

# ***Bumps And Grinds. . . A History Of The Racing Camshaft Business***

Story by Jim Hill, with research and input  
by Harvey J. Crane, Jr.

**July 09, 2009**

One of the most intriguing, and perhaps least understood segments of the performance and racing automotive industry is the camshaft and valve train business. Since the term “hot rod” was coined, racing cams companies have been a mainstay of the racing industry. They’ve also produced some of its most colorful, creative and perhaps eccentric characters. For many years small cam grinder shops were the norm. Today, mega-companies dominate the cam and valve train market. Fortunately, there remain many smaller, independent firms who have found their own niche within an industry that is itself a niche.

How did the cam business attain such prominence, where did it come from, and who made it happen? We set out to ask those questions, and to uncover some answers.

The concept of changing the shape and function of an engine’s camshaft obviously stemmed from the desire to make an engine produce more power. It’s also hardly a stretch to say that no other single component of modern engines is as mystery-laden as the camshaft. From the earliest this ordinary item has been extensively modified, and then expected to produce extraordinary results. Exactly when, where and who can take credit as the first racing cam company is a question

that has been shrouded in confusion and misinformation for many years.

To sort through this question’s marketing hype and promotional fluff we decided to start at the beginning, not just of the racing cam industry, but with the genesis of the automobile itself.

German inventor Karl Benz and his company, (founded in 1888) is generally credited with building the first automobile powered by an internal combustion engine. However, American ingenuity, mass production and inspired marketing made auto manufacturing one of the world’s dominant industries.

In 1893 Charles and Frank Duryea founded what is thought to be America’s first auto company, the Duryea Motor Wagon Company. They were soon followed by Ransom E. Olds and the Olds Motor Vehicle Co. Mr. Olds’ first venture was brief, and he sold his company, which in turn was sold to General Motors, where it became GM’s Oldsmobile division. Henry Ford’s Ford Motor Company, the Cadillac Motor Company, and Alexander Winton’s auto company followed. Olds also founded another American auto nameplate, REO, which began building automobiles and later evolved exclusively into a truck company.

Although Henry Ford is often recognized as the inventor of the mass-production assembly line, the fact is that Ransom E. Olds invented this breakthrough of modern manufacturing. Uncle Henry, the father of the Model T and Ford Motor Company, *perfected* the concept of assembly line manufacturing for producing reliable, affordable motor cars for the masses.

By 1900 an amazing number of firms were building “motor carriages”. These early, crude vehicles were powered by included internal

combustion engines, usually burning gasoline or kerosene, steam, and electric powered vehicles. If you thought today's "hybrid" gas-and-electric vehicles was a 21<sup>st</sup> century concept, guess again. There were gas/electric hybrids as early as 1910, but by 1915, the gasoline engine became the favorite power source for automobiles. Efficient, reasonably reliable, and inexpensive to produce, gasoline engines also offered great potential for improvements in power output and reliability.

As the global auto industry prospered, speed and racing were called upon to sell automobiles to the buying public. Initially, the auto companies themselves were at the forefront of racing, but car owners themselves soon began tinkering with and testing their vehicles against others.

The competitive spirit existed even before there were cars. Americans and Europeans wanted to find out who had the fastest horse and then the fastest automobile. They were soon engaging in "contests" to find out whose car was fastest. From this rather casual beginning was born the sport and later the industry of auto racing.

In the U.S., mechanically inclined men were quick to modify these early vehicles. Those with metal working and machining skills were soon boosting the power output of stock engines and improving the handling of stock chassis. These backyard tinkerers were the beginning of what we now refer to as "hot rodders". Some of these amateur efforts were good enough that they eventually advanced into professionally engineering, designing and manufacturing true racing engines. But the hot rod inspired racers continued to provide plenty of competition for even the best-heeled factory racing programs.

Fact is, these backyard efforts proved equally adept at increasing power and speed as much as the most sophisticated of factory efforts.

As power output increased the early hot rodders began demanding stronger, faster parts, capable of performing at the level competition required. It was this unending quest for more horsepower and speed that led to the birth of the American racing camshaft industry. While it may be actually impossible to pinpoint the exact year that the "hot rod camshaft industry" was created, most agree that it likely occurred sometime during the decade known as "The Roaring 20's".

During the 20's America's economy was surging. A restless, new generation of Americans had just returned from World War I, eager to live large after the horrors brought about by "The Great War". Their well documented excesses earned them the title of "The Lost Generation", and one of their favorite gadgets was the Ford Model T automobile. Henry Ford's sturdy, inexpensive T made it possible for large numbers to own automobiles, and Henry's "Flivvers" were soon being cut-down, lightened and modified for racing. It was the era of F. Scott Fitzgerald's "The Great Gatsby", Prohibition, bootleg booze, gangsters, speakeasies and the nation's first leisure generation. These young and upwardly mobile Americans also created a huge awareness, interest and participation in what became the golden age of auto racing. The Roaring Twenties proved to be the perfect hothouse for sprouting the seeds of the American racing cam industry.

Now 77 years of age, Harvey J. Crane, Jr., remains a major figure in racing camshafts and in the speed

equipment industry itself. Although he came along too late to have been a part of the embryonic, 1920's period of the racing cam business, Harvey and the company he founded, Crane Engineering, (later Crane Cams) ultimately achieved an iconic status in the industry. Harvey's involvement in Crane Cams ended unhappily in 1989, when he was ousted from the company he founded. Ironically, the Crane Cams, Inc., Division of Micronite, Inc., shut its doors in February, 2009, ceasing all operations and perhaps forever deleting a brand name and product that was once a cornerstone of the entire performance automotive aftermarket.

Although he's not involved in day to day operations of a manufacturing company, Harvey remains a dedicated and active student of the art, science and craft of designing, producing and measuring camshafts. Now more than a half century after he entered the business of grinding and then designing racing camshafts, Harvey Crane's name and the products he created remain "household" in the memory of racers, engine builders, and performance enthusiasts.

We asked Harvey if there was any one individual who he considered as "Father of the Racing Cam Business". Without hesitation Harvey credits Ed Winfield as one of the pioneers of the racing industry, and the man who "invented" the racing cam business!

Ed Winfield was born in LaCanada, California in 1901. A younger brother, William "Bud" Winfield came along in 1904, and together, the Winfield Brothers became legendary among early racers and racing engine builders. Ed's name and legacy lasted his entire lifetime, and stories of Winfield's deeds and accomplishments

remain as top lore among students and historians of the racing industry.

Harvey Crane quickly noted that: "Ed Winfield got in on the ground floor of the racing industry, and he did it when that floor was made of dirt!"

Winfield actually made his first performance oriented camshaft in 1914, when he was just 13 years old. These were motorcycle cams with individual lobes pinned to a common shaft, a practice that was common in early engines and still widely used for large diesel engines as well as some modern automotive engines. Ed's initial attempts at cam manufacturing were discouraged by some, but his natural curiosity and mechanical aptitude led him to stubbornly press on. He proved them wrong and from that humble beginning Winfield laid the cornerstone of experience and knowledge that lasted a lifetime. This eventually became a key segment of a racing and performance parts industry that annually sells over one hundred million dollars in highly specialized products across the nation.

Harvey continued: "I was fortunate to have spent some time with Ed Winfield, before he passed away. I went out to this home, and we spent several hours talking about the old days and how it was. Ed told me that when he was 17, he built his own first camshaft grinding machine. He started by convincing his mother to provide the money he needed to buy a used cylindrical grinding machine. Ed's mom was a successful Los Angeles area real estate sales agent and investor, and was fairly well-off for the time. His first shop was at home, working in his mother's garage. He modified the grinder to accept a rocker table so he could grind lobe shapes. He began making reground camshafts for Ford

Model T's. Those Ford T engines were the most popular and cheapest and were easily the most popular for circle track racing on dirt and wooden board tracks."

"Winfield's homemade cams were available in two basic profiles: Semi-Race and Full Race. After running both he decided he needed a grind that fit comfortably between the two profiles, for different track lengths and driver styles. He came up with a third master that had more duration and lift than the Semi Race grind, but less than the Full Race. He used the Full-Race master lobe for the intake lobe, and the third cam lobe master as an exhaust lobe. This mix and match of profiles he called a "Three-Quarter Race Cam". Not only had Winfield created the first cam lobe profile for a specific racing application, he had unwittingly coined the first catchy racing cam marketing name for a business that would one day thrive on tricky product names that were sometimes pure nonsense. Ed said he didn't realize it at the time, but that's how it happened!, Harvey reflected.

Three-Quarter Race has since become a sort of generic term for a camshaft that works acceptably in everyday driving, officially organized and sanctioned drag racing events as well as impromptu street acceleration contests.

Winfield's vast knowledge of racing engines began with his early exposure to auto racing legend, Harry Miller. Miller's powerful and distinctively styled racing cars became an icon of their era, and his genius for designing and building advanced race engines was legendary. Winfield went to work for Miller at the age of 14, where he was placed in the carburetion department. His quick learning ability soon moved him into the machine shop

where he learned to machine parts for the famous Miller racing engines.

Harry Miller was widely known for his frugality. Young Winfield was making the princely sum of \$.60 cents per hour, and Miller soon offered Winfield a "raise" to .70 cents per hour to stay with his company. Miller was not only stingy with his money, he was also a known tyrant, and Ed had several first hand experiences with Miller's wrath.

Harvey remembered: "Ed said Harry Miller was impossible to please. In spite of the fact that Winfield had quickly accepted greater and greater responsibility in his job and risen to earn the respect of his co-workers, Miller offered a pay raise of ten cents an hour for Ed to stay on with him. Miller may have appreciated the work Winfield was doing, but of course he never said as much and Winfield thought his pay offer was an insult. Ed decided he had enough of Miller's methods and left soon after."

The young Winfield began to pursue his own interests, launching a successful career that lasted throughout Winfield's entire lifetime.

During that lengthy career Winfield involved himself in camshaft production, cylinder head design, modification and flow improvement and other engine advancements utilized by many of the most successful racing operations and drivers. These included Miller, Offenhauser, Deussenberg, Frontenac, Meyer-Drake and others. Ed's brother Bud Winfield's hugely successful Winfield Carburetor business was also a mainstay of those early racing days. Long before there was a racing heritage for Holley, Carter or Stromberg, Bud Winfield's carburetors were the first

choice of racers in every type of competition.

In his later years Ed Winfield became reclusive, and shunned the spotlight. That never dimmed his reputation as an innovative, gifted cam manufacturer and racing engine expert. In 1969 Winfield ground what would be the last cams he would make, those being a group of cams for a Meyer-Drake racing engine.

“Ed Winfield had over 55 years of producing camshafts to make maximum horsepower and torque at the rpm the engine and components were capable of winning. I’d say that was quite a career and lifetime”, Harvey noted.

The very fertile Ed Winfield “tree” of racing camshaft companies spawned nearly all racing cam companies, even those of the current modern era, either directly or indirectly. The exception to this was the racing camshafts produced by Pierre Louis “Pete” Bertrand, a contemporary and competitor to Winfield.

Bertrand was born in 1902, in Mexico. Bertrand’s father was superintendent of a large Mexican silver mine. His family later moved to a farm in Nebraska, where Pete grew up. In the 1920’s he built and raced a dirt track sprint car, and in the early 1930’s moved to California, with his race car in tow. In 1934 the youthful Bertrand finished an 8<sup>th</sup> place finish in the AAA Pacific Coast Sprint Car circuit. A serious crash in 1935 sent Bertrand for a lengthy “sheet time” stay in the hospital. Bertrand’s hospital time brought him the unlikely benefit of meeting Esther, his nurse, whom he would later marry.

Not long after his first hospital stay Bertrand crashed again. This time he hung up his leather helmet for good.

In order to stay involved in the sport he loved, Bertrand began grinding racing camshafts for area circle track racers. His primary competitor was Ed Winfield, and for several years Bertrand and Winfield traded cam sales between “east side” or “west side” LA racers.

Late 1941 brought World War II and a major slow down in the racing camshaft business. Most racing participants and spectators were in uniform and headed for either the European or Pacific theatre of the war. This harsh reality plus wartime rationing of gasoline, oil and tires forced racing to take a hiatus. During this time, in 1942, Pete Bertrand contracted pneumonia. Without the benefit of antibiotics his condition worsened and Bertrand died at the young age of 40.

One of Pete’s shop employees was a racer named Clayton Sherman “Clay” Smith. Smith purchased Pete Bertrand’s business and equipment from his estate, and quickly renamed his new company Clay Smith Cams.

Smith’s company managed to outlast the war, and within a short time became a successful supplier of racing cams to the SoCal racing scene. He also fielded a sprint car. Rodger Ward, who would later win the Indy 500, drove the Clay Smith Cams Special.

While competing in a race at Du Quoin, IL, in 1954, Ward’s car crashed with another, careening across the track where it struck and killed its owner, Clay Smith. Clay Smith Cams, the offshoot of Pierre Bertrand’s original company, changed hands a several more times until settling in the ownership of George Striegel, in 1968.

Clay Smith Cams today is operated by Striegel’s family, and it produces not only racing cams, but a variety of promotional items adorned

with the famous cigar smoking, clenched-tooth woodpecker.

Auto racing and camshaft companies who designed, produced and supplied cams for racing were few in number during the years that preceded World War II. Racing grew during those years, in spite of the severe national economic downturn of the Great Depression. Still, motor racing became a diversion from the hard times. Racing was further romanticized by films that Hollywood produced to exploit its drama and pageantry. Local racing grew in popularity, further expanded by the creation of hundreds of dirt short tracks.

Such local racing was dominated by the inexpensive, plentiful Ford Model-T plus a number of specialized "speed equipment" items. Although still cheap as well as powerful, the Model-T was challenged in the early 1930's by the newer, more refined Ford Model-A four cylinder, the Ford Model-B, and later the Ford V-8, the first of a long line of the legendary Ford "flathead" V-8's that remained in production up until 1953. It was the Flathead V-8 in particular that gave rise to racing camshaft companies as well as many of the pioneer names of the modern speed equipment industry.

During the 1930's names such as Winfield, Miller, Frontenac, Cragar, Riley, and Rajo laid the cornerstone for the speed equipment industry. By the end of the 1930's and early 40's, Edelbrock, Offenhauser, Edmunds, Engle, Iskenderian, Weiand, Herbert and others were creating an American industry that hit its stride following the War Years and during the 1950's and 60's.

The new industry heavily favored the Southern California region, where hot rodding began, but the fever almost

immediately spread all the way East. The historical model for American racing seemed to be on closed-course tracks, usually circular or oval shaped, and predominantly on a hard-packed, clay-dirt surface. Drag racing, although informally practiced on city streets, came about as a post-WW-II form of motorsports when city fathers of several Los Angeles area municipalities decided it was time to crack-down on illegal, dangerous street racing. An old airport at Santa Ana, California became the location for the first organized drag races, and that opened the door to another wave of car-crazy young people.

For racing engine builders and camshaft grinders the growth rocket left the launching pad when returning WW-II servicemen brought all that acquired mechanical knowledge and energy home. They quickly channeled that energy into motor racing, in the process force-feeding an industry.

In the years immediately following WW-II racing welcomed the return of the American Memorial Day classic, the Indy 500. About this same time a new form of circle track racing, sired by brash moonshine whiskey transporters of the Southeast, and drag racing, which evolved from the unsavory image of greasy, leather jacketed, street punks surfaced.

At Indy the "Triple A", (American Automobile Assoc.) ruled with an iron fist. When that organization dropped racing in favor auto clubs and emergency road service, a new group, USAC (United States Auto Club) stepped in and moved open wheel racing forward. USAC also recognized the potential of the emerging sport of stock car racing. Still, USAC is best remembered for making the Indy 500 the premier racing event in the U.S.

Down South the population preferred full fenders on their race cars. By 1948, Washington, D.C. auto mechanic and sometimes racer turned promoter William H.C. France and a handful of drivers, mechanics and promoters created NASCAR (National Assoc. for Stock Car Auto Racing). “Big Bill” was very much a product of his era, a tall, lanky, raw-boned man with unequalled vision and a strong will that resulted in his legacy, NASCAR, becoming today’s premier racing series and organization.

Often from the wrong side of the tracks were street racers who preferred their racing in a straight line, and on public roads. The resulting heat generated by street racing crashes led to local law enforcement crackdowns on the hooligan hot rodders. It wasn’t until drag racing grew into a bonafide motorsport that drag racers found the abandoned airfields of WW-II well suited to their racing sport.

Out of this chaos stepped a young Oklahoman, a WW-II tank corps veteran, now a Californian and hot rodder. Wally Parks took the passion of tire smoke and speed and molded it into a socially acceptable, relatively safe motorsports series that is today mainstream, and a billion dollar industry. Parks founded NHRA (National Hot Rod Association) with its slogan “Dedicated To Safety”. As he was growing his NHRA organization, Parks partnered with fellow So-Cal rodder Robert E. “Pete” Petersen to publish and edit Hot Rod Magazine, itself now an icon in the automotive enthusiast publishing industry.

Other forms of racing found the post-war years fertile ground for growth. SCCA (Sports Car Club of America) preferred the European style of road

racing, and several boat racing organizations took aquatic motor racing to the rivers, lakes and oceans. Acceleration up the side of a mountain became a sport unto itself, and the Pike’s Peak event continues to draw hundreds of contestants and thousands of spectators to its annual Colorado “race into the clouds”.

Modified internal combustion engines powered all of these sports, and each engine used a camshaft manufactured by an aftermarket cam maker. During those post-war years the racing cam industry flourished alongside the engine components industry whose products were equally important to racing.

Most of the best known cam makers as well as supporting companies who provided raw materials for the cam makers evolved from this late 1940’s, early 1950’s era, and most were located in Southern California. This group included: Kenny Harmon and Cliff Collins (Harmon & Collins); Ed Iskenderian; Howard Johansen; Bruce and Dave Crower; Chet Herbert; Jack Engle; Clay Smith and Dempsey Wilson.

Back East cam companies included: Harvey J. Crane, Jr.; John Schooler; Caesar Laterio; The Ambler Brothers, Ray Giovannoni and a handful of others who bucked the SoCal trend and began their operations in shops located on “The Right Coast”.

Although he never owned a camshaft company, famed Chevrolet engineer Zora Arkus-Duntov had many cams created for various Chevy factory racing programs. These he later made available to the buying public through local Chevy dealers. Zora’s “Duntov Cams” included the “097” and “30-30” solid lifter profiles originally made for

Corvette road racing and still available today.

Most of these cam companies experienced significant growth during the late 50's and through the 60's. Others split up and their employees opened their own cam companies on both coasts. Those included: Lunati Cams; Cam Dynamics; Competition Cams; Cam Techniques; General Kinetics; Sig Erson (later known as Erson Cams); Huggins Cams; Moon Cams; Potvin Cams; Norris Cams; Reed Cams; Racer Brown Cams; Schneider Cams; UltraDyne Cams; Weber Cams; Race Cams, Inc., and many others, mostly small shops and usually one-man or minimal operations.

Many of the racing companies that sprouted in the 1920's and later blossomed during the 1950's and 60's, became major icons of the racing and performance automotive industry. Some also disappeared entirely or were absorbed into other racing oriented firms that considered racing camshafts a secondary portion of their market. Still, the hot rod car culture of the 60's drew heavily on the mystique and names of those early, famous cam grinders, and a few remain a part of today's racing and performance industry.

To a non-gearhead type all the fuss about a seemingly simple, basic mechanical device used to time the opening and closing of engine valves must seem ludicrous. However, to racing fans and participants the black magic and mystery of what goes into all those bumps on a stick is beauty in its purest form.

**(Sidebar To: “Bumps & Grinds, The History Of Racing Camshafts”)**

## **“Cam Wars” And The Age Of The Racing Camshaft**

**Story By Jim Hill**

The 1960's decade saw tremendous growth and changes for the racing camshaft business. This most intense decade of the “golden era” saw tremendous growth in both circle track racing and drag racing. However, it was in drag racing that the racing cam companies really hopped atop the wave capturing the attention and changing the culture of America. Young Americans were anxious to buy or build a car and take it out to the drag strip. Their interest and passion not only embraced the performance automobile, it spawned a genre of music that glorified the cars and drag racing. Groups like “The Beach Boys”, “Jan & Dean”, and “Ronnie & The Daytona's” made hot rod cars and drag racing – both sanctioned as well as illegal street racing – a mainstream activity. It was from this decade that the “Cam Wars” emerged as maybe more than a mere footnote to racing and the camshaft business in the 1960's.

In 1964 one of the most popular and closely observed and followed categories in drag racing were the Supercharged Gassers, and most notably, the A/Gas Supercharged class. These were comprised mainly of classic pre-WW-II body styles, Willys, Ford, Chevrolet coupes, and a few years later, Anglias and Austins. All were powered by supercharged, fuel injected V-8 engines, usually Chevy small-blocks, Oldsmobiles or Chrysler 392 Hemis backed by automatic transmissions, to tame the high-winding horsepower and

short wheelbases of these “hot rods gone wild”. On the West Coast and especially in Southern California, A/GS match racing became hugely popular. Tracks began paying appearance money and hosting big-purse, open competition events for the blown Gassers. To hype their events and draw more paying spectators track promoters spiked their advertising – in particular broadcast radio ads – with interviews from drivers. These ranged from tame comments about breaking a track record, to far more colorful and emotional ads that had drivers taunting and even mildly threatening competitors. The participants were rarely unfriendly among themselves. They had years-long friendships and many had grown up together, but these high-impact ads not only hyped the spectator gate attendance, it boosted the racer’s income and spread the rivalries across the nation. Suddenly the top A/GS teams were booking cross-country “tours”, match racing at tracks and taking on the local heroes. A/GS cars, drivers and their speed equipment sponsors were benefitting from coast-to-coast interest, and the racing camshaft companies were the busiest and most aggressive of them all.

Drag racing in the mid-60’s was covered by three nationally distributed tabloid newspapers, independents Drag News and Drag World, and NHRA-affiliated National Dragster. All carried coverage of A/GS racing, and all carried ads from racing cam companies touting the success of their products in the A/GS cars they sponsored. Ed Iskenderian’s Isky Cams and Jack Engle’s Engle Cams were the first to square-off against each other. Isky had Big John Mazmanian’s 392 Chrysler Hemi powered, candy apple red ’40 Willys and back-East, “Ohio George” Montgomery’s Chevy

powered ’33 Willys coupe. Engle had Stone-Woods & Cook’s Olds (later 392 Hemi) powered, light blue ’41 Willys and K.S. Pittman’s Chrysler 392 Hemi powered Willys. Both cam companies had numerous other A/GS entries rising up to take an event or record some fantastic new all-time track record. Like the track’s radio ads, the cam company ads themselves soon turned tongue-in-cheek vicious. Weekly papers carried ads created by the cam companies promoting their newest cam grinds and slamming their competitors, and their sponsored A/GS stars.

The drag racing papers loved the increased ad revenue. Racers were cashing-in on the increased match race bookings and drag racing fans loved the weekly bickering over who truly was quickest and fastest. Other racers running in other classes took note, and the cam companies all experienced a surge in sales and awareness of the importance of the camshaft in a racing or street performance engine.

Being “East Coast” based, in Hallandale, Florida, Harvey’s Crane Cams were rarely seen or used on “The Left Coast”. That is until Ohio George Montgomery yanked the small-block Chevy from his powder blue ’33 Willys and installed a blown 427 SOHC Ford. Montgomery initially went to his sponsor Isky to obtain camshafts for his new ‘Cammer Ford, but Isky was unable to supply them. Montgomery desperately needed racing profile camshafts, and his next call was to Hallandale Harvey.

Montgomery was a reputable and loyal racer, and appreciated the help that Isky had given him over the years, but the stock SOHC Ford camshafts were completely unacceptable. When Montgomery approached Ford’s racing

officials about getting camshafts, they referred him to Crane. That alliance came from the close working relationship Crane had developed with Ford for its 427 SOHC racing program. Ford's A/FX SOHC racers were mainly using Harvey Crane's cams, and with great success.

Although he was reluctant to leave Isky, Montgomery had little choice but to switch to Crane. That decision began a relationship that lasted throughout the remainder of Montgomery's entire racing career. With the big-block SOHC 427 Ford powering his '33 Willys, Montgomery was quickly in the thick of the A/GS fray, and challenging the entrenched California stars with Crane Cams decals displayed on his '33.

Montgomery's success against the touring A/GS California cars brought attention to Harvey's products, and suddenly there a new market opened for him, west of the Rockies. The "big switch" of Ohio George from Isky to Crane thrust Harvey Crane's Florida cam company into the crossfire of the hot and heavy action of "Cam Wars", in 1966, and Crane quickly began inserting its own ads into the weekly drag racing tabloid papers.

All this activity with track promoters, new star drivers and product endorsement advertising that centered around the A/GS racing came to be known as the "Cam Wars" era. While the language and direction of the ads were sometimes bizarre, the end result was that every on-track drag racer as well as street racer became acutely aware of the importance of having the best camshaft profile available for his car. This made the cash registers ring for both cam companies and speed equipment retailers.

Several decades now removed from those wild, go-go days of the 1960's, both Ed Iskenderian and Harvey Crane remembered their roles in "Cam Wars".

"We went back and forth between us (Crane Cams), Isky, Engle and sometimes Crower, spouting off about how superior our products were to all the others, and how our sponsored A/Gas Supercharged cars were quicker, faster and winning more than those of our competitors. It was all a lot of fun and we waited each week to see what the other guy's ads were going to say, then we'd respond with our own ad, even more bold and brash than the others!. Finally, we ran an ad that Ed Iskenderian never answered. His next week's ads simply said "Ed's Gone Fishing", and that ended the Cam Wars", reflected Harvey J. Crane, Jr., recently.

"But you know, the best thing to come out of all that publicity was that everyone became more knowledgeable about how important the camshaft is to the entire engine and drivetrain package. Racers especially began to realize that changing cam profiles could make them go quicker and faster, and that began the idea of running several different cams, the importance of using accurately manufactured cams, degreasing-in any cam they ran, to make sure they were buying accurately made cams, and in 'tuning' cam timing by advancing or retarding cam-to-crankshaft phasing or playing with valve lash clearances. As an unplanned side-effect of the Cam Wars, all the camshaft companies were able to sell more and that helped us to invest in creating new products and improving existing ones. It was all very good for the racing camshaft industry and ultimately, for the races and engine builders", noted Harvey.

Indeed, the science, art and craft of creating, manufacturing and marketing racing camshafts and valve train components remains critical to success both on and off the race track, whether that track runs straight ahead, turns left or right and left. Arguably, no single component in a modern racing engine is more important or more romanced than the camshaft, and that wonderful, often whacky era of the “Cam Wars” somehow continues to spark the imaginations and memories of all who lived it.