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HCFI NEWSLETTER

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The Mad Genius of Harry Armenius Miller

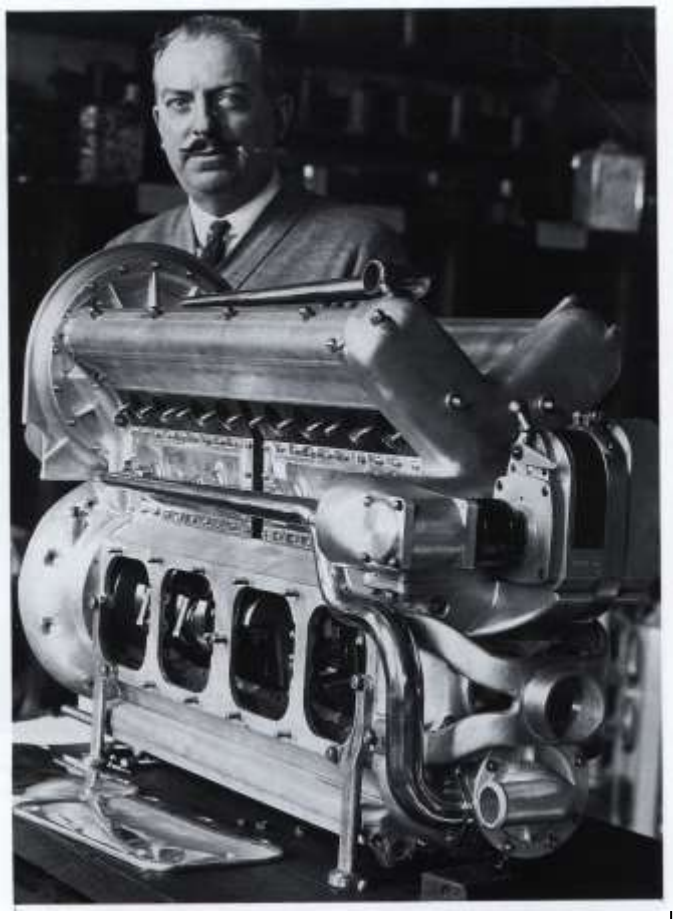
If history is any indication, it often seems that the gifted person's seemingly unfathomable talents are in direct contrast to the disheveled personality behind it. Some people are oblivious to their contributions to the world until their legacy becomes so massive, even they cannot ignore it. Some just obliviously depart from this plane of existence and let time do the rest. Perhaps it's the people that continue to move forward with no regard to the past (other than to eclipse it by leaps and bounds) that have the most impact on the world. Harry A. Miller was one of those men.

Call to mind if you will Leonardo da Vinci. Some believe he was so gifted that he was simply an instrument that God himself used to impart wisdom to mankind. Renowned painter, architect, and author Giorgio Vasari, who literally wrote the book on art history writing, began his chapter on da Vinci in his book 'Lives of the Artists' with this observation:

"...In the normal course of events many men and women are born with remarkable talents; but occasionally, in a way that transcends nature, a single person is marvelously endowed by Heaven with beauty, grace and talent in such abundance that he leaves other men far behind, all his actions seem inspired and indeed everything he does clearly comes from God rather than from human skill."

This same observation could be made for others we now consider visionaries: Mozart, Tesla, Hughes, Ford – each contributing a genius to their personal disciplines so profound that they continue impact us all today in everyday life. When it comes to engineering and innovation of the race car – particularly the racing motor - Harry A. Miller belongs among such lofty names in history. All were, at one time or another thought to be a bit off, however some more so than others (such was the case with Howard Hughes). Miller was no exception. The story of the man behind the machines is fascinating and heartbreaking; triumphant and tragic.

He embodied the classic eccentric – all art, no business. The eccentricities began with his clairvoyance. His ability to predict his wife's sentences before she uttered them (as well as the time of death of complete strangers) was downright spooky. He was painfully subconscious of his lack of formal education, but possessed an arrogance that he rarely veiled, especially in the face of what he perceived to be incompetence. He had a frankness that mirrored that of a small child; telling people he didn't like them to their faces without any perceived social boundaries. He made and lost fortunes without blinking an eye. He trusted virtually no one (including his wife Edna), except the people he recruited to decipher his cryptic sketches.



Miller and his Miller 91ci Engine

Of his many faults, procrastination was his worst, but his contributions were undeniable. If it weren't for the accounts of his employees and small circle of trusted friends and engineers, his genius would probably be nothing more than a footnote in the history of the automobile. Had he capitalized on all the ideas he envisioned, his name would probably be heralded among such names as Henry Ford.

That would not be his legacy, although due credit has at least been given to him for his contributions to race engineering over the years, even if many others made their fortunes from innovations that were not so

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Up Coming Events

September 26-27, 2015 Santa Fe Concourso, Santa Fe, NM
October 7-10, 2015 AACA Eastern Regional Fall Meet, Hershey, PA
February 26-28, 2016 Big3 Swap Meet, San Diego, CA

President's Corner...

I hope everyone had a good summer of touring. Here we are again getting into the fall season and it seems like here in Southern California the show and touring season is just getting started. I guess those of us in Southern California go by a different weather clock.

As I said in the summer newsletter we are starting the "Smile" program with Amazon. This is a great way to donate to the Automotive Research Library of the HCFI. It will cost you nothing except a little time to add the Library to your Amazon profile. Look for the link on our website. We hope this will benefit the Library funding.

Speaking of funding the Library is always in need of additional funding. We do receive grants annually from the Ellen Browning Scripps Foundation, as well as sale of excess literature and membership dues, but that does not cover our expenses for the year. As result, I am asking everyone to please consider upgrading their membership level one or two levels. As you know, the Automotive Research Library of the HCFI is a 501.c.3 Non Profit charitable organization, and a portion of the membership dues maybe tax deductible; check with your tax advisor.

Until next time, I hope everyone has a good fall, and that your football team - college or pro - makes it to the playoffs.

Greg Long

President / HCFI Board of Directors

The Mad Genius of Harry Armenius Miller *Continued from page 1*

much *stolen from* him, but *neglected by* him.

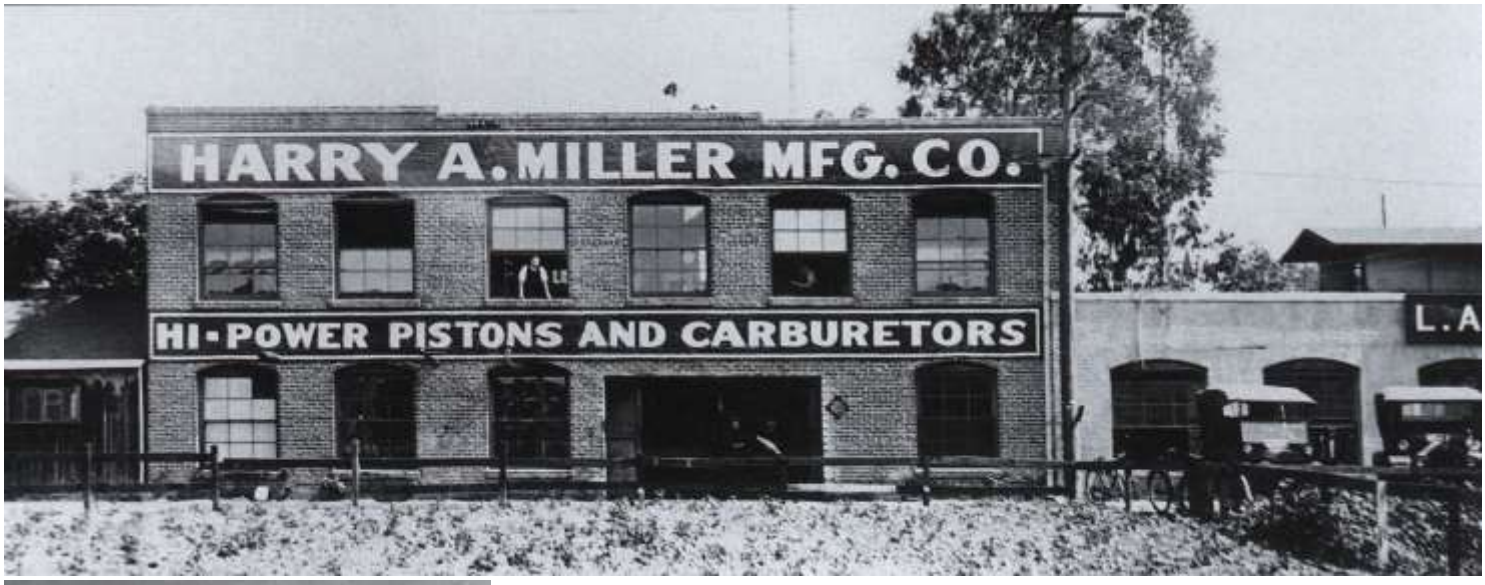
The mad genius (originally Mueller) was born in Menominee, Wisconsin in 1875 to a German Immigrant artist/musician father and Canadian mother, and had two sisters and three brothers. To support his family, the elder Mueller worked as a schoolteacher, which further underlined his desire for his offspring to succeed in America. When young Harry decided to leave school to go to work at a local machine shop at the age of thirteen, his father was convinced that he was throwing his life away. Harry – ever the self-assured visionary – knew that machinery was his calling, and quickly became the steward of steam engines at work in the local brickyard and lumberyard. Four years later, he headed off to make a name for himself in the world. By way of Utah, he ended up working at a bicycle shop in Los Angeles where he met his wife Edna, whom he had to wait to marry until the age of consent. It was during this time he set up his own shop on the side and decided to convert regular bicycles into racers.

Upon returning triumphantly home to his family in Wisconsin from the big city with his new bride, he had any number of jobs to choose from with the experience he had gained. Necessity being the mother of invention, he needed a vehicle to get to and from work. He bolted a small one-cylinder motor to one of his bicycles, and began using it as his personal transportation. Harry being Harry, he did not think to protect the idea, and soon local companies began developing the 'motorcycle.' It is said that Miller was the first to develop the first motorcycle, but since there are no records to support this, it remains in debate to this day. Still, he moved forward, undaunted, as he always would.

While working in his shop, Miller envisioned another idea, this time with leisure in mind. He took a rowboat and fitted a four-cylinder motor to the back of it, and entertained himself and coworkers by tooling around local waterways on their days off. It was about this time that his bride got homesick, and they decided to go back to California. Miller once again neglected to protect the idea. One of the machinists he had worked with recognized the importance of the invention, and capitalized on it. His name was Ole Evinrude, and his name is now synonymous with the outboard motor even to this day. Miller's chance at fortune had not so much slipped out of his fingers – it was plain left behind for someone else to pick up and profit from.

Back in California, Miller began working in foundries, where he learned about the manufacture of pistons. He would later set up his own piston factory and, for all accounts became the first to forge pistons from aluminum. He also developed the design for a new spark plug, and for once had the foresight to protect it. He then sold the rights to the Peerless Motor Company for a nice profit. Edna was convinced that he could become a captain of industry if he was more focused, but he wasn't interested. Ironically he spent money almost as fast as he got it, never concerning himself where more would come from or how he would make it – just instinctively knowing that he always could, it seemed. He never spoke of money to Edna, and felt that as long as she had enough to keep the household going it was enough.

Perhaps he knew something everyone else didn't. He would work for days on end with no sleep. Sometimes Edna found him in a meditative, trance-like state – thinking for hours - as if she wasn't even there. The



Miller's L.A. plant in 1914

Leo Goossen, Miller's Trusted Engineer

only glimpse into this process between Miller and the Almighty came in a conversation much later between Harry and his trusted engineer Leo Goossen. He was quoted in Griffith Borgeson's book 'The Golden Age of the American Racing Car' as saying:

"Listen to me and try to understand this – I don't do these things. I get help. Somebody is telling me what to do. I mean it, Leo. I rely on it."

It was something Harry used to refer to as 'spiritual control.' All of those who worked with him were familiar with the term, although he never once mentioned it to his wife. Miller would scribble some gibberish onto a scrap of paper without regard to dimension or scale (his lack of education made math largely a mystery to him), and have someone else interpret what he was envisioning. Being grateful to merely work around Miller and share his genius was enough for trusted coworkers like Goossen and former Chevrolet engineer Eddie Offutt never to say they helped him in any way. Such was the man and his influence on others – who were for the most part, fond of Miller.

There were exceptions to that, however. Regarding his short attention span and utter lack of priorities (particularly with money); sometimes he would do unthinkable things that directly affected employees negatively – such as spending the entire payroll on a mechanical idea. Most would quit, vowing never to speak to him again, but would always show up at work the following week. Miller would show up to work (late, of course) and hardly acknowledge them - as if nothing ever happened.

Miller's first and last foray into an actual motor race came as he worked as a mechanic for Oldsmobile in 1906. He was commissioned to convert a stripped version of the Olds Pirate to compete in the Vanderbilt Cup race, which was the most prestigious in the country at the time. The trials were held in Nassau on Long Island, and were a total disaster, suffering too many obstacles to count. He was convinced that he could build racing machinery better than what he had been dealing with, and set out to do it, starting with the most problematic part first – the carburetor. His success in its simplistic design and functionality were instantaneous, and the Miller Carburetor Mfg. Co. was built. Upon design-

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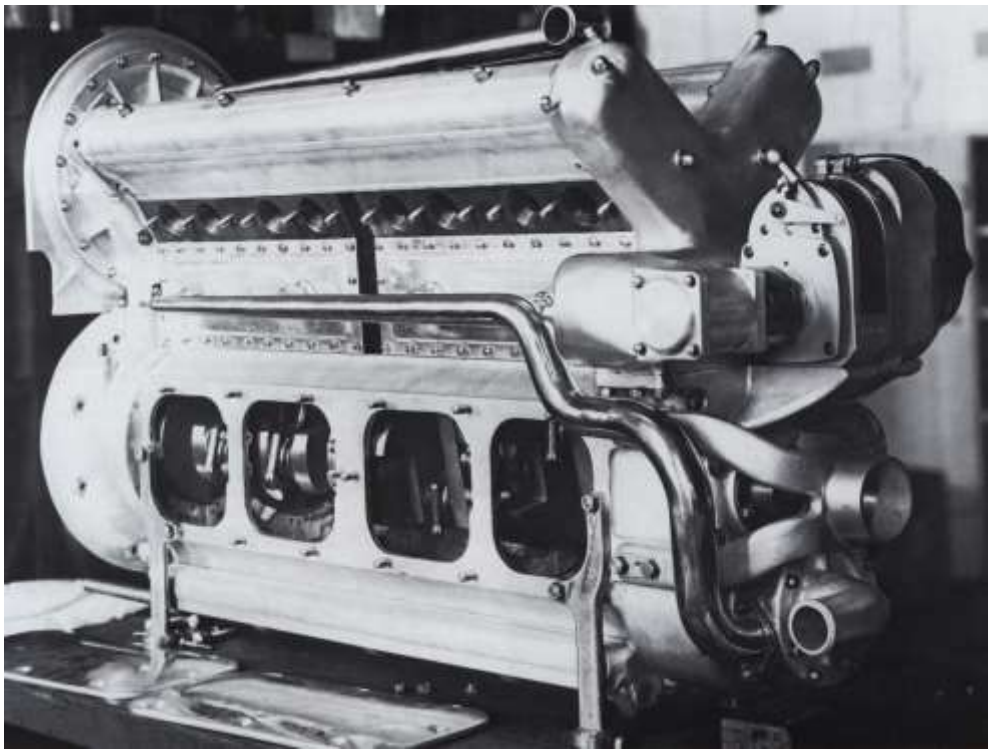
Miller at the ill-fated Vanderbilt Cup Trials the first time.

Entire staff of Washington Blvd., Los Angeles Shop in 1916

ing a new, (but less successful) carburetor, the New Miller Company was set up in Indianapolis, but it was there that he lost interest in the cumbersome design and moved on after watching Ray Harroun win the first Indianapolis 500 race (Miller's proclivity to abandon one project for another instantaneously and without regret was yet another unfortunate personality trait he exhibited throughout his life.)

Miller then developed the carburetor that would be the standard for years, The Master Automatic. The company, however, did not last. The company folded in only six months, mostly because the carbs were viewed to be solely race-specific, and not for use in massed produced cars. Despite its failing as a company, Miller Automatic carbs dominated racing until the Winfield replaced it as the racer's favorite in the mid 1920's.

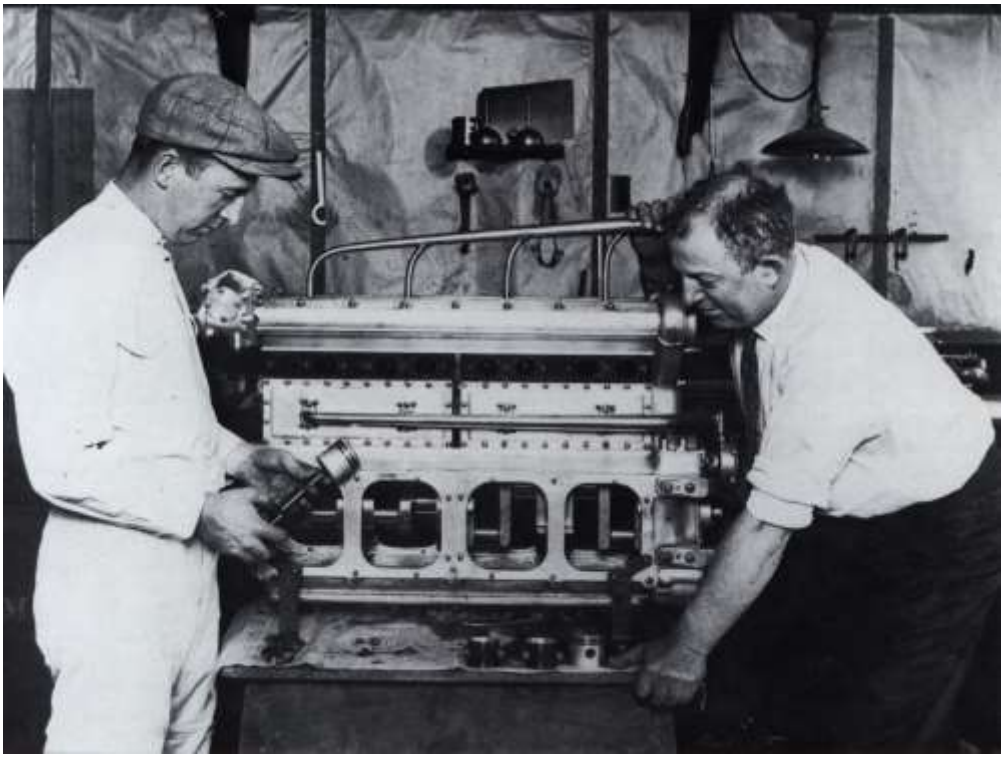
At the time, Miller was listed as being President, but held only one share, opting for the cash to begin another venture. This time it was forging aluminum alloy pistons, all while doing custom foundry work for racing cars and aircraft applications. It was at this time that the shop had the most employees, and a superintendent was needed. A former railway worker and engineering perfectionist named Fred Offenhauser was hired to supervise daily operations.



The famous Miller 91 - Notice the polished side-plates on the workbench

Under him, and at the direction of famous car racers of the day feeding tweaks and recommendations to them, the shop became the premier headquarters for racing's elite. Miller's shop developed a reputation for quality work, but Miller was always his own worst enemy. Preferring to ignore forging parts in brass or steel for their functionality and strength, he opted to produce parts that were more driven to the aesthetic – directing shop hands to polish light alloy parts to a jewelry finish. The parts were elegant, but had no place in racing. It is the reason that an original Miller 91 cubic inch racing car or 'Miller Eight' (Miller's most successful design) is so rare today – because so many others redesigned them out of the proper materials and made them some of the most successful cars and engines in racing history. The majority of these remanufactured engines would later bear the name Offenhauser. Some would be bought, reverse-engineered, and bear the name Bugatti.

Alas, the Miller was still the most sought-after motor of its time. The cars that were developed by Miller won the Indianapolis 500 an astounding nine times (other cars using Miller engines won three), accounting for a whopping 83% of Indy races from 1923 through 1928. Following race legend Jimmy Murphy's first



Miller & National Champion Jimmy Durant with Miller's first 122 engine

win in a Miller-powered Duesenberg in 1922, Miller began churning out complete single-seat race cars utilizing superchargers and other innovations that were founded upon multiple engine design concepts, including Peugeot, Benz, Fiat, and Isotta-Fraschini – models belonging to racers that had been passing through the shop and the hands of Miller's Mechanics and engineers. It was only after dominating the field for so many years that in 1930, Indianapolis 500 President and former driver Eddie Rickenbacker banned superchargers from competition that other cars and engines began to again win races.

In the waning days of thoroughbred racing in the early 1920's, Miller was at his most successful, making his millions on his Miller 91 design, but again, he opted to begin yet another project – this time jumping in with both feet to the aeronautical industry with the intention of producing ultra-efficient aircraft engines. The Miller-Schofield company was formed, and a factory was erected to begin production on the aircraft engines while simultaneously planning to mass produce the Miller Carburetor, his light alloy pistons, and his trademark pushrod overhead valve cylinder heads for Model A fords. These Miller-Schofield cylinder heads were in great demand and became famous under the name Cragar. But alas, misfortune would again rear its ugly head, and under the dark cloud of the Great Depression, the Miller-Schofield company went bankrupt and closed up shop for good.

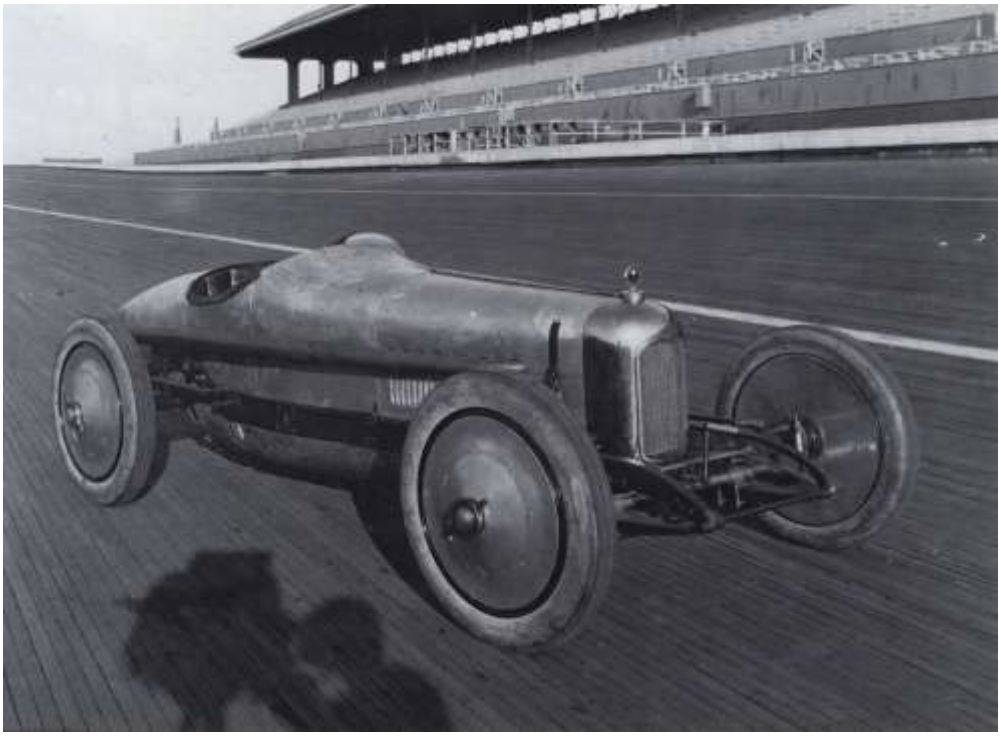
Though he tried in vain to keep a small shop running after the fall of the Stock Market (and retain his trusted engineers Goossen and Offenhauser), business was not what it used to be, and Miller found himself broke again; his once vast fortune evaporated. He contracted diabetes and began drinking heavily as a result of his depression.

He could have retained a steady income manufacturing replacement parts for his past achievements in this smaller shop, but his one-track mind once again prevented him from seeing the forest for the trees. Paying customers were put on the back-burner for months while Miller shipped free parts to auto racers that impressed him from afar, much to the dismay of the engineers who stuck with him. When they protested, his replies were often "and not have our cars out there running?"

The previously mentioned remanufacturing of his engines was also becoming a point of contention for him. He went so far as to forbid driver Frank Lockhart (who drove a Miller racecar) to replace the valves and rods in his engine (admittedly the weakest points of the design of the Miller 91). Lockhart just bought the car instead, and with his modifications to the Miller straight-eight engine, he created the most successful design in American racing.

Though he continued to create cars and engines, he was now without his team of engineers, and the cars rarely ran complete races without horrible bouts of bad luck. No one was there anymore to interpret his designs – or tell him how to fix what was wrong. He was considered an embarrassment to the industry, and began drifting unsuccessfully from one small project to another. Trying to keep even a tiny shop going anymore was proving to be futile.

People were uncomfortable around



Miller Designed McDonald Special at Indy in 1922

Miller Designed McDonald Special at Indy in 1922

Miller; he was viewed as a failure, and an odd bird as well – he often kept at least one clowning monkey with him at all times, which almost always wreaked havoc in any shop he was currently working in.

The worst part of his desolation was a disfigurement that he had contracted from a thorn-prick to his face on his own ranch. It would become cancerous, and large. It embarrassed him so much he demanded that his wife remain in California so she wouldn't see it. Even after surgery to remove the growth, he was in constant pain and rarely left his Detroit hotel room. His only companion was his monkey – until an old friend finally came to see him. Eddie Offutt was also in Detroit at the time working on a military project. After seeking Miller out, he felt privileged to once again assist the man (who had been a father figure to him) with his latest designs. In addition to his military project, he dedicated eight hours a day to assist Miller in his darkest hours – out of respect for him.

It was around this time Miller had been in a partnership with Preston Tucker, where the ten Indy cars they developed for Henry Ford were not tested properly due to lack of time. Because of this, it was discovered that the steering boxes were too close to the exhausts, causing them to overheat and lock up. This design, however, was soon taken up by others and reengineered; the modified Miller & Tucker Ford V8 went on to successfully run at Indy until 1948. During their partnership, Miller and Tucker also designed a military vehicle called the Tucker Combat car, which was only used in small numbers by the U.S. Military, but the innovation of the powered gun turret it contained ended up being used in several other applications, including the B-17 and B-29 bombers. The suspension for the Combat Car was shopped to a company called American Bantam, where it was utilized in the design of the first Jeep vehicle.

As his health slowly failed, the project Miller was hedging his bets on was rumored to be a small, inexpensive car with an automatic transmission. Prototypes were built and tested, but seeing it to fruition was not in the cards for Miller, and he passed on May 3, 1943, before his beloved Edna could get to him. After his passing, Tucker and Offutt, who helped Edna pay the funeral costs to lay Harry to rest, began

Louis Chevrolet, Harry A. Miller, and the Duesenberg Bros. Fred & Augie circa 1923

working together and developed the prototype of the Tucker sedan in 1948.

Harry A. Miller's legacy was not forgotten. Though studded with failures small and large, fortunes lost and gained, his name is now synonymous with race engine innovation. The Miller name is now prominently placed in the Automotive Hall of Fame, the Motorsports Hall of Fame of America, and National Sprint Car Hall of Fame. Following Harry's passing Offenhauser had purchased his holdings, and kept his pedigree in racing far into the 1970's. It could be argued that if Miller walked through the pit areas of Indianapolis on race day, he would hardly recognize any changes to the engines he designed despite advances in modern technology.

His accomplishments were too many to mention here (notably his four-wheel drive racing cars, his aircraft motors, and his contributions to maritime engine applications and boat racing), but the entire story and technical mastery of Harry A. Miller has been carefully chronicled over the years, and for the automobile racing or any automobile enthusiast, is worth the time to research. If you are familiar with the man and his work, or have just discovered him because of this article, do yourself a favor and take notes from the bibliography and discover Harry A. Miller and his legacy for yourself here at the HCFI Library. – ***Kevin J. Parker***

Bibliography & Photo Credits:

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'Miller Dynasty, The," Dees, Mark L. (Hippodrome Publishing Co. 1984) 2nd Revised & Expanded ed.

'Last Great Miller, The Four Wheel Drive Indy Car, The,' Borgeson, Griffith (SAE International, 2000) 1st ed.

'Offenhauser – the Legendary Racing Engine and the Men Who Built It,' White, Gordon Eliot (Motorbooks International, 1996) 1st ed.

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The next Board Meeting will be on

November 11, 2015
9:00 AM
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Established 1984

Chronicles of the Automotive Industry in America, For 1945

Production for the year: 69,532 passenger cars, 655,683 trucks and buses. Wholesale value of replacement parts and accessories produced this year: $1,012,000,000— a 28.3% increase over 1944.

February—Oldsmobile delivered its 40-millionth artillery shell.

General Motors announced its divisions had produced 31,000 tanks, tank destroyers and armored cars, and 740,000 trucks for the armed services.

Nash-Kelvinator revealed it had delivered more than 150,000 Hamilton Standard Propellers.

March—Willys-Overland produved its 300,000th Jeep

Ford Willow Run delivered its 8,000th B-24 bomber.

Dodge-Chicago plant delivered its 10,000th engine for B-29 Superfortresses.

A.M.A. statistics disclosed that 48% of all passenger cars now in use were more than seven years old.

Ford delivered 50,000th Pratt & Whitney 2,000-h.p. engine.

Chevrolet had built more than 500,000 Propeller blades.

May 8—V-E Day

On May 11, the War Production Board announced that reconversion to motor vehicle production could begin on July 1.

June 23—Willow Run Plant closed after delivering 8,685 bombers.

July 6—Ford began production of passenger cars.

July 17—Willys-Overland completed its first civilian Jeep.

August 20—Gasoline rationing ended after Japanese surrender.

August 30—The first post-war Hudson came off the line.

October 15—Automotive Council for War Production was dissolved.

From: *A Chronicle OF THE Automotive Industry IN AMERICA,* Published 1949.

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