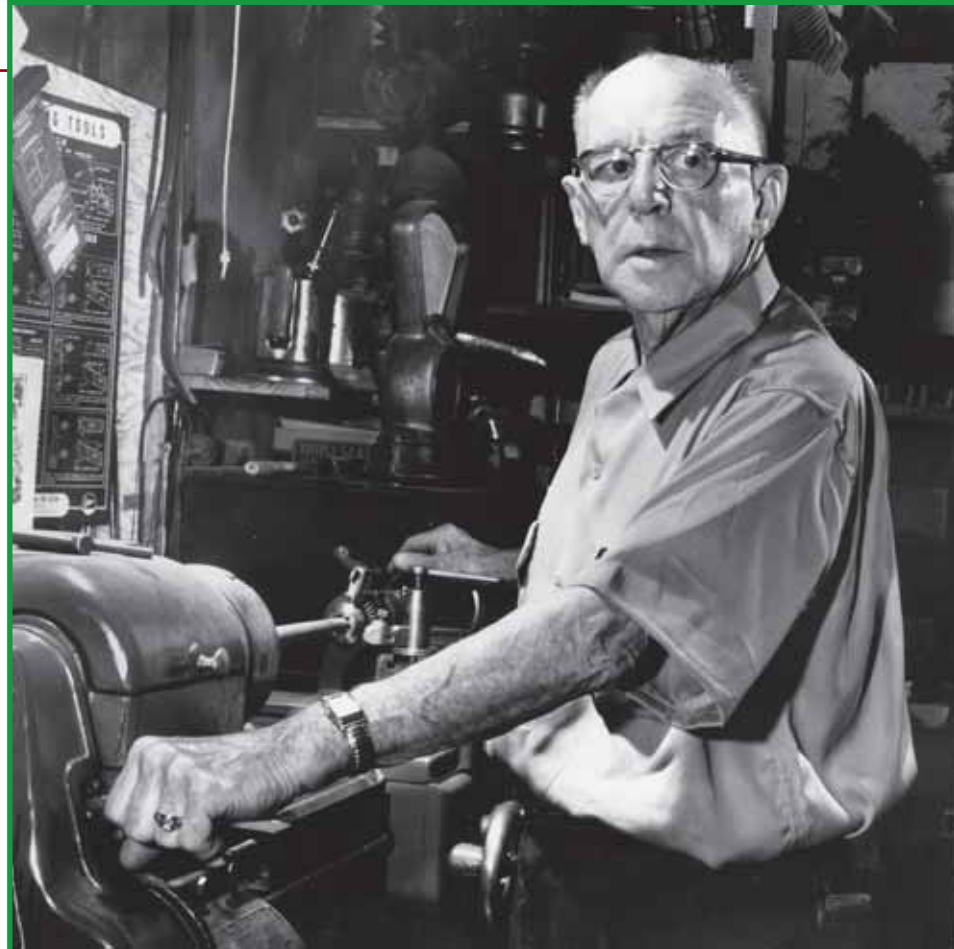


*DAC member remains forgotten*

# Michigan inventor

*By Joseph Cabadas*



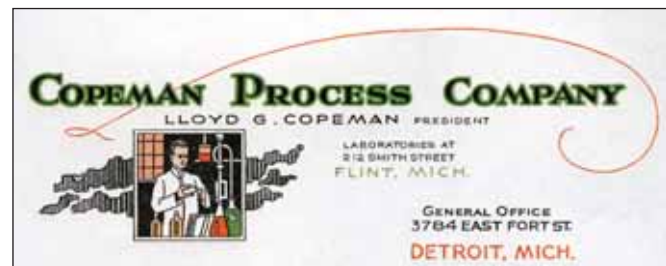
*Lloyd Copeman photographed in his workshop for a 1954 Popular Mechanics article.*

*All photos in this story provided by his grandson Kent Copeman.*

**A**lthough Lloyd G. Copeman invented many common-use items, such as flexible rubber ice trays, thermostats for electric stoves and an early toaster, the accomplishments of this DAC member have been almost forgotten.

Tinkering with many early 20th century technologies, Copeman amassed more than 650 patents, ranking him right at the top of the U.S. Patent Office's unofficial list of all-time prolific inventors.

Thomas Edison tops that list with 1,093 patents, the most for any individual American inventor. Other figures on the list include George Westinghouse, who had 361 patents, spaceflight pioneer Robert Goddard with 241 patents and General Motors researcher and Charles Kettering (also a DAC member) with 140 patents.



“In general, in the late 19th and early 20th centuries, Detroit was a hotbed of inventors, inventions, innovations and new products, of which motor cars were only one,” said Mike Davis, a local expert on technology history, an author and former director of the Detroit Historical Society.

“The trick about patents is that they are cheap to file and obtain, and hard to make productive. If they are not turned

into a product, they are insignificant,” added Davis, a retired Ford Motor Co. manager.

Several of Copeman’s patents were, indeed, turned into productive products. At least one of his products was aimed at easing the mess of greasing the bearings of early automobiles and other mechanical equipment.

Copeman invented Copeman Lubri-Caps, which were paper cups that were pre-filled with grease for lubricating wheel bearings. Previously, mechanics or the do-it-yourself motorist regularly had to remove the grease cups, fill them with grease, and then screwed back on to force the lubricant into the bearings.

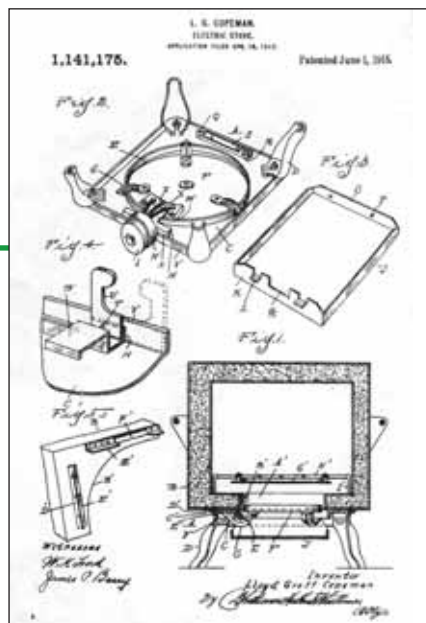
The Alemite Co. of South Carolina became so interested in Copeman’s invention that it bought his patent for \$178,000 sometime about 1920. (Later advances in automotive technology made lubri-caps obsolete.)

Even though his name does not appear on the Patent Office’s list, during his heyday Copeman was well known among early Detroiters and counted a number of Club members who were important to the early development of the automobile as his close friends.

Besides hobnobbing with fellow DAC inventors and friends, Copeman worked closely with people like General Motors board member Charles S. Mott, Flint auto pioneer J. Dallas Dort and GM founder William Crapo Durant (all DAC members).

In fact, one of his noteworthy inventions was actually conceived while having lunch at the DAC.

“My grandfather was one of those inventors who have long been forgotten but truly deserves to be recognized for their accomplishments,” said Lloyd’s grandson Kent Copeman. “Men like Lloyd helped create and foster the early



Left, a patent drawing for the Copeman stove dated from 1915.



A young Lloyd Copeman in 1916, a year after the DAC opened.



Charles Mott, Copeman’s good friend and an early automotive pioneer.



Albert Marsh, a DAC member whose design Copeman improved.

technological revolution that changed America at the beginning of the last century.”

A resident of Hadley (MI), Kent Copeman lives just a few miles from what is left of his grandfather’s estate in the town of Farmer’s Creek. Today he has become the keeper of the Lloyd Copeman legacy, putting together the pieces of the inventor’s past, maintaining a marvelous scrapbook of Lloyd’s work and helping to develop a Web site devoted to the family name.

“He was a great idea man, but he never talked about any of his early inventions,” Kent Copeman said. “I don’t think he ever mentioned the stove company or the invention of the toaster or how it came about. He was always talking about a new invention or a patent.

“He was always thinking of the future, not what went on yesterday. You never heard about the past from him.”

## A Tinkerer is born

The son of a Canadian couple who settled near Metamora in Lapeer County to farm, Lloyd Groff Copeman was born on Dec. 29, 1881, nearly four months after Michigan’s “Great Thumb Fire.” That catastrophe occurred in September of that year when a fast moving blaze destroyed more than a million acres of land – including parts of Lapeer – and killed 282 people in a single day.

After graduating from high school, Copeman studied engineering at the Michigan Agricultural College (now known as Michigan State University) and became an apprentice at the Baldwin Locomotive works in Philadelphia. Afterward, he worked for electric utilities in Philadelphia, Spokane (WA) and Detroit Edison and Consumers Power where he studied electrical, marine and mechanical engineering, and learned about steam fittings.



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*The COPEMAN  
Automatic Electric  
Cook Stove*



*Left, the  
Copeman electric  
stove.*

*Below, Edwin  
Atwood, Flint  
mayor and  
Copeman partner.*



Although growing in acceptance, electricity was still a novelty with many homes only having a few light bulbs and hardly any had wall sockets. Copeman made a significant contribution to electricity in 1909 when he invented and patented the thermostat that warned when high-tension power lines were about to burn out. Also, his invention of the electro-thermostatic heat regulator provided a solution to the problems of early electric stoves and toasters.

“The biggest problem with the heating elements in stoves and toasters was there was no way to heat the wire without it burning up,” Kent Copeman explained. “Albert Marsh came in and patented a chromium-nickel alloy (chromel) wire that could be heated without it going to pieces.”

A native of Illinois, Marsh joined the chemical firm Mariner & Hoskins in Chicago. That’s where he invented chromel wire in 1906 and would later be called the “father of the electrical heating industry.”

The firm moved to Detroit where it was renamed as Hoskins Manufacturing Co. and initially pro-

duced electric stoves and toasters before focusing on making chromel wire for other appliance companies. Marsh became Hoskins’ president in 1915 and was a Resident DAC member from May 1917 until his death in 1944.

The major drawback to Marsh’s design, however, was that consumers could not control the electric heating element’s temperature until Copeman invented the thermostat.

In a conversation with Dort, Copeman told the horse-and-buggy maker turned automotive pioneer that he planned to start his own electric stove company. Dort enthusiastically agreed to join the venture and proceeded to raise nearly \$500,000 as he recruited 22 stockholders.

One of those stockholders was Edwin Wood Atwood, son of former Flint mayor and lumber baron William A. Atwood. Edwin Atwood later joined the DAC in 1919 and served as Flint’s mayor in 1920 and 1921. He also was active with Flint’s Hurley Hospital and the American Red Cross.

The Copeman Electric Stove Co. was born and moved into Flint’s first brick building, which had been called

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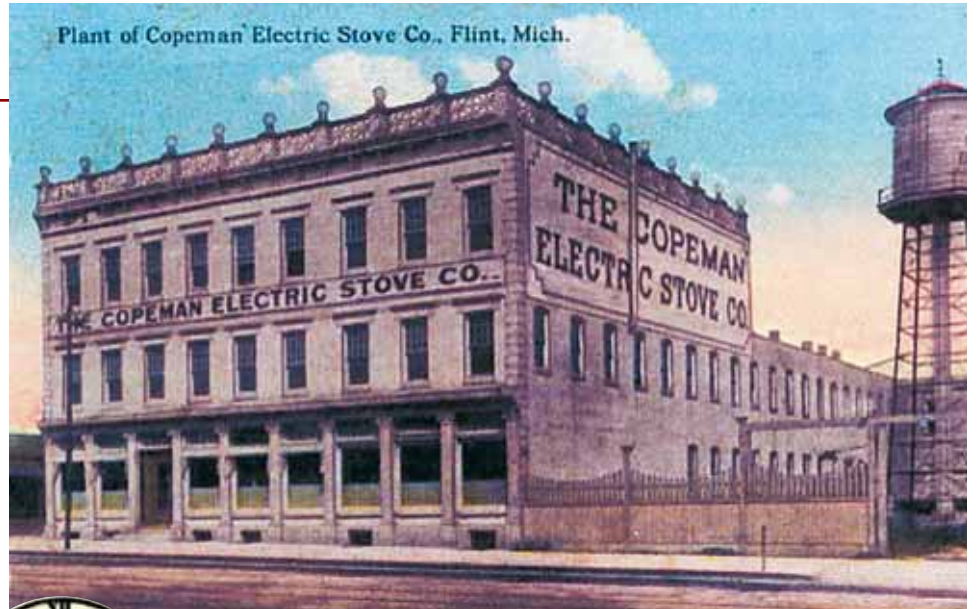
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Top, the Copeman building in a 1920s postcard.

Left, a Copeman display at a 1912 convention in Seattle.

Far left, a Copeman logo.

the "Scotch Store" on Saginaw Street. The original building, which no longer exists, had also been briefly used by the lumber concerns of Gov. Henry H. Crapo (Durant's grandfather).

In a front page story in November 1911, the *Flint Journal* reported that the fledgling firm was "rushed with business" and was turning out 40 stoves a day.

These first stoves resembled heavily insulated, oak-clad iceboxes with removable circular hotplates and small ovens with electric heating elements. They were marketed as the "fireless cooker" – playing off the fact that many women at the time used heated soapstones to slowly cook food in other fireless stoves of the day.

Copeman stoves were also equipped with electric timers – essentially looking like old-fashioned wind-up clocks. Despite its innovative features, stove sales languished far below expectations,

but a quirk of fate intervened, according to a story that had appeared in *Popular Mechanics* magazine.

In August 1916, as World War I raged in Europe and on the seas of the Atlantic, Copeman was sitting alone in a booth at the electrical engineers convention in Philadelphia. That's when a large, well-dressed man approached Copeman and asked him how his stove business was doing.

"Well, we've got a good product, but darned poor sales organization – that's me," the Michigan inventor replied.

"Well, we've got a good sales organization and no likely cooking products," the man said.

The man thoroughly examined the workmanship and design of Copeman's stove and stated that he thought it was an exceptional product.

"I'd like to add it to our line of household appliances," the man continued. "That is, if you are authorized to

discuss the sale of the patent and manufacturing rights?"

The man revealed himself to be George W. Westinghouse III, son of the famed inventor (who had died two years before) and was president of the electric appliance manufacturer.

A deal was struck and Westinghouse purchased Copeman's stove company in 1917, moving its operations from Flint to Mansfield (OH). Building upon Copeman's design, Westinghouse turned the electric stove into a successful product.

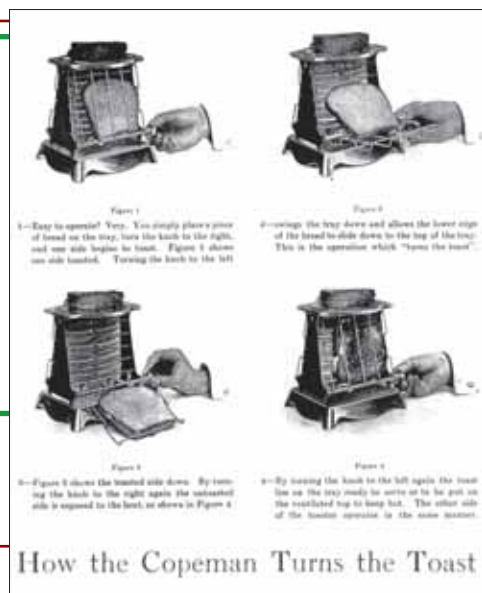
1926, however, Copeman's patent became obsolete.

Copeman, though, was busy working on other products. Some made it to the market such as Flexo-Line, a stretchable clothesline made from braided rubber tubing, while others don't seem to have fared well, such as his effort in the early 1930s to raise chickens that could produce eggs high in Vitamin D. Interestingly, Flexo-Line is still made and sold to this day.

After the sale of his stove company, Copeman was sponsored by his friend

Dort to join the DAC during the summer of 1917. Betty Gerlach, Copeman's now deceased daughter told the *Flint Journal* in 1984 that her father "often went to the Detroit Athletic Club for a roundtable discussion with his friends, Thomas Edison, Henry Ford, the Fisher

A company brochure extolling the Copeman toaster's unique features.



Meanwhile, Copeman's restless inventive mind moved him onto other ventures besides the electric stove. For example, in 1914 he created the design so consumers could easily flip over the bread without touching it. The patent, however, was issued to Copeman's wife, Hazel B. Copeman.

According to family history, Hazel Copeman had worked on an early model using hairpins, so that's why she received credit on the patent.

Toaster manufacturers had the choice of either paying a royalty to Copeman or coming up with their own novel inventions, including one firm that developed a conveyor to carry the bread through the machine. When the pop-up Toastmaster hit the market in

brothers and the Dodges."

Another DAC-related story was shared by his grandson, Kent Copeman, who called his grandfather "Lloyd" because the eccentric inventor always wanted to be called by his first name.

"Lloyd decided, sometime in the early '50s before I graduated from high school, to take me down to the DAC for lunch," said Kent. "But, when we got in there, Lloyd didn't have his top jacket on and it was against the rules to eat there without your jacket.

"They offered to loan him a jacket, but Lloyd said, 'Nope, I'm not going to do that.' So, I missed my only chance to eat at the Detroit Athletic Club and we went somewhere else."

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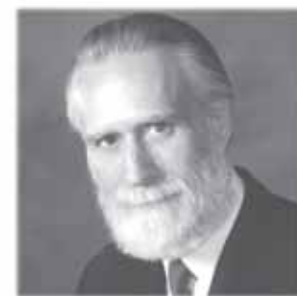
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Left, Copeman's original DAC Non-Resident member card.

Below, a Flint Journal photo of Copeman in 1954 with his ice cube tray and its inspiration, the rubber boot.



By 1918 Copeman and Atwood had established the Copeman Laboratories Company so the inventor could continue his work. The firm was housed in the fourth floor of the old Durant-Dort Carriage Co. factory in Flint's "Carriage Town."

In Flint, Copeman was neighbors with Albert Champion, the French émigré and former bicycle racer. A DAC member, Champion was founder of the Champion Ignition Co. which was later renamed as the AC Spark Plug Co. and became a division of GM.

"Lloyd lived in Flint for many years, but he was particularly interested in farming so he moved back to the family farm at Farmer's Creek," Kent Copeman said. "He was a gentleman farmer and always had people around to work. He had a housekeeper, a gardener and others... And his favorite cars were Chevrolets."

Copeman purchased additional property around his family's original farm and dubbed the place "Kinnikinic." He drew a salary from Copeman Laboratories, but worked on prototypes in his basement workshop. Much of the equipment that he used, though, had been supplied by Mott.

"Lloyd and C.S. Mott were good friends," Kent Copeman said. "The first time I remembered Mott was when I rode my bike over there one day and Lloyd said, 'There's someone I want

you to meet.' He introduced me to old C.S. Mott, who was driving an old Corvair.

"It wasn't until years later when I worked for the Mott Foundation, that I had any idea of how important a person I had shaken hands with."

Mott was one of the auto industry's pioneers. He had joined GM in 1908 when Durant bought out his wire wheel business in 1908. Mott also served on the GM board of directors from 1913 until his death in 1973.

Copeman's most successful invention – and the patent that earned him \$1 million in royalties – was the creation of the rubber ice cube tray.

The idea for the invention occurred in 1928 while Copeman was having lunch at the DAC with his patent attorney John M. Kisselle. According to a Detroit News story about Kisselle, the attorney said that Copeman was worried that a number of his patents were about to expire and that his royalty income would severely drop.

During that lunch, Copeman remembered an incident that had

*What is purported to be the DAC's original diving board still graces the pool at Copeman's estate. Below right, a Copeman product still made today.*



occurred while he was gathering maple syrup. Slush had collected on his rubber hunting boots and had frozen overnight, but he had been able to easily remove it without resorting to using hot water.

Asking for rubber cups, Copeman directed the DAC staff to put water into them and put them into the freezer. After lunch, Copeman found that it was easy to remove the ice that had formed.

From that initial experiment, Copeman filed for patents on three types of ice tray designs – a completely rubberized tray, for a metal tray with a rubber separator, and one with removable cube holders. He sold this patent to GM, but his invention made life much easier for consumers who were used to either using an ice pick or hot water to get their cubes.

During the 1930s, Copeman installed a 100,000-gallon, in-ground concrete pool – the first of its kind in the Flint area – at his estate, known as Kinnikinic.

When the DAC discontinued diving in its Natatorium, Copeman apparently obtained the Club's diving board. Although weather beaten, the board still hovers over the pool and is used at what remains of Copeman's estate (still owned by the family).

"We've always heard that the board had come from the DAC," Kent Copeman said.

Other ideas that Copeman worked on included: creating non-run silk hosiery using latex, but the resulting product didn't breathe or stretch well; developing a beer cooling device using dry ice; spending \$60,000 to drill a nat-



ural gas well in Lapeer County, but after getting enough gas to cook an egg, the well filled with water and created a swamp; a process to coat cigarette papers so that cigarettes would self-extinguish; various paper "logcote" birdhouses; a latex paper to cover auto parts for rust inhibiting; and a wagon that could make a 45-degree turn.

The U.S. Army was interested in the wagon project, so Copeman first created a prototype using a toy tractor and wagon before modifying a full-size farm wagon.

"Lloyd never got it to work because the axles kept failing," Kent Copeman said.

One of Copeman's last few projects was trying to get ice cubes to come out of a tube, like a modern ice machine.

He kept working on projects until his death at age 74 on July 5, 1956. Just prior to Copeman's final hospitalization while battling cancer and diabetes he filed a patent for a "moisture impervious container." That patent was awarded seven months after his death in February of 1957.

Using and perfecting the technology of the day, this early DAC member, nearly forgotten by those outside of the Flint area, changed American life and other inventors came along to build upon his foundation.

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