

## **A Tribute to Frank E. Bird Jr. 1921-2007**

### **Professional Safety, Oct 2007 by Germain, George L, Clark, M Douglas**

Frank E. Bird Jr. is considered a true pioneer in the occupational safety profession. His concepts and ideas have been applied in many settings, across many countries. An ASSE Fellow, he received many distinguished honors throughout his career. In this tribute, two of his colleagues and frequent collaborators review his significant career and groundbreaking contributions to safety. Read another tribute to Mr. Bird, written by David Wilbanks, in ASSE's Society Update, Vol. 11, No. 8, [www.asse.org/societyupdate](http://www.asse.org/societyupdate).

Frank E. Bird Jr. was born in Netcong, NJ, and graduated from Netcong High School in 1939. He attended Franklin & Marshall College in Lancaster, PA, and Albright College in Reading, PA, earning a B.S. in history and science. He was president of his class and his fraternity. Later, he completed graduate work in industrial safety at New York University.

A member of the U.S. Navy from December 1942 to August 1946, Frank became a pharmacist mate, bought some books and equipment, and prepared to serve as a medic for the ship's crew and the Marines they took to sea. Taking Marines into Iwo Jima on pontoon boats, under heavy fire and in turbulent waters, Frank heard the shouted words, "Hey Doc, somebody's hurt and bleeding bad." A young Marine was in the water, his leg helplessly caught between two pontoons. Frank sprang overboard and, finding that the Marine's leg could not be extricated, he amputated the crushed leg and fashioned a temporary tourniquet. Under heavy fire, he carried the Marine to shore and saved his life. Frank left the Navy as a chief petty officer.

Through the years, he worked (some of it part time) as a truck driver, laborer, machine operator, cook, cigar store clerk, ice man, service club youth director, waterfront director, Boy Scout leader, baseball organizer, and instructor for first aid, safety and swimming.

### **The Lukens Steel Co. Years**

In 1951, Frank put his plans for medical school on hold and, to support his family, went to work at Lukens Steel Co. in Coatesville, PA. At that time, Lukens was the largest independent specialty steel company in the U.S., with nearly 5,000 employees. Starting as a second helper at the open hearth, he soon was asked to become a safety trainee and rose rapidly to become director of safety and security.

While at Lukens, he implemented leading-edge operational safety activities for all levels of management, as well as for hourly and salaried employees. He led research studies and implemented seminal concepts regarding safety, security and loss control. His practical background and innovative mind enabled him to integrate the operational concerns of productivity, quality and costs into traditional safety techniques. Frank also reduced the complexity of traditional steel company safety programs by focusing greater attention on the higher-risk aspects of the work.

In another significant safety advance, Frank implemented the concept of damage control. In partnership with George Germain, who was in charge of training and development for Lukens, Frank wrote Damage Control, which was published by the American Management

Association (AMA) in 1966. AMA subtitled it "A New Horizon in Accident Prevention and Cost Improvement." Frank also invented and patented a metatarsal guard for safety shoes.

At Lukens, he headed a 7-year study (1959-65) of 90,000 incidents. It revealed a ratio of 1:100:500-that is, for every one disabling injury there were 100 minor injuries and 500 property damage accidents. The property damage accidents were prevalent and very costly, with a huge potential for harm to people. Interest in this "all-accident control" concept spread around the world thanks to presentations by Frank and others in national and regional safety and operating management conferences; large numbers of articles in journals, newsletters and trade magazines, and the reports of many international representatives who visited Lukens, evaluated what they saw and heard, then publicized back in their home countries.

The lives saved, the injuries prevented and the money saved by the people and organizations that have put this concept to work around the world are immeasurable.

### **Years with Insurance Co. of North America**

In July 1968, Frank's growing influence led to his becoming director of engineering services for Insurance Co. of North America (ESTA). There, he headed a study of industrial accidents, including analysis of 1,753,498 accidents reported by 297 companies. These companies represented 21 different industrial groups, employing 1,750,000 employees who worked more than 3 billion manhours during the exposure period analyzed. The study resulted in the 1:10:30:600 ratio (Figure 1), one of the most widely reproduced graphics in the history of industrial safety.

Another widely produced illustration is Frank's incident causation model (Figure 2, p. 30). It reflects his genius for concepts and models that led to practical applications-in this case, improvements in the management system as the best way to control incidents. The "threshold limit" line between incident and loss was a later adaptation to incorporate William Haddon's energy exchange concepts. Read from left to right, it is a causation model. Read from right to left, it is a problem-solving model widely used in incident investigation.

Also widely reproduced is Frank's cost iceberg (Figure 3, p. 31), which reflects the relationship of the relatively obvious incident costs (above the waterline) and the less obvious costs (below the waterline). As illustrated in Figure 3, studies show that for every dollar above the waterline, the costs below the waterline tend to range from 6 to 53 times as much. It tends toward the lower end of that scale for labor-intensive operations and toward the higher end for capital-intensive operations and those with significant materials handling.

In 1970, INA sent Frank to Macon, GA, to establish the International Safety Academy (ISA). He selected and developed a staff of safety, industrial hygiene, loss control, risk management and training specialists to "spread the word." Figure 4 (p. 31) summarizes the management control system developed and taught around the world by Frank and his associates. It employed the then widely accepted four functions of management-planning, organizing, leading and controlling.

Building on the activities of the management function of control, "ISMEC" became widely known and used. The loss causation model showed how lack of control led to accident losses. ISMEC illustrated the steps toward gaining the desired control.

## **The International Loss Control Institute Years**

In 1974, Frank founded the International Loss Control Institute (ILCI) and became its executive director. The institute's development was sponsored by the Department of Insurance, School of Business Administration, Georgia State University in Atlanta, where Frank also became an adjunct professor. ILCI's headquarters was established in Loganville, GA.

ILCI professionals continued to improve the old and create the new in terms of practical tools and techniques for controlling risks and managing loss control. Under Frank's direction and in collaboration with the Industrial Accident Prevention Association of Toronto, several influential texts emerged such as the Professional Accident Investigation series by Ray Kuhlman and the Effective Series of supervisory training manuals by George Germain.

ILCI produced a great variety of printed and audiovisual materials to facilitate the implementation of risk management and loss control in organizations of all sizes, including manuals, books, training materials, leader's guides and performance measurement tools. The enormously influential Practical Loss Control Leadership (now in its third edition) first appeared in 1985 and quickly became a standard text in the field. In whole or in part, it has been translated into more than a dozen languages. These materials helped untold numbers of organizations to train and guide their employees in continual improvement of safety and loss control.

Thousands of people attended the institute's seminars, speeches, courses and conferences. Frank and his staff also traveled the world to present ILCI concepts, courses, tools and techniques to thousands of people-executives, managers, front-line supervisors, union leaders, hourly and salaried personnel-in a wide variety of industries. In many places, Frank was considered to be the leading authority regarding management activities for SH&E loss control. Various publications referred to him as "the Billy Graham of safety."

Perhaps the most unique and valuable of ILCI's contributions to the world of safety has to do with the M of ISMEC. Measurement is at the heart of the ISMEC system-preceded by identifying management's work for safety and setting standards for that work; and followed by evaluating the performance measured, correcting substandard performance and commending good performance.

While working with the South African Chamber of Mines, Frank was intrigued by the potential of the group's basic Five Star Program for measuring and recognizing the level of safety performance of gold mines and related organizations. He expanded the conference material for the course he was conducting (The Consultant's Guide to Loss Control) and sent it back to Loganville for M. Douglas Clark to edit and develop into a generic safety audit system.

The resultant International Safety Rating System (ISRS) has been the basis of more safety management systems worldwide than any other document or strategy. It has been developed into specialized versions for industries ranging from maritime to mining and petrochemicals and customized to fit specific corporations.

## **The DNV Years**

In 1991, ILCI was purchased by Det Norske Veritas (DNV). DNV is an independent foundation established in 1864 whose objective is safeguarding life, property and environment. It is a leading provider of loss control management services, including safety, health, quality, reliability and environmental protection for business, governments and industry. DNV includes virtually all of Frank's major contributions in its programs, materials and consulting services. Thus, his significant contributions to safety have spanned more than 4 decades and may well span 4 more.

### **Concluding Thoughts**

Frank E. Bird Jr. received numerous accolades, awards and honors. Among his most treasured are:

- Fellow, ASSE;
- Honorary Life Member, Industrial Accident Prevention Association of Ontario, Canada, and the Canadian Society of Safety Engineering;
- Public Service Award, U.S. secretary of the Interior;
- Distinguished Service Award, U.K. Royal Society for the Prevention of Accidents;
- Member, Safety and Health Hall of Fame International.

Everything about Frank was big. He was a big man and a big thinker and had a big heart. His physical size enabled him to dominate a room or an arena. His voice, manner of speaking and expansive gestures made him a commanding speaker. His vision of what safety could be motivated people and organizations along the path of continual improvement. His heart made him a generous teacher and mentor. His uplifting spirit enabled him to help others see the positive, the potential, the possibilities.

### **Why did Frank's ideas have such great impact?**

- He moved the focus of attention from the acts of individuals to the management system as the best way to influence behaviors in a lasting way.
- He integrated safety into all aspects of the job so that it became a part of "how we do things" rather than an add on.
- He made the control of property damage a double-edged sword-to create greater safety for people and to use the enormous costs of property damage to get incident costs on management's radar.
- He applied risk management concepts to focus on the critical few aspects with the greatest potential for loss.
- He emphasized the study of nearmisses, especially those with high potential.
- He gave great emphasis to positive recognition and commendation of desired behaviors, at all levels, rather than just looking at the correction of undesired actions.

In essence, Frank was a humanitarian, a passionate communicator, a motivator, a creative thinker, a pioneer, an iconoclast, an entrepreneur, an inventor, an author, a public speaker, a visionary, a leader, a mentor, a consultant, a protector of lives and well-being, an evangelist for safety, loss control and risk management.

Frank E. Bird Jr. passed away quietly in his sleep on June 28, 2007. Those of us who had the privilege of working with Frank know we have walked with greatness. Thousands of safety

professionals around the world have built their careers around Frank's concepts. His legacy will continue to bless the world for decades to come.

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