public meetings in February. Animal Care and Experimentation Committee Chairman J. R. Haywood presented the Society's views at the February 2 public hearing in San Francisco. An excerpt of Haywood's oral presentation follows. For a copy of the complete written statement, contact Alice W. Hellerstein in the Society's public affairs office.

The American Physiological Society supports the current conceptual approach taken by the NIH Guide for the Care and Use of Laboratory Animals which emphasizes reliance on the professional judgment and discretion of veterinarians, Institutional Animal Care and Use Committees, and investigators. These individuals are caring professionals who have a common goal of responsible and humane use of animals to ensure good quality science. The Guide should continue to be a handbook on how to fulfill the spirit as well as the letter of animal care laws, rather than a parallel set of animal welfare regulations. The American Physiological Society supports the approach that the Guide should be a resource that can be used in the laboratory to provide specific guidance about the current state of knowledge in animal husbandry and care while still providing the necessary latitude for professional interpretation.

One important element of updating the Guide is to make it consistent with the U.S. Department of Agriculture regulations formulated from the Animal Welfare Act. This will significantly simplify compliance with the law for both individuals and institutions. Although it would be impossible to include in the Guide all the specific information necessary to achieve compliance with these documents, it would be most useful if it provided specific references to these and other relevant documents in proper context. Current inconsistencies in matters of policy, such as the minimum number of Institutional Animal Care and Use Committee members required, should be eliminated. In addition, the Guide should also provide the latest information about care and husbandry issues where the scientific evidence supports performance-based standards other than those currently required by law.

The study of whole animals remains the ultimate basis for understanding integrative mechanisms in the pathophysiology of disease as well as developing new treatments. Adjunct methods, such as in vitro tissue culture and computer simulations, should continue to be used when appropriate. But it must be recognized that they can supplement, but not totally replace, the knowledge that can be acquired through studies at the whole animal level.

I now want to highlight four specific items in the written testimony that will be forwarded to the Committee.

First, all guidelines concerning survival surgery should be moved to a single location in the Guide under the "Veterinary Care" section. This would facilitate the use of the Guide in the laboratory setting. In combining this information, we feel that the comments concerning multiple survival surgeries should be stated more affirmatively so that the investigator and Institutional Animal Care and Use Committee are not discouraged in supporting these protocols when there is scientific justification. Multiple surgeries are almost always performed to enhance the health of the animal during a complex experimental protocol.

Second, we feel that the "Special Considerations" section concerning "Genetics and Nomenclature" should be expanded to include recently developed immunodeficient strains of rodents as well as gene manipulated animals such as transgenic and gene knockout animals. These animals often require special care such as a barrier environment. In addition, the importance of record keeping and patent issues should be mentioned.

Third, we want to suggest the addition of a section in the Guide that would cover uncommon (or exotic) animals and invertebrates. These animals are not presently discussed. With regard to uncommon vertebrates, issues such as quarantine and occupational health should be included in this section. We strongly urge the Committee to employ performance-based standards with regard to these species since we have limited information concerning the veterinary care and husbandry of these animals.

Finally, guidelines concerning the use of farm animals in research and teaching should be included in the Guide. However, it is important that any statements concerning these animals in the revision of this Guide should be fully consistent with the new Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching.

In closing, continued reliance upon the professional judgement of the veterinary staff and the Institutional Animal Care and Use Committee to implement documented performance-based standards will always be necessary to interpret U.S. Department of Agriculture regulations, especially the new ones including rats, mice and birds. Rigid engineering standards, while doing little if anything to improve animals' health, well-being or welfare, will make voluntary compliance by institutions which do not receive Public Health Service funds very difficult.
Faculty Position in Physiology. The Department of Physiology at the University of Michigan Medical School invites applications for a tenure track position at the Assistant/Associate Professor level. We seek a person utilizing modern techniques of cell and molecular biology to understand physiological processes at the integrative level. The individual must be able to participate effectively in the departmental graduate and medical student teaching program in an area of integrative and/or medical physiology. Candidates should have a PhD, MD, or equivalent degree and a minimum of two years of postdoctoral experience. Applications including a complete curriculum vitae, description of research interests, plans for future research, and names of three references should be sent to John A. Williams, Chair, Department of Physiology, 7744 Medical Science II, University of Michigan, Ann Arbor, MI 48109-0622. Minorities and women are especially encouraged to apply. [EOAAE]

Postdoctoral Position in Physiology. Extending search for spring 1994 to study the Physiology and Biophysics of the Microcirculation. Current studies include 1) mechanisms of fluid exchange and biophysical nature of the exchange barrier in single capillaries, 2) mechanisms of force generation and movement of single neutrophils and macrophage migration in vitro and in vivo, and 3) pharmacomechanical determinants of arterial function in single, isolated arterioles. Future studies to include the mechanical properties of cell membranes and their influence on single channel function. Salary dependent on experience. Applications accepted until position filled. Send C.V. and the names of three references to Robert W. Gore, Department of Physiology, University of Arizona, Tucson, AZ 85724. E-mail: Gore@cit.arizona.edu; fax: 602-626-2382. Women and minorities are urged to apply. [EOAAE]

Positions Available

There is a $50 charge for each position listed. Positions will be listed in the next available issue of The Physiologist and immediately upon receipt on the APS Gopher Information Server. Listings will remain on the APS Information Server for 3 months.

A check or money order payable to the American Physiological Society must accompany the position listing. Purchase orders will not be accepted unless accompanied by payment. Ads not prepaid will not be printed. Copy must be typed double spaced and is limited to 150 words. All copy is subject to the editorial policy of The Physiologist. EOAAE indicates Equal Opportunity/Affirmative Action Employer and appears only when given on original copy. Copy deadline: copy must reach the APS office before the 15th of the month, two months preceding the month of issue (e.g., before February 15th for the April issue). Mail copy to APS, The Physiologist, 9650 Rockville Pike, Bethesda, MD 20814-3991.

BOOKS RECEIVED


The Physiology of Fishes. David H. Evans (Editor). Boca Raton, FL: CRC, 1993, 592 pp., illus., index, $95.00. ISBN: 0-8493-8042-1.


The Sexual Brain

Simon LeVay

In this brief and highly readable book, LeVay explores sexuality from the perspective of a neurobiologist. In addition to synthesizing data from neuroanatomy, neurophysiology, endocrinology, and genetics, the book brings evidence from psychology and sociology to bear on the question of the nature of human sexuality. The current literature on the brain mediation of various aspects of sex is reviewed with particular attention to issues related to mate selection, a topic which in human beings becomes sexual orientation, a central issue addressed. The book is addressed to a lay audience. However, it is not clear that one who is not minimally education in biological science will be able to absorb the technical aspects of the presentation with sufficient ease to make this book enjoyable reading. The biologically oriented scientists should find the book to be an enjoyable and even elegant exploration of sexuality as viewed from a scientific perspective. Further, the book provides to the scientist an example in which a complex and controversial problem is discussed in a manner that preserves the objective perspective of a scientist while responding to human and cultural sensitivities.

The chapters, each titled with a quote from Shakespeare, explore the biology of sexuality in an orderly and informative fashion. First, the issue of understanding animal nature and sexual nature in particular as an outcome of the genetic/environmental interaction is discussed in a refreshingly clear manner. This is followed by a discussion of some current perspectives on the evolution of sex. The development of sexual dimorphism is then briefly outlined. Two chapters provide a rudimentary introduction to neuroanatomy. The physiology of sexual intercourse is then described. Courtship behaviors in selected species are discussed, followed by a broad review of maternal (paternal) behavior as described for a few laboratory species.

There is a discussion of the neurocircuitry involved in sexual behavior which is perhaps diminished in quality by the authors in invoking of the concept of a "sex center," a concept that oversimplifies the neurophysiology underlying this behavior in a manner that often leads to simplistic and unimaginative thinking. However, the essential findings of this literature are well summarized. Sexual differences in the brains of human and laboratory animals are discussed with respect to both the morphological evidence of sexual dimorphism of the central nervous system and sex differences in behavior.

The last two chapters are devoted to a discussion of the biology of differences in sexual behavior not directly related to procreation and sexual orientation in the human species. The central issue dominating this presentation (and likely a major impetus for this book) is the author's recently published finding that some structures in the human hypothalamus that exhibit sexual dimorphism were also found to vary among men as a function of sexual orientation. Specifically, structures found to be smaller in women than in men were found to be smaller in homosexual than in heterosexual men.

This book should contribute significantly to the clarification of thinking when neuroscientists attempt to apply their theories and findings to the understanding of sexuality in our species. For many interested lay people the book should provide an insight into how neuroscience can enrich our understanding of human nature. However, one is left wanting more data. There is no replication of LeVay's provocative findings concerning the possible association of variation in neural structure with variations in sexual preferences. Also, little attention is devoted to the problem of quantifying the concept of sexual orientation in a scientifically useful and culturally meaningful manner. To gain increased understanding of the biological basis of any psychological problem requires that we increase the precision with which psychological as well as neurological phenomena are measured.

SHELTON E. HENDRICKS
University of Nebraska at Omaha

Physiology

Nicholas Sperelakis and Robert O. Banks, Editors
Boston, MA: Little, Brown, 1993, 911 pp., illus., index, $35.00. ISBN: 0-316-80629-3

A friend who has published a physiology textbook once told me, "If I had known Art Vander was working on a textbook, I wouldn't have done mine." The first thing I wonder when I see another physiology textbook is: Why did the author(s) write it? Sperelakis and Banks preface the book by answering that question: "We wanted to fill what we perceived to be a gap between . . . simplistic . . . texts and the . . . encyclopedic texts. . . ."

The text is definitely written for medical students. An emphasis on neurobiology is omitted, in the authors' words, because "in most institutions, physiology of the central nervous system is taught in a separate neuroscience course." However, the book does cover excitability, conductivity, synaptic transmission, and the peripheral and autonomic nervous systems. It also includes coverage of all the other physiological systems.

Strong features of the book are comprehensive coverage and currency, frequent diagrams—many modified from competing texts such as Berne and Levy's Physiology [Moseby] or J. B. West's Physiological Basis of Medical Practice [Williams & Wilkins]—and an admirable organization, especially considering that the book has 36 authors, mostly from the University of Cincinnati College of Medicine. An especially appealing feature is the behavioral objectives at the beginning of each chapter, telling students what they should be able to do, define, list, describe, explain, distinguish, compare, identify, cite or apply other action verbs to. Students will appreciate that kind of introduction. They'll also like the "National Board Type Questions" that close each chapter after the chapter summary. Answers are provided, with detailed explanations tied to specific pages or figures in the text. There is also an adequate index.

There are some less useful aspects to the book. I found myself wanting to look up some technical terms. A glossary would have been helpful, as well as a more complete appendix. The appendix contains a table of normal values of electrolytes and other blood constituents, plus a brief discourse on measurement of cardiac output. The figures in the book are basic black-and-white line drawings, conveying plotted information or modeling complex systems. They do not grab one's attention but do illustrate the principles de-
scribed in prose. A weak feature of the book is the poor reproduction of electron micrographs. Nearly every one is underexposed or over-inked, making it difficult to see clearly what ultrastructures are being displayed.

I think the authors have probably achieved their goal of writing a book to fill the gap between the survey-type physiology text and the encyclopedic volume (e.g., Best and Taylor’s Physiological Basis of Medical Practice, edited by West, or Medical Physiology, by Mountcastle). It may have a hard time displacing medical students’ favorite, Guyton’s Textbook of Medical Physiology. The fact that the book is available in paperback form brings its cost down, and it should take its place on the shelf with similar volumes like Ganong’s Review of Medical Physiology (Appleton & Lange), now in its 16th edition.

David S. Bruce
Wheaton College, Wheaton, IL

Respiratory Control: Central and Peripheral Mechanisms

Lexington, KY: University Press of Kentucky, 1993, 238 pp., illus., index, $80.00

The book collects studies presented at a meeting organized in 1991 by the editors. As an overall first impression it is striking the contrast between the abundance of data from studies in vitro and anesthetized animals in contrast and the limited data acquired from unanesthetized intact animals and humans.

Several demanding in vitro methods have been presented in the pursuit of the mechanisms involved in generation and propagation of the respiratory rhythmicity. The whole-cell patch-clamp recordings, in tissue slices and cell cultures, revealed the presence, and allowed to define properties, of low-voltage-activated and high-voltage-activated Ca2+ currents in hypoglossal motoneurons of neonatal rats and in the nucleus tractus solitarius (NTS) of adult rats. These results imply that Ca2+ currents, in combination with K+ currents, produce a rhythmic pattern of activity in the NTS neurones. Recently developed in vitro neonatal rat and rabbit brainstem–spinal cord preparations may help to resolve the apparent conflicts in the importance of Ca2+ currents in modulation of the respiratory membrane potentials. The whole-cell patch-clamp and extracellular recordings in this reduced preparation suggest the presence of specific neurones essential for respiratory rhythm generation and give basis to a hypothetical model of functional interaction between anatomically distinguished inspiratory pattern and respiratory rhythm generators. Excitatory amino acids (EAA) may be involved in inspiratory drive transition. Two independent studies point out different locations of these pacemaker cells. A combination of intracellular recordings, immunoreactivity, and labeling may clarify this discrepancy in the future.

The effects of acute hypoxia were studied in vitro, at the level of a single neurone, and in vivo, in cats deprived of peripheral chemoreceptors. Intracellular recordings in vivo showed that hypoxia-induced changes within the respiratory network are due to chain events following ATP depletion. Different mechanisms are implicated in hypoxia-induced depression of inspiratory activity and apnea. Evidence is presented that in awake newborns the hypoxia-induced decrease in Vt is coupled with a simultaneously diminished production of CO2. These two studies challenge the largely hypothesis of respiratory depression specifically originating from increased levels of inhibitory neurotransmitters.

Dopamine (DA) and substance P (SP) have been proposed as neurotransmitters of peripheral chemoreception. However, specific pathways and interaction between these neurochemicals are unknown. The hypoxia-induced increase in DA may be due to augmentated synthesis of tyrosine hydroxylase (TH) is type I cells. The TH cells and SP-containing cells in petrosal ganglia are first detectable in the last quarter of fetal life in rats. Postnatal increase in TH cells in the rat carotid body (CB) and in the expression of SP in the rat NTS are very rapid; the latter depends on the transition from fetal to postnatal life. Hypoxic chemoreception may depend on extracellular CO2-HCO3 and Cl-HCO3 exchangers and may be regulated by intracellular pH in CB. On the other hand, CB sensitivity to CO2 may depend on the presence of carbonic anhydrase, selectively localized to type I cells. A decrease in intracellular pH may precede a rise in intracellular Ca2+ and a transmitter release following CO2 stimulus. The mechanisms involved in triggering a sensory discharge in the presence of elevated CO2 or decreased O2 in the CB require further investigation.

The reader may find an excellent review of methods used in evaluating the central chemoreception, characteristics of the response to hypercapnia, possible mechanisms involved in the chemoreceptor stimulation, and the interaction of peripheral and central chemoreceptors. On the other hand, anatomical location of the central chemoreceptors remains unresolved.

Several important questions concerning central processing of respiratory afferent inputs have remained unanswered. Multiple laryngeal sensory innervation results in various respiratory effects depending on ionic composition and osmolality of solutions introduced into the larynx. In rats, a discreet area of the NTS (HB region) is shown to participate in the central integration of vagal volume related activity. These fibers, via release of an AEA and activation of non-NMDA receptors on pump cells, trigger the Hering-Breuer reflex in rats. Interaction between pump cells and inspiratory inhibitory activity is undisclosed. Species differences in this circuitry may also be expected. In contrast to previous data, a study on the developing opossum suggests that less developed animals depend less on vagal inputs in maintaining respiratory rhythm. The understanding of the mechanisms underlying responsiveness of other vaga inputs and their central integration is also incomplete. It is postulated that stimulation of C fibers by capsaicin and activation of H1 receptors by histamine is associated with peptide release from lung afferents. The review of the behavioral component of control of breathing show how little we know about this important and complex interaction. At present, these studies have only begun. The influence of respiratory muscle fatigue on the performance of the respiratory system is questionable. In contrast to evidence presented previously, unloading the respiratory muscles during heavy exercise in humans did not affect the breathing pattern and minute ventilation in normal and COPD patients.

In summary, the book offers an excellent overview of the com-
plexity of the respiratory system serving in the maintenance of gaseous homeostasis as well as various behavioral actions. The reader will find experimental data and discussion of functional and anatomical relationships at the cellular and neuronal network levels, peripheral and central chemoreception, development of control of breathing, and integration of afferent inputs during different behavioral states. The available methods improved our understanding of the central and peripheral mechanisms involved in the generation of the neuronal activity that fulfills these demands. However, many questions await to be answered and these require new creative approaches. Senior investigators, graduate and undergraduate students could benefit from reading this book.

Teresa Trippenbach
McGill University

Rypin’s Clinical Sciences Review, 16th Edition

E. D. Frolich, Editor
Philadelphia, PA: Lippincott, 431 pp., illus., index, $29.50. ISBN: 0-397-51246-5

The 16th edition of Rypin’s Clinical Sciences Review builds upon changes evident in the 15th edition. The Rypin’s review series now encompasses three texts split into basic and clinical sciences review with a separate manual of questions and answers for the basic sciences. The Clinical Sciences Review is a multi-authored effort by physicians respected in their fields. The topics covered are those included on the current FLEX and NBME exams. The text will also serve as preparation for the upcoming USMLE designed to replace the before-mentioned exams.

As stated in the preface, the purpose of the Rypin’s series has been to provide a review for those studying for licensing exams and a quick “resume” of knowledge in specific specialty areas for the practicing physician. Having recently sat for both licensing exams and a specialty board, we find this book provides a special vantage on both of these goals.

At the start I must say that reading the text was a joy. The writing is fluent and user friendly. Graphs and tables are provided as appropriate and will prove useful in the last cram session prior to taking that final state exam. The internal medicine section, ob-gyn, psychiatry, and especially the public health sections are outstanding. The internal medicine section I could easily recommend to a student about to embark upon his or her first medical clerkship. The tables presented in the internal medicine section will provide good quick preparation for those morning pimp sessions. The pediatric section is very well written but rather abbreviated in terms of its overall length. In future editions I would hope this section is expanded, as it currently falls short of at least one of its goals to provide a review for the practicing physician.

The surgery section is rather long and in need of revision and updating. I believe certain topics covered in the surgery chapter would be better reviewed in the internal medical section, such as the diagnosis and treatment of thyroid and other endocrine disorders. The discussion of the management of cardiac arrest is dated with recommendations of treatment (such as calcium chloride) that are not up to current American Heart Association recommendations. The section on breast cancer could easily include mention of lumpectomy and the indications for chemotherapy and hormonal therapy. The types of imaging recommended are not up to today’s standards (such as the use of the oral cholecystogram in the diagnosis of acute cholecystitis) and requires a fresh outlook. The question sections at the end of the chapters could benefit from updating as well.

P. E. Lizotte and I. Liberson
University of Michigan

Moving?

If you have moved or changed your phone, fax, or eMail number, please notify the APS office at

301-530-7171
or eMail to internet:
kristin@aps.mhs.com

Be sure to include your name, degree(s), title, department, institution, complete mailing address, telephone and fax numbers, and eMail address.
CONFERENCES

Experimental Biology '94
April 24–28, 1994; Anaheim, CA

Physiology of the Release and Activity of Cytokines

Mechanotransduction and the Regulation of Growth and Differentiation
October 5–8, 1994; Sarasota, FL—Abstract Deadline 6-10-94

Regulation, Integration, Adaptation: A Species Approach
October 29–November 2, 1994; San Diego, CA—Abstract Deadline 7-11-94

Understanding the Biological Clock:
From Genetics to Physiology
Date to be announced

New Discoveries within the Pancreatic Polypeptide Family:
Molecules to Medicine
Date to be announced

Experimental Biology '95
April 9–14, 1995; Atlanta, GA

Please send me program and registration information for the following APS Conferences:

☐ Experimental Biology '94
☐ Physiology of the Release and Activity of Cytokines
☐ Mechanotransduction and the Regulation of Growth and Differentiation
☐ Regulation, Integration, Adaptation: A Species Approach
☐ Understanding the Biological Clock:
  From Genetics to Physiology
☐ New Discoveries within the Pancreatic Polypeptide Family:
  Molecules to Medicine
☐ Experimental Biology '95

Name

Department

Institution

Address

City/State

ZIP/Postal Code

Country

Mail to: The APS Conference Office, The American Physiological Society, 9650 Rockville Pike, Bethesda, Maryland 20814-3991, USA

Or fax your request to 301-571-8305.
APS Sustaining Associate Members

The Society gratefully acknowledges the contributions received from Sustaining Associate Members in support of the Society's goals and objectives

Abbott Laboratories
Alliance Pharmaceutical Corporation
American Medical Association
Axon Instruments, Inc.
Berlex Biosciences
* Boehringer Ingelheim
Boeing Defense & Space Group
Burroughs Wellcome Company
Camlab Instruments, Inc.
Dagan Corporation
Du Pont Pharmaceuticals
Fisons Pharmaceuticals
* Genentech, Inc.
Glaxo, Inc.
Gould Instrument Systems, Inc.
Grass Foundation
Harvard Apparatus
 Hoechst-Roussel Pharmaceuticals, Inc.

* Hoffman-La Roche, Inc.
Institut de Recherche Servier
Jandel Scientific
Janssen Research Foundation
R. W. Johnson Pharmaceutical Research Institute
Kabi Pharmacia
Lederle Laboratories
Eli Lilly & Company
Lockheed Missles & Space Company, Inc.
Mack Printing Group
Marion Merrell Dow Inc.
McNeil Pharmaceutical
* Merck & Co., Inc.
Miles Inc.
NARCO Bio-Systems

Pfizer, Inc.
Pharmacia, Inc.
Procter & Gamble Company
Quaker Oats Company
* Sandoz Pharmaceuticals Corporation
* Schering-Plough Corporation
G. D. Searle and Company
SmithKline Beecham
* Squibb Corporation
Sutter Instruments Company
Synergen
* The Upjohn Company
Warner-Lambert/Parke Davis
Waverly Press
Wyeth-Ayerst Laboratorries
Zeneca Inc.

* Second Century Corporate Founders

Scientific Meetings and Congresses


Lake Cumberland Biological Transport Group, June 19-21, 1994, Jamestown, KY. Information: John Cuppoletti, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, OH 45267-0576. Tel: 513-558-3022; fax: 513-558-3022.


45th American Institute of Biological Sciences Annual Meeting, August 7-11, 1994, Knoxville, TN. Information: Meetings Department, AIBS, 730 11th Street NW, Washington, DC 20001-4521. Tel: 202-628-1500, ext. 506.

VIIIth International Symposium on the Biology of Vascular Cells, August 30-September 4, 1994, Heidelberg, Germany.


The Biomedical Engineering Society's Annual Fall Meeting, October 14-16, 1994, Tempe, AZ. Information: Marty Gibson, Arizona State University, Box 877506, Tempe, AZ 85287-7506. Tel: 602-965-1740; fax: 602-965-8653.


Fulbright Scholar Awards Competition Open

Fulbright opportunities are available for university lecturing or advanced research in nearly 140 countries. Awards range from two months to a full academic year; many assignments are flexible. Openings exist in almost every area of natural and applied sciences, the humanities, social sciences, the arts, and professional fields such as business, journalism, and law. Applications are encouraged from professionals outside academia as well as from faculty at all types of institutions.

The basic eligibility requirements for a Fulbright Scholar award are US citizenship and the PhD or comparable professional qualifications. For lecturing awards, university or college teaching experience is expected. Language skills are needed for some countries, but most lecturing assignments are in English.

The deadline for research or lecturing grants to all world areas is August 1, 1994. For further information contact the Council for International Exchange of Scholars, 3007 Tilden Street NW, Suite 5M, Box GNEWS, Washington, DC 20008-3009. Tel: 202-686-7877.