

# CHARLES A. CHAYNE

## *Buick's Unsung Hero*

By: William C. "Bill" Anderson

**Forward:** Bill Anderson's feature article on Charley Chayne highlights the life and accomplishments of one of Buick's great Chief Engineers. As Bill points out, during his tenure with Buick, Chayne combined a love of good looking, strong performing automobiles with his engineering and management skills, and thus allowed Buick to offer its customers some of the finest road cars of the day.

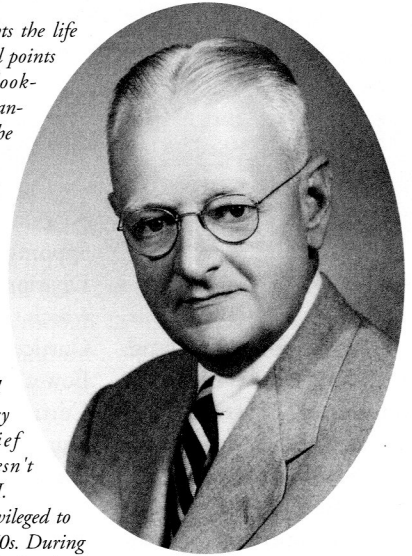
Chayne's 1936-1951 service as Buick's Chief Engineer made him the longest serving Chief Engineer in Buick's history. During this period Buick brought out a number of industry firsts; 1937 the horn ring, 1938 flexible spoke steering wheel, 1938 rear coil springs, 1939 directional signals, 1940 under seat heater, 1940 fresh air intake heater, 1941 fresh air vents through the grille and fire wall, 1941 compound carburetion, 1942 step on parking brake, 1942 wide rim wheels, 1946 power seat installation, 1948 gearless torque converter, 1949 hardtop styling, 1950 acoustical hood insulation, and 1950 tinted glass. All this represented the introduction of more industry firsts with Chayne as Chief Engineer, than any other Chief Engineer in the history of the company. And the list doesn't even mention Chayne's service to Buick and the country during WWII.

Not everything Charley Chayne oversaw was positive. I was privileged to be able to interview Chayne at his Pebble Beach home in the mid 1970s. During the interview we talked about the near disastrous mistake with the short frame "bob tailed Buicks" of 1939 and the problematic 1941 10-mm spark plugs.

When we talked about the short frame cars, Chayne readily admitted to the fact that it was his decision that put the shortened frames into production as a cost cutting measure; but he really didn't want to talk about the whole affair either!

The 1939 bob tailed Special and Century models had frames that stopped at the rear axle instead of at the rear bumper. If the rear bumper got tapped in a parking lot, the body might spring just enough so that you couldn't open the doors. If the trunks were overloaded, the floor might collapse down around the rear axle. It was a real mess and in Chayne's words, "it was really tough to get those reports from the field" when the failures occurred.

Given his unquestioned talent and the great product moves he oversaw at Buick, I think history can forgive a couple of miscues.



Charles A. Chayne

—Terry Dunham BCA #217

One of the little understood facts about the car business is that many of those employed, from the factory floor to the executive suite, have little, if any, interest in the product - automobiles. For these people, cars are just a means to an end, a weekly paycheck, or statistics like market share, return on investment, etc. Such an attitude was not present in the industry's founders more than a century ago. Most everyone involved in developing the modern automobile business, whether they tried and failed or tried and succeeded, possessed an unlimited fascination with automobiles. For example, Henry Ford had a garage and workshop built as part of his Fairlane mansion in Dearborn so he could tinker long after he needed to do so. Alfred P. Sloan, on the other hand, epitomized the employee who had little fascination with the automobile. His sole interest was efficient organization management in the pursuit of business profits.

Recently, Buick has featured Harley Earl in its advertising. Although this flamboyant designer, arguably responsible for much of GM's success in its first 50 years, is known to many by reputation in the car hobby, most people ask - "Who is Harley Earl?" However, even among the automotive cognoscenti, few know of Charles Chayne. He, too, played a key role in GM's success during those same years.

Charles A. Chayne successfully combined an abiding love for automobiles with management skills that enabled him to rise to become the Chief Engineer of General Motors when GM was in its prime - the 1950s. He was a formally trained engineer who entered the industry when such credentials were rare. An avid fan of automobile racing, he also relished doing the various tasks involved in restoring cars and was president of the Vintage Car Club of America in 1947. Later, he became a strong supporter of the Pebble Beach Concours d'Elegance, the nation's premier collector car event, in its formative years and is recognized there by an award in his name. He was an inveterate tinkerer and responsible for many of Buick's innovations.

As a fellow engineer, I find the words Mr. Chayne uttered 50 years ago this summer to be particularly revealing about the persona of this tall, sandy-haired man. The occasion was the kickoff of the last Parade of Progress, GM's caravan that brought the wonders of science to cities and towns all across America. On this day in June 1953, Mr. Chayne said,

"My hobby is antique automobiles, but my business is to make today's model obsolete tomorrow - through constant improvements. The old cars I collect are fascinating, for they remind me that there is always an opportunity to build better ones. At the same time, in addition to designing better cars, we continually seek to improve manufacturing methods. In these days we try to offer more value to the public each year. That, essentially, is the philosophy of engineering - do the job in a better way and make a better product."

### THE BEGINNING

Charles A. Chayne was born February 6, 1898 in Harrisburg, Pennsylvania. His father, who worked for a local lumber company, hoped that Charles would follow in his footsteps. However, when the young Charles saw a Brush motoring down a Harrisburg street, he was inspired then and there to become an engineer. He began that quest by enrolling in the Harrisburg Technical High School. Even before he graduated in 1915, he obtained a patent for an improvement to airplane engines, the first of many that would follow.

Next, he enrolled in the prestigious Massachusetts Institute of Technology to pursue a degree in mechanical engineering. Following graduation in 1919 with a Bachelors Degree, he went to work for the National Advisory Committee of Aeronautics (the forerunner of today's NASA) because he could not find work in the automobile industry. He soon determined that government work and aviation were not his primary interests and he returned to MIT to teach.

He remained in the academic world for seven years. It was during this time as an MIT professor that he acquired his first significant car, a 1924 Bugatti, on which he lavished his free time. However, he yearned to return to his native Pennsylvania and work in the auto industry which was now experiencing explosive growth. An engineering position with Lycoming Manufacturing

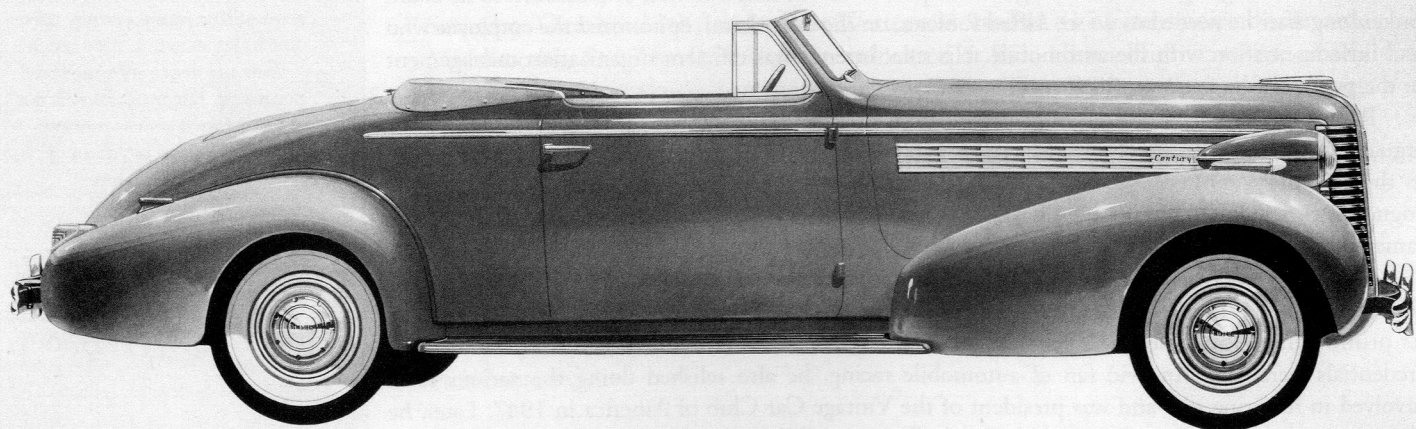
Company in Williamsport, Pennsylvania (Lycoming manufactured engines for many of the "independents" notably, Duesenberg) in 1926 provided the opportunity. However, his work for Lycoming was brief and he moved to Marmon in the spring of 1927. There he was assigned to work on engines. It was fortuitous timing as Marmon was developing its famous V-16 engine and Charles had the chance to play a key role in its development. His work earned him a promotion to Assistant Chief Engineer for Product Design. It was an unannounced promotion because Charles left soon thereafter to work for GM.

### THE BUICK YEARS

Just 32 years of age, Charles was hired as supervisor in charge of engines for the Buick Motor Division. By 1933, he had risen to Assistant Chief Engineer under Dutch Bower, the demanding boss of Buick engineering. His ascent coincided with GM's appointment of Harlow Curtice as President of the Buick Division. Curtice had been tapped to rescue Buick's fortunes which had substantially declined between 1929 and 1932. Curtice's plans to revitalize the Division ran headlong into Bower's conservative approach and the two quarreled often. But, Curtice had found the key to revitalizing Buick and Bower was an unnecessary obstacle. He was transferred to Opel in 1936 paving the way for Charles Chayne to become Buick's Chief Engineer. Chayne was more easy going and soft spoken than Bower, attributes appreciated by both Curtice and the engineers who worked for him.

Unlike Bower, Chayne recognized that styling was important to success in the automobile business. This perspective was becoming increasingly important in GM. With the support and patronage of Alfred P. Sloan, GM's President, Harley Earl, who established GM's art and colour section in 1927, had become a force to accommodate in corporate decision-making by 1936. Buick's hard-charging president Harlow Curtice needed no urging to embrace styling - anything that would boost sales he liked. Together, this "can-do," brash, talented trio - Curtice, Chayne, and Earl - proceeded to develop some of the best cars in the ensuing 20 plus years that are responsible for the ongoing love affair between Buicks and thousands of people.

During his tenure as Buick's Chief Engineer, Chayne acquired more patents for his innovations that included steering linkages, coil spring suspensions, transmission control, valve gear



Chayne once stated that he had designed the layout for the rear coil spring set up on a sketchpad during a meeting at the IMA Auditorium during the 1937 Buick Announcement Show.

Chayne oversaw the construction of the XP-300. He is shown here sitting in a Model 10 Buick next to the XP-300 with Buick's General Manager Ivan Wiles.



temperature regulators, and frames. It was Chayne who led the way to Buick's embrace of longer-lasting coil spring rear suspensions in 1938. By installing a radius rod to change the roll center of the rear suspension, it became possible to control body roll. However, his idea for a shortened frame for the 1939 Buicks was an idea that did not succeed. Although Chayne believed that the body could support the load behind the wheels, experience proved otherwise and full length frames were quickly substituted.

Joe Turley's ideas in engine design earned Chayne's support and resulted in several advances in Buick's famous straight-8 engines including the turbulator piston that enabled higher compression and improved piston compression rings. Perhaps the most notable innovation the team produced before World War II was compound carburetion pioneered on the 1941 models. Chayne liked it because little change in manufacturing was required to enable full-scale production. It was also a hit with Chayne's car racing friends such as Wilbur Shaw.

In spite of preparations for World War II, Chayne drove Buick's engineers to devise advances that would distinguish Buick's 1942 models from the competition. This burst of activity led to a new fluid coupling and clutch, replaceable bearing inserts for connecting rods, foot-applied parking brakes, wide rim wheels, and a new accelerator pump. Some of these innovations were installed in the few 1942 models built before all car production ceased in January and others had to await the end of the war to become regular features on Buicks. This cauldron of activity also gave birth to Buick's "Oil-Cushion Finish" on crankpins and journals - it was a polishing operation that left thousands of microscopic depressions of the surfaces that trapped oil during rotation to provide a cushion between the shaft and the bearings.

After the War, Buick engineering, still led by Chayne, continued a steady stream of improvements - Dynaflow automatic transmissions in 1948, a new 263 cubic inch straight-8 engine in 1950, power steering in 1952, and power brakes in 1953. The postwar period also was when the Curtice-Chayne-Earl triumvirate produced the legendary and still surviving LeSabre and XP-300 concept cars that were introduced to the public in 1951. These two cars were a logical extension of Buick's pioneering "dream cars" first begun in 1938 with Earl's Y-Job. Originally, it was intended that there be only one successor to the Y-Job. Chayne noted, "we wanted to see if we could better the Y-Job's mark of good after ten years with one that could be still fresh and new after 15 years." However, Earl and Chayne could not agree on the design parameters. This friendly disagreement led to two cars,

although similar, each man followed his own interests - Earl's LeSabre with its aircraft styling was a reflection of his persona. In keeping with his own conservative, practical approach, Chayne's XP-300 was a more conservative design and more likely to foreshadow future production cars. Both embraced cutting-edge engineering and were powered by a dual-fueled (gasoline and methanol), 215-cubic inch supercharged V-8 that produced 335 horsepower and was capable of speeds well in excess of 100 mph. Both cars still exist and still excite car lover's of all ages; their goal has been achieved.

## THE LAST YEARS WITH GM

Both Harlow Curtice and Charles Chayne parlayed their success and accomplishments at Buick into far bigger positions with GM. Chayne was promoted to GM Vice President in Charge of Engineering in 1951. Between then and 1963 when he retired, Chayne supervised a cadre of engineers numbering about 2700. During this period, the most significant advances were the adoption of V-8 engines by every GM division and an increasing number of improvements to handling and driver convenience.

One of Chayne's first responsibilities as head of GM engineering was the development of a practicable gas turbine to power the Firebird I and II concept cars. The gas turbine was being considered by all manufacturers as alternative power plant in the early fifties and GM did not want to be left behind.

He was also a strong proponent of the narrow V-8 design that occupied Buick's attention in the early years. Although sometimes stubborn, Chayne could also be pragmatic and came to realize that his infatuation with the narrow V-8 could not be engineered to work paving the way for the common 90-degree V-8 designs that followed.

In his waning years with the Corporation, Chayne was an outspoken opponent of Chevrolet's ill-fated Corvair. The expert in suspension design believed that the suspension was not properly engineered and that the car should not be sold until the flaws could be corrected. Surely, the hard-earned experience with the 1939 Buick frames 20 years before also influenced his thinking. Ultimately, his position did not prevail and the Corvair came to be a major source of embarrassment for GM.

Regardless of disagreements, Chayne was a universally respected automotive engineer at home and abroad. A popular speaker, he was often invited to address SAE conferences and sometimes lectured at the University of London. Reflecting this respect, the University of Michigan awarded him an honorary doctorate degree in engineering in 1958.

### THE CAR AFICIONADO

Throughout his life, ever after that first encounter with the Brush as a youth, Charles Chayne was enamored with cars as a source of relaxation, entertainment, and satisfaction. His first collector car was a Bugatti and perhaps his most famous was also a Bugatti. That car was one of the seven 1932 Bugatti Royales (chassis 41 121, a five-passenger cabriolet) which Chayne rescued from a Long Island junkyard in 1943. This once glorious car that cost \$43,000 when new had a cracked block and was transferred to Chayne reportedly at scrap metal value. He spent the next four years restoring it to pristine condition albeit not precisely as originally built. Ultimately, he gave the car to the Henry Ford Museum.

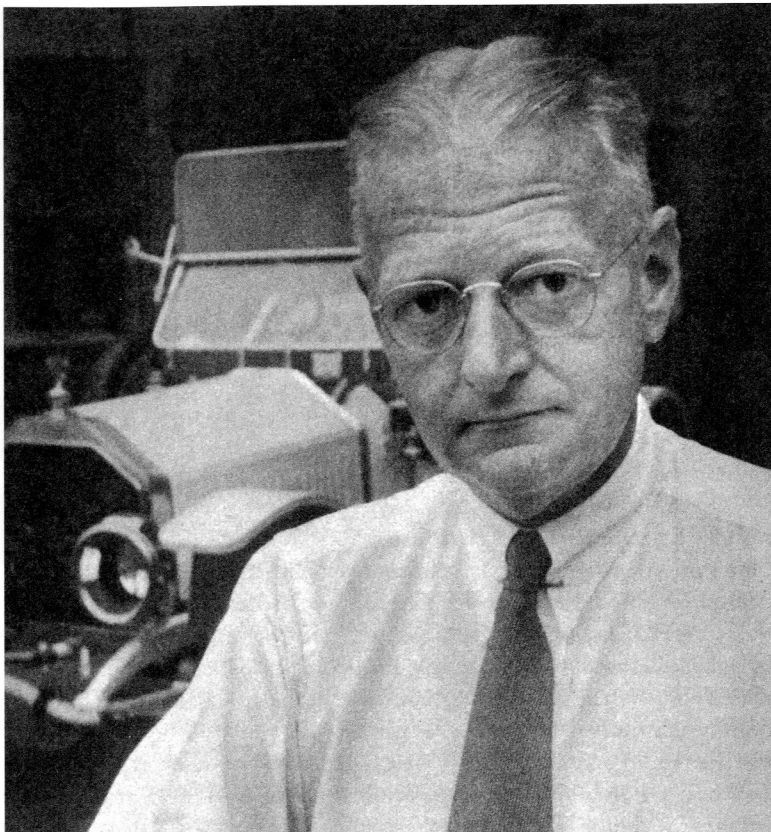
His interests in cars were indicative of his relentless quest to learn how others attacked automotive challenges. His collection was limited but wide-ranging. It included a 1912 Simplex, a 1905 Buick, a 1925 Vauxhall, and a Hispano-Suiza J-12. Chayne was also supportive of the infant car restoration and collection hobby in the years following WWII. Once he retired from GM and moved to California, he was a key advisor to the organizers of the Pebble Beach Concours d'Elegance and often served as a judge for the annual August event.

In today's collector car world, Charles Chayne would be most at home with those who do their own restoration work and then drive their handiwork. His cars, although exquisitely restored, were not trailer queens. Once the work was complete, he sought out tours and the like so he could enjoy the fruits of his labor.

While he never raced cars, he was a friend and helper to those that did. He was an important behind-the-scenes supporter of the racing fraternity. As a result, he drove a 1939 Buick phaeton to pace that year's Indianapolis 500 race. Later, he worked on Briggs Cunningham's Mercedes SSK-bodied and Buick powered racer, the Bu-Merc.

In August 1978, the Pebble Beach judges awarded his Hispano-Suiza J-12, then owned by Jules Heumann, the Most Elegant Car Award. Although Charles was nearly blind by that time, he walked to the reviewing ramp and tenderly said goodbye to one of the cars on which he had lavished so much attention and hard work. Three months later, he was dead at age 80.

It is no longer possible to converse with Charles Chayne about the wonders of automobiles old and new. I am sure he would be just as excited about the challenges faced by today's engineers as he was by those of his time. However, by owning, restoring, or simply enjoying any Buick from the mid 1930s to the early 1950s, today's auto hobbyists can connect with the man who did so much to make Buick the revered marque that it is today.



Chayne as he appeared in the November 1947 issue of *Fortune Magazine*.

### SOURCES

- Borgeson, Griffith. "Migrating Monuments: The Bugatti Royale" *Automobile Quarterly*. 24 (4), 1986.
- Cray, Ed. *Chrome Colossus: General Motors and Its Times*. McGraw-Hill Book Company, New York, New York, 1980
- Dunham, Terry and Lawrence Gustin. *The Buick: A Complete History*. Fifth Edition. *Automobile Quarterly*, Kutztown, Pennsylvania, 1997.
- Mueller, Mike. "When the Skylark Soared" *Automobile Quarterly*. 40 (2), 2000.
- Rosenbusch, Karla A. "Chayne of Command" *Automobile Quarterly*. 40 (4), 2000.
- White, John D. M. "A Caravan of Science" *Automobile Topics*, June, 1953.
- Wright, J. Patrick. *On A Clear Day You Can See General Motors*. Wright Enterprises, Grosse Point, Michigan, 1979.

Photo from the personal collection of Terry Dunham