for discovery of truth. But the policy does admit a second level of research. For it is neither assumed nor to be assumed that the norm of acceptability in student research shall equal the norm of staff production in research. The standard is, rather, the minimal level of acceptable staff research. Hence, if student research be placed in the same category with staff research, the level of quality in the total research product of the university is lower than it is under the first policy of strict staff responsibility.

(3) The third, or intermediate, policy protects staff research exactly as does the first policy. But, like the second policy, it admits a second level of research. The level of student product, however, is likely to be raised. For the policy involves training in the essentials of technical procedure preliminary to the undertaking of independent research. Hence, the level of total research under university auspices will, in quality, lie between the extremes.

III

The end of the training function is the competent researcher—a man able to locate and define a problem for investigation; able to plan and carry through a technique of inquiry appropriate to the solution of his problem; able to organize and interpret, in their immediate bearings at least, the findings to which his inquiry leads.

(1) The first policy, well designed to the maintenance of quality in research, is deficient as a means to the qualification of the researcher. The candidate is not the original and responsible agent in location and definition of the problem for investigation; nor is he selecter and organizer of the method of attack; nor, again, is he organizer and interpreter of findings. In all those phases of the investigation he is but observer, or, at best, "vicarious participant." He is responsibly active only in execution of technique. That is, his "training" is alongside of research rather than in it. If the candidate has originality he has not demonstrated it. He is trained only as a technical assistant, not as a researcher.

(2) Under the second policy the candidate is placed in the position of the researcher. He must find and define his problem, plan and execute his technique of inquiry, organize and interpret his findings. His participation in research is genuine and not vicarious. He is trained in research by performance of "a complete act" of research.

(3) The third policy, by keeping the candidate in contact with "a complete act" of a competent researcher, provides for him a pattern of research. By repeated practice in certain essentials of technique it trains him in elements of habit usable in research. By assignment to independent research it educates him in "a complete act" of research. The candidate learns both by imitation of research and by genuine research of his own.

IV

It appears, then, that an organization of university function to the end of highest quality in research is not an organization best adapted to the production of the competent researcher. On the other hand, an organization to the end of competency in the researcher is not best adapted to the highest product in research. The functions of research and of training in research are coordinate, but they are not coincident.

Can not the university best serve both ends by a frank recognition of distinction in functions? Let us have in one category research of the highest quality, performed by the experts in research—what I should like to call university research. In another let us have research of high quality, performed by initiates in research, undertaken by the university not for the sake of its value in contributing to the sum of known truth, but undertaken as a means to the development of competency in prospective researchers. This I have, without license, already called student research.

T. H. EATON

CORNELL UNIVERSITY

THE PROMOTION OF KNOWLEDGE OF PRECAMBRIAN LIFE

THE promotion of the knowledge of Precambrian life is the object of an award and medal founded by Mrs. Mary Vaux Walcott, in memory of her late husband, Dr. Charles Doolittle Walcott, internationally distinguished for his investigations of Cambrian life and preeminent in his explorations of Precambrian life. A trust fund providing for an honorarium and inexpensive medal has been established under the auspices of the National Academy of Sciences in accordance with Mrs. Walcott's letter as follows:

I inclose herewith the outline for a medal and honorarium, to be awarded every five years by the National Academy in memory of the work of my husband, Charles Doolittle Walcott. I hope this trust will be acceptable to the Academy and serve to stimulate investigation along the scientific lines which were of such great interest to Doctor Walcott.

The essential provisions governing the award are:

(1) The fund ($5,000) is to be known as the Charles Doolittle Walcott Fund.

(2) The income shall be used for the award of medals and honoraria to persons between the ages of 21 and 48 years, the results of whose published researches, explorations, and discoveries in pre-Cambrian history shall be judged by the Trust Fund Board to be most meritorious. The award shall be made without respect to nation, race, sex, or academic degree.

(3) A medal to be known as the Charles Doolittle Walcott Medal, for the promotion of knowledge of pre-Cambrian life, is to be awarded every 5 years, beginning with 1932, unless in the judgment of the Board no candidate worthy of the award is in view at the end of the period. The medal is to be cast in bronze or some other inexpensive metal and the accrued income in highest even hundreds of dollars is to accompany the medal as an honorarium. The same person shall not receive the medal and prize on two successive periods.

(4) The selection of the recipients is in the hands of the Fund Trustees, whose recommendations are submitted to the Council of the National Academy for approval. The Trustees, 5 in number, are to include the Secretary of the Smithsonian Institution in Washington, *ex officio*, a member to be proposed by and represent the Institut de France, a member similarly representing the Royal Society of London, and two members of the National Academy of Sciences distinguished in Paleozoic paleontology, to be appointed by the President and Council of the Academy.

(5) The awards will be bestowed at annual meetings of the Academy.

An interesting and notable feature of the terms of the gift is the stipulation that it is awarded only to young men and women who have not yet passed the age of forty-eight.

The announcement of the gift of the fund by Mrs. Walcott and of its acceptance by the council of the Academy was made in the session of the Academy on April 23. The formal acknowledgment by the president of the Academy follows:

Permit me, on behalf of the council of the Academy, to express the satisfaction felt by it that you are commemorating the life and work of Dr. Charles Doolittle Walcott by establishing a medal and honorarium bearing his name for the promotion of knowledge of Precambrian life, and also to thank you for your confidence in placing in trust of the Academy this memorial to a distinguished member, who did much to advance its welfare.

The history of Precambrian life runs from the origin of the first living organism to the high development of the lower orders of life found in the early Cambrian, in the study of which Dr. Walcott was for many years pre-eminent. The period covered by this history, during which terrestrial conditions, including seas, lands, sunlight, rains, winds and currents appear to have been favorable for life on earth, may well have been as long or even longer than all time that has elapsed since the first Cambrian sediments were laid down. The story of the sequence of plants and animals during Precambrian time to be told by the actual fossil remains is as yet almost wholly unknown. Most of its pages have been torn away or effaced by mountain building and erosion, or blotted and disfigured beyond hope of discernment by the forces which have produced metamorphism or even complete destruction. Some doubtless now lie buried deeply from sight beneath the strata of later ages, to be revealed, perhaps, by erosion following new revolutions in the course of hundreds of millions of years to come. Only in comparatively few areas, where the sediments, after having first escaped obliterating metamorphism have fortunately escaped erosion or deep burial, can we expect to find surviving fragments of the record which future students may laboriously piece together. In some cases, the records, though offering indisputable proof of life, do not permit the revelation of the structure of the organism and its meaning, just as an old letter, faded and torn, is unquestionably in writing, though it can not now be read. In other cases the student may not for a time understand the language, many of whose characters are nevertheless distinct. Eventually, however, large portions of the history of Precambrian life will be built up, piece by piece, and with it the larger understanding of the conditions, the processes and the contemporaneous products of the evolution of life on earth.

For over thirty years Dr. Walcott was deeply interested in the search in Precambrian formations for the remains of life antecedent to that in the earliest Cambrian with which he was so familiar. His early discoveries in the Appalachian and the southwestern regions paved the way for his later discoveries of the highly varied and impressive organic formations in the Belt series and associated terranes of the Northern Rocky Mountains, which form the nucleus of our greatest contribution to Precambrian life, especially as it is revealed in deposits laid down through the vital activity of different types of plant life. Not only was Dr. Walcott deeply interested in Precambrian life; to his zeal and persistent faith we owe the greater part of our knowledge of it.

It is appropriate that through these awards you seek to stimulate the interest and zeal of young men and women in this field so long cherished by Dr. Walcott, while perpetuating the association of his name with the advancement of knowledge of Precambrian life.

The Academy accepts your trust in this spirit and in homage to your late husband.

As is well known, Dr. Walcott was for many years an active and productive member of the Academy, which through different periods he served as treasurer, councillor, and, not long before his death, as president. He took a leading part in the acquisition of the lands and in securing the funds necessary for the erection of the magnificent home of the Academy and the National Research Council in Washington.

DAVID WHITE