by KENT COPEMAN

THE Inventor

Lloyd Groff Copeman's business was inventing. From the time he invented a device installed in a schoolhouse privy that allowed him to give a remote-controlled whack to the unsuspecting, to his death in 1956, his mind never stilled.

Lloyd Groff Copeman had, by his count, nearly seven hundred patents to his name. He once told his grandson that he could walk into any store and find one of his inventions.

Lloyd Copeman (above) is a forgotten but great American inventor. His inventions range from the first heat-regulated electric stove to the flexible ice cube tray and hundreds of things in between.

All artifacts and historic photos Kent Copeman collection, color photography by Gary Bublitz

Born in 1881, Lloyd grew up on the family farm in Farmers Creek, Michigan (twenty miles east of Flint). He attended Michigan Agricultural College for a while, took various jobs with electric companies and followed his childhood sweetheart, Hazel Berger, to Washington state, where they married. After a few years, they returned to Flint and Copeman began inventing in earnest.

Most people have never heard of Lloyd Copeman, but his inventions still touch our daily lives. The three that most often come to mind are the electric stove, the rubber ice cube tray and the automatic electric toaster. There were also hundreds of other inventions, some that reached the market and many more that did not.

Copeman quickly became well known as an entrepreneur. He joined the Detroit Athletic Club where, according to his daughter Betty, "He knew Edison, Ford, and he knew the Fisher boys and the Dodge boys." Two Flint businessmen who played important roles in his success were Josiah Dallas Dort, a partner in the Durant-Dort Carriage Company and founder of the Dort Motor Car Company, and Edwin Wood Atwood, future mayor of Flint.

Copeman invented a thermostat that provided warning when transformer stations for high-tension wires were about to burn out. This led to patent number 932,966 being granted to him in 1909 for the Electro thermostatic heat regulator. The thermostat meant that the amount of heat generated by a heating element could be controlled. When he told J. Dallas Dort about the idea of an electric stove, Dort grabbed a telephone and recruited stockholders then and there. He and twenty-two stockholders raised $500,000 to form the Copeman Electric Stove Company in 1912. It was located in Flint in what became the Copeman Building.

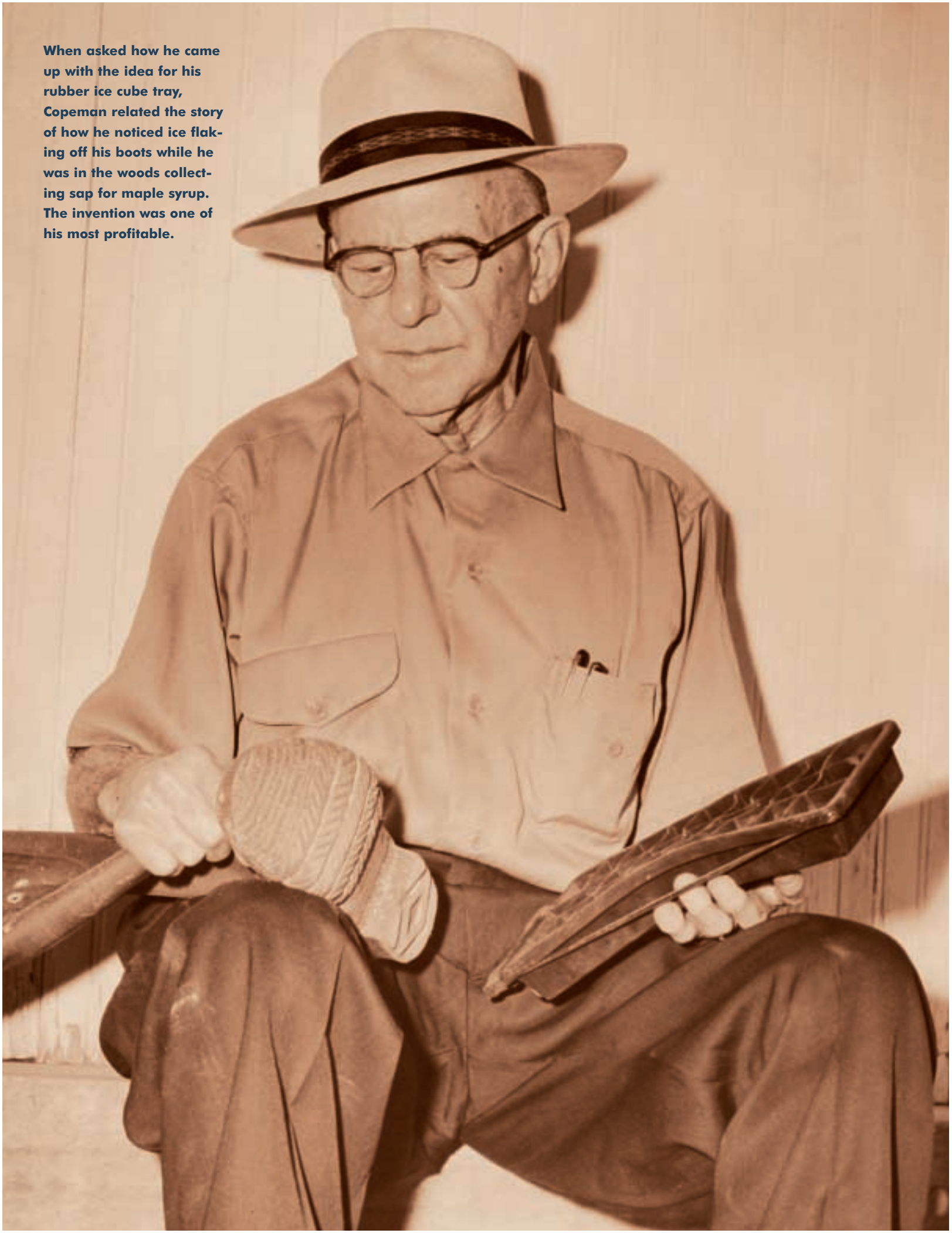
The first electric stoves produced by the company had the appearance of an old-fashioned, heavily insulated, oak-clad icebox. Removable round hot plates were plugged into outlets located on the top and inside the small ovens. The new stoves were referred to as the "fireless cooker" in advertising literature. This reflects the cooking methods of the day. Cookers were on the market that used heated soapstones, and Copeman replaced the soapstones with electric heating elements. The early "ice-box" look quickly took on a more modern cooking range appearance by moving the oven to waist height, making the burners more convenient for the homemaker. Many variations of the

Copeman's stove display at a 1912 convention in Washington attracted much attention. The book at left is a Copeman stove manual.

stoves were available, including simple hotplates.

According to Copeman in a 1954 interview in *Popular Mechanics,* in 1918 he was alone in a booth at a Philadelphia convention where various manufacturers were demonstrating their products before potential distributors. An elderly gentleman stopped and expressed interest in Copeman's stove. "And how are you doing with your product, young man?" the gentleman inquired. "Well, we've got a good product, but darned poor sales organization—that's me," Copeman said. "We have a good sales organization and no likely cooking products," the man replied. He was president of Westinghouse Electric Corporation. In a few days, a deal was made in which Westinghouse absorbed the Copeman Electric Stove Company.

The Copeman Electric Stove Company produced more than stoves. Lloyd and his wife, Hazel, once saw an electric toaster displayed in a show window. The normal way a toaster worked at the time was to place the bread on a rack facing the heated electric coils. When the bread was toasted on one side, it was flipped by hand for the toasting of the other side. The story goes that Hazel turned to her husband and said, "Lloyd, couldn't you invent a toaster that would automatically turn the toast?" In fact, family oral history says that she made a model of the toaster using hairpins. There must be some truth to this since the toaster patent was issued to Hazel B. Copeman in 1914. This was the first toaster that allowed the toast to be "turned" without touching the bread. It was called the "Automatic" toaster. As with the electric stove, the first Westinghouse toasters



When asked how he came up with the idea for his rubber ice cube tray, Copeman related the story of how he noticed ice flaking off his boots while he was in the woods collecting sap for maple syrup. The invention was one of his most profitable.

were identical in every way other than carrying the Westinghouse name and the words "Copeman Patents" on the nameplate.

Many companies who wished to produce electric toasters were forced to pay royalties to Copeman or find a different way to turn the toast. Some swung the toast around in little baskets. Another toaster carried the bread past the heating elements on a little conveyer belt, toasting it as it traveled along. Toastmaster ended the long search for a better way to toast bread with the advent of the "pop-up" toaster.

In 1918, Edwin Atwood formed Copeman Laboratories to nurture the inventor's ideas. The laboratory was located on the upper floor of one of Billy Durant's old carriage factories on Water Street in what is now known as Carriage Town. In later years, this building was burned to the ground by an arsonist. Eventually, Copeman moved back to Farmers Creek and built a permanent home by remodeling his summer house. The home included a workshop in the basement where he worked on his ideas. After an idea became a reality, he took it to Flint and turned it over to the detail people at Copeman Laboratories for final development.

The idea for a rubber ice cube tray, later sold to General Motors Corporation, came to Copeman while he was gathering sap to make maple syrup. Slush collected and froze on his rubber boots. He noted how easy it was to bend the rubber boot and have the ice flake off. Copeman had his patent attorney prepare patent applications for three types of trays. One was for a complete rubber tray; one with just rubber section separators; and a third with individual, removable cube holders. The final patent was for a rubber tray divided into sections. This invention proceeded to gross about a half million dollars in royalties for Copeman and his associates.

Copeman was always asking the question, "How could life be made better for the housewife, the farmer or the industrialist?" Yet, many of his inventions never became household items. While traveling he found the need for a flexible clothesline, so he invented and patented a clothesline made from braided rubber surgical tubing called Flexo-Line. It stretched seven feet and articles of clothing were held in place between the rubber strands. This product is still being manufactured and marketed through travel catalogs. On another occasion, Copeman saw a market for a garden rake cleaner and formed a company to manufacture such a product. The result was a gadget that was mounted on the handle of a standard garden rake. By pulling a metal handle, a loop around the tines pushed the debris off the rake. It is not known how many of these were sold, but it certainly made cleaning the rake easier.

Wildlife, including birds, interested Copeman. Around 1940, he formed Cope-Craft Products by issuing $50,000 worth of stock. This was a mail-order company for which he developed a complete line of birdhouses, feeders and suet cakes. The birdhouses looked like sections of logs and were made from a heavy tarpaper covered with a dark, brown paper that gave them the appearance of bark. They were eye-appealing and were shipped flat and assembled by the purchaser. As Copeman found success with his Cope-Craft line of bird products, he turned his mind to other uses for die-cut products. Using cardboard covered with a wood-grain pattern he designed wastepaper baskets of various shapes, a more advanced line of bird feeders, a fly swatter and a berry box that could be quickly assembled via machine. Although the ideas had potential, the world had moved on to plastics, leaving paper and cardboard products for generations past.

Many of Copeman's patents reflect the problems of the day. He and others thought that natural rubber or latex could be used in a variety of ways. Several of his patents suggest that coating automobile steel-body stampings with latex would keep them from rusting while being shipped to various locations for assembly. There is much correspondence between General Motors and Copeman Laboratories about the process, but nothing came of it. Copeman also developed a method of using latex to keep women's nylon stockings from running. The ladies of the Copeman household had vivid memories of having to wear thick, heavy nylons that could not breathe. Eventually a workable stocking was developed but it, too, never reached the market.

A product that Copeman was sure would be a popular item was the tamper-proof envelope. Brown wrapping

paper was coated with latex and allowed to dry. An item was placed in the envelope and all the sides were pressed down, forming a tamper-proof seal. The irony was that Copeman sent the sealed package to a friend at Michigan State University to be evaluated. When the envelope was returned, it contained the following note: "For $10,000 I will tell you how I did it." So much for the tamper-proof envelope! This same technology is used on self-sealing envelopes used for film processing today.

Copeman found that a dripping can of paint was just as much a nuisance then as now. He went to work and developed a rim made of spun aluminum to fit into the pail rim that caught the drips and kept the rim clean for resealing. This item was never patented, but this product, too, can be purchased today, although it is made of plastic.

Greasing automobile bearings and other mechanical equipment was a dirty, messy job. Grease cups of the day were removed, filled with grease and then screwed down, forcing the grease into the bearings. Copeman invented and patented a device that used a pre-filled paper cup, making the process quicker and cleaner. This was marketed as the Copeman Lubricating System or Copeman Lubri-Caps and was sold to Alemite in its infancy for $178,800. It was further developed into a high-pressure system used for lubricating automobiles.

It had been suggested to Copeman that the U.S. Army would be interested in a wagon that could turn a 45-degree corner. He made a small-scale model out of brass that he drew behind a scale-model farm tractor. When he felt he had the problem licked, he used a farm wagon to make a full-size prototype. The front and rear wheels turned in opposite directions similar to today's all-wheel steering. Although he spent much time on the possibilities of a tight-turning wagon, the idea never became a reality.

Not all of Copeman's life involved his passion for thinking up ideas to help his fellow man. He and Hazel had three children (Lloyd, Elizabeth Jane and Ruth Mary), and their country estate was a jewel, located in Farmers Creek (south of Lapeer) in the midst of prime farming country. For its time (the 1930s and 1940s), the family home was one of the finest in the area. In 1929 he installed one of the first in-ground concrete pools in Michigan. During the Depression he raised angora rabbits, which generated work for local women who knitted baby mittens and other accessories for sale. Copeman also founded the Hunt Club Poultry Farms that marketed eggs and cottage cheese.

Many of Copeman's inventions were developed in his basement workshop. This clock was originally used as a timer on Copeman stoves.

Copeman leased many acres of land in and around Lapeer County in hopes of finding natural gas. In 1935 he drilled and found gas south of Lapeer—just enough to cook a meal of bacon and eggs before the well turned to

water. The amount of water flowing from the well drained some of the local wells and produced a swamp that is there today. His loss was about $60,000—a bundle in the 1930s!

In his early years, Copeman, as an avid hunter, was motivated to make the hunter's lot easier. One invention that did not make it to the patent application stage was a chair/seat attached to the hunter's backside. It was designed so that when the hunter wanted to sit, he would bend as to sit, and the seat automatically folded out to accommodate him. The family motto for this product was "Rig your rear with Copeman's gear."

In his later years, income from Copeman's patents came to an end, but he still intended to live the "good life." He said, "I will sell whatever I need to, to keep my income at $10,000 a year." (This was when a middle-class income was around $5,000 a year.) But accumulating money was never his goal. He continually invested in developing new ideas and obtaining patents. By the time Copeman died, he had sold the family farm and accepted that he would need to apply for Social Security benefits.

The Copemans always had domestic help and a handyman. When Hazel was bedridden, a live-in nurse cared for her. Since residential air conditioning was not readily available, Lloyd mounted sprinklers on the roof of the house and pumped cold water through them to cool the shingles, lowering the temperature in the room. Later, he designed a system of pipes in Hazel's room for the cold water to run through. By putting an electric fan behind the pipes, he developed an early form of air conditioning to make her more comfortable.

Lloyd Copeman died in 1956 at the age of seventy-five. It was the end of a life that brought forth many ideas, inventions and patents that benefited so many people. mh

KENT COPEMAN is the grandson of Lloyd Copeman and lives in Hadley.

Learn more about Lloyd Copeman at
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