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## STIMULATING AN INTEREST IN THE HISTORY OF THE BIOLOGICAL SCIENCES

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There is a spreading wave of interest in the history of the natural sciences. This is particularly observed in medicine but is apparent in all branches of science.

The student of science today possesses a rich heritage. The biological sciences have furnished no small part in the accumulation of this legacy. From the earliest times up to the present, they have played an integral and fundamental role in the progress of civilization. The history of biology and the history of medicine are so closely related that it is difficult to separate one from the other.

Dr. George W. Corner in his book on the history of anatomy remarks that "whether we feel it thus keenly or not, however, the influence of the past inevitably guides our hands as we work, for not only in the ancient seats of the science of anatomy, but in the newest schools of America, the methods we use, the names we learn, the present trends of our investigation have been determined by our predecessors; unless we understand them we can hardly understand our own tasks."

Students in the biological sciences are naturally interested in the relationship

of these sciences to man himself. This is especially true if the student is enrolled in a pre-medical course. Even if he is not in that group, the interest shown by all people in their own health and the well-being of their fellow-men makes a study of the history of the biological sciences an important contribution to one's general education.

To present a systematic series of lectures on the history of the biological sciences takes time away from the already crowded schedule of laboratory studies which are exceedingly essential. Other means of stimulating an interest in biological history are available. Such methods have proved helpful in the experience of those who have used them. These include: (1) introductory lectures and frequent, brief references to history as it relates to the subject which is being presented; (2) the use of a bulletin board devoted to the history of biology; (3) the encouragement of the reading of biographies and histories related to biological science; (4) the formation of a society of students interested in problems in history.

The introductory lecture to a course serves as an excellent opportunity to obtain a "bird's-eye" view over the entire field of the subject. The historical approach can be appropriately used at this time. William Hunter (1718-1783), founder of the Great Windmill Street School of Anatomy which played a very significant part in the history of medicine and who was one of the greatest of the teachers of anatomy, regularly began his course of lectures with an account of anatomical study from the days of Aristotle and Galen to his own period.

Reference to history can very easily be made at appropriate places. In a lecture on circulation in a general college course or in a pre-medical course, there is an opportunity to mention William Harvey and his classic of 1628, *Exercitatio Anatomica De Motu Cordis et Sanguinis in Animalibus*. Some students might be stimulated to read this book which surely belongs among those books which should be familiar to every well-read man. Appropriate reference can be made to Aristotle's *Historia Animalium* and to Harvey's *Exercitationes De Generatione Animalium* in courses in college embryology. Perhaps copies of these works can be displayed. The opportunities to inculcate an interest in the history of biological science in such a way are numerous and varied.

A bulletin board which is regularly set apart for the history of biology is a means of stimulating interest. It should be located in the laboratory in a place where the light is good and where it is easily accessible for the students. In our Gross Anatomy laboratory we found such a place. We have had occasion during the past six years to observe how carefully the bulletin board is studied. The comments by the students and the questions which have arisen in their minds—for which they have sought further information—have more than justified the time spent in preparing the exhibits.

The bulletin board is changed each week. When the student learns that new material is placed weekly on the board he will develop the habit of looking for the display. Material for the exhibits is easy to obtain. Envelopes which contain the pictures, maps and cards bearing the necessary data for each one can be filed ready for use another time. Every year brings new material. No small number of our pictures have been found in the

advertisements of scientific companies and in the advertising section of scientific journals. This is especially true of material which is useful for an exhibit on medical history. Photographs in books and pictures of the title-pages of certain biological classics are easily procured. We have found that our medical students watch for material of this sort. Some of our finest illustrative material has come from them.

The student is given a mimeographed list of the bulletin board exhibits for the course on the first day the class meets. Brief biographical notes concerning the men whose photographs are included in the displays, and a bibliography of readily accessible and interesting references are included with the list. The schedule of the subjects is never the same for any two years. A cluttered, crowded board does not invite the student's attention. An attractive display of only a small amount of pertinent material is far preferable. The bulletin board must be carefully arranged.

The exhibit on Galen will serve as an example. A card with the word "Galen" and the dates of his birth and death is placed at the upper, middle part of the board. Photographs of Athens and Rome (two cities with which he was especially identified) flank the title card on either side. Beneath the card is a portrait of a bust of Galen taken from an advertisement in a journal. A map of the Mediterranean region occupies the center of the display. Pergamum is marked with red ink and a red string leads out to a card which is inscribed with the words, "Galen was born at Pergamum and was the son of the architect and mathematician, Nikon. From 157-161 A. D. he was surgeon to the gladiators of that city." Next to the card is an illustration of a gladiatorial combat from a text-book of ancient history. Smyrna, Corinth, Alexandria, Rome and Athens are similarly marked on the map and colored strings lead to cards which bear pertinent data. The left, lower corner of the board has a page from a translation of his "Anatomical Procedures," and the right, lower corner has a card on which is a brief summary of Galen's contributions as a teacher, an author and a physician.

No two persons would ever choose the same material for a bulletin board in the history of biological science. The schedule given here is only a suggestion

as to the large amount of history which can be covered in this way by having each week an exhibit of material which relates to one or more of the outstanding biologists of history.

#### SCHEDULE OF BULLETIN BOARD DISPLAYS

1. Aristotle (384-322 B.C.)
2. Pliny the Elder (23-79 A.D.)
3. Galen (131-201)
4. Avicenna (980-1037) and the Arabians
5. Leonardo da Vinci (1452-1519)
6. Vesalius (1514-64)
7. Gesner (1516-65)
8. Harvey (1578-1657)
9. Malpighi (1628-94)
10. Leeuwenhoek (1632-1723)
11. Linnaeus (1707-78)
12. John Hunter (1728-93) and His Associates
13. Cuvier (1769-1832)
14. Schleiden (1804-81) and Schwann (1810-82)
15. Mendel (1822-84)
16. Pasteur (1822-95)
17. Walter Reed (1851-1902) and Yellow Fever
18. Biologists of the Twentieth Century

A shelf of books in the history of the biological sciences is a constant invitation to the student to enter and enjoy the realm of literature of this sort. Books should be located on an open shelf where they may be examined at leisure. Lacy's "The Story of Biology" and his "Biology and Its Makers," Singer's "Greek Science and Modern Science," J. Arthur Thomson's "The Science of Life" and "Garrison's "History of Medicine" are only a few examples of general books. Biographies have led many students to a real interest in the history of science. The excellent biography of Osler by Harvey

Cushing and the one by Ethel Giddings Reid, Sigerist's "The Great Doctors," Paget's "John Hunter, Man of Science and Surgeon," D'Arcy Powers' "William Harvey" and Foster's "Claude Bernard" are of this group. Paul De Kruif's books have led several college students whom I know to an interest in the history of medical science. An exhibit of carefully chosen books in the laboratory or the lecture-room, as well as in the library, serves to direct attention to them in a forceful way.

Students are gregarious and a society for the history of biology will appeal to many of them. This organization should be properly supervised, but the students themselves should assume the duties which are required and take the leading role in its activities. The preparation and delivery of papers, the participation in discussions and the training in the conduct of meetings is most worthwhile.

These are only a few suggestions as to how we can stimulate an interest in the history of the biological sciences. Lacy says that "the place of biology in public esteem and public consideration is well established." The time is here for us to lay more emphasis upon the main scenes and the chief actors in the intriguing drama of biological history.

#### REFERENCES CITED

1. Corner, George W.: Anatomy (Clio Medica Series), Paul B. Hoeber, Inc., N. Y., 1930, p. 1-2.
2. Lacy, William A.: The Story of Biology, Garden City Publishing Co., Inc., Garden City, N. Y., 1925, p. 4.