CONTENTS

WALLACE O. FENN
PRESIDENT OF THE AMERICAN PHYSIOLOGICAL SOCIETY
1946-1948

The American Physiological Society is now embarking on its 88th (or 89th) year of history. During this period many illustrious people have served the Society, but probably few have given as much of their time and interest as Wallace Osgood Fenn. He had already served for nine years as a member of the Board of Publication Trustees (the forerunner of the present Board of Publications), four years as Treasurer, and four years as Secretary before he was elected as President of our Society for a two-year term, from 1946 to 1948. When he began this term he was 53 years old and had been Professor and Chairman of the Department of Physiology at The University of Rochester School of Medicine and Dentistry for 22 years, receiving his appointment there in 1924 at the age of 31.

During his tenure as President a number of important changes in the Society were instituted. The term of the President was limited thereafter to one year, and a permanent Executive Secretary-Treasurer replaced the previously elected post of Secretary and Treasurer. The only officer to be elected was a President-Elect who became in turn the President and then the Past President. It was during Fenn's tenure that a Fall Meeting of the Society was approved to relieve the overcrowded

Spring Session, and the first one was held in 1948. Another important event was approval for the establishment of the third American Physiological Society journal, the Journal of Applied Physiology, which was to provide a new outlet "with particular emphasis on man in relation to his environment," as we can read in the foreword of the first volume.

It was also during Fenn's tenure as President that Detlov Bronk proposed to establish the American Institute of Biological Sciences, and the American Physiological Society was the first Society to indicate its formal acceptance of membership. Later, from 1957-1958, Wallace Fenn served as the President of A.I.B.S.

The year after his term as President he again was asked to help the Society and rejoined the Board of Publication Trustees as its Chairman from 1949 to 1955. Thus for twenty years, from 1936 when he became Treasurer to 1955 when he ended his term on the Board of Publication Trustees, he was intimately associated with every aspect of our Society. And in 1962 he took upon himself the difficult task of writing the History of The American Physiological Society, The Third Quarter Century 1937-1962, a monumental treatise about the evolution of our Society which (by the way) makes delightful reading.

In the meantime he had served as President of the American Institute of Biological Sciences, 1957-1958, and as President of the Society of Experimental Biology and Medicine from 1957-1959, as Chairman of the Advisory Council of the Life Insurance Medical Research Fund, as Chairman of the Physiology Study Section and the Physiology Training Grant Committee of the National Institutes of Health and as a member on various boards of the National Institutes of Health, the National Academy of Sciences, the National Research Council, and the National Science Foundation. But of all the organizations his greatest empathy was directed toward the International Union of Physiological Sciences, the I.U.P.S. This he felt was a vehicle that could bring under one roof physiologists from all over the world. For him Physiology was the great encompassing science which could bring all men to a common outlook and world-wide understanding. He first chaired the U.S.A. National Committee for the International Union of Physiological Sciences from 1946 to 1950, became Secretary General of I.U.P.S. from 1959-1965, President of the XXIV International Congress in Washington in 1968, and on that occasion, which was his 75th birthday as well, he was elected President of the I.U.P.S. for a three-year term, from 1968 to 1971.

The XXV I.U.P.S. Congress in Munich, where he was to officiate as President, was for him the crowning point of his life-long devotion to Physiology and a long sought-after personal reward to see thousands of physiologists from all countries assembled in peaceful discussions. Yet this goal eluded him. Shortly before the meeting he was suddenly taken ill and he died on September 20, 1971, in Rochester, New York.

Wallace O. Fenn was born August 27, 1893, in Lanesboro (Berkshire County), Massachusetts. His forefathers came to New England in the 17th Century. His father, William Wallace Fenn, a Unitarian minister, was the Bussey Professor of Theology at Harvard, later to become Dean

of the Divinity School. So it was natural for Wallace Fenn to attend the Cambridge Latin School and to enter Harvard with the goal of preparing himself for the ministry. However, when he started cutting his father's lectures to attend Osterhout's classes in biology, the foundations were laid for a career in Physiology that was to span more than half a century.

He graduated in 1914. His graduate work with the plant physiologist W. J. V. Osterhout was interrupted by the war, where he served in the Sanitary Corps and was commissioned a 2nd Lieutenant. Upon discharge in 1919 he finished his doctoral thesis in June and married Clara Bryce Comstock in September and began his appointment as an instructor in Applied Physiology in the Department of Industrial Hygiene at the Harvard Medical School under Cecil K. Drinker. Here began his classical studies of phagocytosis of solid particles by white blood corpuscles.

In 1922 he accepted a Rockefeller Travel Fellowship and was the first American to work in A. V. Hill's laboratory in Manchester, England. This was followed by a six-month stay in H. H. Dale's laboratory at the National Institute for Medical Research in London. Returning to this country in 1924 he accepted the Chair of Physiology at the newly formed Medical School at Rochester, New York. This position he filled for 35 years, when he was named Distinguished Professor of Physiology, a post he occupied until his death in 1971.

Wallace Fenn, the Scientist

Fenn's first paper was published in 1916 in the Proceedings of the National Academy of Sciences. It was entitled "Salt antagnism in gelatin." His last paper was published posthumously in Science in 1972 on the "Partial pressure of gases dissolved in deep water." During the intervening half century his 267 publications can be conveniently divided into four general areas, namely, the physiology of muscle, electrolytes, respiration, and high pressure. In each area he laid foundations of new concepts and when he was satisfied that he had made new basic contributions moved on to explore new fields.

Contributions to Muscle and Electrolyte Physiology

The work that brought him his first recognition was his study on the heat production of muscle, which he started in A. V. Hill's laboratory in 1922-23. Fenn wrote: "In particular it can now be shown that there is a fairly good quantitative relation between the heat production of muscles and the work which they perform, and that a muscle which does work liberates, ipso facto, an extra supply of energy which does not appear in an isometric contraction." (J. Physiol., 58: 175, 1923) It was A. V. Hill who referred to this as the Fenn Effect, and so it has been known ever since.

Fenn's heat data showed first of all that if a muscle shortens, no matter how little and no matter how lightly loaded, it produces more heat than during an isometric contraction over the same time period. He then showed that this extra heat production was proportional to the

external work done by the muscle. It was clearly not determined by the load alone, nor by the change in length. This was the first evidence, and remains today the best evidence, that shortening is an active process and that muscle is not simply a pre-stretched spring shortening passively. The Fenn Effect has emerged as the nearest thing to a Law that muscle physiologists have.

Following his pioneer work on muscle heat production, Fenn began to measure gas exchange by nerve and by muscle. To this end he had to invent a number of ingenious instruments to obtain the necessary specificity and precision. In 1927 he measured for the first time the quantitative amount of oxygen required by a nerve to conduct an impulse. Similar studies on the metabolism of contracting muscles led him to consider the role of electrolytes, particularly potassium, in nerve and muscle activity. At the time, although it was known that muscle fibers were rich in potassium, almost nothing was known of the mechanisms by which cells accumulated and maintained a high potassium content.

This ushered in the era of electrolyte physiology. Beginning in 1933 Fenn virtually created the field of potassium metabolism. He made the first determinations of potassium, sodium, magnesium and calcium in nerve. He developed a new method for determining internal pH of muscle and nerve and obtained values that remain acceptable today. He showed that intracellular potassium was mobile, not fixed, and that muscle potassium shifted in response to various environmental factors.

Most importantly, he showed that during contraction potassium was lost from muscle in exchange for sodium, and that the process was reversed in recovery. For the first time he showed that sodium could penetrate muscle. These observations were clearly the necessary foundation for the Hodgkin-Huxley hypotheses concerning initiation and propagation of nerve and muscle impulses and the magnitude and polarity of electrical potential differences across cell membranes. As early as 1936, at the Cold Spring Harbor Symposium, Fenn said "The explanation of a loss of potassium from a muscle during activity is a matter of fundamental theoretical importance. In terms of the theory which I have been using as a guide, it is interpreted as an increase in the permeability of the muscle membrane of sufficient extent to permit sodium to enter, but not chloride. Every molecule of sodium which enters then displaces one molecule of potassium."

Fenn showed that potassium escaped from muscle during contraction in situ, and that a large part of this potassium appeared in the liver. He demonstrated that potassium uptake was linked with carbohydrate metabolism, particularly with glycogen deposition, and developed the concept that potassium tends to follow the Cori cycle. He was always quick to seize new opportunities. When radioactive potassium became available to him in 1939, he ingested a sample. Using himself as subject, he was the first not only to study the kinetics of potassium metabolism, but also to demonstrate potassium incorporation into blood cells, previously thought to be impereable. He showed that nearly all muscle potassium in the body is exchangeable, proving that high intracellular potassium content is not maintained by binding or sequestration of potassium, and

consonant with his notion that it is maintained by an active energetic process.

Thus by 1940 Fenn had discovered that contracting muscle produces extra heat proportional to work; he had described the force-velocity relationship; he had discovered the potassium-sodium exchange during muscle contraction and the mechanism for concentrating potassium in cells. Any other physiologist might have been content with these laurels, but for Fenn it was merely a convenient time to move into a new field.

Contributions to Respiration Physiology

The entrance of Wallace O. Fenn into the history of respiratory physiology can be fairly precisely dated. It was within days after the outbreak of World War II. At that time he was 48 years old, had established himself as the acknowledged leader in the physiology of muscle and electrolytes, and was to be recognized two years later by election to the National Academy of Sciences.

Wallace Fenn was drawn into respiratory physiology by his desire to contribute to the war effort. This was to be largely a war of the air and from a military point of view supremacy in altitude tolerance meant supremacy of air power. The airplanes of that day did not yet have pressurized cabins, but the possibility occurred that the human lung might be pressurized by application of positive pressure breathing. The question was whether man's lungs could tolerate a sufficient amount of pressure to raise the partial pressure of oxygen to a significant degree, or would the lungs rupture, or would the circulation stop? What were the limiting factors? What were the hazards?

What was known about respiratory physiology in general? This can be answered by listing some terms which did not appear in the physiology textbooks of that era, but which are commonplace today. Such terms are: positive and intermittent pressure breathing, pressure-volume diagram, work of breathing, pulmonary compliance, airway resistance, alveolar gas equation, O_2-CO_2 diagram, ventilation-perfusion ratio, just to name a few.

Wallace Fenn had never worked in the field of human respiration. The equipment in his laboratory would be regarded as primitive by current standards. Among the more useful items were a few assorted spirometers, two or three Haldane machines, an equal number of Van Slykes, and several U-tube manometers. The most sophisticated instrument was a Millikan ear oximeter which had been loaned to him by the Military. It carried a security classification of a fairly high level; and since no instruction manual came with it, it took some time and a visit to Glen Millikan himself before anyone could figure out how to use it properly.

In addition to this modest inventory of physical equipment, Fenn had three young instructors, all trained in biology departments. They knew all about such things as how fast the drosophila can beat its wings, how and why the rattlesnake changes color, and how to activate or

inhibit enzymes found in grasshopper eggs, but none of them had ever blown a vital capacity; neither did they know the difference between complemental and supplemental air. Chadwick, Otis, and Rahn, the most unlikely crew to have been assembled for the unknown job that lay ahead of them, living with their wives on postdoctoral stipends which were only a fraction of what a graduate student receives today.

All in all, neither the equipment nor the staff were very impressive, and it seems doubtful that by present standards the project could have qualified for an NIH grant. However, the one big asset, recognizable even then, was Wallace Fenn himself. He was not put off by lack of ready-made equipment; he was well-endowed with Yankee ingenuity, and he loved to improvise. He could, with whatever components happened to be handy, construct apparatus that would perform in a reliable and effective fashion. Everyone associated with him has memories of him in the laboratory surrounded by what at first sight appeared to be an unrelated jumble of strange wires and rubberbands, tubing, pulleys, lenses, light sources, mirrors, and other assorted bits and pieces. A more careful examination suggested there might be some order in the arrangement, and further observation would reveal that something of physiological interest was actually being measured and perhaps even graphically recorded. A relatively refined example was a device for the automatic recording of blood flow through the finger and its alteration by pressure breathing.

The high altitude chamber was perhaps the crowning masterpiece of Fenn's ingenuity. He had received from the Committee on Medical Research of the Office of Scientific Research and Development a contract which provided the sum of $500.00 (five hundred!) for special research equipment. From this budget he bought a steel tank designed for the processing or transport of beer, commandeered the tree spraying pump from the University Grounds Department, reversed its valves, connected pump to tank, and the result was a chamber which could go to simulated altitudes at the rate of 5,000 feet per minute. As he later said, "It surely was the worst high altitude chamber in the country, but a rare atmosphere is the same wherever you find it." (Ann. Rev. Physiol. 24: 1, 1962.)

He could not only get the most out of primitive pieces of equipment, he seemed somehow able to evoke the best output from his staff. He did not tell people to do things. Rather he pointed out things that needed doing and waited for something to happen. He worked hard himself and expected others to do likewise, but he recognized that there were individual differences in effective work patterns and did not try to impose his own habits on others. Although he kept rather regular working hours himself, he apparently was not perturbed by those with more erratic habits. Getting something done rather than compulsive adherence to a fixed schedule was the important thing.

In starting a new experiment he frequently took the lead by setting up apparatus himself rather than asking someone else to do it. Typically, he would insist on being the first subject in a new experimental procedure, and in experiments with pressure breathing and in the altitude

chamber he extended himself on a number of occasions to the point of losing consciousness. He was a pioneer in every sense, and it was a blessing that his work antedated the Human Subjects Review Committee.

Fenn's intuitive approach to and logical analysis of the pressure breathing problem led him to develop two powerful concepts and to express them in the form of graphic relationships; the pressure-volume diagram of the lung and thorax and the CO_2-O_2 diagram of the composition of alveolar gas.

Although the basic pressure volume diagram had been previously developed by Rohrer, Fenn conceived it independently, elaborated it further, and distilled into it some ten years of work and thought. Like all his work it defined physiological boundaries, limiting values for muscle forces and for the corresponding volumes of gas and blood. Within these limits were centered the normal operating range of pulmonary mechanics and the response of the system to positive and negative pressure breathing. It was not only a beautiful composition both artistically and scientifically, it was the foundation and framework to be further embellished by students of respiratory mechanics during succeeding decades.

Fenn's second masterpiece, the O_2-CO_2 diagram did for pulmonary gas exchange what the P-V diagram did for respiratory mechanics. With it he could represent all parameters of the alveolar gas and ventilation equations. He never claimed to have originated these equations, but he derived them independently, made sure they were correct, and put them in graphic form. As somebody put it, "That's when he made them sing." On the diagram he could show all possible compositions of alveolar gas and the arterial blood under any specified set of conditions. He could indicate normal ranges and limits of survival, the pathways followed during hyperventilation and asphyxia and during exposure to CO_2, altitude or hyperbaric pressures. It could be used to demonstrate ranges of normal and impaired performance. It was indeed a theme that could be sung with many variations.

Although the P-V and O_2-CO_2 diagrams represent great masterpieces of Fenn's scientific artistry, he created, inspired, or contributed to many other works. To give a few examples: development of the concept of an optimal breathing frequency, measurement of alveolar pressure, dynamic pressure-volume curves presented for the first time on a cathode ray oscilloscope, development of an infrared CO_2 meter, and probably the first published continuous recording of CO_2 changes during a single breath.

Finally, one must mention two special contributions to respiration physiology, a lasting monument to his effort in this area. These are his book, "A Graphical Analysis of the Respiratory Gas Exchange," which went through many reprintings, and his Editorship of "Respiration" in the Handbook of Physiology series, both of these published by our Society.

Contributions to the Physiology of Space and Oceans

From the mid 1950's Fenn became greatly intrigued with two new frontiers that began to unfold - man's explorations in space, and the ocean depths. While his research continued in very basic experiments, their application was obviously directed to filling in the gaps of knowledge if man was to exist successfully in these new environments. He was in great demand as a consultant by the space physiologists and tried to convince his more earth-bound colleagues of the great new opportunities in Physiology that unfolded themselves as man ventured into space. Every problem Fenn "considered basic, if the investigator put some basic thinking into it." In that sense Fenn felt that Physiology as a science had gained immeasurably and would continue to grow as man went forth in orbit and into the oceans, thoughts that he expressed so well in his address "Physiology in Orbit," (Physiologist, 3, 1960).

Wherever man went he needed oxygen as the life-sustaining gas, yet when it exceeded normal pressures it became poisonous. Fenn spent many years with his associates (Gerschman and Gilbert) in trying to understand the toxic nature of oxygen. Probably his most important insight was the recognition and demonstration that oxygen poisoning and X-irradiation effects had the same common mechanism.

He also turned his attention to the effects of high inert gas pressures upon the metabolism of unicellular organisms and the effects of hydraulic pressure on biological reactions. His last bench work emphasized the importance of partial molar volume concepts as a tool for determining the volume that O_2 occupies in the hemoglobin structure, (Resp. Physiol., 13: 129, 1971). His last research concerned itself with the theoretical concepts of partial pressures of gases dissolved at great depths. It was a thermodynamic interpretation published posthumously in Science (176: 1011, 1972), where with his great modesty he asked for the help of physical chemists to develop this concept in greater detail, which shortly appeared in a following issue (Eckert, 180: 426, 1973).

The Man and Teacher

Reviewing his contributions as a leader and as a scientist one might well imagine a man who unconsciously dominated the scene on the public forum or in his own laboratory. Wallace Fenn was quite the opposite. By nature he was shy, a man who did not seek out his fellow man with a great hello. He kept his own counsel, and for many he was not easily approachable. Once such barriers were broken, he was a most friendly, completely unpretentious person who would listen to your story politely but only respond when necessary. In public forums and committee meetings his patience with conflicting points of view was on occasion wondrous to behold. While others fumed and fussed, he would sit in silence, but when he finally spoke, it usually ended the debate. He was a master in the art of compromise without compromising principles.

He had the knack of getting others to work with him without ever issuing an order. He simply expected people to come forward to help in a common cause whether it was in teaching, research, or committee

meetings. If they failed to do so, he would do the job himself without reprimand. He had an amazing sense of timing. When he had to make a tough decision he would wait, always long enough so that either the problem evaporated or the involved person had solved it for himself, and feelings were never hurt.

Wallace Fenn had a soft spot in his heart for the proverbial underdog. Few people realize how much aid and comfort, protection and encouragement he gave to those who had tough luck or seemed to have failed in their professional accomplishments. Nothing gave him more pleasure than to see someone fight his way up through temporary odds, real or imagined. All he asked from them was that they show pluck, patience, and perseverance. (Parenthetically, Fenn loved alliteration.)

Teaching he considered a most serious assignment. He was never satisfied with last year's lectures and year after year tried new and better ways of getting a difficult point across. It was this quality of continuous striving that endeared him to his students and colleagues in seminars. His lectures to the students were exemplary in their clarity, and yet he was always able to instill the sense of wonder and the new challenges that lay ahead for a better understanding.

Wallace Fenn considered it a great privilege to work as an academician but felt that this special privilege demanded an utter devotion and enthusiasm and help to other colleagues as well as his professional societies and his Government when so called upon. For him continuous striving, striving to obtain his scientific goals, was more important than arriving. He was most embarrassed by the many honors that were bestowed upon him. For him these were not signals that he had arrived. A remarkable inner drive prompted him to continue his strivings, and during his last days, propped up in bed, knowing that the end was at hand, he was slavishly working on his final theoretical manuscript, mainly concerned that he had derived his equations correctly.

Tributes to Wallace Fenn

Spanning a most productive scientific career of more than half a century, many honors and recognitions were bestowed upon him. These were given in recognition of his many accomplishments as one of the last Renaissance men in Physiology whose vision and work had spanned so many areas and in part to honor a man who had given so much of himself so that Physiology as an encompassing science had become a greater science in the world. Among the many awards, too numerous to mention all, one might list his honorary degrees, from the University of Chicago, San Marcos University, Peru, the University of Paris, University of Brussels, and The University of Rochester; Honorary Membership in the Physiological Societies of Great Britain, Argentina, Italy, and Canada; the prestigious Feltrinelli Prize in Experimental Medicine (Accademia Nazionale dei Lincei, Rome), the Guggenheim Award (International Academy of Astronauts), and the Johannes Müller Medallion (German Physiological Society), the Ville de Monaco Medal, the Research Achievement Award (American Heart Association), and Modern Medicine Award (Modern Medicine). A most unusual award was

the dedication of the "Respiration Suite" to Wallace Fenn. It was composed by Jurriaan Andriessen and performed by the Dutch Wind Ensemble at Alphen, Holland, in the presence of several hundred physiologists to honor the man who had contributed so much to the physiology of the lung, which is also a device for the creating of harmonious sounds (The Physiologist, 6: 47-48, 1963).

The loss of Wallace Fenn will continue to be felt. During his unusually long and productive career he influenced in his quiet and selfless way so many friends, colleagues and students, at home and abroad. He will always be admired and remembered as a great pioneer in Physiology. He was always one step ahead of most, and when he plowed a virgin field his furrow was straight and deep so that followers would not lose their way.

Hermann Rahn

A more intimate glimpse of Wallace Fenn's philosophy and attitude about the role of Physiology in the world of science can be found in:

Physiology on Horseback (1949), Am. J. Physiol. 159: 551-555
Physiology in Orbit (1960), The Physiologist 3: No. 1, 20-26
Born Fifty Years Too Soon (1962), Ann. Rev. Physiol., 24: 1-10

The author is greatly indebted to Mrs. W. O. Fenn, Drs. Arthur Otis, Albert Craig, Pierre Dejours, H. D. Bouman, Paul Horowicz, L. J. Mullins, Miss Augusta Dustan, and many others for sharing their remembrances with him.

PROPOSED BYLAW AMENDMENT TO PROVIDE FOR CORRESPONDING MEMBERS

At its October 9, 1975 meeting, the Council passed a resolution authorizing the Executive Secretary-Treasurer to prepare a Bylaw proposal providing for a new membership category for persons who are not residents of North America. The requirement for the Bylaw proposal was discussed in the November 1975 issue of The Physiologist. The new Bylaw amendment is designed to provide for "Corresponding Members" with all rights of "Regular Members" except for voting and holding office.

This action should not be confused with the vote at the April 1975 business meeting defeating a previous proposal to amend the Bylaws and provide for "Corresponding Members" (The Physiologist, May 1975, p. 63). That earlier proposal was much wider in scope in that it provided for broadening the professional qualification criteria for a new class of members. The primary objective of the new Bylaw proposal is to provide a constitutional vehicle for participation in Society science and education activities by scientists who are currently excluded because of their country of residence. From the discussion at the business meeting, Council believed that there was strong support for "Corresponding Membership" for foreign physiologists. Therefore, Council, based on the wishes of the membership, adopted the resolution calling for this new proposal to amend the Bylaws. The resolution also directed that the proposed Bylaw be published in The Physiologist and be presented for vote at the next business meeting in April 1976.

In compliance with the Council's resolution the following amendments to the Bylaws will be proposed at the April business meeting.

ARTICLE III. Membership

SECTION 1. The Society shall consist of regular members, corresponding members, honorary members, associate members, retired members and sustaining associates.

SECTION 2. Regular Members. (No change)*

SECTION 3. Corresponding Members. Any person who has conducted and published meritorious research in physiology, who is presently engaged in physiological work and who resides outside of North America shall be eligible for proposal for corresponding membership in the Society.

SECTION 4. Honorary Members. (Previous Section 3. No change)*

SECTION 5. Associate Members. (Previous Section 4. No change)*

SECTION 6. Retired Members. (Previous Section 5. No change)*

SECTION 7. Sustaining Associates. (Previous Section 6. No change)*

SECTION 8. Nominations for Membership. (Previous Section 7, No change)*

SECTION 9. Election of Members. Election of regular members, corresponding members, honorary members and associate members shall be by secret ballot at Spring and Fall business meetings of the Society. A two-thirds majority vote of the members present and voting shall be necessary for election.

SECTION 10. Voting. Only regular members shall be voting members. Corresponding, honorary, retired and associate members shall have the privilege of attending business meetings of the Society but shall have no vote.

ARTICLE VI. Dues

SECTION 1. Annual Dues. The annual dues for regular members, corresponding members and associate members shall be determined by the Council and shall be paid in advance of July 1. Honorary members and retired members shall pay no membership dues.

---

* See November 1975 issue The Physiologist.

ANNOUNCEMENT BY THE SECTION ON NEUROPHYSIOLOGY

At this year's Spring Meeting in Anaheim all 10-minute paper sessions and poster sessions on neurophysiology will be concentrated on Tuesday, Wednesday and Thursday (April 13-15). The Cash Bar for Neurophysiologists will be held on Tuesday, April 13th, in the States Room at the Royal Inn, from 6 until 8:30 PM. At this function Professor S. A. Corson of Ohio State University will show a film on "Experimental control of Hyperkinetic behavior in dogs." Discussion of the film will be lubricated at the bar. A symposium on Somatic Sensation (chaired by E. Perl) will take place Monday afternoon, and the session on CNS Function and Oxygen (in the APS Colloquium, Oxygen and Physiological Function) will be held Friday morning.

For reasons beyond our control the Symposia on the nervous system could this year not be scheduled for the same three days as the slide and poster sessions. We hope that the extra time spent in the pleasant surroundings of Anaheim will not prove to be a hardship. Next year we shall try to return to the pattern introduced at the 1974 FASEB meeting, scheduling all neurophysiology sessions within three days' span.

A permanent committee of the Section on Neurophysiology of the American Physiological Society is being formed. Please continue to communicate to us your ideas concerning improvements of the APS programs related to the nervous system, and also concerning the organization and constitution of this new Section. The list of present committee members will be circulated when complete. The first steps toward better programs will be to rearrange and re-group the short-paper sessions according to more up-to-date lines of demarcation; to encourage poster sessions; and to organize numerous mini-symposia of 20-minute invited papers. Topics for these mini-symposia will be selected from those areas in which current advances are the most exciting, rather than from those traditionally most cultivated. Neglected aspects deserving attention will also be programmed.

The Section on Neurophysiology has decided to treat the Fall Meetings of APS with benevolent neglect. You are requested to submit your best contributions relating to neural functions to the Spring Meetings.

Respectfully submitted,

George Somjen
Dept. of Physiology & Pharmacology
Duke University Medical Center
Durham, North Carolina 27710

SPRING MEETING

APS SECTION AND GROUP FUNCTIONS

The following APS Sections and Groups have scheduled get togethers during the Spring Meeting in Anaheim. For further information on these events, contact the individual identified with each function.

APS - OFFICIAL FUNCTIONS
April 11-16, 1976

CARDIAC MUSCLE SOCIETY DINNER
Monday, April 12
Sheraton-Anaheim - King Arthur Room I
5:30 - 11:00 PM
Dr. Norman Briggs

CATECHOLAMINE CLUB DINNER
Tuesday, April 13
Quality Inn - Orangewood I
6:30 - 10:30 PM
Dr. William M. Manger

CIRCULATION GROUP DINNER
Tuesday, April 13
Disneyland Hotel - Embassy West
6:00 PM
Dr. John T. Shepherd

GASTROINTESTINAL SECTION OF APS DINNER AND LECTURE
Tuesday, April 13
Disneyland Hotel - South Lounge
6:00 - 9:30 PM
Dr. James F. Long

HISTAMINE CLUB DINNER
Tuesday, April 13
Holiday Inn - Luau Room
7:00 - 10:00 PM
Dr. Richard W. Schayer

NEUROENDOCRINE DISCUSSION GROUP DINNER
Tuesday, April 13
Disneyland Hotel - Embassy East
6:15 - 10:30 PM
Dr. John C. Porter

TEMPERATURE REGULATION DINNER
Tuesday, April 13
Quality Inn - Orangewood Room 3
6:30 - 10:00 PM
Dr. Ethan R. Nadel

CASH BAR FOR NEUROPHYSIOLOGISTS
Tuesday, April 13
Royal Inn - States Room
6:00 - 8:30 PM
Dr. George Somjen

PARIETAL CELL CLUB MEETING
Wednesday, April 14
Quality Inn - Orangewood Room I
8:15 - 10:30 PM
Dr. Stephen J. Hersey

PHYSIOLOGY SOCIETY JOINT EDITORIAL BOARDS DINNER
Wednesday, April 14
Sheraton-Anaheim - King Arthur I Room
6:30 PM
Mr. Stephen Geiger

RESPIRATION GROUP DINNER AND LECTURE
Wednesday, April 14
Disneyland Hotel - Center Ballroom
6:30 - 9:30 PM
Dr. Norman C. Staub

HIBERNATION RESEARCH DINNER
Wednesday, April 14
Location to be Announced
Wilma Spurrier (312) 531-3339

PHYSIOLOGY OF EXERCISE GROUP MIXER
Thursday, April 15
Holiday Inn - Luau Room
8:00 - 11:00 PM
Dr. E. R. Buskirk

WIGGERS AWARD TALK

The Wiggers Award Talk, "The Renin-Angiotensis System in Hypertension and Heart Failure" will be given by Dr. James O. Davis, at the Circulation Group Dinner in Anaheim on Tuesday, April 13.

RENAL DINNER IN ANAHEIM

A Renal interest group will sponsor a cash bar and dinner at 6:30 PM, Tuesday, April 13 at the Sheraton-Anaheim Hotel, King Arthur Room I, in conjunction with the FASEB 1976 Spring Meeting. The primary purpose of the gathering will be to provide a focal point for physiologists interested in the kidney, but in addition we will discuss mechanisms for input from the membership in the shaping of future APS programs in the renal area. Tickets for the dinner may be purchased in advance by writing to FASEB, Office of Scientific Meetings, 9650 Rockville Pike, Bethesda, Maryland 20014. Checks should be made payable to FASEB -(Renal Dinner). Tickets will also be available at the Ticket Sales Desk in the registration area of the Convention Center and at the Information Desk at the Disneyland Hotel through 5PM, Monday, April 12. Ticket price $10.00. Please watch for further details and we most cordially invite interested members to attend.

Franklyn G. Knox, M.D., Ph.D.
APS Program Committee

Mohinder P. Sambhi, M.D., Ph.D.
Local Arrangements

CURRENT SCHEDULE OF FUTURE MEETINGS

1976 Spring - Anaheim, California - April 11-16
1976 Fall - University of Pennsylvania, Philadelphia - August 16-19

1977 - International Physiological Congress - Paris, France -July 18-23
1977 Spring - Chicago, Illinois - April 3-8
1977 Fall - Hollywood Beach, Florida - October 9-14

1978 Spring - Atlantic City, New Jersey - April 9-14
1978 Fall - St. Louis, Missouri - October 22-27
1978 Fall - Campus Specialty Meeting - Michigan State - Categorical Subject and Date to be announced

1979 Spring - Dallas, Texas - April 8-13
1979 Fall - New Orleans, Louisiana - October 14-19

1980 Spring - Anaheim, California - April 13-18
1980 Fall - Miami Beach, Florida - October 12-17

1981 Spring - Atlanta, Georgia - April 12-17
1981 Fall - Boston, Massachusetts - October 4-9

1982 Spring - New Orleans, Louisiana - April 18-23

WORKSHOP ON MECHANISMS OF THERMOGENESIS

Sunday, April 11 (9AM to 5PM)
Disneyland Hotel, South Lounge
Anaheim, California

9AM to 12 Noon

Chairman: R. R. J. Chaffee

Dr. B. A. Horwitz Univ. of California, Davis	"Adrenergic stimulation of Na+ transport in brown adipose tissue"
Dr. I. S. Edelman Univ. of California, S. F.	"Na+ pump as a metabolic pacemaker"
Dr. E. M. Sellers University of Toronto	"Metabolic heat production of skeletal muscle in non-shivering thermogenesis"
Dr. P. Hahn Univ. of British Columbia, Vancouver	"Role of carnitine in brown adipose tissue thermogenesis in neonates"

1:30PM to 5PM

Chairman: C. C. Gale

Dr. G. E. Folk Univ. of Iowa, Iowa City	"Catechol mediated thermogenesis in muscle of cold acclimated rodents"
Dr. R. R. J. Chaffee Univ. of California Santa Barbara	"Chemical thermosuppression"
Dr. D. W. Wilmore Brooke Army Med. Ctr. Fort Sam Houston	"Thermogenesis in human burn injury"
Dr. C. C. Gale Univ. of Washington, Seattle	"Endocrine response to acute cold in goats"
Dr. W. L. Veale Univ. of Calgary Calgary, Alberta, Canada	"Na+/Ca++ ratios in the posterior hypothalamus influence on thermo-regulation"

The format of the workshop is designed to permit discussion from participants not scheduled to present papers. In most instances, scheduled speakers will be given 30 minutes in which to give their papers and to answer questions from the floor.

JOINT TASK FORCE ON COMPARATIVE PHYSIOLOGY SEEKS WORKING GROUP PARTICIPANTS

At its meeting in October 1975, Council authorized the establishment of a joint task force to strengthen the development of outstanding science in comparative physiology. Chairman of this joint task force is Frank P. Conte representing the American Physiological Society and Co-chairman Michael J. Greenberg represents the Comparative Physiology and Biochemistry Division of the American Society of Zoologists.

Meeting at the APS office on January 30, the Co-chairmen developed a draft of the mission and objectives for the task force, outlined its structure and identified potential APS and ASZ representatives who might serve the needs of the group. It was decided that a cadre of names should also be developed representing those APS and ASZ members willing to volunteer to participate in the work of the task force. Therefore, the membership of each society is being solicited for volunteers. APS members wishing to have their name included should send a copy of their curriculum vitae to Frank P. Conte, Dept. of Zoology, Oregon State University, Corvallis, Oregon 97331.

The draft statement defining the scope of the APS/ASZ (DCPB) Task Force is as follows:

MISSION:

> The overall mission of this Task Force is to strengthen the development of outstanding science in comparative physiology by whatever resources can be brought to bear by these societies, and by those other agencies and institutions sharing this responsibility.

OBJECTIVES:

> 1. To integrate the efforts of American comparative physiologists by developing an intersocietal organization which would facilitate communication.
>
> 2. Foster the appropriate utilization and development of publication media suited to the contemporary needs of comparative physiology in academic and research institutions.
>
> 3. Development of mechanisms for planning and convening meetings, symposia, workshops, specialized conferences, and other forms of interpersonal communication of maximum benefit to comparative physiologists.
>
> 4. To foster the allocation of resources by the agencies and institutions who share the responsibility for strengthening comparative physiology so as to achieve these objectives.

THE PHYSIOLOGY TEACHER

The Physiology Teacher, a newsletter initiated by the Education Committee as a service of the American Physiological Society to teachers of Physiology in the undergraduate colleges is entering its 6th year of publication.

Though comments from subscribers on its contents and general usefulness have been universally favorable, it has been subject to several continuing problems.

First among these is the lack of a sufficient number of manuscripts submitted voluntarily for publication to assure a supply of good material for subscribers. Each issue remains in suspense right up to the deadline for the printing schedule. Economic considerations require the use of either eight or sixteen pages per issue, an intermediate number of pages being more costly. This fixed page requirement combined with the low rate of receipt of material results in a zero backlog of publishable papers after each issue is completed.

Another problem is that of decision concerning assignment of some articles either to The Physiologist or to The Physiology Teacher. Some articles submitted for publication to the Society which deal with educational matters require their publication in The Physiologist because the members of the Society are entitled to receive them. Since member subscribership to The Physiology Teacher is small, this of course reduces the material available for publication in The Physiology Teacher.

A third perennial problem is the subscription level. Since the publication's inception subscriptions have remained at around 1200. To maintain this level requires continuous effort. At the beginning of each subscription year renewals are only about 800 and continuous reminders and promotion only result in restoring the subscriptions to near 1200 by the end of the year. A personal letter from the editor to non-renewing sunscribers last year, seeking criticism, resulted in no critical comments which could be used in increasing the attractiveness of the publication to subscribers.

The Education Committee, the Publications Committee and the editors have given much thought to these problems and feel that a solution may be found in increasing the circulation, as a stimulant to receipt of more material (letters to the editor, questions and answers, and substantive articles).

An immediate method of increasing circulation is to add The Physiology Teacher as an insert to The Physiologist, thus adding over 5000 recipients.

On recommendation of the Education Committee, The Physiology Teacher is being enclosed with The Physiologist mailing for at least the February and May issues of The Physiologist. Comments on the usefulness of this practice are requested from APS members and non-member subscribers to The Physiologist during this period. If the

comments are preponderantly favorable, consideration will be given to combining the two publications in some form in 1977.

The most appealing approach to this combination to the Editor involves changing the format of The Physiologist to an 8-1/2 x 11 page size so that The Physiology Teacher can be bound in the same covers as a removable insert.

Subscription to The Physiology Teacher separately would still be available for non-members not interested in strictly Society business matters and other non-educational material useful for professional physiologists.

Both publications would then be available to members as a perquisite of membership. Subscription rates to the combined publication would be increased for non-member subscribers.

The editors and the two responsible committees of the Society earnestly solicit your comments on the above proposal and the submission of articles and other material for publication in The Physiology Teacher.

****

SYMPOSIUM REPRINTED

Dr. James F. Bosma, National Institute of Dental Research and Editor of the Symposium, wishes to announce that the Fourth Symposium on Oral Sensation and Perception: Development in the Fetus and Infant, which has been out of print, has been reprinted. Government Printing Office, Stock #1747-0008. $8.55.

EDUCATIONAL MATERIALS REVIEW BOARD

The Education Committee of the Society has established an Educational Materials Review Board to assist the Committee in the search for an evaluation of materials useful to teachers of Physiology. The Board members will provide, once each year, brief abstracts of review articles or other educational materials of particular interest to educators. These abstracts will be published each year in the May issue of The Physiologist and The Physiology Teacher, making them available to teachers planning courses for the coming year.

Another function of the Board is to serve in the continuing program of review and evaluation of audiovisual and non-print teaching materials. Members will also be called upon to review a wide variety of selected educational materials identified or received by the Society.

The following members have accepted invitation to membership on the Board:

ABBOTT, Bernard C.
Dept. of Biological Sciences
University of Southern California

ALPERT, Norman R.
Dept. of Physiol. and Biophysics
The University of Vermont

ALTSZULER, Norman
Department of Pharmacology
New York U. Medical Center

ANDREOLI, Thomas E.
Division of Nephrology
U. Alabama Medical Center

BACH, L.M.N.
Department of Physiology
University of Nevada

BANERJEE, Chandra M.
School of Medicine
Southern Illinois University

BARTLETT, Donald
Department of Physiology
Dartmouth Medical School

BEIDLER, Lloyd M.
Department of Biological Sciences
The Florida State University

BISHOP, Beverly
Department of Physiology
State U. New York, Buffalo

BOGDANOVE, E.M.
Department of Physiology
Medical College of Virginia

BOGNER, Phillis H.
Department of Pharmacology
U. Illinois Medical Center

BUETOW, Dennis E.
Dept. of Physiol. and Biophysics
U. Illinois

BUSKIRK, Elsworth R.
Lab. for Human Performance Research
Pennsylvania State University

CRAIG, Albert B., Jr.
Department of Physiology
U. of Rochester Sch. of Med.

CUNNINGHAM, Dorothy J.
Sch. Health Sci., Hunter College
City U. of New York

DAHL, Nancy Ann
Dept. of Physiol. and Cell Biol.
University of Kansas

DeHANN, Robert L.
Department of Anatomy
Emory University

DULING, Brian R.
Department of Physiology
U. Virginia Medical School

DUNHAM, Philip B.
Dept. of Biol., Biol. Research Lab.
Syracuse University

FANESTIL, Darrell
Division of Nephrology
U. California, San Diego

FAULKNER, John A.
Department of Physiology
University of Michigan

FILKINS, James P.
Department of Physiology
Loyola U., Stritch Sch. of Med.

FILLEY, Giles F.
Webb-Waring Lung Institute
U. Colorado Medical Center

FINN, Arthur L.
Division of Health Affairs
U. North Carolina, Chapel Hill

FOA, Piero P.
Department of Research
Sinai Hospital of Detroit

FOLK, G. Edgar, Jr.
Dept of Physiol. and Biophysics
University of Iowa

FRANKEL, Harry M.
Department of Physiology
Rutgers University

FREGLY, Melvin J.
Department of Physiology
U. of Florida, Miller Health Ctr.

GALLETTI, Pierre M.
Div. of Biological and Med. Sci.
Brown University

GILMORE, Joseph P.
Dept. of Physiol. and Biophysics
U. Nebraska Medical Center

GLASSER, Stanley R.
Department of Cell Biology
Baylor College of Medicine

GRANGER, Harris J.
AMES - Bioengineering
U. California, San Diego

GRINDELAND, Richard E.
NASA
Washington D.C.

GROSSMAN, Sebastian P.
Ctr. for Advanced Study in the
Behavioral Sciences
Stanford, California

GROSVENOR, Clark E.
Dept. of Physiol. and Biophysics
U. Tenn., Ctr. for Health Sci.

HEMPLING, Harold G.
Department of Physiology
Medical U. of South Carolina

HENNEMAN, Elwood
Department of Physiology
Harvard Medical School

HERD, J. Alan
Department of Physiology
Harvard Medical School

HOFFMAN, Joseph F.
Department of Physiology
Yale University

HORWITZ, Barbara A.
Dept. of Animal Physiology
University of California, Davis

HULL, Wayland E.
NASA
LBJ Space Center, Houston

HUMPHREY, Donald R.
Department of Physiology
Emory University

JACOBSON, Eugene D.
Department of Physiology
U. Texas Health Sci. Ctr., Houston

KARSCH, Fred J.
Department of Pathology
University of Mechigan

KELLOGG, Ralph H.
Department of Physiology
U. California, San Francisco

KIDDER, George W., III
Department of Physiology
University of Maryland

KNOX, Franklyn G.
Dept. of Physiol. and Biophysics
Mayo Foundation

KNUTTGEN, Howard G.
Biological Science Center
Boston University

LANPHIER, Edward H.
Episcopal Seminary
Nashotah, Wisconsin

LEEMAN, Susan
Lab. of Human Repro. and Repro. Biol.
Harvard Medical School

LIEBERMAN, Melvyn
Dept. of Physiol. and Pharmacol.
Duke University Medical Center

LILIENFIELD, Larry S.
Dept. of Physiol. and Biophysics
Georgetown University

LINDLEY, Barry D.
Department of Physiology
Case Western Reserve University

LLINAS, Rodolfo R.
Division of Neurobiology
University of Iowa

LLOYD, Thomas C.
Department of Medicine
Indiana U. School of Medicine

MANNING, John W.
Department of Physiology
Emory University

MARSHALL, Jean M.
Div. of Biological and Med. Sci.
Brown University

MATSUMOTO, Yorimi
Department of Physiology
Emory University

MAUDE, David L.
Department of Physiology
New York Medical College

MEITES, Joseph
Department of Physiology
Michigan State University

MENEELY, George R.
Dept. of Physiol. and Biophysics
Louisiana State U. Med. Ctr.

MILBURN, Nancy S.
Dean of Jackson College
Tufts University

MINES, Allan H.
Department of Physiology
U. California, San Francisco

NAHAS, Gabriel G.
Department of Anesthesiology
Col. of Physicians and Surgeons
Columbia University

NARAHASHI, Toshio
Dept. of Physiol. and Pharmacol.
Duke University Medical Center

NAVAR, Louis G.
Dept. of Physiol. and Biophysics
U. Alabama Medical Center

NEELEY, Janes R.
Dept. of Physiol., Milton S.
Hershey Med. Ctr., Penn. State U.

NICOLL, Paul A.
Dept. of Anatomy and Physiology
Indiana University

PARMLEY, William W.
Division of Cardiology
U. Cal. Sch. of Med., San Fran.

PETERSON, Lysle H.
Bockus Research Institute
University of Pennsylvania

POPOVIC, Vojin
Department of Physiology
Emory University

PORTER, John C.
Dept. of Obstet. and Gynecol.
U. Texas Health Sci. Center

RANDALL, Howard M.
Department of Physiology
Louisiana State U. Med. Ctr.

RENNIE, Donald W.
Department of Physiology
State U. New York, Buffalo

RIECESEL, M.L.
Department of Biology
University of New Mexico

ROWELL, Loring B.
Department of Physiology
University of Washington

SAGAWA, Kiichi
Dept. of Biomedical Engineering
The Johns Hopkins University

SCHNEIDER, Edward G.
Dept. of Physiol. and Biophysics
U. Tenn., Ctr. for Health Sci.

SCHULTZ, Stanley G.
Department of Physiology
University of Pittsburgh

SENAY, Leo C.
Department of Physiology
Saint Louis U. School of Medicine

SNIDER, Ray S.
Ctr. for Brain Research, Med. Ctr.
University of Rochester.

STAINSBY, Wendell N.
Department of Physiology
University of Florida

STICKNEY, J. Clifford
Vancouver, Washington

TANNER, George A.
Department of Physiology
Indiana U. School of Medicine

TANSY, Martin F.
Dept. of Physiol. and Biophysics
Temple University

TIDBALL, Charles S.
Office of Computerassisted Ed.
George Washington U. Med. Ctr.

TIMIRAS, Paola S.
Dept. of Physiol. and Anatomy
U. California, Berkeley

TIPTON, Charles M.
Dept. of Physiol. and Biophysics
University of Iowa

TONG, Winton
Department of Physiology
University of Pittsburgh

TORRES, J.C.
Dept. of Physiol. and Biophysics
The Hahnemann Medical College

VANDER, Arthur J.
Department of Physiology
U. Michigan Medical School

VAN HARREVELD, A.
Division of Biology
California Institute of Technology

VAN LIEW, Hugh D.
Department of Physiology
State U. New York, Buffalo

WEST, John B.
Department of Medicine
U. California, San Diego

WILBER, Charles G
Department of Zoology
Colorado State University

WOLBACH, Robert A.
Department of Physiology
University of Utah

WOLF, Richard C.
Department of Physiology
University of Wisconsin

WOLTERINK, Lester F.
Department of Physiology
Michigan State University

WRIGHT, Ernest B.
Palm Beach Florida

WRIGHT, Ernest M.
Department of Physiology
U. California, Los Angeles

WRIGHT, Peter H.
Department of Pharmacology
Indiana U. School of Medicine

YORK, D.H.
Department of Physiology
University of Missouri

ZADUNAISKY, Jose A.
Department of Physiology
New York U. Medical Center

ZECHMAN, Fred W.
Dept. of Physiol. and Biophysics
University of Kentucky

APRIL 1976 CHANGE IN AJP AND JAP

After April 1, 1976 only manuscripts on respiratory, environmental, and exercise physiology should be submitted to the Journal of Applied Physiology. Manuscripts on other subjects that previously would have been submitted to this journal should be sent to the American Journal of Physiology. Manuscripts submitted to the American Journal of Physiology will be considered in one of five areas, each the responsibility of a separate Editor and Editorial Board.

The editors of the Journal of Applied Physiology will be:

L. E. Farhi, Editor
Associate Editors
E. R. Buskirk
A. P. Gagge
Joseph Milic-Emili
S. M. Tenney

The editors of the five areas of the American Journal of Physiology will be:

1. Heart and Circulatory Physiology

M. N. Levy, Editor
Associate Editors
P. C. Johnson
Paul Martin
W. W. Parmley
Kiichi Sagawa
Mario Vassalle

2. Renal, Fluid, and Electrolyte Physiology

T. E. Andreoli, Editor
Associate Editors
J. J. Grantham
F. S. Wright

3. Endocrinology, Metabolism, and Gastrointestinal Physiology

Rachmiel Levine, Editor
Associate Editors
Richard N. Bergman
L. R. Johnson
Daniel Porte, Jr.
David Rodbard

4. Cell Physiology

Paul Horowicz, Editor
Associate Editors
P. J. DeWeer
H. A. Fozzard
F. J. Julian
C. F. Stevens
J. S. Willis
Saul Winegrad

5. Regulatory, Integrative, and Adaptive Physiology

F. E. Yates, Editor

The plan for restructuring the American Journal of Physiology and Journal of Applied Physiology has been developed after many years of consideration by the American Physiological Society. It is undertaken with the hope that a greater sense of identity can be developed between authors and editors and that this will lead to journals of greater excellence, which are directly responsive to the needs of today's researchers in physiology.

Continue to submit manuscripts to Executive Editor, American Physiological Society, 9650 Rockville Pike, Bethesda, Maryland 20014. Please identify the special area in which your manuscript should be published in the American Journal of Physiology and recommend the Editor or Associate Editor who would be best qualified to see to the review of your manuscript. Such designations should not be made when submitting a manuscript to the Journal of Applied Physiology.

COURSE IN DESIGN AND ANALYSIS OF SCIENTIFIC EXPERIMENTS

The Massachusetts Institute of Technology will offer a two-week elementary course in Design and Analysis of Scientific Experiments, June 14-25, 1976. The course will be taught by Professors Harold Freeman and Paul Berger. Further particulars may be obtained by writing to the Director of the Summer Session, Room E19-356, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.

NATIONAL MEDAL OF SCIENCE

In 1959 the 86th Congress established a National Medal of Science to be awarded by the President to individuals "deserving of special recognition by reason of their outstanding contribution to knowledge in the physical, biological, mathematical, or engineering sciences." The Committee composed of scientists and engineers which assist the President in identifying candidates for these awards, has invited the American Physiological Society to participate in the nomination process. The following guidelines for the selection of candidates has been established:

> The National Medal of Science recognizes the work of individual scientists and engineers; therefore, the total effect of an individual's work on the present state of physical, biological, mathematical, or engineering sciences is to be the first criterion.
>
> In addition, achievements of an unusually significant nature will be considered and judged in relation to the potential effects of such achievements on the development of scientific thought.
>
> Distinguished service in the general advancement of science and engineering, when accompanied by substantial contributions to the content of science at some time, may be recognized.

Members of the American Physiological Society are invited to submit names of appropriate recipients to Orr E. Reynolds, Executive Secretary, by April 1, 1976, for consideration of the American Physiological Society's Committee for Nominations and Awards.

Each proposal should be accompanied by two copies of:

> A narrative statement at least several pages in length outlining the nature and significance of the achievements which you believe justify making the award to your nominee. Even though your candidate is an acknowledged leader, do not assume that the Committee members will be knowledgeable of all he or she has done nor of its full significance. The Committee counts on you to make clear the case for your nominee.
>
> A one sentence "citation" encapsulating the major contribution or contributions of the nominee.

A biography of the nominee which is somewhat fuller than those found in American Men and Women of Science, Who's Who in America, etc.

The names of three scientists or engineers who are well acquainted with the nominee's work.

An up-to-date bibliography of the nominee's contributions to science and engineering.

****

PLANNING FOR THE 1980 CENSUS: WHAT ARE YOUR SUGGESTIONS?

The following announcement is published as a public service at the request of the Bureau of the Census.

The decennial census is a major national undertaking, and census data are widely used in many important government, private, and community programs. You have an important stake in the decennial census, both as a member of the scientific community and as an American citizen.

The Census Bureau is now actively working on plans for the 1980 census and important decisions have to be made in the relatively near future. For example, the full content of the basic census questionnaire must be determined by the spring of 1977 so that further preparatory steps can be accomplished successfully.

Although there are many constraints on the census in terms of what and how much information can be collected and tabulated, the Bureau believes that it is very important to obtain and review the recommendations of as wide a range of users and potential users of decennial census data as possible. The Census Bureau is therefore anxious to have the ideas of the members of professional societies.

If you have any suggestions, questions, or comments on the 1980 census please send them to:

Director
U.S. Bureau of the Census
Washington, D.C. 20233

FORMATION OF NEW SOCIETIES WITHIN APS MEMBERSHIP*

Some years ago (circa 1952) I had the privilege of reading a number of old letters preserved in the Archives of the American Physiological Society dealing with the dissatisfaction of various specialty groups in the physiology of that day with their status in Society activities.

The referenced sources of dissatisfaction were practically identical in every case and involved rejection of nominees for membership, programming in the meetings, and consideration in Society publications. The remedies proposed were also similar involving special consideration for the needs of a new subdiscipline to achieve "critical mass" as an intra-communicating system.

In each case the Society after extended or peremptory debate, conducted either by Council or by the Society business meeting, decided to reject the request for special handling made by the specialty group. Repetition of this process in a variety of forms has resulted in the formation through the years of a number of new societies, the disaffected APS members playing a large role in the formation of the new societies.

As a means of identifying societies which have arisen by this process I have examined the origins of a number of societies I found mentioned in APS Council minutes. The accompanying table shows the results of this study giving the date of formation of each society, the number of people involved in the founding group, and the number and percent of those founders who were members of APS at the time.

Clearly, societies whose founding members included a majority of APS members can be considered as having arisen in large part from APS specialty groups.

Without trying to be pejorative in my attitude about such developments I would like to quote from my own editorial comments in The Physiologist concerning the most recent move by Council to prevent further splintering.

"One of the greatest strengths of physiology as a science is its role of integrator of other fields - e.g., physics, chemistry, mathematics, and engineering - into biology. Paradoxically, this has produced one of the Society's perennial problems. Physiologists are continuously forming new bonds of communication with scientists in other fields.

"Thus a perennial problem of the American Physiological Society arises from one of the greatest virtues of the science of physiology. When a group of this type (the major fraction being physiologists) reaches the size of a few hundred or more, they usually want to formalize their communication system - at scientific meetings in the form of symposia, conferences, sessions of contributed papers, and social

---

* Presented at the Meeting of the Association of Chairmen of Departments of Physiology, Washington, D.C., November 1, 1975.

gatherings, and through the publication of special journals or sections of journals. The APS has given birth to many such groups, a sizable number of which have eventually budded off as new societies. The American Society of Biological Chemists and the Society for Neuroscience represent early and recent examples of this process.

"A review of the history of the Society reveals a common pattern. In most, if not all, cases the members of APS who were a major fraction of the new group made an effort to achieve their aspirations within the structure and activities of APS. The result has invariably been the same. APS has been unwilling to make the concessions necessary to keep the new group in the fold.

"Certainly the formation of a new society is not inherently bad, but one effect of it is antithetical to the APS aspiration of maintaining broad representation in functional biology. As the new society gains strength the APS tends to lose representation from the younger, active contributors in the field comprising the new society.

"One of the principal factors militating against the incorporation of emerging new cross-disciplines has been the reluctance of APS to admit scientists of other disciplines to membership and therefore to participation in the governance of the Society."

PROPORTION OF APS MEMBERS
AS FOUNDERS OF NEW SOCIETIES

Date	Society	# Founding Members	#APS Members	%
1906	Am. Soc. Biological Chemists	29	22	76%
1908	Am. Soc. Pharmacology & Exptl. Therapeutics	18	16	89%
1913	Am. Soc. for Exptl. Pathology	9	6	66%
1924	Am. Soc. of Plant Physiology	Records not available		
1928	Am. Inst. of Nutrition	10	8	80%
1946	Soc. of General Physiologists			
	Incorporators	4	4	100%
	Original Members	104	79	76%
1955	Microcirculatory Society	Available records not suitable for this purpose		
1957	Biophysics Society			
	Society Officers	20	12	60%
	Conference Organizers	15	9	60%
1967	Biomedical Engineering Society	171	48(?)	28%(?)
1970	Soc. for Neuroscience (Steering Committee)	21	17	81%

REFERENCES

1. History American Physiological Society, 1887-1937, Baltimore, Maryland, 1938.
2. Fenn, W. O. History of the American Physiological Society, The Third Quarter Century, 1937-1962. Am. Physiol. Soc., Washington, D. C., 1963.
3. Chittenden, R. H. The First Twenty-Five Years of the American Society of Biological Chemists, New Haven, Connecticut, 1945.
4. Chen, K. K. The American Society for Pharmacology and Experimental Therapeutics, The First Sixty Years, 1908-1969. Am. Soc. Pharmacol. & Exptl. Therap., Washington, D. C., 1969.
5. Long, E. R. History of the American Society for Experimental Pathology. Am. Soc. Exptl. Pathol., 1972.
6. First Microcirculatory Conference Proceedings. Anat. Rec. 120: 241-361, 1954.
7. Second Microcirculatory Conference Proceedings. Angiology 6: 281-413, 1925.
8. Factors Regulating Blood Flow. Am. Physiol. Soc., Washington, D. C., 1958.
9. Minutes, Organization of Brain Scientists. NAS/NRC, Div. of Med. Sci. No. 1, 25 Aug., 1968.
10. Science 125: p. 753, 19 April 1957.
11. Council Minutes, American Physiological Society: Spring, 1948, Fall 1948, Fall 1949, Spring, 1955, 1956, 1966, 1967, 1968, 1970.
12. Business Meeting Minutes. American Physiological Society: Spring 1956, Fall 1965, Spring, 1966.
13. President's News Letter. American Physiological Society, Fall 1956.

NOTE: In discussion of the above paper, a question was raised concerning rate of growth of the American Physiological Society especially in reference to any recent trends of decrease in growth. The material given in the attached table and smoothed curve were taken from council and business meetings of the Society and the histories listed in the references of the paper.

Some inherent inaccuracy is involved because of different times of year for which a number of members is available and some discrepancies due to times of death and resignation of individual members. Thus some of the numbers listed in the table may not precisely match previously published membership numbers in earlier years, especially during war years when society activities were curtailed. However, the data clearly supports an exponential rate of growth with little variation for any extended period.

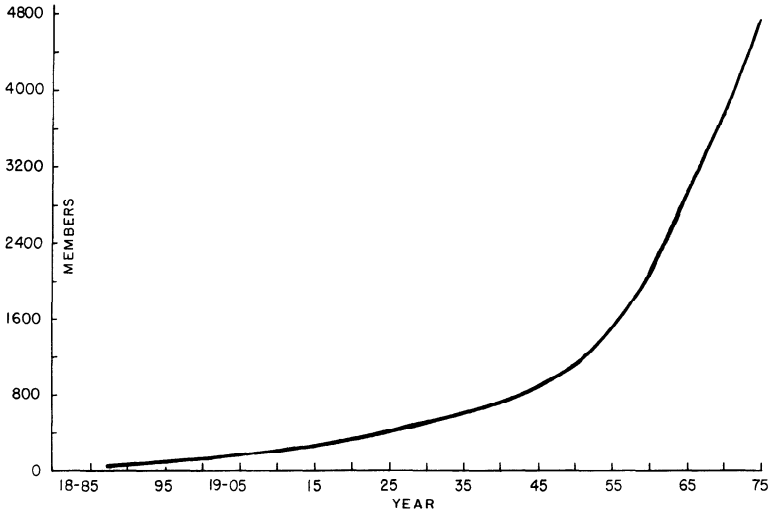
Orr E. Reynolds

ANNUAL MEMBERSHIP IN THE APS

Year	Members	Year	Members	Year	Members	Year	Members
1887	28	1910	188	1932	587	1954	1376
1888	34	1911	204	1933	591	1955	1424
1889	38	1912	215	1934	614	1956	1535
1890	42	1913	230	1935	634	1957	1586
1891	44	1914	245	1936	637	1958	1759
1892	46	1915	265	1937	649	1959	1923
1893	51	1916	270	1938	661	1960	2139
1894	55	1917	282	1939	673	1961	2265
1895	63	1918	295	1940	689	1962	2454
1896	65	1919	305	1941	710	1963	2498
1897	65	1920	323	1942	731	1964	2650
1898	76	1921	327	1943	781	1965	2819
1899	76	1922	352	1944	819	1966	2966
1900	91	1923	372	1945	868	1967	3273
1901	102	1924	393	1946	911	1968	3545
1902	110	1925	410	1947	948	1969	3758
1903	118	1926	431	1948	1034	1970	3792
1904	127	1927	453	1949	1102	1971	3986
1905	141	1928	476	1950	1150	1972	4166
1906	151	1929	487	1951	1232	1973	4342
1907	166	1930	522	1952	1306	1974	4500
1908	176	1931	558	1953	1362	1975	4759
1909	176						

Growth of the American Physiological Society

1887-1975



ASSOCIATION OF AMERICAN MEDICAL COLLEGES (AAMC)

1975-76 Officers of the Association and Councils

Robert M. Berne, M.D., one of two APS representatives, has once again been selected to serve as a member of the AAMC Council of Academic Societies. William G. Van der Kloot, Ph.D., is the other APS representative to AAMC.

AAMC has also selected other APS members for various positions. These include Carmine D. Clemente, Ph.D., to membership on the Council of Academic Societies representing the American Association of Anatomists; A. J. Bollet, M.D., selected to membership on the Executive Council; and Robert L. Van Citters named to once again represent the Council of Deans on the AAMC Executive Council.

APS member David D. Thompson, M.D., is the 1975-76 Chairman-Elect of the Council of Teaching Hospitals of the AAMC and a member of the Association's Executive Council.

DR. ARTHUR GUYTON HONORED FOR HEART RESEARCH ACHIEVEMENT

Arthur C. Guyton, M.D., of Jackson, Mississippi has been named recipient of the American Heart Association's Research Achievement Award for 1975.

Presented by AHA President Elliot Rapaport, M.D., the award is the Association's foremost prize for scientific accomplishment and is presented annually at the first General Session of the Association's Scientific Sessions.

Dr. Guyton, according to Dr. Rapaport is a "brilliant and tireless investigator and an outstanding teacher" who has made "profound contributions" to cardiovascular physiology.

"It can readily be said that Dr. Guyton has advanced the state of our knowledge of virtually every aspect of the heart and blood vessel system," Rapaport added.

Dr. Guyton's research career has been spent almost entirely as a member of the faculty of the University of Mississippi Medical Center, where he if Professor and Chairman of the Department of Physiology and Biophysics.

GOLD HEART AWARD

Dr. Julius H. Comroe, Jr., Professor of Physiology at the University of California, San Francisco and former Director of the UCSF Cardiovascular Research Institute, was awarded the American Heart Association's highest award, the Gold Heart Award, on November 20, 1975.

The honor was presented by Dr. Elliot Rapaport, President of the AHA, at the Association's Annual Meeting.

An internationally known authority on cardiopulmonary physiology and function, Dr. Comroe was selected for this award in recognition of his "distinguished service in advancing the objectives and programs of the American Heart Association." Dr. Comroe has been described as "a gifted scholar, a medical educator par excellence and a national leader in the organization of major teaching and research units." He is recognized as "a giant in pulmonary physiology," who is largely responsible for the tools being used today in pulmonary function laboratories.

Dr. Comroe is the recipient of many other awards and honorary degrees from the U.S. and abroad. He is the author of numerous scientific articles and two texts on respiration and the lungs.

FRAGMENTATION OF PHYSIOLOGY: POSSIBLE ACADEMIC CONSEQUENCES*

PETER F. HALL
Department of Physiology
California College of Medicine
University of California, Irvine

Most accounts of the history of Physiology fail to define this discipline in such a way as to identify the interests of members of the American Physiological Society. In fact, most books on the subject deal with the history of Biology - certainly many of the scientists who provide the subject matter for the first three quarters of these books did not call themselves Physiologists, rather they were Biologists and Chemists.

Those of us who serve departments of Physiology can see, if we read closely, the emergence of that discipline from Biology during the middle of the nineteenth century when departments of Physiology were established in the leading medical schools of Europe and Great Britain. Even institutes such as that directed by Carl Ludwig can be readily identified as centers of Physiology, although they were not always located within schools of medicine. The identifying characteristic of Physiology is that emphasis is placed upon vertebrates, mammalian and eventually upon the human species. This is not to say that invertebrate organisms are forbidden or even discouraged as subjects for study in good departments of Physiology but rather that such organisms are chiefly of interest where they throw light upon the physiology of mammals - especially man. It is important in following the argument to understand the motivation for the Physiologist (as opposed to the Biologist) in studying such tissues as barnacle muscle, squid axon or toad bladder. These tissues possess fundamental properties which can be turned to advantage in specific experiments. Size, uniformity of cell population, relative simplicity of organization are among the reasons for the Physiologist to turn to such preparations. Cn the contrary, to the Biologist the toad bladder may be important by way of comparison or contrast with frog bladder as part of the problem of amphibian evolution.

In 1827, Richard Bright described for the first time, the disease nephritis. He could not relate all the clinical manifestations of the disease to the pathological lesion he described; at that time, too little was known about renal physiology to permit such correlation let alone a rational approach to treatment. As descriptions of individual diseases improved, the need for a systematic study of the normal body was brought clearly to the attention of the nineteenth century physicians.

No doubt the introduction of anaesthesia into the practice of Surgery was a major factor in promoting the development of Physiology. Now it became a matter of practical importance to understand the regulation of respiration and cardiovascular activity. Surgeons could not wait upon

---

* Presented at the Meeting of the Association of Chairman of Departments of Physiology, Washington, D.C., November 1, 1975.

the development of Biology across the vast front between E. coli and man - a development prompted by individual curiosity and by knowledge for the sake of knowledge. Clearly, it was important that part of Biology respond to the needs of the clinician. Seen in this way, Physiology is a segment of Biology plucked forth and given independent existence in the service of the Medical Sciences. In this sense, Physiology is a second order or derived science; it is a hybrid which draws upon Physics, Chemistry and Biology. Biologists released the new discipline happily enough because it carried the unwelcome flavor of being an "applied" science. During a period of less than 150 years, Physiology has enjoyed a stable interface position between Biology and Medicine; during that time the accomplishments of Physiology have been impressive indeed.

During the years that followed World War II, great changes took place in the two parent sciences - the one from which Physiology came and the one which caused its coming. In medical science, these changes have involved technical advances which have greatly complicated the practice of medicine and have increased the potential danger of certain therapeutic and diagnostic procedures. A sound understanding of Physiology has become no longer a question of personal virtuosity for the individual physician but a matter of survival for the physician (and his patient!). One consequence of this complexity is that the specialist physician must start out with a training in the physiological basis of his specialty no less rigorous than that undertaken by the professional physiologist. Clearly, the modern department of Medicine includes Cardiologists capable of teaching cardiovascular physiology, Endocrinologists capable of teaching endocrine physiology, etc.

In Biology, the changes following World War II resulted from a number of cardinal discoveries which gave to the discipline a certain cosmic quality or universality. The genetic code, the mechanism of contractility, regulation of energy metabolism, the ionic basis of the resting membrane potential and a host of other discoveries proved to be embarrassingly similar in micro-organisms and in man. Biologists saw less need for a discipline specifically serving the interests of man and his health. It seemed as though one could study man much more readily with the experimental flexibility that lower forms of life clearly provide. Moreover, the time was ripe for man to treat his environment with more consideration and this would require a detailed knowledge of other organisms. The effect of these changes in the case of Biochemistry is the topic of another discussion but the facile assumption that man is, biochemically speaking, a huge collection of E. coli, is at present standing in the way of the development of departments of Biochemistry in Schools of Medicine where their role will eventually be seen in the study of mammalian tissue once certain technical problems are overcome. Medical school Biochemistry should provide the chemical equivalent of Physiology as opposed to Biology.

Meanwhile a new motive has begun to encourage Biologists to recapture the discarded Physiology. The financial support of the American Medical School is more secure than that of schools of Biology. Moreover, faculty positions are more likely to appear in the schools

of Medicine than in schools of Biology at least for some years to come. If Biology can recapture Physiology, it can present its graduates as suitable candidates for faculty positions in schools of Medicine and thereby continue to justify large graduate programs in Biology at a time when the national scene plainly calls for more realistic appraisal of the current needs for graduates in Biology.

In recent years, a third influence has been felt - the Dean's office. With the changing power axis of the medical school and the increasingly complexity of its administration, the position of the Dean has become intolerably brittle. For his own protection, the Dean has devised plans to stabilize his authority. By attending schools of business administration, our deans learn to castrate the authority of department chairmen. One favorite device is to run the school by committee. If the committees are heterogeneous with respect to rank and department, the authority of the chairmen is diffused. In some schools efforts to integrate teaching by subspecialties (e.g. Endocrinology) as opposed to classical disciplines (Physiology, etc.), makes it convenient for the Dean to appoint a committee to teach Endocrinology, for example, from anatomical to clinical aspects. The chairmen of the various departments lose control of curricula and if a course or program is defective, there is little hope of correcting the situation. The Dean refers complaints to the committee chairman who changes annually and he in turn refers complaints to the committee; no one can blame a committee. In addition to losing authority, the chairman loses key sub-specialties until nothing of Physiology is left.

Beyond the Dean lies the campus administration. The financial, cultural and social pressures of our time have thrown great burdens on the campus. Students are insecure about a world which is too crowded and over-educated for its job market; society changes too rapidly for one training per person per career and minority programs, however urgent, are a drain on the dwindling resources of the University. There are rich rewards for the administrator who can devise a plan to make his university financially stable and administratively flexible. In their attempts to grapple with these problems, the campus administrators will generally prefer to deal with a small number of large units rather than a large number of small units.

Clearly the stage is set for change and the alternatives for Physiology are all likely to affect this discipline in such a way as to rob it of continuity as a stable force at the interface between Biology and Medicine. The alternatives seem to be three in number although combinations of these alternatives are possible. First, Biology may lay claim to Physiology by describing its Faculty as capable of teaching Physiology to medical students. The student of contractility will be designated as a cardiovascular physiologist. Those interested in bioelectricity will teach neurophysiology, etc. Biologists will deliberately refuse to acknowledge the important distinction between Physiology and Comparative Physiology.

Second, the department of Medicine may present a disjointed view of Physiology using clinical specialists and perhaps absorbing a few anonymous Physiologists buried in remote corners of its swelling ranks.

Third, the Dean may lay waste to Physiology by offering one system after another to committees - sacrificing the preclinical disciplines on the altar of modern administration.

If these are some of the alternatives open to Physiologists, can we influence the outcome of these possibilities? Much will depend upon two things. Are established Physiologists willing and able to communicate to the younger members of the profession, the excitement they feel for the achievements of Physiology and secondly the way in which we elect to teach medical students.

In little more than 100 years, Physiology has presented clinical medicine with a sound and detailed account of the workings of the normal body. Without this knowledge, open-heart surgery, immunological suppression, dialysis, transplantation and a host of other therapeutic triumphs would not be possible. Moreover, Physiology has played a major role not only in discovering and developing these methods but also in their continued application and refinement. The parameters which are today routinely monitored during a surgical operation are such that the surgeon cannot proceed without them. These parameters were discovered and developed in the laboratories of Physiologists. It is inconceivable that Biology could have sponsored such rapid progress without neglecting other areas to which this science has made far-reaching contributions of its own - that is without abandoning Biology for Physiology. Do we make our students aware of this important debt which Medicine owes to Physiology?

If we are content to present Physiology to our major clientele - the medical students who after all justify our support, as a series of discrete experiences in which the cardiovascular lions roar for a fortnight before leaving the stage to the neurophysiologists and so on, then a department of Medicine or a school of Biology can present Physiology as well as a department of Physiology. If, on the other hand, we believe that there are unifying themes in Physiology which render the whole more than the sum of the parts, we can teach with greater breadth and achieve something more for Physiology than our colleagues in Biology and Medicine. To be sure we cannot understand all Physiology as well as we understand our chosen specialties, but these considerations are all relative. The endocrine physiologist who works on the action of glucocorticoids can lay no special claim on the teaching of parathyroid physiology and yet Heaven forbid that we acquire a lecturer for each gland.

Other disciplines have learned to uncouple teaching and research. Where is the Physicist who studies the motion of metal spheres down imaginary roller coasters? Are there chemists who base their researches on the detection and separation of metal ions? If we are willing to teach Physiology as a whole, at least to the level required by the medical student, we can make use of the tutorial method to discuss Physiology with the student (rather than showing off highly specialized knowledge in front of him); we can see to it that students learn to think as a Physiologist thinks - by examining evidence and deducing conclusions consistent with the evidence. Above all, we can learn

with the student. The cardiovascular specialist physician will recoil in horror at the thought of discussing the kidney; the Biologist has too many duties of his own to attain and maintain such breadth in Physiology.

I believe that this approach to teaching Physiology has four major advantages. Firstly, we will become more conscious of our heritage as Physiologists and more ready to promote its survival. Secondly, we will sustain the discipline from invasion by administrators. Thirdly, we will enjoy Physiology. Some of us have taught long enough to see the students' view of the highly specialized teacher who needs his notes as a crutch to his four super-special lectures and if he is asked a question slightly away from the center of this material, not only is he unable to answer it but he is frankly offended that his ultraspecialization is not acknowledged. The poor student has to know, in detail, all this material and all the rest of Physiology to say nothing of Anatomy and Biochemistry. Last but not least, our research activities stand to gain from breadth. It seems strange that only now do we begin to realize that the gut is an extended endocrine gland - gastroenterologists were encouraged to ignore Endocrinology. Secretion - the quintessence of endocrine activity, is the most recent aspect of the discipline to be studied experimentally yet it now appears that secretion has much in common with neural transmission. We were slow to discover that actin and myosin appear to be present and active in many tissues; these molecules have been treated as the personal property of the muscle club. The preservation of arbitrary boundaries has discouraged breadth in research and breadth in teaching.

These are some of the problems as I see them. There is no certainty that we can correct them. One thing is certain, however, namely that if we do not act to maintain the unity of Physiology, there are powerful forces capable of fragmenting this discipline. We can only oppose these forces if we believe in Physiology. We must ask ourselves whether we consider that Physiology as an independent discipline has a future or whether on the contrary, it has fulfilled its purpose so that it can now be divided - one-half to fall back where it came from (Biology) and one-half to be engulfed by Medicine. Before we attempt to answer the question, we should be suspicious of short-term economic expedients and administrative gestures of despair. As we look at the medical school of the Twentieth Century, do we see a Department of Physiology or do we not? If we see this department, we should begin to insure its place in the new schools by acting now.

THE 27th ANNUAL FALL MEETING - 1976

The 27th Annual Fall Meeting of the American Physiological Society will be held in Philadelphia, Pennsylvania on August 15-20. It is to be sponsored jointly with the Biomedical Engineering Society and the Division of Comparative Physiology and Biochemistry of the American Society of Zoologists. The refresher course will be on the topic of Neuroscience and one symposium during the meeting will be organized by the Society for Neuroscience.

The host institutions are Hahnemann Medical College and Hospital, Jefferson Medical College of Thomas Jefferson University, Medical College of Pennsylvania, Temple University School of Medicine and University of Pennsylvania School of Medicine. The meeting will be held mainly on the campus of the University of Pennsylvania. There will be a number of independent satellite symposia in the Philadelphia area organized before and after the 27th Annual Fall Meeting.

The announcements for the meeting along with all meeting forms and information are scheduled to be mailed early in April by 3rd class mail. The deadline for receipt of abstracts will be May 21. Anyone not receiving an announcement by late April should contact:

The Local Organizing Committee
Department of Physiology
University of Pennsylvania
A 201 Richards Building G-4
Philadelphia, PA 19174

Phone: (215) - 243-8725

Rooms for most registrants will be provided in high-rise apartment buildings ordinarily used for student housing during the school year. A total of 1,500 beds is available in two buildings in the form of 1, 2, 3 and 4 bedroom apartments with private baths and air conditioning. In addition, the Committee has reserved a limited number of rooms in nearby hotels; these rooms will be assigned to those who ask for them on a first come, first served basis at the time of pre-registration in April, 1976. We strongly urge everyone planning to attend to watch for the announcement and pre-registration forms when they are distributed in April, and to return the forms with registration fee promptly.

BIOSCIENCES INFORMATION SERVICE OF BIOLOGICAL ABSTRACTS (BIOSIS) TO SPONSOR JOINT SYMPOSIUM AT APS FALL MEETING

As part of their 50th anniversary commemoration, BIOSIS is sponsoring a joint symposium with the American Society of Plant Physiologists, the Division of Comparative Physiology and Biochemistry of the American Society of Zoologists and the American Physiological Society. The symposium will be held during the 27th Annual Fall Meeting of APS, August 15 through 20, 1976 in Philadelphia.

The subject of the joint symposium will be "Water Relations in Membrane Transport in Plants and Animals." Symposium organizers are: Thomas K. Hodges, Purdue University; Arthur Jungreis, University of Tennessee; Arnost Kleinzeller, University of Pennsylvania, Chairman; and Stanley G. Schultz, University of Pittsburgh.

TRAVEL GRANT PROGRAM FOR 1977 INTERNATIONAL PHYSIOLOGICAL CONGRESS

The U.S.A. National Committee for the International Union of Physiological Sciences is sponsoring a travel grant program to benefit American scientists who could not attend the 27th International Congress of Physiological Sciences in Paris, July 18-24, 1977, without such assistance. A limited number of grants will be available. Those eligible for awards are qualified scientists who are citizens or permanent residents of the United States. Each applicant will be judged on the merit of his contribution to the Congress in Paris, considering his training, experience, and potential, as well as a reasonable representation of age groups. Grants will ordinarily be limited to the lowest group fare available plus the domestic fare.

Requests for application forms should be addressed to:

U.S.A. National Committee for I.U.P.S.
Div. of Medical Sciences - Room 359
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Deadline for receipt of Applications is December 1, 1976.

LETTER FROM SARA LESLIE

In April 1974, in appreciation of Sara Leslie's 27 years of service to the Society and its publications, the Society presented her with a trip abroad.

The following letter was received by Dr. Orr E. Reynolds when Sara returned:

Dear Orr:

Since you have not heard from me, you may be wondering if I had disappeared during one of the street riots in Portugal or more likely had been jailed by one of Franco's men in Spain. Neither is the case, I'm happy to report. I returned to the U.S. on schedule but went immediately to Tennessee because of the unexpected death of my brother, sad news I received in Cordova, and the illness of my mother. I did not return to Washington until last week- thus the delay in writing you, which I regret.

The trip was all I had hoped it would be - perfect weather, interesting companions, good hotels, days of sightseeing in places I had never been and revisiting others I had particularly enjoyed on the previous trip. Spain seemed prosperous, with every square mile of countryside under cultivation, streets and shops bustling with people who appeared relaxed and happy, and handsome new office buildings and apartment houses under construction in every city of any size. Portugal presented another picture, which saddened me. Lisbon, so charming and beautiful as I remembered it, was a gloomy city - people dejected, monuments and buildings defaced, sidewalks and streets littered with debris. There were very few tourists; hotels were filled with refugees from Angola. Tangier, a city of sunshine and flowers, was a different world, fun and exciting to visit. I don't want to live there, but I would enjoy their cuisine every day!

Please report to Council when next you meet that I had a wonderful time on the APS trip and am grateful to the Society for a special gift of adventure and happy memories.

My best wishes to you and the staff for happy Christmas holidays and a bright New Year -

Sincerely,

Sara Leslie

NEWS FROM SENIOR PHYSIOLOGISTS

Dr. and Mrs. Bruce Dill returned to Boulder City, Nevada, in October, from a 30-day bus journey that took them through the Eisenhower tunnel across the Continental Divide to the East Coast and north to Montreal. Besides visiting relatives and friends, Dr. Dill discussed physiological research of mutual interest with colleagues at Indiana, Harvard and other universities.

On September 12, he gave the Rieck Memorial Lecture at the Medical School of the University of Wisconsin at Milwaukee. He repeated the lecture on "Principles of Adaptation" at Ball State University, Muncie, Indiana, September 16, and at the University of Iowa on October 3. On October 1 and 2 Dr. Dill took part in celebrating Professor Edward F. Adolph's 80th birthday at the University of Rochester. The celebration included a symposium on "Animals and Their Environment" with papers presented by Dr. Adolph's former students and colleagues. Dr. Adolph gave the twenty-first lecture on "Adaptation of Infant Animals to Lack of Oxygen." At the dinner, long-time friends reminisced about their experiences with Edward Adolph including days in the Desert Training Center with George Patton's Army. A magnificent portrait was unveiled to be hung with portraits of other celebrities in the halls of the Medical School.

Recent Replies to Birthday Greetings:

A. V. Hill to Hal Davis: Thank you for your greeting on my entering my 90th year. We had a nice party with three great-grandchildren and one honorary great-grandson. One granddaughter who is both a secretary and an aviator flew her boss' aeroplane 150 miles to come and before she took off again three great-grandchildren climbed into the cockpit. Now I am answering all the letters - in fact I think I have done so, though more may turn up on Monday.

Larry Irving to Hal Davis:

I appreciate your birthday greetings from APS, and welcome word from you. In May I became emeritus professor of zoophysiology in the University of Alaska. Last November I received the 1974 Fellows Award from the Arctic Institute of North America for sustained researches in the physiology of arctic animals and for leadership in enterprises for arctic research. I very much enjoy inactivity and lack of responsibility for anything but my home and garden.

Hal Davis wrote Orr Reynolds:

I am sorry not to get to meetings of the Society anymore. I don't go to any meetings now unless I am specially invited for some particular purpose, but I am still keeping up with half-time work in the laboratory and clinic, and a bit of teaching here at Central Institute.

Edward Van Liere to Bruce Dill:

Thank you for your greetings. On October 30 I celebrated my 80th birthday. My married daughter came from San Francisco and gave a party for me which came as a very pleasant surprise. She graduated from Radcliffe and her husband, a Harvard boy, is a specialist in pollens - both old and new. Cur medical center continues to flourish and presently there are over 1200 students at the center who are working toward a degree. The University has a total of about 17,500 students. When I first came here there were only about 2,000 students. Because of the energy crisis, business is flourishing in West Virginia on account of the soft coal mines; as a result the University has a fairly adequate budget, but of course it could always use more money.

Hy Mayerson to Bruce Dill:

Many thanks for your note which came as Caroline and I had just returned from our travels. We spent three weeks in the West and Northwest - Los Angeles, San Francisco, Oregon Coast, Portland, Seattle, Victoria and Vancouver. A trip we've wanted to make for years. It's a grand part of the country. Had a nice visit with Jack Brookhart and his wife, Denise. They had just returned from Europe the day before. I am now settling down to my life of leisure. I'm still getting over to the hospital at least once a week for consultation. I had promised I would continue to keep an eye on the research programs. And, somehow the days are filled with one or another activity.

Dr. Alice M. Baker, long-time colleague of Rosalind Wulzen wrote Bruce Dill that Rosalind at age 93 is helplessly paralyzed.

Carl Schmidt wrote Hy Mayerson about a succession of operations on Carl Jr. that kept Carl and Betsy in Philadelphia away from their Florida home for three months. When they reached home August 29th "we found the results of three months of almost daily rainfall in a semi-tropical climate. You know what that means. We hacked and chopped and trimmed and fertilized and did it all over and over. Now we can just about relax and enjoy ourselves - and plan our next trip north. That will probably come early in October and we would like to go by way of the Smokies to see the autumn foliage."

Jeno Kramar to Maurice Visscher:

I am very grateful to you and the members of the Committee on Senior Physiologists of the American Physiological Society for remembering me on the occasion of my 80th birthday. I have always been proud of my membership in this venerable society and feel now deeply touched and greatly honored by this manifestation of the spirit of brotherhood.

Hugh Dukes to Maurice:

Thank you and the Society very much for remembering my 80th birthday. I am glad to report that my health is good and that of my

wife generally good. We have been at a large retirement center - Scottish Rite Park - nearly two years. It is really a nice place. Mel Swenson of Iowa State University is now hard at work on a 9th edition of "Duke's Physiology of Domestic Animals." Last June I received the Stange Award at Iowa State University for meritorious service in Veterinary Medicine.

Karl Von Frisch to Hal Davis:

I thank you many times over for your friendly birthday wishes, and please transmit my best greetings to the American Physiological Society. I enjoy this association very much.

Baird Hastings to Hal:

How to survive aging is getting to be a full-time occupation for me. My latest bout with it occurred on the occasion of my 80th birthday. It took three parties on November 20th and one at Chancellor McElroy's on the 24th to safely launch me into my ninth decade. At the latter, I was presented with a trident, scaled-down from the one I have twice carried as Marshal at Commencement. Having survived these festivities, I am now preparing to participate in a Conference on the Biology of Aging in January. I presume that my role will be to be an in vivo exhibit of what aging is all about. I continue to lecture occasionally and participate in research seminars, but my fishing expeditions have become few and far between largely due to the difficulty of manipulating a rod and cane at the rail of a rocking boat. Thanks for your birthday greeting.

Hal Davis received an interesting letter from Clint Woolsey who is ten years too young to receive one of our birthday cards. He wrote: You suggested that I write you a note about our own situation now that the "three score years and ten" time-post has been passed. Transition to emeritus status on June 30, 1975 was marked by a very pleasant retirement dinner here in Madison and a bit later I was advised that there would be a dinner and Satellite Symposium on Localization of Function within the Nervous System in our honor, following the Fall Meeting of the Physiological Society in San Francisco on October 10 and 11, organized by Mike Merzenich, a former postdoctoral fellow, now at the University of California, San Francisco. These were fine affairs with many colleagues and former fellows present. I was surprised to see Madame Jessard from Paris and Koni Akert from Zurich in attendance. Phil Bard, who recruited me to physiology, was there to recount some of the historical record.

Since becoming Slichter Professor of Neurophysiology Emeritus on July 1, I have not noted any change in activity. I continue to act as Biomedical Research Unit Coordinator at the Waisman Center on Mental Retardation and Human Development, which I have been for the past three years, and I have much to do in preparing completed researches for the journals and in conducting new experiments on cerebral localization. The number of cortical areas related to each sensory system continues to increase and we are currently studying several new visual areas in the cortex of the rabbit. I expect to keep busy as long as

essential physiological mechanisms permit. At present they seem to be well-tuned and effective. Another event which may interest you was the establishment of the Woolsey Lectures in Neuroscience.

Bill Buchbinder to Maurice:

Is there another Society that exhibits the kindliness to its older members in the way of remembrances! I thank you for your latest upon reaching the 82nd year - approaching Mt. Everest! But a poor climber with some dyskinesia of the joints; so maybe it will be slow going. Merry Christmas and a Happy New Year and again many thanks.

Society Poet Carl Dragstedt to Maurice:

That was very kind of you to send me the greetings for my making 80. Both the body and the brain have deteriorated quite a bit - but I am grateful to report that I can read and enjoy such violent exercise as a bridge game. Lester's death was a shock of course - but it came quickly and he never suffered any prolonged pain or disability. I had a long talk with him the night before - mainly reviewing old times and experiences. Card enclosed two of his poems:

SEVENTY-NINE

How does it feel
To be seventy-nine?
It ought to be something
'Twixt rotten and fine,
But when you're that old
You don't have any feel
'Twixt the palm of your hand
And the sole of your heel.
So you take a deep breath
And a drink that is weighty,
And hope you can make it
Until you are eighty.

EIGHTY

How does it feel to become four-score
Is it still good enough that you ask for more,
Or has it become so hard and weighty,
You're full of regrets that you made it to eighty?
I am well aware that three score and ten
Is all of the time allotted to men,
So I'll not answer the question because I've begun
To plan the long struggle to reach eighty-one.

Walter Fleischmann wrote to Bruce on beginning his 80th year.

I thank you for your kind wishes, which I reciprocate with all my heart. So nice to hear from you and also from other seniors from the pages of "The Physiologist." In reply to your questions I have retired

from the VA completely as of June 30, 1975. To my great surprise, I was asked to take part in a conference on Pediatric Endocrinology at Johns Hopkins in October 1975 and gave a short talk on the early years of the Pediatric Endocrine Clinic at Hopkins (1938-1944). It was a very enjoyable occasion, and we met a lot of old friends. Susan and I are both in good health and are enjoying the semi-rural life. I hope that this reaches you in good health as well. With best regards in which Susan joins me.

Grayson McCouch to Hy Mayerson:

Your kind letter on the occasion of my 87th birthday last September was unfortunately mislaid and has belatedly come to my attention. I appreciate deeply your generous expressions and am embarrassed by my tardiness in acknowledgement. Within the last few months I have retired from research as I did from teaching 20 years ago.

Permit me to congratulate you most heartily upon your continuing professional activity. Would that I were still competent to follow your example...how much it means to me that you should have taken the time to write me such a letter.

****

MAX KLEIBER MEMORIAL

Max Kleiber died in Davis, California, on January 4, 1976 at the age of 83. His family has requested that any memorial contributions be made to the Max Kleiber Memorial Fund (checks payable to the Regents of the University of California) in care of the Chancellor's Office, University of California, Davis, California 95616.

The nature of the memorial will depend upon the financial support that develops. It may take the form of a prize for graduate students in physiology or nutrition for significant humanitarian and intellectual achievement. If a large fund accumulates, the memorial may be in the form of a fellowship or lectureship.

INTERNATIONAL SYMPOSIUM ON UROLITHIASIS RESEARCH

An International Symposium on Urolithiasis Research will be held in Davos, Switzerland, on March 29 to April 1, 1976.

Review papers will be on the following topics: Physico-chemical Aspects of Urinary Stone Formation; Renal Handling of Substances Involved in Urinary Stone Formation; Metabolism of Substances Involved in Urinary Stone Formation; and New Aspects in Medical Treatment of Urinary Stones.

All review papers as well as the posters will be published.

For further information please write to: Dr. H. Fleisch, Dept. of Pathophysiology, University of Berne, Murtenstrasse 35, CH-3010 Bern/Switzerland.

SATELLITE SYMPOSIUM ON NERVES AND THE GUT

Under the sponsorship of the Philadelphia Gastroenterology Group, a Symposium on Nerves and the Gut will be held on the campus of Harcum Junior College in Bryn Mawr, Pennsylvania (10 miles from center city Philadelphia) August 13 and 14, 1976 just preceding the Fall Meeting of the American Physiological Society. There will be four subdivisions 1) Nerves and secretion; 2) Nerves and gastrointestinal motility; 3) Afferent nerves from the gut; and 4) Brain-gut relationships. Abstracts of related original work will be considered for presentation. Living accommodations and meals will be available on the campus of Harcum Junior College from Thursday afternoon August 12th through Sunday morning, August 15th. Facilities are available for 150 participants. For additional information contact Frank P. Brooks, M.D., Symposium Director, Room 574A Maloney Building, Hospital of the University of Pennsylvania, 3400 Spruce St., Philadelphia, PA 19104.

FIFTH ANNUAL SYMPOSIUM OF AMERICAN GERIATRICS SOCIETY

The Fifth Annual Symposium of the Western Division of the American Geriatrics Society will be held October 8 and 9, 1976 at Del Webb's Townehouse in Phoenix, Arizona.

Title: "How to Treat the Multiple Problem Patient"

The first annual George Griffith Memorial Lectureship will be given at this meeting. Other top flight speakers will lecture and participate in panel discussions.

This program is acceptable for nine hours of category 1 credit in AMA, CMA, ArMA or American Academy of Family Physicians continuing medical education certification, and by the Board of Examiners of the nursing home administrators for twelve classroom hours of continuing education. BENHA #741008-192. This symposium will be co-sponsored by the University of Arizona School of Medicine and Boswell Memorial Hospital of Sun City, Arizona.

For further information please contact: Dr. Julius Schwimmer, Secretary, American Geriatrics Society, Western Division, 12330 - 103rd Avenue, Sun City, Arizona 85351.

INTERNATIONAL SYMPOSIUM ON CARDIAC RECEPTORS

An International Symposium on Cardiac Receptors will be held at the Department of Cardiovascular Studies, University of Leeds, Leeds LS2 9JT, U.K., from September 14 - 17, 1976, sponsored by Cardiovascular Commission of International Union of Physiological Sciences. Topics for discussion: histology and electrophysiology of vagal cardiac receptors; reflex responses of atrial and ventricular receptors; efferent and central nervous mechanisms. Reflex responses following bleeding, infusion and infarction. Electrophysiology and reflex responses of sympathetic cardiac afferents.

Further details and preliminary programme:

Dr. C. Kidd
Dept. of Cardiovascular Studies
University of Leeds
Leeds LS2 9JT, U.K.

COUNCIL OF ACADEMIC SOCIETIES BRIEF

ASSOCIATION OF AMERICAN MEDICAL COLLEGES • 1 DUPONT CIRCLE NW • WASHINGTON DC
(202) 466-5100 WINTER, 1976 VOL. 1, NO. 2

HEALTH BUDGET. On January 28-29 Congress overrode President Ford's December 19 veto of the Labor-HEW Appropriations Bill for fiscal year 1976 by large bipartisan votes. This event signalled the beginning of the election year in Congress and will certainly make more difficult the Administration's desire to trim NIH spending between now and September (FY 76). Although the battle is won, the war is far from over. OMB and the President will likely try to cut as much as 200 million dollars out of the current NIH budget with deferrals and recissions which must be acted on individually by Congress. However, deferrals should be more difficult now that Congress has acted decisively. Several sensitive areas remain to be watched:

Fellowship and training grants. Fellowship and training grant applications were solicited and received by NIH until early January. New training grant authority (called National Research Service Awards) should become law soon. A supplemental appropriation bill must follow, and this, too, runs the risk of veto. Thus, OMB may be tempted to defer all training starts and renewals past July 1. Meanwhile NIH waits expectantly, needing clearer signals for action.

Research grants. Grants assigned to "have-not" institutes (all except the Cancer Institute) continue to be in trouble in spite of the override. Grants approved at November Councils may not be funded if OMB pushes deferrals. In the latter event, no new starts will be made until after July 1. The next two months will reveal Administration strategy here, and Congressional pressure may be needed.

President Ford's 1977 Budget message has also been received. This continues NIH spending at about the fiscal 1975 level. Due to the effect of inflation, however, "1975 Spending" means spending 12% less in 1977. Nevertheless, the 500 million dollar cut for NIH which Washington observers had feared did not materialize. This, coupled with Congress's action, makes the biomedical research outlook brighter but certainly not rosy.

NATIONAL HEALTH PLANNING AND RESOURCES DEVELOPMENT ACT. This legislation (P.L. 93-641) passed by Congress in 1974, is now in the process of implementation. The intent of the law is to provide local review and supervision of the allocation of federal funds to health facilities and resources. Through local Health Systems Agencies (HSA) within the states and State Health Planning Development Agencies at the statewide level, approval will be required to expand facilities and services, modify existing programs, or institute new programs.

The degree to which the local and state agencies will be empowered to review and approve the allocation and use of resources generally considered to be of national scope (e.g. research grants and contracts and graduate medical education programs) remains an open question. Involvement of academic faculties at both local and state levels is important. It is suggested that faculties arrange briefings within their institutions in order to become familiar with the status of development of the HSA and State Agency in their region. For more detailed information contact Tom Morgan at AAMC.

BIOMEDICAL RESEARCH FUNDING. Results of the study of the impact of biomedical research funding on the nation's academic medical centers have just been presented to the President's Biomedical Research Panel (See CAS Brief Vol. 1, No. 1, Fall 1975). The study showed that the growth of biomedical research funds from 1964 to 1974 was 78% in current dollars but only 6% in constant dollars (taking inflation into account). At the same time total operating budgets of academic medical centers increased 82% in constant dollars due to larger amounts of state funds (primarily for teaching) and of professional fees and other clinical income for patient care.

As a result of the heavier involvement of faculty of the medical centers in educational and clinical activities, federal research revenues declined from 36% to 21% of total operating budget over the 10-year period. Other indicators of this changed effort at academic centers was the 50% increase in students and the 105% increase in faculty.

Academic medical centers with the heaviest research emphasis showed an overall dollar increase in research funding but a decline in research funding as a proportion of the total budget. Curriculum changes could not be related to biomedical research funding. Family medicine programs were just as likely to be started at academic medical centers having heavy research emphasis as at those less involved in research.

EEOC EYES PROFESSIONS. A proposed revision of EEOC guidelines would have a profound impact on the admissions process, education, certification, and licensure procedures for the professions. The guidelines previously have been applied only to personnel selection and hiring practices in industry. The obvious objective is to facilitate access to employment in the professions for groups currently underrepresented. "Discrimination" (adverse impact) in selection procedures is defined as the experience of any group not achieving at least 80% of the success rate of the most successful group. Where adverse impact is discovered, evidence of satisfactory validity must be supplied which demonstrates that success on the job is directly related to selection measures and criteria and to the same extent that the latter are weighted in selection decisions. One assumption seems to be that the possibilities for measuring competencies of an assembly line worker are comparable to those for measuring the performance of physicians, teachers, and researchers. This example of federal regulatory agencies ever extending their authority is a sign of the times.

AAMC is cooperating with the American Board of Medical Specialties, the Council of Medical Specialty Societies, the American Hospital Association, the Educational Council for Foreign Medical Graduates, and the Federation of Associations of Health Regulatory Boards in attempting to challenge the extension of EEOC's jurisdiction to the professions.

The CAS Brief is prepared by the staff of the AAMC's Council of Academic Societies and is distributed through the auspices of your member society.