
Difference of Opinion

I cannot fall out or contain a man for an errour, or conceive why a difference in Opinion should divide an affection; for Controversies, Disputes, and Argumentations, both in Philosophy and in Divinity, if they meet with discreet and peaceable natures, do not infringe the Laws of Charity. In all disputes, so much as there is of passion, so much there is of nothing to the purpose; for then Reason, like a bad Hound, spends upon a false Scent, and forsakes the question first started. And this is one reason why Controversies are never determined; for, though they be amply proposed, they are scarce at all handled, they do so swell with unnecessary Digressions; and the Parenthesis on the party is often as large as the main discourse upon the subject.—Sir Thomas Browne. Religio Medici. Edited by W. A. Greenhill, M.D. London, MacMillan and Co., Ltd., 1950, p. 98.


Men of science who mean to embrace the principles of the experimental method as a whole, must fulfill two classes of conditions and must possess two qualities of mind which are indispensable if they are to reach their goal and succeed in the discovery of truth. First, they must have ideas which they submit to the control of facts; but at the same time they must make sure that the facts which serve as starting point or as control for the idea are correct and well established; they must be at once observers and experimenters.—CLAUDE BERNARD. An Introduction to the Study of Experimental Medicine. New York, The Macmillan Company, 1927, p. 21.
FAT ABSORPTION


An Editor’s Prayer

It is essential that a scientific observer should be able to write a clear and definite report of his aims, his methods, his results, and his conclusions. Flowery language and dramatization are out of place in scientific exposition. Likewise the art of persuasion —i.e., special pleading—must be excluded, for the facts presented should be convincing without an appeal to feelings. The prime requirements are clarity and brevity. In view of the enormous volume of scientific publication, I would like to emphasize brevity.—WALTER B. CANNON, M.D. The Way of An Investigator. New York, W. W. Norton & Co., Inc., 1945, p. 40.
Acknowledgment

The authors would like to thank Alexander S. Nadas, M.D., for critically reviewing the manuscript.

References


The very first step towards success in any occupation is to become interested in it.

On coming to Harvard College I was suddenly plunged into the new experience of listening to lectures and being required to take notes. At the first lecture I attended, I happened to sit beside a rather badly battered and very ponderous member of the football team. In my ignorance I turned to him for advice, asking him what to put down in my notebook. He growled back sotto voce, "Wait till he says something loud. Put that down." It was not long before I learned that, in spite of such expert testimony, there was a great difference between sound and sense.—WALTER B. CANNON, M.D. The Way of An Investigator. New York, W. W. Norton & Company, Inc., 1945, p. 17.
is probably related to the vasoconstrictive properties of serotonin secreted by the carcinoid tumor.

Summary

Acquired pulmonic stenosis is rare. A well-documented case of pulmonary infundibular stenosis due to mediastinal lymphoma has been described. Complete disappearance of the heart murmur followed therapy with nitrogen mustard. Other causes of acquired pulmonic stenosis have been discussed.

References


Religio Medici

I could never divide my self from any man upon the difference of an opinion, or be angry with his judgment for not agreeing with me in that from which perhaps within a few days I should dissent my self.—SIR THOMAS BROWNE. Religio Medici. Edited by W. A. Greenhill, M.D. London, MacMillian and Co., Ltd., 1950, p. 12.


Science since Darwin is fact upon fact, instance upon instance, experiment upon experiment, principle upon principle, which fitly joined together by some master mind may establish some great truth.—Sir William Osler. Aphorisms From His Bedside Teachings and Writings. Edited by William Bennett Bean, M.D. New York, Henry Schuman, Inc., 1950, p. 59.
ECG DIAGNOSIS OF VENTRICULAR ENLARGEMENT

and definition of known and unknown as well as controversial issues in the field of electrocardiography.

References

Early learn to appreciate the differences between the descriptions of disease and the manifestations of that disease in an individual—the difference between the composite portrait and one of the component pictures.—SIR WILLIAM OSLER. Aphorisms From His Bedside Teachings and Writings. Edited by William Bennett Bean, M.D. New York, Henry Schuman, Inc., 1950, p. 76.
Applications Being Accepted
For Medical Education Award

Applications for the American Heart Association's 1963-64 award as Associate in Research in Medical Education are now being accepted. The award was established by the Association to stimulate careers in the study of medical teaching methods and to prepare qualified physicians for leadership in this field.

A candidate selected for the award will be given the opportunity to receive training in one of the Departments of Research in Medical Education recently established in U.S. medical schools and to participate in the study of pilot projects in continuing education undertaken by the American Heart Association.

Applicants are required to have an M.D., Ph.D., or Sc.D. or its equivalent, and be a U.S. or Canadian citizen, or provide evidence of intention of becoming a citizen.

In order to meet the needs of candidates drawn from varied backgrounds and experience, the stipend will be determined at the time of review of the application. It will, however, be at least at the level of senior postdoctoral fellowship, and above for candidates with special qualifications.

December 15, 1962 has been set as the deadline for receipt of applications. Candidates may apply through the Director of Professional Education, American Heart Association, 44 East 23rd Street, New York 10, New York.

AHA Awards Presented
At Annual Meeting

Honors conferred on physicians, scientists and other members of the American Heart Association at its Annual Meeting and Scientific Sessions in Cleveland, included:

Gold Heart Awards

Three Gold Heart Awards, highest honor of the Association, were presented at the Annual Dinner as follows:

Irvine H. Page, M.D., Director of Research, Cleveland Clinic Foundation, a past-President of the AHA and the Cleveland Area Heart Society and a prime mover in organizing the Council for High Blood Pressure Research;

Robert W. Wilkins, M.D., Professor and Chairman of the Department of Medicine, Boston University School of Medicine, also a former President of the national Association and of the Massachusetts Heart Association, and a member of the AHA Board for more than a decade;

Sylvester L. Weaver, Jr., Board Chairman of McCann-Erickson Corporation (International), Chairman of the AHA Board since 1959, has served on the Board for 12 years and as a Vice President from 1956-59.

Research Achievement Award

Maurice B. Visscher, M.D., Distinguished Service Professor and Chairman of the Department of Physiology, University of Minnesota Medical School, received the Association's 1962 Research Achievement Award.

Dr. Visscher was cited for his work in the area of cardiac energy metabolism, his studies of the mechanisms of the production of pulmonary edema in various situations, and as a pioneer in the use of isotopic tracers which demonstrated the active transport of materials between the circulation and the intestinal lumen.
Affiliates Donate $93,545 
For National Research

Affiliates and chapters of the Association had contributed $93,545 through August 30 to supplement the AHA national research program for fiscal 1962-63. These donations make possible the support of studies approved by the Research Committee which could not otherwise be financed by the national research budget.

In addition to those previously reported, contributions in excess of amounts regularly assigned for research have been received from Heart Associations as follows:

Connecticut Heart Association, $6,000 to help support a grant to Dr. Howard Levitin at Yale University School of Medicine; Stanford-Darien-New Canaan (Conn.) Heart Association, $4,000, Manchester Area (Conn.) Heart Association, $4,000, Norwich (Conn.) Heart Chapter, $1,150, Norwalk Area (Conn.) Heart Chapter, $10,000, Willimantic (Conn.) District Heart Association, $3,500, and Eastern Windham County (Conn.) Heart Association, $1,155 in partial support of grants to Drs. M. Jay Goodkind, Allan V. N. Goodyer, Michael Hume, and Levin L. Waters, all at Yale University School of Medicine, and Dr. Harrison F. Wood, at Gaylord Hospital, Wallingford, Conn.

Also, Idaho Heart Association, $3,840, to help support grants to Drs. John J. Osborn at Stanford University, Robert F. Rushmer, University of Washington School of Medicine, and Arthur J. Seaman, University of Oregon Medical School; Washington State Heart Association, $17,205 to help support the grant to Dr. Rushmer and in full support of a grant to Dr. Warren G. Guntheroth, University of Washington School of Medicine, and Sullivan County (N.Y.) Heart Chapter, $1,000 towards a grant to Dr. Alvan R. Feinstein, Irvington House, Irvington-on-Hudson.

Booklet for CV Patients
Available to Physicians

A new booklet which discusses cardiovascular diseases and tells in lay terms what they are, how they can be controlled and what the prospects are for cure and prevention, has been published by the Association for distribution by physicians to their patients.

Titled "Facts About Heart and Blood Vessel Diseases," the publication is a report on the most common types of cardiovascular disorders, including atherosclerosis, heart attack, stroke, hypertension, rheumatic fever, congenital defects and peripheral vascular diseases. Also discussed are angina pectoris, low blood pressure, bacterial endocarditis, congestive failure, and heart disease caused by syphilis and thyroid disorders.

The booklet cautions against self-diagnosis and stresses the importance of prompt medical diagnosis and care. Copies may be obtained from local Heart Associations or the AHA national office, 44 East 23rd Street, New York 10, New York.

Used Journals Wanted

Physicians and scientists in the U.S. are being asked to send their used medical journals—particularly specialty publications such as Circulation and Circulation Research—to their colleagues in Asia, Africa and Latin America. Those wishing to participate may obtain names, addresses and the medical specialty of physicians abroad who wish to receive current medical literature from: U.S. Committee, World Medical Association, 10 Columbus Circle, New York 19, New York.

Meetings Calendar

November 25-30: Radiological Society of North America, Chicago. M. D. Fraser, 1744 S. 58th St., Lincoln, Nebraska.

1963

January 21-23: American College of Surgeons,


March 18-21: Southeastern Surgical Congress, Miami Beach. A. H. Letton, 340 Boulevard, N.E., Atlanta 12, Georgia.

March 29-31: American Society of Internal Medicine, Denver. Mrs. A. V. Whitehall, 3410 Geary Blvd., San Francisco 18, California.

March 29-April 5: American Academy of General Practice, Chicago. Mae F. Cahal, Volker at Brookside, Kansas City 12, Missouri.


April 28: American Federation for Clinical Research, Atlantic City. W. P. Deiss, Indiana University Medical Center, Indianapolis 7, Indiana.


Abroad

November 11-16: World Medical Association, New Delhi, India. H. S. Gear, 10 Columbus Circle, New York 19, New York.

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THE PLASMA MEMBRANE
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The symbols on the cover were taken from a schema by J. F. Danielli and Hugh Davson.
Symposium on

The

Plasma

Membrane

New York Heart Association, Inc.

New York City, December 8-9, 1961

Alfred P. Fishman, M.D., Guest Editor
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I. Growth of the Plasma Membrane Concept
Chairman: Alexander Mauro, Ph.D.

Introduction
By Alexander Mauro, Ph.D.

I AM HONORED and pleased to serve as chairmain for the opening session of the symposium about the plasma membrane. For those who are probably wondering why our committee chose to devote a session to an historical review of the concepts and constructs pertaining to the cell membrane, it is fitting to point out, especially to the enthusiastic youngsters entering this field, that the subject of the plasma membrane does have a history and indeed represents the outcome of many years of investigation in cellular physiology. We hope that from this morning's session you will gain some insight into the painstaking and ingenious efforts of the early workers in the gathering of experimental data which finally compelled them to postulate an entity that was in many ways quite ambiguous and somewhat tenuous indeed. Today, with the advent of electron microscopy, no one doubts that a highly confined stratum is present in the periphery of the cell and, in fact, the dark line or pair of lines in the electron micrograph is now almost glibly accepted as “the Plasma Membrane.” At the same time, although the existence of this entity has been firmly established, we should be reminded that we are a long way from having a clear understanding of the detailed molecular structure and the associated mechanisms operating in this region of the cell.

From the Rockefeller Institute, New York, N. Y.

Life is like a whirlpool in many ways. When once set a-going it spins on and on... In its tendency to spin on for ever there is life's purpose—to go on living.—Homer Smith.
II. Ultrastructure of the Plasma Membrane

Chairman: George D. Pappas, Ph.D.

Introduction

By George D. Pappas, Ph.D.

As we have already seen, the plasma membrane is more than a concept—it is a very tangible reality. The specializations and elaborations of the cell surface revealed to us by electron microscopy are undoubtedly of fundamental importance to the understanding of the physiological processes going on in this area. Since the cell surface has a three-dimensional nature, many functions may originate within the thickness of this structure. Therefore, its molecular anatomy is not to be ignored.

Those who advance ideas on fluid transport, secretion, and the like must consider the modern understanding of anatomy in the same way that their predecessors of the nineteenth and early twentieth centuries worked within the framework of structure as it had been revealed at that time by the light microscope.

The information we may gain about structure and function at the cell surface must also be applied to processes occurring in other membrane-limited systems. Within the cytoplasm of the cell, the electron microscope has revealed an intricate, intracellular membrane system. The various cytoplasmic organelles, such as the mitochondria, Golgi complex, and various plastids, are defined and membrane bound. In addition to the cellular inclusions and organelles previously identified by the light microscope, a complex vacuolar system of membranes and associated particles, the endoplasmic reticulum, has been described by Drs. Porter and Palade, with the use of the electron microscope.

This afternoon, we will examine certain aspects of the structure and specialization of the cell surface. We may be able to project functions of these specializations to the physiology and economy of other membrane-limited systems of the cytoplasm.

... protoplasm is basically a physical-chemical mechanism having the character of a self-integrating, self-restoring, self-centered comfort machine, operating to the sole end of self-preservation.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.

If [man] wishes to know where life begins and ends, then he must study it, see how it works and what it is. Perhaps the perfect knowledge . . . can never come to him, for the stream of life may shift to some other bed before that time, and leave him in a blind alley.—Homer Smith. Kamongo. New York, Viking Press, 1956.
bution is, but one does know that the adsorption of the extended protein chain on a surface is, in fact, mainly due to the squeezing out of the hydrocarbon portions of the protein side chains from the aqueous phase into a nonaqueous phase. There undoubtedly will be a considerable contribution to the lipid phase in that way.

Dr. A. M. Shanes (University of Pennsylvania): I have been a bit disturbed by the omission of reference to a very old observation by Dr. Kopac and Dr. Chambers that the membrane of certain eggs can be wet by oil. Throughout this discussion, the assumption has been made that we have protein on both sides. If protein were present, I wonder if the cell membrane or plasma membrane of the Arbacia egg could be wet by oil. I think, also, in the process of doing this work, Kopac and Chambers pointed out the necessity of removing the extraneous coats. Indeed, if I am not mistaken, many of the so-called low-tension measurements on the membranes of these eggs really measured the characteristics of the extraneous coats, which, I assume, are rather rigid envelopes protecting the membrane.

Dr. Robert A. MacLeod (McGill University): So many of these transport systems require the expenditure of energy. I wonder if Dr. Fernández-Morán could suggest how this might enter into his type of system?

Dr. Fernández-Morán: We have some tentative ideas that we are about to put to experimental test. But before doing so, we will have to learn more about the primary dehydrogenase complexes of the citric acid cycle. After that, the elucidation of the mechanisms of oxidative phosphorylation at the molecular level will be the next major problem.

On every scientist’s desk there is a drawer labeled UNKNOWN in which he files what are at the moment unsolved questions, lest through guesswork or impatient speculation he come upon incorrect answers that will do him more harm than good. Man’s worst fault is opening the drawer too soon. His task is not to discover final answers but to win the best partial answers that he can, from which others may move confidently against the unknown, to win better ones.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.


In man the 'self,' the seemingly enduring spectator-director who commands the performance, is an impermanently sustained pattern of neural activity. . . it forms and dissolves in successive instants, and never re-forms the same.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.

There are those who say that they can extrapolate from purpose in the organism to purpose in the cosmos, from personality in man to a personality transcending the stars and the nebulae. This, I must question. Purpose in the organism issues from its molecular structure, as does personality in man; and both are transient patterns in the swirling fountain of matter and energy that in a few thousand million years has spewed galaxies in inconceivable numbers and at inconceivable speeds into the impenetrable depths of space.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.
IV. Physics and Chemistry of the Plasma Membrane

Chairman: John S. Cook, Ph.D.

Introduction

By John S. Cook, Ph.D.

Many of our concepts of membrane structure are based on efforts at direct visualization with the electron microscope, as was stressed in yesterday’s discussions, and on data obtained from the study of transport kinetics, as will be stressed in the final session of this symposium. This morning’s speakers are well known for their approaches to this problem which have involved direct physical and chemical determinations on the cell surface. To accomplish their end, they have utilized such varied techniques as x-ray diffraction, birefringence studies, surface-tension measurements, enzymatic degradation of the cell surface, and the construction of model systems. The nature of their work, and its contributions to the understanding of the plasma membrane, will become clear in the papers that follow.

From the Department of Physiology and Biophysics, New York University School of Medicine, New York, N. Y.

The evolution of the nervous system represents the evolution of a device that, by introducing flexibility and adaptability into the stimulus-response pattern, supplements the operations of the kidney to this same end—to minimize the organism’s disquietudes.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.

It is scant modesty for man, even if he is the 'highest vertebrate,' to presume that he can predict the cosmic plan on the intensity of his joy or pain, or cement the stars together with even his highest aspirations.—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.
forward a hypothesis or discover a fact, another will. No scientist can afford to be arrogant about the degree of originality he achieves.

References


... we can be sure that it is by these hands and the brain above them that man has come into his vast freedom. He has literally taken the world with them, both because he had them to use and because he had to use them.—Homer Smith. Kamongo. New York, Viking Press, 1956.
tributed to the cell membrane and because it is made from solubilized lipids extracted from white matter, we suggest that it is reconstituted cell-membrane structure. It is stable enough to exist free under water in the presence of strong convection currents and vibrations and could, therefore, constitute a major element of structural support for the aqueous protoplasmic phase of cell and nucleus. In addition, it can show the cellular function of electrical excitability and perhaps other cell functions as well, if the composition of the lipid phase and the nature of the adsorbed molecules are properly selected.

References
V. Cellular Activity and The Plasma Membrane

Chairman: C. Adrian M. Hogben, M.D., Ph.D.

Introduction

By C. Adrian M. Hogben, M.D., Ph.D.

In this volume, in which we pay tribute to Prof. Homer W. Smith, it is appropriate that we concern ourselves with the structure responsible for the maintenance of "homeostasis" of the cell. Homer Smith, who had so brilliantly brought a breath of perception to the study of the maintenance of the fluid and electrolyte homeostasis of the whole organism, in his later years turned to the underlying problem of the physiology and anatomy of the plasma membrane.

Until about 1940, we were apt to regard the plasma membrane as a simple barrier to movement. With the advent of isotopes and a freer conceptual approach, we now accept the fact that it is also a machine that does work, perhaps the most important work of the cell. But with the proper present emphasis on "active transport" and "pumps," we should not lose sight of the fact that it is also a barrier and that the limitation that it imposes upon free movement has made possible the organization of more complex forms of life.

The following four papers mirror but a small fraction of the work currently conducted on the function of the plasma membrane. But the selection of such different problems as ultrastructural correlates of secretion, the physical-chemical characterization of the cell surface, the enzymatic basis of active ion transport and ionic exchange in an excitable tissue may serve to illustrate the diversity of approaches brought to bear on the problem that was of such interest to Homer Smith.

From the Department of Physiology, University of Iowa School of Medicine, Iowa City, Iowa.

Since the publication of the Origin of the Species the ever-increasing evidences afforded by the sciences of life have only served to emphasize the unitarianism of nature—the fact that the cosmos is a 'universe' and not a 'diverse.'—Homer Smith. From Fish to Philosopher. Boston, Little, Brown & Co., 1953.