

## NEWSLETTER

Issue No. 9

August 1971

Many of you may already know that I have accepted the position of Vice-President for Campus Affairs here at Cornell and will shortly be leaving as Executive Director of the Chemistry Department. While I am very sorry to be leaving the Department, I am leaving it in good hands and in good shape. I am very enthusiastic about my successor Dr. Harold C. Mattraw. Harold was a student of Professor Laubengayer and received his Ph.D. in 1949. He went on to an outstanding career with General Electric, Sperry Rand, and North American Rockwell. The Department will benefit from his many talents and deep experience. I know all of you will give Harold your enthusiastic support. Incidentally, Harold will be taking over about the time this Newsletter is being mailed. Filling out my departmental termination papers, interviewing candidates for my position and straightening out my messy files and records has been an interesting experience for me.

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Al Blomquist and Lynn Hoard were honored on the occasion of their retirement on May 22nd. The weekend was climaxed by a joint retirement dinner with an attendance of almost 200. Frank Long was toastmaster for the evening and led a number of people in making irreverent remarks, including Al Blomquist and Lynn Hoard. The warmth and feeling that everyone had for Lynn and Al was quite apparent and was a great tribute to both of them. Both Al and Lynn will continue to be in residence in the Department.

## Chairman's Column

Typically summer at Cornell provides a time for catching up on everything that was let to slide during the academic year, and for just plain relaxing. Unfortunately this has not been a typical summer. A number of perplexing long range problems are facing the Department. The prestige and employment prospects of professional chemists appear to be at a very low ebb. A general public disenchantment with science exists. The accusation that science (and chemistry in particular) is not addressing itself to "relevant" problems is frequently heard.

The ramifications of this situation for our department are many. Are we overproducing PhD's? Are we training our undergraduate and graduate students in a "relevant" manner? What is the proper role for academic research both with respect to the university and to society? What is the optimal way of organizing and operating university departments of science? A very frustrating aspect of these problems is that there seems to be no rational way to arrive at answers to many of the questions being posed.

Consider the current employment situation. Does this mean too many PhD's are being produced or is this a temporary fluctuation? Many people have attempted to answer this question, and no uniformity of opinion exists. The number of jobs available at the present time can be reasonably estimated, but this gives no clue to the future. If the student-teacher ratio is constant and if the same percentage of college-age children attend college, the number of academic jobs is predicted to be negative by about 1980 — but the premises of this conclusion could easily be incorrect. The industrial employment picture is a complete unknown; the number of jobs may increase proportional to corporate expenditures, but the percentage of corporate expenditures going into research may decline. Probably the biggest question mark is government expenditures for science which fluctuate wildly with no discernible pattern. Such arguments may be expanded ad infinitum. However, in my opinion available data suggest we are significantly overproducing chemists. Even if this conclusion is accepted, how to reduce the production

rate is still a problem. All degree granting institutions could reduce their graduate programs a proportionate amount or some of the more than 200 advanced degree granting institutions (in chemistry) could go out of business. The most satisfactory solution is probably a combination of these two extremes. Quality institutions should cut back somewhat and many institutions should drop their advanced degree programs. We have already initiated a cut back in our graduate program, but unless some nationwide policy is forthcoming, this is unlikely to have much impact on the total problem.

The problem of relevance is obviously here to stay. I think there is no question that a university education should be broadly concerned with the problems of our times. With this in mind, we have made some adjustments in our departmental programs, although I don't think we have gone far enough yet. The requirements for an undergraduate chemistry major have been greatly reduced in order that students will have time to pursue interdisciplinary interests. The "core" requirements are regarded as the minimal exposure to chemistry necessary to produce a professional chemist. Many important parts of chemistry are not included in this core, but we feel this new program provides a more versatile and flexible background for students. In addition, the subject matter of many courses has been adjusted to include relevant problems. This is especially true of introductory chemistry courses. Finally in another year, we hope to have a general course in "environmental chemistry" open to students with a minimal background in chemistry. This is clearly just the beginning. Scientists must understand the humanistic and sociological consequences of their work and nonscientists must understand the scientific problems underlying their work and interests.

The obligation of academic research to the university and to society is still a matter of controversy. This is entwined with the general problem of academic freedom. Although faculty members must have the freedom of pursuing their own research interests, the questions of moral obligation and how far this freedom extends are not simple. For example, it is acknowledged that classified research is not appropriate for an academic community, but what if

university scientists choose to work on germ warfare, defoliation chemicals, etc.? This general problem is just coming to the fore, but is clearly one which will have to be faced in coming years.

Finally a word about the traditional mode of operation of science departments. With declining budgets, declining graduate students and excess PhD's, the current departmental hierarchy may not be appropriate. Interdisciplinary programs should undoubtedly be expanded, yet the number of available faculty members and students is declining. Perhaps a new sort of position is needed — a senior postdoctoral with a long term position and some security, whose role would be primarily in a specific research program of a faculty member. Ironically in some ways this is a direct throwback to the traditional European system, which we have generally berated. However, it is not reasonable to assume that things can continue as they have been: change is going to occur and we must be prepared to direct this change in a productive direction.

This should give you some idea of the long range problems occupying idle moments. This seems to be a crucial period for science and chemistry, which is going to require the best efforts of all practicing scientists.

Before closing, I would like to express my regrets at losing Bill Gurowitz to the central administration. His presence will certainly be missed. At the same time, I want to wish Bill the best of luck in his new job as Vice-President for Campus Affairs, where I know he will be successful. Dr. Harold C. Matraw is our new Executive Director, and I am looking forward to working with him.

Gordon G. Hammes

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Another member of the Department who was honored for service was Mrs. Essma Davis who recently completed 35 years in the Department. Essma is a great source of information about the Department and the people who have been part of it. She has been a steadying influence in the operation of the Department and her patience and good nature have helped many of us. We are all looking forward to her next 35 years of service!



Professor Hans Muxfeldt will be leaving the Department at the end of the summer to become Professor and Director of the Institut für organische Chemie at the University of Stuttgart, Germany. While we all hate to see Hans leave, this is a great opportunity for him, and we wish him success.

There will be a Cornell Social Hour at the Washington Hilton Hotel on Tuesday, September 14, 1971 at 5:30 p.m. in the Georgetown Room West. I hope that many of you will be able to be at the Social Hour to renew acquaintances and meet some of the new members of the Department.

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The job market continues to be extremely tight for recent graduates and postdoctorals finishing their stay at Cornell. Some have been able to get industrial jobs, fewer have found academic jobs, the remainder are still interviewing and hoping. I would like to believe that the job market will open up this Fall but I must admit I have no indications of this. The graduate student enrollment in Chemistry at Cornell has dropped about 20-25% over the past three years. Our incoming class this Fall will be smaller than what was normal up to four years ago. It is difficult to relate the size of our graduate class to the job market since incoming students are at least four to five years away from seeking employment.

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Visiting Lecturers — We will again have a number of outstanding visiting lecturers in addition to our regular seminar programs. Professor Gerald M. Edelman of the Rockefeller University will be the NIH lecturer from September 20 through October 29, 1971. Dr. Edelman will be presenting a series of lectures on the topic "The Molecular Biology and Chemistry of the Immune Response". The Debye Lecture Series will be presented on November 8, 9, 10 by Professor Harden M. McConnell of Stanford University. The Baker Lecturer for next year will be Professor Michael Szwarc of Syracuse University who will be in residence from January 24 through March 18, 1972. His topic for the lecture series will be "Electron Transfer Processes in Organic Chemistry".

Bill Gurowitz

Lauby's Recollections

WILDER DWIGHT BANCROFT, "BANTY"



Wilder D. Bancroft was one of the promising young chemists recruited by Professor Caldwell at the turn of the century who were to set the pattern dominating Cornell chemistry for the next 35 years. Referred to as "Banty" by his students, his name was the one most frequently identified with Cornell when the Chemistry Department was mentioned in scientific circles during that era.

Bancroft came from a prominent and wealthy old New England family, as his manner of speaking clearly indicated. He was a direct descendent of George Bancroft, historian and founder of the U.S. Naval Academy at Annapolis. Banty attended Harvard where he played end on the football team and received the A.B. degree in 1888. Following the then customary pathway to an academic career, he went on to study abroad at the Universities of Strasburg, Berlin, Amsterdam and Leipzig, obtaining his PhD from Leipzig in 1892. In his European studies, renowned chemists such as Ostwald inoculated Bancroft with the stimulating ideas on the application of physico-chemical concepts to chemical problems.

An enthusiastic proponent of the budding field of physical chemistry, Banty was called to Cornell in 1895 as assistant professor of physical chemistry, after two years at Harvard as instructor. This was one of the first uses of this title in this country. Professor J. E. Trevor and others had lectured at Cornell on Chemical Philosophy and Chemical Theory but it was not until 1896 that Physical Chemistry was created as a division of our Department.

The new branch of chemistry developed rapidly, catalysed by the vigorous activity of Bancroft. In 1896, to provide for publication in the new area, Bancroft and Trevor founded the Journal of Physical Chemistry. (Trevor, who was a mathematician interested in chemistry, transferred to the Physics Department in 1906). Bancroft edited and personally financed the new journal until it was absorbed by the American Chemical Society in 1932.

Banty was an omnivorous reader and was endowed with a "photographic memory". He could absorb the contents of a printed page at a glance and thereafter remembered it. As an undergraduate doing senior research under his direction, I was constantly astounded when he would refer to some paper he had read years ago, not only remembering author and journal but also the place on a right or left hand page where the pertinent item had appeared.

Banty's interests in chemistry were remarkably broad and he made important contributions to many areas. Stimulated by Ostwald's

appreciation of the value of the papers by Willard Gibbs on the phase rule, which had been neglected because of the obscure presentation, Bancroft produced a clear and convincing exposition in his book "The Phase Rule" (1897). This publicized the fundamental importance of the contribution of Gibbs and led to its wide application. Electrochemistry, photochemistry and colloid chemistry also received Banty's attention, and his book "Applied Colloid Chemistry" (1921) established him as a pioneer in that field. His appreciation of the basic nature of adsorption phenomena was drawn upon when, as Lt. Colonel in the Chemical Warfare Service during the first world war, he directed research on the development of gas masks.

The success of Bancroft's pioneer efforts to establish physical chemistry was attested by W. A. Noyes who in the 25th Anniversary number of Journal of the American Chemical Society, (1902) 119, said "Until 1901 only two American universities, Cornell and Wisconsin have deemed the subject important enough to establish professorships for the exclusive pursuit of physical chemistry".

Bancroft's approach to physical chemistry was, as is commonly true for early work in a new scientific field, qualitative rather than rigorously quantitative. While not averse to resorting to mathematical arguments, he preferred a clear, common sense approach readily grasped by students. He frequently delighted in exposing flaws in involved mathematical treatments. This naturally made him a controversial figure and had the unfortunate effect of de-emphasizing the importance of applying mathematics rigorously to chemical problems. It was not until Kirkwood joined the Cornell faculty in the thirties that rigorous courses in thermodynamics and quantum mechanics were formally added to the Cornell curriculum.

Such a colorful person inevitably generated a store of anecdotes and student lore. Vivid pictures of him come to mind and bring him to life again.

One bright autumn day I came across Banty wandering around the campus with a box of paper clips which he was placing on folded maple leaves still attached to trees. The idea was to have part of the leaf exposed to sunlight, the other half being screened,

and then seeing what happened when the autumn foliage normally changed color. A month later I asked him how the experiment turned out. He ruefully confessed that he had not recorded the locations of his experimental leaves and so had not been able to find them again.

Banty had little use for ostentation and insisted on being called Mister rather than Professor. He likewise addressed his colleagues, especially in faculty meetings, in this fashion greatly irritating the more formal and pompous ones. However, the idea caught on in the Arts College and persists to this day in the college bulletin where the names of professors giving courses are listed as misters. The one exception to his general distaste for display occurred when he marched in the graduation academic parade, resplendent in the brilliant scarlet robe and beef-eaters hat of Cambridge University, from which he held an honorary degree. You could follow his progress by the ripple of excitement traveling through the spectators.

Space is running out so I must shut off this flow of impressions about this man who played such an important role in science at Cornell. Have any of you any other revealing memories or photographs of him? Please send them along for our historical file.

A. W. Laubengayer

Faculty Members

(Fall Term 1971)

A. C. Albrecht	M. J. Goldstein	F. A. Momany
S. H. Bauer	G. G. Hammes	G. H. Morrison
C. A. Brown	R. Hoffmann	R. A. Plane
J. M. Burlitch	R. E. Hughes	R. F. Porter
W. D. Cooke	G. B. Kolski	R. R. Rye
V. du Vigneaud	E. S. Kostiner	H. A. Scheraga
E. L. Elson	F. A. Long	F. R. Scholer
R. C. Fay	G. M. Loudon	M. F. Semmelhack
M. E. Fisher	H. C. Mattraw	M. J. Sienko
G. A. Fisk	F. W. McLafferty	D. A. Usher
J. H. Freed	J. Meinwald	B. Widom
	W. T. Miller	C. F. Wilcox

Emeritus Faculty

A. T. Blomquist	A. W. Laubengayer
J. L. Hoard	M. L. Nichols
J. R. Johnson	J. Papish

CORNELL SOCIAL HOUR

TUESDAY, 14 September 1971

WASHINGTON HILTON

at 5:30 p.m.

Georgetown Room West

Department of Chemistry  
CORNELL UNIVERSITY  
Ithaca, New York 14850

FIRST CLASS MAIL