# *IN MEMORIAM*

## DR. NIEL F. BEARDSLEY

The contributions a man makes to his chosen field of endeavor sometimes go far beyond the work which actually bears his signature. This is particularly true of Niel F. Beardsley, a pioneer in infrared who was still actively engaged in advancing the art when on June 7, at the age of 68, he was lost at sea together with six companions on a research expedition.

It is true because he was more interested in getting a job done than in signing his name to it; because his single-minded aim was to further the progress of infrared technology; and because he sought to achieve this aim not only through his own research but through aiding the efforts of others—pointing the way for them, clearing a path, encouraging them, exhorting them, and even bullying them when necessary.

His standards were exacting and his approach to problems sometimes startlingly direct. However, his strong personality was tempered by genuine kindliness, lightened by a sense of humor, and seasoned by a few very human foibles. Those who had dealings with him grew to regard him with fondness as well as respect, as witness his own cheerful account of his relations with the students in his physics courses: "By Thanksgiving we couldn't stand the sight of each other, but by Easter we had become friends for life."

Typically, when asked about his career, he always cited first the part he had played in the achievements of others. He was proud of his monitoring of Air Force contracts during his years at Wright Field, and especially of the contract for detector research still in force at Syracuse University after fourteen years. He regarded the young men who carried out that research as his "family," and he followed their later activities with interest and affection. He wrote of this project, "What was my role? I kept the money going there when money was hard to get, and I kept them following a middle path, doing some basic research, some design and development of cell construction, and the actual delivery of a limited number of finished, flyable detector cells, the best ever made."

Dr. Paul Ovrebo of ATIC, under whom he was then working, reports, "It was said at Syracuse University during the early years of their detector research that a pall hung over the place for three days after his visits. And yet this contract, perhaps in part due to his vigorous insistence on rigor, turned out some of the most significant results."

Dr. Levinstein, who directed and still directs the research under that contract, writes, "It is my feeling that Niel Beardsley, more than any other person in the U. S., was responsible for the rapid IR detector development in the period between 1948 and 1958."

When Dr. Beardsley joined Dr. Ovrebo in infrared work at WADC in 1946, he had behind him a long career in the teaching of physics. Born in



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Wadsworth, Ohio, February 23, 1892, he obtained his B. S. degree at Hiram College in 1913, and taught in elementary schools for four years. During World War I he served as a 2nd lieutenant in the Light Field Artillery, but, as he notes with evident regret, "ended up teaching at Ft. Sill and never got to Europe."

In 1920 he earned his M. S. at Northwestern University and for the next nine years was on the faculty of Georgia Tech, leaving to join the Physics Department of the University of Chicago. Here he remained for 17 years, receiving his Ph. D. in 1932 and continuing as instructor and later as Assistant Professor.

During World War II, he became expert in optical shop techniques, which he pioneered for the Manhattan project, and liked the work so much that he welcomed the change to continue it at Wright Field. On these field trips, it was evident that Dr. Beardsley was not only fearless, but actually enjoyed the danger involved. "I carried a Civilian Observer Flight Card until I was past 65," he boasted. "Then the problem was not to pass the flight examination but to get the flight surgeon's permission to take it."

Conrad M. Phillippi, who worked under him at that time, recalls with amusement the dismay of the officials who could find no health or regulatory excuse for grounding this man who refused to grow old.

During these years Dr. Beardsley was active in measuring infrared radiation from the sky and transmission of infrared radiation through clouds, for which latter purpose he once spent an entire month on top of Mt. Washington in New Hampshire.

He also labored long and hard measuring the infrared transmission of materials, and never ceased to urge the importance of continued search for better and better windows.

His success in establishing commercial sources of supply of infrared detectors and materials is cited by Lucien Biberman of the University of Chicago as one of his most worthwhile achievements.

In line with his concern for the general welfare of infrared technology was his initiative in helping to establish the Working Group on Infrared Backgrounds. He was one of three ad hoc members who, acting unofficially, set up this group which later expanded its membership to thirteen and has done yeoman service in standardizing infrared measurements and nomenclature.

Those were strenuous years, not only for him but for those associated with him, as Dr. Ovrebo somewhat ruefully notes. "Having Niel Beardsley as an assistant on field ventures had its penalty," he says. "For he was imbued with a consuming passion for rigor. We had only simple but basic equipment to work with, and we were also new to the mysteries of infrared in the field environment. Consequently, before he would agree that we had indeed proven our case it was necessary to accumulate a mass of data far in excess of present day requirements. When he finally agreed that 'it was so,' I felt we could face up to any critic of the new art. On the other hand, we also locked up less-proven observations which were subsequently rediscovered by others with more sophisticated equipment."

He accompanied Dr. Ovrebo on countless field trips, measuring infrared radiation from various types of aircraft both on the ground and in the air.

"In the night detection tests," says Dr. Ovrebo, "it did not bother him in the least when I requested the F-80's to fly against us head-on, nose-to-nose at a 500-foot altitude differential. But the thrill of experiencing a daylight close nose-on approach against our B-17 measurement bay gave him the stimulation which caused him to sing decidedly off-key when we returned to the lab."

His insistence on thoroughness was however satisfied by only two nights devoted to coaxing two careful and efficient air crews to fly their planes almost within reach of each other and hold the delicate separation long enough for him to make brute-force infrared time-exposure photographs of the temperature distribution of the aircraft engines, the first and perhaps the last airborne photographs of this kind.

"This time," Dr. Ovrebo reports, "the two flights were sufficient to prove 'it was so,' much to the relief of the pilots and the laboratory flower fund."

Over and above his considerable professional achievements, his associates will remember his vivid personality, the flavor of which Conrad Phillippi has caught in the following description: "He was undoubtedly the most unique character I have ever known, primarily because of his zestful and refreshingly uninhibited approach to life. In some ways he resisted conformity, for example in his dislike for conventional neckties, his running battle with the administrative procedures of government service, while nevertheless discharging his duties with a

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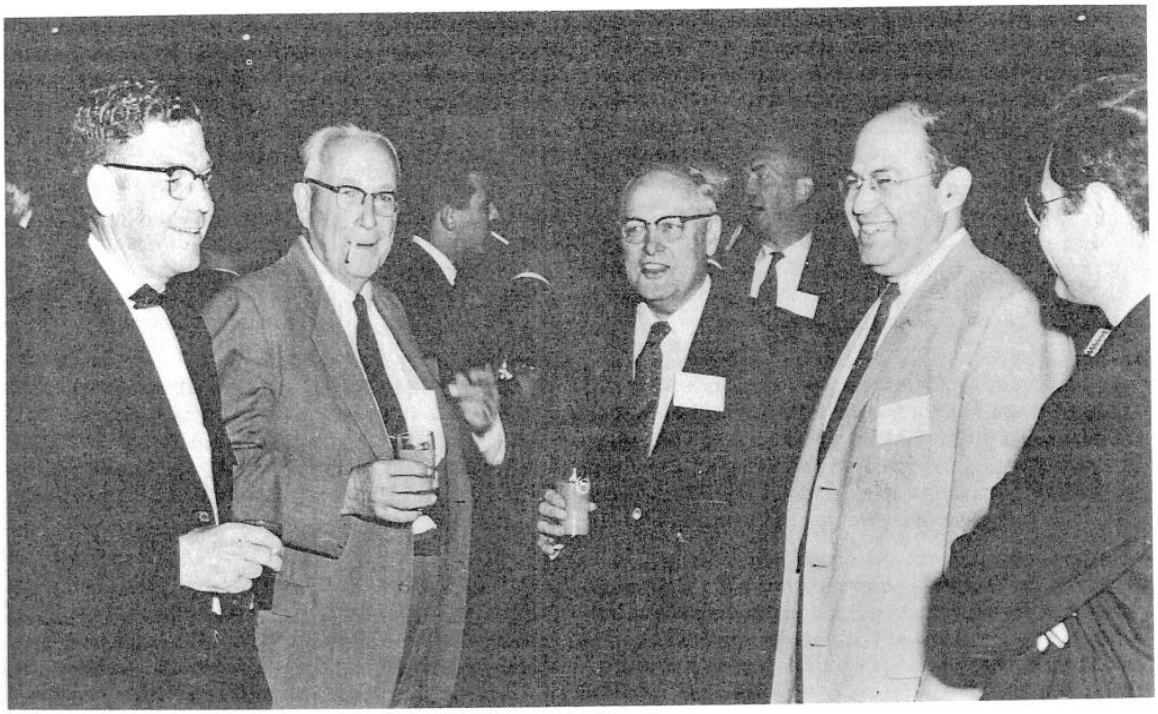
grim determination, and his refusal to withhold technical opinions which were not politic or ingratiating. His reactions to people and situations were strong, either positive or negative, as were others' reactions to him. Although first a scientist, his outside interests extended from a wide circle of close friends to cooking, gardening, travel, and family. He was unexcelled in extemporaneous technical speaking, which he enjoyed immensely. He also took great delight in telling stories, such as the tale of the time he was accused of burning up a jet aircraft with his "infrared device"—a tied-down target for his radiometric measurements, which accidentally ignited from its own fuel leak."

When Dr. Beardsley came to Santa Barbara in May 1959, he had resolved to slow down at long last. He regarded the city as the ideal place in which to retire, and the job he accepted at Raytheon, Santa Barbara, was to be a first step toward retirement—a job limited to advising and consulting, free of responsibilities and the tensions of meeting project deadlines.

What followed will be no surprise to those who knew him. He did enjoy the sunshine, serenity, and beauty of his new home, but he also began to enjoy his new job. Soon he became restive in the passive role he had chosen, and as his interest in the work at hand mounted to enthusiasm, he began to seek a more active part in it. Before long he was directing three in-house research projects, field tests and all, and was back to normal again.

The day before that last expedition put out to sea, a younger colleague, remembering the rigors of a previous trip, suggested that perhaps he might prefer to stay ashore. Such an idea had obviously never occurred to Dr. Beardsley. He was in charge of the research; naturally he would conduct the tests. His answer was simple, firm, and characteristic: "I think I'd better go."

Maxwell Krasno
Raytheon, Santa Barbara





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