Making Things Better

William Allan "Al" Hunter embodied the ingenuity and determination that brought progress and success to an entire industry.

By Robert Brooks

Too often we honor "risk-taking" in hindsight, after it has rewarded the risk-taker. Young people setting out in lifer are often urged to "make plans," but that advice usually understates the importance of "creativity," "innovation," and especially risk-taking. No one advises up-and-comers to leave everything they've worked at and try a new approach.

Having a plan is important, of course, but something has to inspire that plan: ideas, insights, or alternatives to the ways that things are currently being done, and how to improve them, are always critical to success. Even more, ideas and plans mean little without the determination to make them real. Al Hunter was a man with a plan, and many ideas, but above all, he was someone with exceptional confidence in his ideas and the willingness to risk everything: more than once he left a secure position to try something new, that he believed he could make succeed. He did succeed, of course, and so did the many foundries around the world where his 1,600-plus machines were adopted. The metalcasting industry has enjoyed immeasurable progress as a consequence of his ingenuity.

Al Hunter's life of innovation began on his family's Saskatchewan farm in 1922: in that setting he first proved his aptitude for machinery. "It is my understanding that by the time he was 12 years old, he was in complete charge of the repair and maintenance of the farm machinery for his father," his son, William G. Hunter related. "He was very mechanically inclined from the beginning."

Young Al also became friendly with the local blacksmith in the course of manufacturing replacement parts for farm equipment. "He was interested in metallurgy from an early age, I guess you'd say, and obviously saw metal being heated and formed, so we believe that led him into engineering, and into the foundry industry."

Farming life held little appeal for Al, so at age 16 he took a characteristic risk. He left home and found work, and then at 18 he enlisted in the Royal Canadian Air Force. "During World War II there was an aircraft repair depot in Trenton, Ont., to repair planes flying in the European theater. These planes were transported to Canada, to that depot for repair – particularly to repair the engines," Bill Hunter explained.

Al Hunter's formal education had taken place in a one-room schoolhouse in Saskatchewan, but after his wartime service made him eligible for college tuition he earned a Bachelor of Science degree in Mechanical Engineering at the University of Toronto in 1951.

By then, Al had married and started a family so as his education proceeded he was working, too, in a familiar setting. "He worked in two foundries in the Toronto area, and moved from job to job within the foundries," Bill Hunter explained. "He was a molder on a squeezer machine, he did floor molding, metal pouring, and probably did some finishing work, too. He was exposed to the equipment that was available in the typical foundry of the time, as well as their hazards, and the difficulty of the work."

Foundry work apparently triggered in Al Hunter insights into the manner in which castings are produced, and critiques of the processes and the machines available for the work. Having earned his degree, Hunter was recruited as an industrial engineer by Dominion Engineering Works in Montreal, a hydroelectric plant developer. "They didn't operate a foundry but they were expanding, and so he was involved in engineering and general contracting," said Bill Hunter.

All the while, Al retained his interest in metalcasting, so when he was recruited in 1956 to join Beardsley & Piper — at that time one of the top designers and builders of foundry machinery — he relocated to the Chicago area. In 1959 he was named the Chief Engineer when B&P established its new Tech-Center Engineering Division. He actively applied his mechanical insights to their products and was instrumental in the development of several B&P machines, including the all-hydraulic Rol-A-Draw machine and the well-known "B Series" SpeedMullors, among others.

As Bill Hunter explained, a number of the patents assigned to B&P list Al Hunter as the machines' inventor. Matchplate molding had been evolving for some decades, and B&P's engineers were working on those designs, as well. This concept involved using a two-sided pattern, so that a cope and drag are each formed on a single plate, meaning that one machine can make both halves

Al Hunter and his daughter commemmorate the completion and delivery of the first automated matchplate molding machine, in 1963.

of a mold from a single pattern. Most matchplate molding at that time was done using labor-intensive "squeezer" or jolt-squeeze machines, wherein the operator assembled a pair of flasks together with the pattern, filled each side of the mold with sand, and then used the machine to compress or squeeze the mold.

Al wasn't happy with the matchplate machine design that B&P engineers were pursuing, and he had his own idea. He conceived of a fully automatic machine employing the proven squeezer molding method. Hunter's concept machine would use gravity to fill the flasks and it had a single configuration that combined the hydraulic and pneumatic functions of squeeze molding into one unit, simplifying operation and maintenance. It had a small footprint, too, and a single flask size (18×14×6 over 6.)

Unfortunately, he could do nothing about developing his design without forfeiting the concept. So, Al left B&P with little more than this idea in his head, and the willingness to take a huge risk. That was in 1963.

The plan that became Hunter Automated Machinery Corp. was something close to a "Eureka!" moment, Bill Hunter indicated. "It took about three months to design the first Hunter machine … He was on an accelerated pace. He had given up his source of income, and he had a family," the son noted. The ingenuity of Al Hunter's matchplate concept was that it made green sand molding faster, more reliable, and more cost-effective for a wider number of foundries, which allowed them to be competitive both in terms of volume and product quality. It was designed to accept the matchplate patterns foundries already used for hand molding, and it could produce quality, high-pressure sand molds even if the sand was less than optimal. It was a rugged system, too, but easy to operate, easy to understand, and it could fit into the cramped spaces usually assigned to foundries' molding operations.

The first Hunter machine, the HMP-10, was built in the family garage. "It took three months to design it and three months to build it," Bill Hunter explained. Once the machine was built, Al moved it out of the garage and into a rented building where foundrymen from throughout the Midwest came to watch demonstrations of the machine making molds. Roughly 150 different visitors came to see the HMP-10, which finally found a buyer in Moline Malleable Iron. The machine was shipped to that St. Charles, IL, foundry, where it was installed and making molds within three days.

"From there, the word spread," Bill Hunter said. "Everyone had seen the machine in our factory, then once the machine was into production and was running, it didn't take long for people who had seen it to come back and place orders. We had orders for more than a dozen machines within six months."

Al Hunter also had a multi-million-dollar buyout offer from a rival machine builder, which he rejected, undoubtedly taking this proposal as proof of his concept and an indication that the metalcasting market would respond to it. The machines were assembled individually, but Hunter Automated adopted a system of building machines in batches. "We made six at a time, but it still took us a year to fill those orders," Bill Hunter said.

During the company's first decade its market coverage was mainly North America, but the sales volume increased each year. By the late 1970s they were building on average one molding machine per week. The HMP 20, with a larger flask, was introduced in 1968, and a turntable version of the Hunter machine was unveiled in 1970.

Even larger machines followed, and more turntable sizes were introduced. Hunter Automated Machinery moved first to one larger plant and then another – which it has expanded three times. Today, the company's headquarters include a 120,000-sq.ft. operation in Schaumburg, IL, with Bill Hunter as its president and owner, and with plants in Brazil and China that the Illinois plant supplies with parts for assembly and delivery to local customers.

Al Hunter's ingenuity guided all of this. He earned more than 50 patents during his lifetime, the large majority of these being completed in the years following the commercialization of the automated matchplate molding machine for which he is known best, and including other critical metalcasting processes, like multi-level mold handling and automatic coresetting. His final patent was awarded just six years ago.

Al Hunter passed away in 2011 at age 89, leaving a legacy in metalcasting that few have equaled. Al's peers honored him with the American Foundry Society's Management Service Citation (1990) and William J. Grede Award (2001), recognizing his career accomplishments. The *FM&T* Hall of Honor adds to those distinctions, and recognizes Hunter's technical and process innovations; organizational leadership; professional and industrial standards; and personal contributions and achievements that have improved and enhanced metalcasting as a science, as an industry, and as a community.

All of this resulted from the ingenuity of one man — William Allan Hunter — who effectively consolidated his mechanical skill, his practical ideas, and his personal determination in ways that brought progress and success to an entire industry.