

Zoology at Indiana University: The Torrey Years

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ABSTRACT

Theodore Willett Torrey died August 31, 1986, after a long career in teaching and administration at Indiana University, Bloomington. His research, his innovations in teaching, his work on university committees, and his distinguished administration did much to raise the status of zoology at Indiana University locally and in the national and international community. Torrey's contributions are summarized along with a chronology of the major changes during his administration of the Zoology Department.

From July 1, 1948, when he was appointed Chairman of the Zoology Department until his retirement from administration July 1, 1966, Theodore Willett Torrey was untiring in his support and management of the Department and his wife, Marcella Loge Torrey, was a gracious hostess at many social affairs involving their friends and associates.

Torrey died August 31, 1986, having had a career distinguished for its devotion to Indiana University and the field of zoology. Elsewhere (Young, 1983), I have paid tribute to Ted as an administrator. Within his field of activity he had no superiors and few if any equals. He kept a varied group of teachers and research workers headed in essentially the same direction despite such varied personalities that disagreements were often unavoidable. He could have written a book on the care and nurture of intellectual tigers while at the same time he found time to keep us, the lesser scientists who never attained international fame, from feeling neglected or underprivileged.

Torrey came to Indiana University in 1932 at the invitation of Dean and Chairman of Zoology Fernandus Payne, who recognized that future progress in zoology lay largely in the direction of the experimental aspects. Torrey completed his doctoral work at Harvard University earlier in 1932 and came to I.U. in the fall. He soon introduced the concepts and methodologies of experimental morphology into the biology curriculum. He took up the development and function of the vertebrate kidney, including that of humans, and continued to do meticulous and distinguished research in that field for many years.

Torrey's research interests also influenced his teaching. He soon developed a dynamic approach to the study of the origins of vertebrate organs which culminating following World War II in the union of embryology and comparative anatomy into developmental anatomy. This innovative approach was presented in his textbook, *Morphogenesis of the Vertebrates* first published in 1949. The union of anatomy and embryology is now widely followed in many universities and colleges, and has proven valuable to the teaching of these often complex subjects. The approach also laid the groundwork for many more sophisticated studies of vertebrate development by other workers.

Torrey was a meticulous teacher who set high standards for his many students.

He pushed them hard, and in return received respect if not love. "Terrible Ted" was one of the more refined nicknames he received. W.R. Breneman (1972) asserts that a typical comment from his students in later years was that T^2 (=T Square) taught us the most valuable course we had as an undergraduate. Others, it is only fair to say, were not so complimentary.

In addition to his services to the University through his administration, Torrey was also influential in his chairmanship of the All-University Curriculum Committee. This committee was instrumental in making many University wide changes in course and degree requirements. It reported at its own discretion to the President, the Dean of Faculties, the Faculty Council, or the schools and departments and helped to guide the expansion of Indiana University during the rapid growth between 1953 and 1965. One notable accomplishment of this committee during Torrey's chairmanship was the acceptance of a basic curriculum by all divisions of the University. The committee also ruled on the acceptability of specific courses in satisfying the requirements of the basic curriculum. This curriculum was approved by the Faculty Council and the administration. It has never been repealed although individual colleges and schools have built upon it.

Again W.R. Breneman (1972) comments that Ted's "patience, foresightedness, and fairness during the proceedings (of this committee) made the innovations recommended. . . . more acceptable to those who dissented." Later Torrey was actively involved with the committee which led to the transformation of the Junior Division into the University Division.

Torrey's research and teaching was a great contribution to the field of Zoology, but his most outstanding contribution was through his 18 years of devoted administration of the Zoology Department. His cooperation with other departments in the biological sciences led to the introduction of cross-departmental courses which have made major contributions to the broadening of the training of university students.

Ted's administrative technique was firm but quiet. I do not believe in the 18 years I was associated with the Zoology Department during his administration we ever took a departmental vote on any matter. Ted quietly interviewed each of us and reached a conclusion on which he acted. Neither do I remember any really important matter on which he did not manage to reach a conclusion satisfactory to most.

On the occasion of Ted's retirement W.R. Breneman wrote (1972): "My relationship with him as a colleague and friend has been an enriching experience. All of us in biology at Indiana University, past and present owe an inestimable obligation to him for his effectiveness in advancing the biological sciences and for his leadership in undergraduate education at (Indiana) University. His has been a good life, a rich and rewarding life, and we wish him well in the years to come." All of us who were in the Department of Zoology during Ted's tenure as chairman echo this endorsement.

In 1948 when Torrey assumed the chairmanship of Zoology, the department contained the following faculty members: W.R. Breneman (Endocrinology); P. Sears Crowell (Invertebrate Zoology); S.D. Gerking (Limnology); A.C. Kinsey (Sex Research); L.A. Krumholz (Limnology); H.J. Muller (*Drosophila* Genetics); Fernandus Payne (Cytology); W.E. Ricker (Limnology); Tracy M. Sonneborn (Protozoan Genetics) and W.J. vanWagtendonk (Biochemistry). Lamont C. Cole (Ecology) had been a member of the department for the preceding two years. Brief biographies and summaries of the research of the preceding are recorded in Young (1983). The writer, Frank N. Young (Ecology, entomology, and parasitology), joined the Zoology faculty in the fall of 1949.

During the Torrey years various members of the faculty left and new ones were appointed. The following is roughly the sequence.

Aquatic Biology

David G. Frey was appointed in June, 1950 to replace W.E. Ricker who returned to Canada. Frey besides teaching courses in the department and carrying on his own research on Crustacea directed the Indiana Lake and Stream Survey. Its ups and downs were accompanied by several changes in personnel. Robert Wetzel (Ph.D. California) was director from 1962-1965. Joseph Nelson (Ph.D. British Columbia) was director from 1956-1968, and F. Douglas Martin (Ph.D. Texas) from 1968-1971. In the meantime Shelby D. Gerking departed to become chairman of zoology at Arizona State University.

Experimental Embryology

James E. Ebert joined the zoology faculty in 1951, and departed for the Carnegie Institution in Washington, D.C. in 1956. He was replaced by Robert W. Briggs in 1956, who continued to teach and do research at Indiana until his death. This was an important period in the development of Zoology at Indiana in regard to experimental embryology (See Young, 1983).

Genetics

The retirement of H.J. Muller left a gap in the departments curriculum in genetics. This was filled in part by George Hudock (Ph.D. Harvard) who joined the department in 1965. Dr. Muller's research and teaching had been mainly in the field of *Drosophila* genetics, but Hudock expanded the teaching to bacterial, algal, and protozoan genetics as well. His chief interest is in the genetics of *Chlamydomonas* and *Euglena* and the control of gene action. He developed a strain of *Chlamydomonas* which lacks chlorophyll and was thus a heterotroph. Is he a zoologist working on plants or a botanist working on animals? Recently, his attention has turned to a genetic dissection of phototaxis and gametogenesis in *Chlamydomonas reinhardi*. Mutants, most of which are conditional, have been isolated which affect both of these phenotypes. Among his more practical accomplishments, he isolated a strain of bacteria for the U.S. Navy to biodegrade TNT. He claims his intent was peaceful. He also isolated a strain of bacteria from the floor of the Atwater Garage on the I.U. campus which biodegrades motor oil. The latter was destroyed since it was a pathogen. His current research involves the question of why living material became multicellular in the first place since there are advantages and disadvantages. The Volvocales are, for example, essentially multicellular Chlamydomonads. He has selected mutants which are unicellular at 25°C but which form clumps which are sometimes regular at 35°C.

Other workers in Microbiology and Botany also contributed to the development of genetics at Indiana University.

Endocrinology

Frank J. Zeller received the Ph.D. from I.U. in 1957 and joined the faculty that year. His research is mainly on the endocrinology of reproduction. He has been honored as an outstanding teacher and was Acting Chairman of Zoology in 1975-76.

James P. Holland received the Ph.D. from I.U. in 1961 and after postdoctoral work at the University of Wisconsin and several years of teaching and research at Howard University returned to I.U. in 1967. He has contributed greatly to I.U. through his service on committees and as an assistant dean of the graduate school. His research interests also are primarily in the endocrinology of reproduction. He has also been recognized as a distinguished teacher.

The Kinsey Institute for the Study of Sex, Gender and Reproduction

The death of A.C. Kinsey in 1956 required some adjustments of the research unit which he had established at Indiana University. The salary of the director and some of the other financing was still routed through the Zoology Department. Thus Torrey was required to assist with the organization after Kinsey's death. In 1966, upon his retirement, Torrey wrote as follows:

"Although the Institute for Sex Research (see expanded title above) has been a largely autonomous organization, by reason of two simple facts its history has been linked to that of the Department of Zoology. First, Dr. Alfred C. Kinsey, its founder and first director was Professor of Zoology; therefore many aspects of the Institute's early development routinely came under the purview of the chairman of the Department. Second until very recently a small segment of the Institute's finances (in addition to Dr. Kinsey's salary) resided in the Departmental budget and to that extent the Institute was a departmental enterprise. . . ."

"The work of the Institute began on a relatively modest scale with financial support from the Medical Division of the Rockefeller Foundation and the National Research Council's Committee for Research on Problems of Sex. Its working quarters consisted of Dr. Kinsey's original office-laboratory plus two small adjacent rooms in old Biology Hall. The Institute's first major publication, 'Sexual Behavior in the Human Male' (Kinsey, Pomeroy, and Martin), in 1948 brought immediate changes. A hot glare of publicity descended upon Kinsey and his co-workers and the University itself and with it, controversy and debate. In show-business parlance, Kinsey became a 'hot property' for the lecture circuit. Sizeable royalties from the book nurtured an enlargement of the Institute's activities with the accompaniment of additional personnel, increased library acquisitions, and diversification into art and anthropological relics. All this called for more working space, so early in 1949 the University administration agreed to relocate certain occupants of Wylie Hall and completely remodel the bulk of the basement of that building for the Institute. The job was completed during the following year and the Institute shifted to Wylie in April, 1950, there to remain until the opening of Jordan Hall in 1955.

"Work within the Institute proceeded apace and in 1953 the second major book, 'Sexual Behavior in the Human Female' (Kinsey, Pomeroy, Martin, and Gebhard), was published. Its appearance elicited, happily, less titillation from the general public; more importantly, to professional readers the book went far toward meeting the criticisms of statistical analyses that had been leveled against the earlier one. Volume two, however, was only a way station along a road of additional projects which had been mapped, and almost without pause Dr. Kinsey moved ahead with unabated energy.

"But unremitting 18-hour working days and an exhausting schedule of travel and lectures took their toll. Kinsey's rugged physique began to crack under the strain and in June, 1956 he suffered a heart attack. I recall so vividly a conversation I had with him early in August. I urged him to think of his responsibility to himself, his family, and to his colleagues and to enter into rest and relaxation for whatever period required to restore his health. As he walked toward my office door he turned and said: 'I'll think about it, but if I can't work, I'd rather die'. That was to be the last time I would talk with him; he died on August 25, 1956. I can think of no better final words about him than some of those I spoke on the occasion of his funeral.

"It is not my intention to trace the history of the present Institute, much less to outline the nature and scope of its program so well known to you all. I wish, rather, to dwell for a moment on the qualities of this man, Alfred Kinsey, which made it all possible.

"There was boundless energy for the labors of every order of magnitude. There was consummate skill in gaining the confidence and respect of persons in all walks of life. There was integrity and devotion to objective science that commanded the support and cooperation of fellow professionals in all areas of human endeavor. There was courage in the face of prejudice and misunderstanding. There was loyalty, reciprocated in kind, to the members of his immediate staff. There was breadth of vision requisite to the building of the broad foundation upon which the Institute rests. Withal, there has derived a monumental record on human behavior which now and in the future will go far toward aiding man in understanding himself.

"Dr. Kinsey's death posed the immediate problem of the future of the Institute. The question was not whether it should continue; rather, how it should be administered. An initial suggestion was for the creation of a co-directorship involving Paul G. Gebhard (Anthropology, Ph.D. Harvard) and Wardell Pomeroy (Psychology, Ph.D., Columbia) both long associated with the Institute. It was shortly decided, however, that leadership should be vested in Gebhard as Executive Director, with Pomeroy to have the subsidiary title of Director of Field Research. In order to maintain the connection with the Department of Zoology, I myself was added to the Board of Trustees. Further tie with the Department was created by an administrative decision to place the counterpart of Kinsey's salary in the Zoology Budget for use, following my review and approval, in bringing in outside research consultants from time to time.

"Since the pioneering days of data acquisition were largely over even before Kinsey's death, the character of the work of the Institute had already begun to change; his death only hastened the process. Acquisition of data through interviews and other devices was not to stop, nor has it ceased to this very day, but emphasis was to be placed more on the evaluation of the data already in hand with respect to special problems dealt with only in passing in the first two major publications.

"There were thus published in 1958 a modest-sized volume on 'Pregnancy, Birth, and Abortion' (Gebhard, Pomeroy, Martin, and Christenson) and a very sizable one in 1965 on 'Sex Offenders' (Gebhard, Gagnon, Pomeroy, and Christenson). (Incidentally, a change of publishers may be noted. The original two volumes on male and female behavior were brought out by W. B. Saunders Co.; the latter by Harper and Row.) A change of complexion was also furthered by the recommendations of numerous external consultants, a change in three respects carrying down to this very day; (1) financial structure; (2) research projects; (3) staff and administration.

"1. Whereas, after its original subsidies had run out, the Institute subsisted largely on its own resources derived from book royalties (not counting the University's sizeable investment in physical plant and equipment, plus some lesser amounts already noted), it was clear by 1963 that new sources of revenue must be sought to replace the rapidly declining royalties. The solution came in a sizeable grant (1965) from the Mental Health Division of the National Institute of Health. . . . Lesser amounts subsequently came from various private foundations, sales of magazine articles and paper-back book rights, and gifts. The Indiana University Foundation has also provided some support and, as we shall see in another connection, shifts in certain salaries to the University salary structure have been made or are projected.

"2. An early high-priority project, following the acquisition of funds from the National Institute for Health, pertained to data-retrieval. In fact, the project was a recommended requisite for the granting of NIH funds. The over 18,000 case histories in the Institute's files were originally transcribed by a position code and abbreviated writing that for reasons of security could be known by only three or four persons. Quite aside from the inefficiency of the system, it was essential that the data be

transferred to punch cards and/or computer tapes in order (1) to make the data more widely available to Institute members and (b) to make the data available to outside scholars while still preserving the anonymity of the individual cases. A second project consisted of determining which of the persons whose cases are a part of the record had died since they had been interviewed and to determine what, if any, relationship existed between sexual patterns and cause of death. More recent studies are those on the social mores of college youth, sex education, and homosexuality.

"3. A consideration of staff and administration necessarily brings some overlap with budget and research. It is necessary, too, to confine attention to the principal personnel and related developments to the exclusion of the host of supporting workers—secretaries, code clerks, librarians, statisticians, photographers—as well as workers in other locales who have collaborated with or consulted with Institute workers. We have already recorded the principals identified with the first published volume, Kinsey, Pomeroy, and Martin. The last-named, Martin, was still an undergraduate when he became associated with Dr. Kinsey. He left the Institute in 1960 to undertake graduate work at John Hopkins. Following a year's leave of absence, Pomeroy left the Institute in November, 1964 to set up a private counseling service in New York. From 1950 until her recent retirement, Mrs. Cornelia V. Christenson played a prominent role as Research Associate and her name is attached to the book on abortion and sex offenders. Although no longer an active worker, Mrs. Christenson remains on the Board of Trustees. John H. Gagnon joined the Institute as a Research Associate in 1959, assuming also a part-time appointment in the University's Department of Sociology. In addition to his collaboration on the book on sex offenders, Gagnon has been identified. . . . with the data retrieval project and to a lesser extent with the college youth study. He left the Institute to join the Sociology Department of the University of New York at Stony Brook. William Simon became Research Associate in the Institute and Assistant Professor of Sociology in 1965 and has participated in three projects, college youth, sex education, and data retrieval. He, too, has left to join the Institute for Juvenile Research in Chicago. Dr. Alan P. Bell, with a broad background in theology and counseling psychology became associated with the Institute in 1966 and is currently developing a project on sexual development during childhood and adolescence, as well as serving as field director for the project on sexual deviance. Albert Klassen joined the Institute in 1966 for a two year stint as Research Sociologist, to be concerned primarily with data analysis. The newest addition to the staff will be Dr. Martin Weinberg, formerly on the faculty at Rutgers University, who will join the Institute in September. He will also be an Associate Professor in the Department of Sociology.

"One of the recommendations made as a contingency of NIH support was that the decidedly insular character of the Institute should be broken down through the creation of an Advisory Board composed of persons external to it. It was felt, and rightly so, that policy decisions which had always been made internally should have the benefit of detached, objective views of individuals unconnected with the Institute. After all, Kinsey himself had made most of the original decisions and except for me, all the trustees have always been workers in or closely identified with the Institute, an arrangement conducive to myopia. Such a Board, consisting of nine members derived from such diverse fields as psychiatry, education, sociology, folklore, and art was created in 1965 and is now regularly consulted.

"Any organization whose life depends upon the availability of funds from outside sources, federal agencies or otherwise, leads a precarious existence. At the very least, there is the recurring necessity to 'sweat out' applications for renewal of grants and much time and energy must be diverted from basic obligations to the never-ending search for money. Accordingly, these last two or three years have seen a search

for some means of establishing financial continuity and stability, a search that promises to recast the Institute's relation to the University. As a first step, part or all of the salaries of certain of the principal investigators have been assumed by the University; more specifically, their salaries lie in the budgets of the departments, e.g., anthropology, sociology, in which they hold joint appointments. The next step is yet to be taken. A first suggestion was that the Institute enter into a contract with the University under which the Institute has made various commitments to the University in exchange for increased financial support. As of this writing, however, a more sweeping proposal from the University is under discussion. The plan is that in exchange for its assets, the Institute will become a University-owned and supported enterprise somewhat comparable to the Center for Neural Sciences. The present Institute would then remain within the larger organization solely as a holding corporation to own highly confidential data and erotica that the University Trustees would not (care to) possess. If and when this arrangement is consummated, the Institute's present Board of Trustees will be abolished and the last vestige of the ties with the Department of Zoology will disappear.

The Institute has continued to evolve, and presently is actively pursuing a number of projects. Under the able direction of Paul G. Gebhard (Anthropology) it expanded and prospered. Scholars from all parts of the world come to Bloomington to study such diverse aspects of sex as sexual behavior in teen agers and Pre-Columbian/Peruvian erotic pottery. The current director June Machover Reinisch (Psychology, Ph.D. Columbia) has brought new enthusiasm and expertise to the Institute. As Torrey predicted the association of the Institute with the Zoology Department is historical. It is hard to believe that it began with the work of a systematic entomologist who was willing to face the criticism and rancor of what seemed in the beginning like half the world community.

During Torrey's tenure, the Department of Zoology at Indiana University was ranked a number of times in the top ten in the nation. After Torrey retired from administration W.R. Breneman, Frank J. Zeller, Robert W. Briggs and John W. Sinclair served ably as chairmen until in 1977 it was decided to unite the departments of Zoology, Microbiology, and Botany into the Department of Biology.

Zoology continues to play an important role in this new administrative unit. It is obvious, however, that the classical divisions of the biological sciences no longer mean a great deal. George Hudock works with a protozoan which has a colorless (chlorophyll lacking) mutant of a plant which might be considered an animal. Some other workers study animals with biochemical tools. In the future the fields of plant and animal sciences and biochemistry can be expected to be even more united.

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