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**A REVIEW OF THE WORK OF THE SECTION  
ON HISTORY AND PHILOSOPHY OF SCIENCE –  
PAST, PRESENT, AND PLANNED**

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University of Nebraska

**FOUNDING AND ACTIVITIES**

Recently I have had an opportunity to examine the programs, reports and records of the Section on the History and Philosophy of Science of the Nebraska Academy of Sciences. So far no historical report on this Section has appeared, although mention should be made of the excellent “Capsule History of the Nebraska Academy of Sciences” prepared by Dr. Raymond J. Pool and distributed to the membership of the Academy at the annual banquet held on April 22, 1955. Accordingly, I have assembled a number of facts concerning the origin, growth, and development of the Section.

The History of Science Section was organized in 1932, 41 years after the founding of the parent body, the Nebraska Academy of Sciences, under the Chairmanship of the late Charles M. Wilhelmj, M.D., Professor of Physiology at the School of Medicine of Creighton University. He taught a course in the history of medicine to medical students and also organized the Caducean Society for the study of medical history. Later, from 1939 to 1948, he was Dean of the School of Medicine of Creighton University. The Caducean Society played an important role in the early years of the Section, but became dormant during World War II; it has remained so since then.

The first meeting of the “History of Science Section” – changed to “History and Philosophy of Science” in 1945 – was held at the 1932 annual meeting of the Academy at the Hotel Fontenelle in Omaha. This was a joint meeting with the Caducean Society, which also co-sponsored the four meetings of the Section which followed. The Section was, for the first six years, almost exclusively a venture of the School of Medicine of Creighton University, and all but one of the 51 papers presented during this period were submitted by representatives of this school, despite the fact that five of the meetings were held at locations other than Omaha. The ‘outsider’ was Dr. T. J. Fitzpatrick, Professor of Botany at the University of Nebraska. During this early period Dr. Wilhelmj was chairman for the first three, Dr. Nicholas Dietz, Jr., for the fourth and Dr. Victor E. Levine for the fifth and sixth meetings. Each of the latter two was a biochemist on the faculty of Creighton University School of Medicine.

From its origin, the Section has held regular sessions annually with but three exceptions. There were no meetings of the Section at the Academy meetings at Hastings in 1938, at Chadron in 1940, and at the University of Nebraska College of Medicine in Omaha in 1946.

Beginning with 1939, Fitzpatrick served as chairman for the following 10

years except for one year by the election of Levine in 1942. In 1950, Fitzpatrick and Levine served as Co-chairmen of the Section. Fitzpatrick's energetic and sustained efforts gradually resulted in an increase in the number of presentations at the Section meetings. During the nine meetings held from 1942 through 1951, the University of Nebraska was represented by 129, Creighton University by 23, Nebraska Wesleyan University by 12, and others by 5. During WW II years Dr. Wilhelmj was extremely occupied with the accelerated medical teaching program and both Dr. Levine and Dr. Dietz were away on military duties, which resulted in a marked decline in the participation of Creighton University. It was during the Fitzpatrick years that the Section reached its peak, not only in number of papers presented but also in the number of sessions per meeting.

As a direct result of the increased number of participants in the program, it became necessary to restrict the time allotted to each speaker to provide time for discussions. This was done during six of the twelve years of the "Fitzpatrick era." During this period, the number of papers ranged from 21 to 34. In 1947-48, 39 of the 57 presentations (68 percent) were scheduled for 10, the remainder for 15 minutes each. In 1949, however, it was possible to allow one speaker 25 minutes, in 1950 five speakers were granted 20 minutes each, and in 1951 only one participant was limited to 10 minutes. Obviously, if a contribution on such topics as "Louis Pasteur's Life and Contributions to Science," or "Neurology," or "An Abbreviated History of Cardiac Surgery" were limited to 10-minute presentations, there would of necessity be only thumbnail sketches. If the number of speakers were limited to five to seven for each of three possible sessions, greater benefits would result.

Limitation of the number of presentations at each session will not only provide time for informal discussions but allow time for the examination of rare books, old manuscripts, and other objects, which was a feature of Section meetings held in 1939, 1941, 1943, 1965 and 1966. Our combined libraries and private sources can provide many items useful for this purpose, such as the Linnean Collection shown at the 1951 meeting by technical librarian, Eve Heuser, which evoked great interest.

The loss of the persuasive powers of Fitzpatrick, who died on April 4, 1952, became immediately noted. There was a distinct decline in the number of papers presented not only by representatives of the University of Nebraska, but by those of Nebraska Wesleyan University as well. It was at this point that Levine resumed the Chairmanship of the Section. Even with co-chairmanship of Dr. H. K. Elias of the Conservation and Survey Division of the University of Nebraska during 1954-56, most of the presentations were from Creighton University. The low points extended through the six years from 1955 through 1960; only 24 papers from Creighton University were presented and all were authorized by the three stalwarts, Dietz, Levine, and

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the pathologist, Stelios C. Samaras. During the six-year period the number of presentations was so small that no limitations on the time for presentation was necessary.

When Levine left Nebraska in 1960, Dr. Harald G. O. Holck, University of Nebraska Pharmacologist, took over in 1961 and with Dietz as co-chairman has continued during 1962-70. In these 10 years the number of papers were 6, 8, 6, 8, 11, 10, 24, 9, 10 and 8, respectively. Of these 100 presentations, 54 were from the University of Nebraska, 29 from Creighton University, and the remainder from various other sources. Twenty-three of the 24 papers in 1967 constitute a beginning "*Centennial Symposium on Niches for Past Nebraska Scientists of Note*;" it has by 1970 been supplemented by 10 more such niches. Twenty minutes were considered the norm for each speaker. With 9 of the 10 sessions being held at the ideal facilities of the Nebraska Center for Continuing Education and one at Olin Hall of Science at Nebraska Wesleyan University — where in both cases one may move from one section to another very conveniently — there has been a notable increase in attendance at the meetings of our Section.

### CONTRIBUTORS AND THEIR AFFILIATIONS

A survey of the papers which have been listed in the Section Proceedings from 1932 through 1970 and of the names and affiliations of their authors, reveals that of a total of 425 listings, 232, or 55 percent, have been representatives of University of Nebraska, and that representatives of Creighton University have, in proportion to their numbers, supported this Section more than fully as well by contributing 166, or 39 percent of the total. The only other Nebraska Institution offering an appreciable number of papers has been Nebraska Wesleyan University with 12, or 3 percent of the total. The remaining papers, 15 in number, came from various sources. Guests of the University of Nebraska and of Creighton University contributed four, two were from a Presbyterian minister, and one each from the Universities of Omaha and of Tulsa, the Nebraska Game, Forestation and Parks Commission, the United States Department of Agriculture, and its Soil Conservation Service, a Lincoln School psychiatrist, The Nebraska Historical Society, Hiram Scott College, and Concordia Teachers College.

In view of the fact that representatives of the outstate colleges have contributed liberally to the programs of other Academy Sections, it is regrettable that only two teachers from these institutions have appeared on our Section program. Even though the teacher's primary obligations may be to participate in the programs of their own subject matter section and by their personal presence support the efforts of their students in presenting papers there, it would seem desirable for some of them to present topics dealing with the history and philosophy of science. Increasing interest in our

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meetings has been shown by some of the staff and students of 14 smaller colleges and others besides the major universities as indicated by better attendance at these. Thus, the attendance for the 1963-70 sessions included 89 from these colleges, or 28 percent of the total of 316; 61 percent of these hailed from Concordia State College, Kearney State College, and Doane College, with 28, 14 and 12 respectively. The University of Nebraska was represented by 108, or 34 percent, of which 38 fell in the main Centennial Symposium year; Creighton University by 37, or 12 percent; University of Omaha, including two years as the University of Nebraska at Omaha, by 36, or 11 percent; and Nebraska Wesleyan University by 9, or 3 percent of the total. The wide range of interest in the fields and objectives of the Section is indicated by the very diversified attendance as follows: the Smithsonian Institution, 5, the United Park Service, 4, eight high schools, one each, the remainder includes the wives of the speakers, persons interested in a special person or field, press representatives and others. It is the hope that the papers by Professor William C. Scheiderer of Concordia Teachers College on "Niels Bohr: Scientist, Philosopher, Educator" in 1965 and by Professor Joseph W. Meeker of Hiram Scott College on "The Biology of Human Ethics" in 1969 will herald regular participation by colleagues from these and other outstate institutions. To stimulate further interest in the activities of the Section, a special invitation was mailed to members of the Academy during February of 1964, showing examples of the varied kinds of topics coming within the scope of interest of the Section. Also, an earlier version of this review was made available in 1966 to those interested.

With reference to the number of appearances before the Section, Dr. Dietz, who also served as Academy President in 1969-70, is well in the lead, having presented 34, or 8 percent of the total papers; this high number is mainly due to his attendance at most of the meetings from 1934 through 1970, but in part also to presentations of two topics at each of six meetings. His topics have covered a wide range of chemical and medical subjects, including studies of medical aspects of the Bible. Drs. Levine and Samaras share second place, each having contributed 15 papers. Dr. Levine's were spread over many years (1934-60) and dealt with aspects of medicine, biochemistry and nutrition, as well as his specialty of Eskimoes and the Arctic. It was a severe loss, not only to our Section, but the Academy as well, which he had served as president for two terms, that he should die suddenly on September 29, 1964, shortly after completing three years as visiting professor at the Universities of Toledo and Madrid in Spain. Dr. Samaras was a frequent speaker on topics dating back to the Greek era, presenting two papers at each of six meetings (1949-59). All but the last of his 15 presentations occurred during his term of service at Creighton University. Thus, these three speakers have contributed 64 papers; this represents 15

percent of the total number of 425 contributions, and 39 percent of the 166 Creighton presentations.

With reference to participation in the programs of the section by representatives of the University of Nebraska, the number of advanced students involved, has resulted in a somewhat less impressive showing, in terms of percentage by faculty members of this institution. Nine members from this institution have been responsible for a total of 68 or 80 percent of the 85 faculty presentations, with individual contributions varying from three to 12. The 68 represents 16 percent of the grand total of contributions. Most prolific of the faculty representatives was the bibliophile and Linnaeus scholar, Dr. T. J. Fitzpatrick (1935-51), with 12 contributions. Dr. D. J. Brown (1940-50), professor of chemistry, reported on 10 occasions on the older phases of his field and the lives of three famous chemists. Dr. W. H. Werkmeister (1939-49), professor of philosophy, in a series of nine papers dealt with science in relation to the language, values, basic concepts and other philosophical aspects. It is of interest here to mention that in 1954 a separate symposium on "Scale of Values" was held, which included several papers on the interrelation of science and philosophy, such as that by professor Charles W. Tomlinson of Ardmore, Oklahoma, entitled "Geology, Religion and Reality" and that by the Reverend William L. Rossner, S.J., of Creighton University on "Wisdom and Science." Dr. Harald G. O. Holck (1951-67), also at nine meetings, dealt with a variety of topics, including a precursor of this review in 1964 and the lives of four innovators in the teaching of science. Dr. M. K. Elias (1941-51), spoke on seven occasions giving us an insight into science and scientists in Russia. Botanist Dr. W. W. Ray (1950-68), in five of his seven papers took up the lives of pioneers in his field. Dr. Raymond J. Pool (1939-51), on six occasions stressed Nebraska aspects of botany. Bacteriologist Lawrence F. Lindgren (1944-51), included historical aspects of disease and sanitation in his five papers. Dr. Milton O. Kepler (1968-70), in three presentations took up the importance of various phases of religion in the teaching and practicing of medicine.

Seven of the 12 papers from Nebraska Wesleyan University were by Drs. Claude Shirk (1943-50), four papers; and S. B. Shively (1949-51), three papers. Professor Shirk also contributed one additional paper earlier while associated with the University of Nebraska. Their presentations dealt in part with the philosophy of science and in part with phases of Nebraska Science. Their contributions represent 2 percent of the total.

Women were responsible for a total of 36 papers, or 8 percent of the total. Twenty-eight of these were from the University of Nebraska, seven from Creighton University and one from the Lincoln School System. The largest number of women speakers, eight, appeared in 1948. Only three of the 33 women participants have appeared for a second time.

**CLASSIFICATION OF THE TOPICS**

Any attempt to classify the topics presented into appropriate categories of necessity involves judgment of the reviewer, and, even prior to classification, several important factors must be considered.

Altogether, 429 titles have been published; however, on four occasions by the same author the titles were published during one year and the papers were presented at subsequent meetings with the titles again published. No records were available to show whether any speaker failed to appear or time did not allow the presentations at the assigned sessions, or if the papers were presented at subsequent sessions. Also, the 425 titles remaining do not indicate the number of topics, since some subjects have been presented several times during the years. Thus Lister has been presented five times, Anesthesia, Darwin (Including "The Voyage of the Beagle"), and Linnaeus, each four times; Bernard, Pathology, and Scurvy, each thrice; and Agassi, Anatomy, Bernard, Horsley, Koch, Stiles, Vesalius, H. B. Ward, and History of Creighton University School of Medicine, each twice. Furthermore, the fact that an author at times has given a more explanatory title in the Proceedings than that submitted for the Program, and also that the abstract tended to show more clearly what he stressed in his presentation, has in some cases been helpful in placing his paper in the most suitable category. An attempt has been made to index each paper in the one category that the author had in mind rather than trying to cross-index any paper. However, in a considerable number of multiple presentations, such as Lister or Darwin, biography was intended each time, thus increasing the number of presentations under that heading. One participant's intention primarily was to present a biographical sketch of Vesalius, whereas the second speaker wished to stress his impact on teaching, hence Vesalius was placed under two categories.

It is realized that others might have chosen different headings and, as a result, might have obtained a different classification than the one we have achieved, but it is hoped that the method employed will serve to show, at least to some extent, the relative frequency with which the titles fall into the selected categories. Although nine categories were adopted, a considerable number of presentations have been relegated to an additional group, called "Miscellaneous" to avoid establishing other groupings with just a few topics in each. The nine classifications have been arranged in order of decreasing frequency except that Group "I" has been placed just before the "Miscellaneous" one ("J") in order to smooth out the use of the word "Other" in the ninth group. For each group five illustrative examples are given.

A. *Biographies*: 157 or 37 percent. "Leonardo da Vinci, the Master of the Renaissance;" "Niels Stensen, Seventeenth Century Versatile Giant of Science;" "Aristotle, the Founder of Scientific Research;" "Edwin Hinkley

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Barbour (1836-1947), Geologist, Paleobotanist, Naturalist, Humanitarian;” and “Leunis Van Es (1868-1956), Teacher, Public Servant, Pioneer in Animal and Human Disease Relations.”

B. *Developments of Fields, Techniques, Departments or Schools*: 58, or 14 percent. “Development of Dairy Industry in Nebraska;” “Brief History of the Teaching of Science in the University of Omaha;” “Thirty-five Years of Biology in the Nebraska Wesleyan University;” “The First Century of Neurosurgery;” and “History of Creighton University School of Medicine.”

C. *Diseases and Their Control*: 46, or 11 percent. “Treatment of Diseases Through the Ages;” “Diphtheria, Its History and Control;” “Antiquity of Disease;” “History of Malarial Fever;” and “The Conquest of Childbirth Fever.”

D. *Relation to Libraries, Scientific Publications and Scientific Societies*: 27, or 6 percent. “Writings in Chemistry;” “A Collection of Books by Linnaeus;” “The Rudolph Virchow Society of New York;” “Old Books in the Chemistry Library;” and “Medical Libraries in Public Libraries.”

E. *Philosophy*: 26, or 6 percent. “Philosophy in Relation to Biology, a Historical Retrospect;” “Science and Intellectual History;” “Science and Values;” “John Dewey’s Philosophy of Science, An Attempt to Answer the Wrong Question;” and “The Philosophy of Future Science and Its Role in Planning.”

F. *Explorations and Explorers*: 18, or 4 percent. “The Exploring of Lewis and Clark;” “Early Travels in the Prairie Region;” “The Challenger Expedition;” “Physicians as Arctic Explorers;” and “The Exploration of Antarctica by Scientists.”

G. *Science and Government*: 15, or 4 percent. “Alexander the Great as a Patron of Science;” “Science under Totalitarian Regime;” “Hitler’s Impact on the German Pharmacological Society;” “Government Attempts in Eugenics;” and “Moses as a Public Health Administrator.”

H. *Relation to Education*: 14, or 3 percent. (See also under B). “Organization of Science Courses;” “Objectives of a Senior Course in the History of Physics;” “Women Pioneers in Science;” “Teaching of Anatomy and Medicine;” and “The Importance of Religion in Teaching the Art of Medicine.”

I. *Interrelations with Other Fields*: 21, or 5 percent. “Effect of Anatomy on Art;” “The Application of Zoology to Aeronautics;” “Physicians Who Loved Music;” “Medicine and Music;” and “Religio-Scientific Relationships in the Twentieth and Thirteenth Centuries.”

J. *Miscellaneous*: 43, or 10 percent. “Conservation of Wild Life in Nebraska;” “The Extinct Birds in the United States;” “Search and Research for Longevity;” “The Early Mayans;” and “Historical Reflections on the Terminology of Experimental Control.”

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It is interesting to note here that many topics presented in the various other Sections, notably Earth Science, Geography, and Geology, might have been considered appropriate for presentation before our Section. Examples are "Pioneer Geologists in Nebraska;" "A Bibliographical Approach to Paleontology;" "Black, Pioneer Archaeologist;" and "Philosophy and the Techniques of Teaching Science." From the Collegiate Section we have "The Development of the Periodic System." Suitability of a topic for two Sections is shown by the fact that the title "Life and Work of Karl Landsteiner" is found in our Section in 1951 and in the Collegiate Section in 1952. Topics of historical interest, such as "The Story of Curare," have also been presented in the General Sessions.

Finally, it is encouraging to note that some teachers have evidenced interests in the history of science by sponsoring high school students to present papers in this field in the Junior Academy of Sciences programs.

### REFLECTIONS UPON THE FUTURE OF THE SECTION

The past history of the Section should afford us some guidance for keeping it strong and virile in the future. This is a task which during recent years has been facilitated by holding most meetings in the Nebraska Center for Continuing Education.

The principal support of the work of the Section likely will continue to come from Creighton University and the University of Nebraska at Lincoln, which have supplied 94 percent of the presentations. It therefore seems important for the immediate future to retain the well-tested plan of having a representative of each of these institutions serve as co-chairman of the Section. A stampede of potential speakers seeking places on our program is most unlikely to occur; it should be recognized, though, that the problem of attracting speakers qualified to bring inspiring and timely messages in either of the areas suggested by the name of our Section must remain the major responsibility of its officers.

In institutions, such as the two suggested as the main sources of the co-chairmen of the Section, there are various ways in which speakers may be located. A review of past contributors who have consistently supported the Section may be helpful. The listings of publications by faculty members shown in university bulletins may also be useful. A careful check on the history and interests of incoming members of the faculties may lead to discovery of possible talent. Such approaches, whether successful or not, will also have the added advantages of bringing to the attention of such persons the functions and objectives of the Academy, and may influence them to apply for membership. It is also possible to locate potential contributors to the Section by noting visiting scientists and those who give lectures locally or in the vicinity or appear on television or radio programs. Finally, members of

our faculties in one or another of the fields of science — especially those offering courses in the history or philosophy of science — should be willing and happy to persuade some of their assistants and promising graduate students to make their findings available to a wider audience and at the same time gain valuable experience in condensing their material into 20-minute papers, suitable for presentation to our Section. We have had such co-operation in the past and this approach has led to some excellent reports being made by students in the various fields of science. The lively interest in this respect by Professor Henry T. Lynch and Mrs. Anne J. Krush of Creighton University School of Medicine, and of Donald F. Costello, associate director of the computing center, University of Nebraska, augurs well for the coming years.

I have personally used all of these avenues in locating prospective speakers and have generally received fine collaboration, not only from those directly in the sciences or philosophy, but by some in history, the languages, and business administration. I also wish to express my appreciation to Dean Walter E. Militzer, who has been in contact with both old and new faculty members and is personally interested in the historical aspects of science and philosophy, for his assistance and wise counsel.

In order to develop good programs it is important to obtain definite commitments from speakers well in advance of the meetings. It would be advantageous for each participant to have a full year in which to prepare his presentation. Since this is not always possible, a definite assignment should be made early during the first semester of the academic year. In some instances the co-chairmen can lend assistance, either in helping to locate source material or serving as consultants in planning and organizing the presentation.

One of the unsolved problems is that of developing active participation in our program by a wider scale by our members. The fact that so many members attend our sessions regularly is evidence of their interest. May some way be found to encourage more of them to present papers before the Section? Would it help in this connection if the Section were to deputize members of the Academy's Policy Committee — or their designated representatives — to work with us toward this objective? Such an effort may involve some coaxing and cajoling, but this would seem to be justified if it results in a widening of the horizon and outlook for our Section.

We have outlined here and in a form letter in 1964 the wide variety of approaches used in developing our programs. In earlier years we may have inadvertently overstressed the biographies of world-famous scientists with a corresponding neglect of those who have contributed largely to the fame and welfare of Nebraska, even though some of these were men of very high renown. However, the appropriate Centennial Symposium on "Niches for Late Nebraska Scientists of Note" has brought well deserved attention to

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Nebraska Scientists well known through their contributions to the greatness and prosperity of our State, as well as being well-known in wide circles, both in the fundamental and applied sciences. During my 34 years in Nebraska I have been privileged to observe some of these investigators in action and to take note of the acceptance of their contributions and leadership at local, state, national, and international levels. Fortunately, not only will nearly all of the symposium presentations be included in our TRANSACTIONS, but University of Nebraska scientists will be considered in the two volumes dealing with the University of Nebraska history during its first century. Finally, we could not fail to mention the high esteem in which many graduates of our university and colleges are held in their varied occupations and responsibilities throughout the nation and the world.

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The main portions of this review were presented at the 1964 Academy Meetings and prepared for distribution at the 1966 meetings. It has been edited and brought up to date by including material presented to our Section through 1970.

The reviewer is greatly indebted to Professor H. M. Cox and former assistant to the Executive Secretary, Mrs. Mary Paulsen for locating much material and to co-chairman, Dr. Nicholas Dietz, Jr., for information concerning the Section's early years and the role of Creighton University, and for aid in reaching a suitable classification. He is also indebted to Executive Secretary Dr. C. B. Schultz and to the Academy officers generally for their continued interest in this review. He also expresses his gratitude to the many who have kindly appraised the contributions of the many noted Nebraska scientists for inclusion in the Symposium.