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PRESIDENT OF PHYTOCEUTICALS, INC.
OF ELMWOOD PARK, NEW JERSEY
AND SCIENTIFIC ADVISOR TO EGYPT'S
MINISTRY OF HEALTH

Heber Youngken: Researcher, Educator, Visionary, and Pioneer

Internationally known pharmacist and educator Dr. Heber Youngken and the URI College of Pharmacy were hard to separate. It was difficult to tell where one began and the other ended. But despite Youngken's death last October, his mettle and scientific curiosity live on in the individuals he trained and the programs he started.

Born into a family of pharmacists, Youngken would joke that, as a kid, it seemed as if his family held a monopoly on the pharmacy market. His father was a professor at the Massachusetts College of Pharmacy and various uncles were pharmacists. While other kids were out delivering newspapers, young Heber was working in drug stores.

He had no intention of going into pharmacy after graduating from Bucknell University in 1935. In fact, he had majored in biology, planning to go into medicine. But times were tough. His dad suggested that he take a job teaching biology at the Massachusetts College of Pharmacy. As long as he was there, Heber thought he might as well enroll in the pharmacy program, which he completed in three years.

But the part of the business that called to Youngken was education and research. He started further graduate work at Harvard University in 1938, but switched the following year to the University of Minnesota, which had offered him an attractive teaching assistantship. He earned both his M.S. in pharmacognosy (dealing with the active constituents of plant and animal drugs) in 1940 and his Ph.D. in 1942 from Minnesota. Youngken served with the U.S. Navy during World War II, then entered research at the University of Washington's College of Pharmacy. By 1957, he was serving as chair of the pharmacognosy department and director of the university's renowned drug plant laboratories.

Youngken was widely recognized as an authority on drugs from natural substances, especially drugs from sea life. He joined URI in 1957 as dean of the newly formed College of Pharmacy, originally the College of Pharmacy and Sciences of Providence.

Dr. Youngken's career earned him many honors and accolades. His papers on the biosynthesis of the *digitalis glycosides* earned him the Edmond Lee Newcomb Research Award in 1953. For 20 years, he served as a member of the *U.S. Pharmacopoeia* (the bible of the pharmaceutical industry) Revision Committee. He attracted several research grants from the National Institute of Health, the National Science Foundation, and the Army Chemical Center. He was a visiting professor at such institutions as the University of London, the University of Cairo, and the Taiwan Medical College.

But the accolades Youngken would have enjoyed most are those voiced by his former students and colleagues. “In my 17 years of administration at URI,” notes Bill Ferrante, former vice president of academic affairs, “I found Heber Youngken to be one of the most outstanding people who's ever been connected with the University.” Ferrante described Youngken as accomplished but modest. “He never sought the limelight.” Ferrante said Youngken was instrumental

in establishing the Faculty Senate. “He deeply believed that faculty members should be involved in university governance.”

Ferrante said that you couldn't recall Youngken without thinking of standards. The retired administrator recalled that often when candidates were recommended for tenure, Youngken would be the one questioning if the standards were high enough. “Heber was a great advocate of research. He felt that to be an effective teacher you had to be an effective researcher. He set that standard, and it permeated the whole University.” Equally important was the fact that the caliber of the man drew individuals of substance to the University. “Heber attracted good teachers and researchers who were not only tops in their field but great human beings as well.”

One such individual is Yuzuru Shimizu, who in 1969 was lured to URI by Youngken. Shimizu's mentor in his Japanese Ph.D. program had been a post-doctorate fellow and admirer of Dr. Youngken's research in the 1950s. Shimizu first visited Youngken in 1963. At the time, Shimizu was doing post-graduate work at the Worcester Foundation for Experimental Biology. He visited Dr. Youngken again the next year before returning to Japan.

Shimizu next encountered Youngken in 1967 at a conference in Japan. “He invited me to come to URI to be assistant professor of pharmacognosy,” Shimizu recalls. But it wasn't until two years later that Shimizu overcame his reluctance to uproot his family and joined URI, which in 1968 had become one of the Sea Grant universities. In addition to his teaching, Shimizu began research to discover potential drugs from marine organisms.

Shimizu remembers his American mentor as a top scientist and a tough boss. “He burned the midnight oil, and he expected the same from others.” He also was a visionary. “He liked to incorporate new things,” notes Shimizu. “He was instrumental in starting the Drugs and the Sea Program here.”

Today Shimizu, 67, is director of the Drugs and the Sea Program. He has received several million-dollar grants to fund his promising research into red tides, which contain marine organisms that might possess anti-cancer properties. Fittingly, he is also the first to occupy the Omar-Youngken Distinguished Chair in Natural Product Chemistry. Shimizu is deeply appreciative. “Even if I should die, this gift means that this line of research will continue.”

The donor of the \$1 million gift to establish the faculty chair is Mostafa Omar, one of Youngken's and Shimizu's former students. He received his doctorate of pharmacy from URI in 1982. As a post-doctoral fellow, he and Youngken co-wrote two books about toxic plants in Egypt. “Lots of people were getting poisoned by mistake,” explains Omar. “We wrote a book for the general public as well as one for the scientific community.”

Youngken's interest in Egypt, Omar's homeland, began when he was a visiting professor at the University of Cairo. He kept up his contacts in Egypt, visiting there about once a year. Omar met him on one of those visits in 1977. The

young Egyptian knew who he was. “In the field of pharmacognosy, Heber and his father are pioneers.”

Youngken proposed that Omar come to URI to finish his Ph.D. The young man declined. A year later, Youngken was back with the same offer. “He said, ‘Try it. If you don't like it, you can always come back to Egypt.’” Still Omar, reluctant to leave his homeland, resisted. Six months later, Youngken was on the phone asking, “Where are you?” The young Egyptian finally arrived at URI in 1982.

Omar's ties to Youngken are profound. “I lost my father when I was 18. He was like a father to me. We got together a few days before he died. I still spend time with his sons.”

Omar, who is now president of PhytoCeuticals, Inc. of Elmwood Park, New Jersey and serves as scientific advisor to Egypt's Ministry of Health, received some important advice from Youngken. “Never give up on an issue of science,” the older man told him. “If you feel you're right, fight for it.”

Omar holds a patent on the pharmacological effects of Aloferon, an active ingredient of Aloe Vera gel. Aloferon is effective in treating second- and third-degree burns and skin inflammation. He was the first to concoct a stable topical form of Vitamin C for skin care and cosmetic applications. A more recent improved version with L-ascorbic acid is sold exclusively by SkinCeuticals, an independent company co-owned by Omar. In his business dealings, Omar says that he always remembers what he considers the best piece of advice Youngken ever gave him. “When you have an invention, keep the ring in your pocket. That way no one can take it away from you. You can keep the quality control.”

But Omar also recalls that Youngken could be extremely “tough-minded.” When he first came here, the young Egyptian had difficulty with the language and adjusting to a radically different culture. He spoke of his homesickness to Youngken who responded, “Crying is not solving any problems. Continue what you're doing or go home.” Although at times that tough-mindedness could be difficult to deal with, Omar thinks it may be part of the reason that Youngken accomplished so much. “If he thought he was right, he would persist.”

Youngken's other secret was his talent for identifying plants. “He had a real gift,” explains Omar. “A pharmacist can be a botanist but not vice versa. He was one-of-a-kind when it came to identifying plants.” He was protective of the plant world. “Heber believed that every single leaf on our planet was important. He believed that we have a treasure in the botanicals. He was against removing any tree. He was especially upset about the destruction of the rainforest. ‘This is our inheritance,’ he would say, ‘and we are destroying it through greed or ignorance.’”

Omar misses his longtime mentor. “I used to check with him to get his input when I was deliberating about something. To my mind, the best way to keep Dr. Youngken alive is to help keep natural product research alive and help fulfill the dream he had by supporting the College of Pharmacy.”

By Sylvia Smith