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THE FIRST COMPLETED LIGHT CAR PROTOTYPE PHOTOGRAPHED AT THE VAUXHALL WORKS PRIOR TO TESTING. 09.02

The Evolution of Holden Unibody Design



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Editor's Note

This issue contains both articles with a focus and also several studies on a diverse set of topics. Essays by Louis Fourie, Norm Darwin, John Field and Chris Lezotte were an outgrowth of presentations at *Wheels Across the Pacific: Transnational Histories of the Automotive Industry*, an international virtual symposium co-convened by the Automotive Historians Australia (AHA) and Society of Automotive Historians (SAH) on September 17-18, 2022. Also included is the 2022 graduate student Richard H. Scharchburg Award paper written by Mark Forbes. In just going over Forbes paper again, I was so impressed with his insightful analysis, applying economic theory to a comparative study of Jordan, Packard, Ford, and Tesla. In similar fashion, American Studies scholar Vincent Stephens takes us into the 1980s with his

exploration of American automotive journalism. Finally, we have Stuart Blond's polished study of the post-WWII Independent automakers, a topic frequently written in enthusiast magazines, but this time with more depth than typically found.

Volume 64 will be my last as editor of *The Automotive History Review*. Four years ago, then-SAH President Don Capps persuaded me to tackle a task that I had no experience in doing previously. It proved to be a fruitful and at times stressful adventure. Without the cheerful support of Rubén Verdés, I never would have this endeavor off the ground!

I hope I have laid the foundation for others to make this publication even better during the years ahead. I plan to remain active within the Society of Automotive Historians, but with retirement from full-time teaching and reaching the unlikely age of 75 (how did I survive so much foolishness!), it is now time to shift gears that hopefully are synchronized. 🚗🐕



This image is integral to: "Models of Automotive Firms Past and Present" (see p. 62 and image: p. 64).

Jordan Car, 1920, photograph taken during the Fredricksburg Tour. (Library of Congress.)

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The Evolution of Holden Unibody Design

by Louis F. Fourie

Introduction

At the conclusion of World War II, Australians and their federal authorities were convinced that their country had the expertise to build their own car. General Motors subsidiary, Holden, was best positioned to realize these goals. The company's managing director Lawrence Hartnett, had an abundant enthusiasm critical to making it happen.

Although Hartnett was a promoter of unibody construction, GM North America had absolutely no experience in this field, while German subsidiary Opel, the pioneer of this design, was crushed and not currently "part" of GM when the Holden car was being developed. What follows explores why the front portion of the unibody was not welded together, as well as the corporate climate in which Australia's own car was developed.

Evolution of Unibody

Before examining the origins of the Holden unibody, it is appropriate to examine the evolution of this type of body structure. Most historians credit the 1922 Lancia Lambda as the first unibody design, even though the company reverted to body-on-frame structure shortly afterwards for a time.

Noted historian and journalist Jan P. Norbye traces back to 1903 to identify the first unibody design, even if it was fully built in wood. [1] But back then, all bodies relied on wood for the structure of the body, and some even incorporated wood in the separate chassis. The first Vauxhall was created by a marine engineer, F. P. Hodges, who felt it was totally logical to rely fully on wood for its chassis and body structure. After all, a boat relied heavily on its outer skin or hull, even if multiple

stringers or ribs curved up from the central keel. This wooden box bore the weight of the engine and transmission transmitting this load to four coil springs at each corner rather than the typical leaf springs.

The 1934 Citroën Traction Avant deserves recognition for the first mass production unibody car built by a company fully devoted to unibody construction. We will cover this ground-breaking car later.

A year later the Opel Olympia lays claim to being the first inexpensive unibody car on the market. Its corporate cousin, the Vauxhall Ten, became the first British car to incorporate unibody designs when released late in 1937 at the Olympia Show. The Chrysler and DeSoto Airflow designs that arrived in 1934 may not have had a separate chassis, but they did not rely on the body sheet metal for strength, instead steel tubing was used in the upper structure. As such these cars are properly classified as space frame designs. In most accounts, the 1941 Nash 600 claims to be the first American car to use a unibody construction. However, the earlier Lincoln Zephyr had several characteristics to suggest a unibody. Therefore it is debatable as to whether it be classified as spaceframe or unibody.

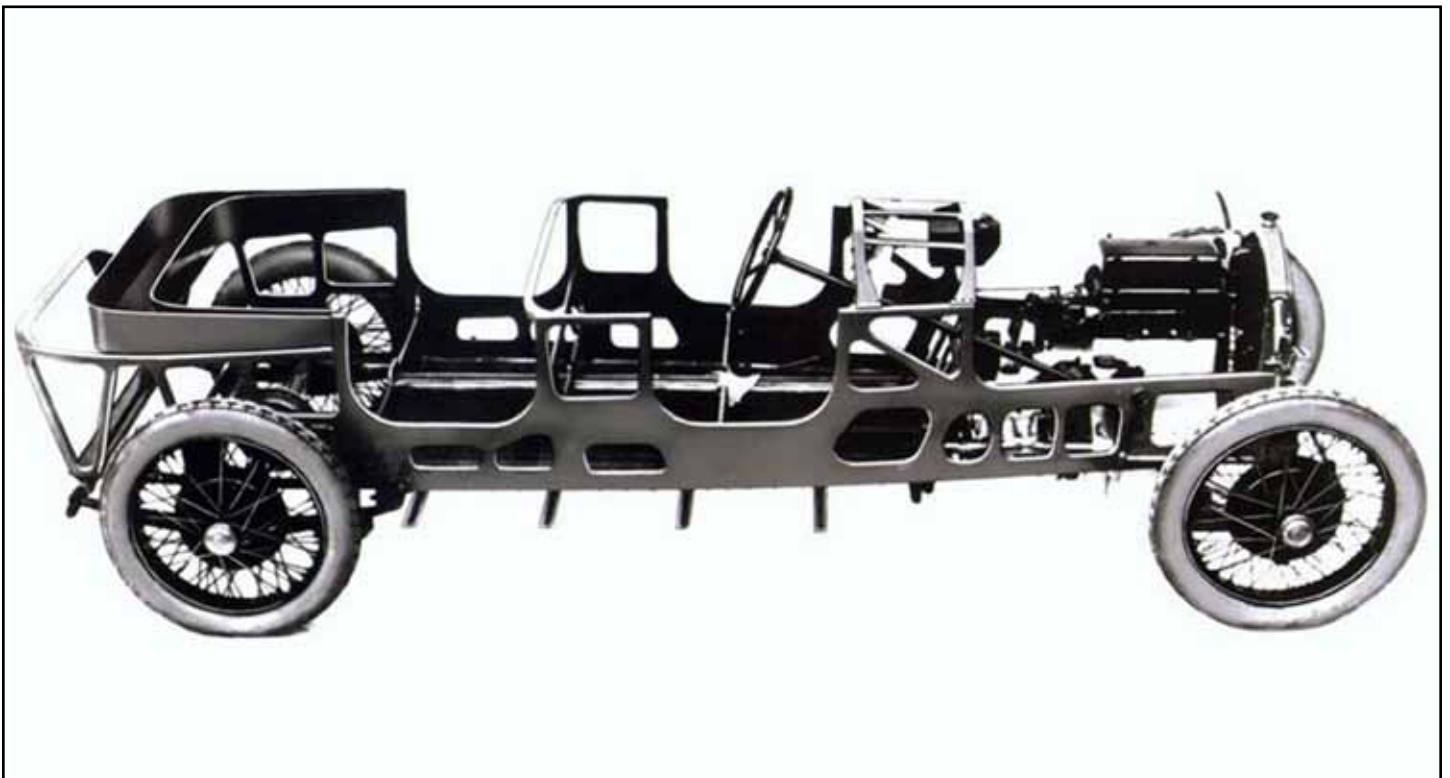
The Role Played by the Budd Corporation

Considering the dominant role the Budd Corporation played in the evolution of steel bodies and their innovation in the unibody concept, it is appropriate to address this firm's role in unibody development. Indeed, the Budd Corporation could be viewed as a direct competitor to GM's Fisher Body.

Many automotive historians may also be puzzled that Fisher Body still used wood to reinforce all their bodies as late as 1935, while at the same time GM's Opel divi-



1922 Lancia Lambda (Author)



1922 Lancia Lambda (Lancia Media)

sion was already pioneering unibody designs. In contrast, Fisher Body was touting the arrival of the Turret Top in 1935 for most of its bodies, this being the full use of steel in the roof rather than the fabric inlay of the past. Below this steel roof Fisher Body retained the use of wood strengthening.

To address the above queries, we need to examine Alfred Sloan's management philosophy. He allowed a high degree of autonomy to its divisions, provided they attained financial targets and operated within corporate policy. One such policy committee was the Engineering Policy Group, and it is fair to assume that Fisher Body would have contributed considerable input when it came to body manufacturing. Consequently, how did Opel manage to adopt a unibody design a quarter of a century before Fisher Body produced its first unibody structure for the 1960 Chevrolet Corvair?

Sloan assigned enhanced autonomy to Jim Mooney who, since 1922, had been President of the GM Export Company that evolved into GM Overseas Operations, under whose direction Opel fell. But Mooney had a further advantage with his boss. One of the many acquisitions Billy Durant brought into GM was the Hyatt Roller Bearing Company, owned by Sloan. Also employed by Hyatt at the time of acquisition in 1918 was Jim Mooney. Furthermore, under Mooney's guidance, Opel accounted for nearly 40% of domestic German sales and 64.8% of exports by 1933.

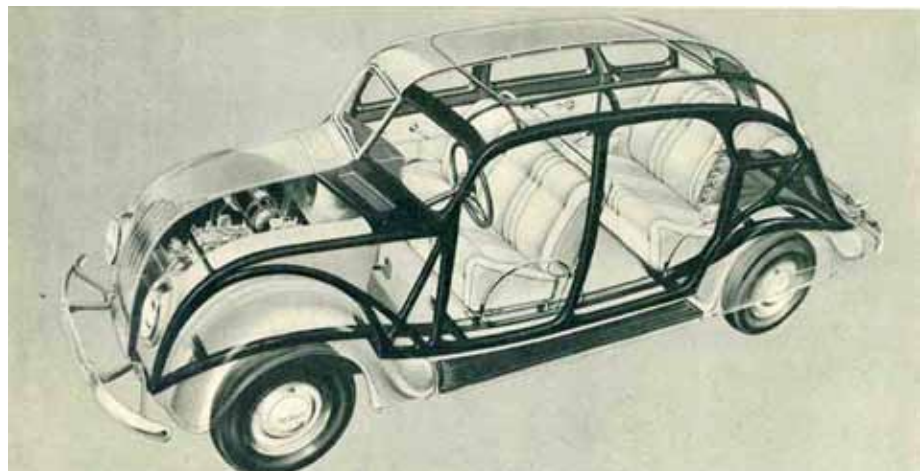
The Budd Company, unlike Fisher Body, sought export clients, with Citroën being the first in 1924, five years after André Citroën entered the automobile business. [2] Following a 1925 US visit by William Morris, later Lord Nuffield, he joined forces with Budd in the formation of the Pressed Steel Company in the UK. The 1927



1903 Vauxhall (Vauxhall Media Archives)



1935 Opel Olympia (Author)



1934 DeSoto-Airflow (Chrysler Media Archives)

Morris Cowley was the first all-steel car to use a Pressed Steel body, but the Depression created financial difficulties that hindered the early adoption of a unibody vehicle.

In 1926 Budd joined forces with Arthur Mueller's Ambi Co. to create Ambi-Budd Presse Werke in Germany. With Fisher Body only just about to emerge from a non-wood body design and lacking any experience with unibodies, Opel relied on the input of Ambi-Budd as it chartered this new territory.

Considering that the Citroën Traction Avant arrived in 1934 and the Opel Olympia in 1935, both in the month of April, it is safe to assume that Opel had no time to copy the Citroën design. But with Budd in the background, it cannot be assumed that no cross pollination occurred. However, the French and German designs took a totally different approach to the front "clip" or area ahead of the firewall.

Even though the image of the stripped Citroën body shows that the front portion does not extend the full length of the car, it does go far enough to support the crucial loads. A short subframe served as the pivot points of the front-suspension and carried the forward end of the powertrain, which in this case was the transmission and differential of a front-wheel drive layout. A longitudinal torsion rod on each side handled the springing duties. Only the radiator, bumpers and front end of the fenders required any minimal further support.

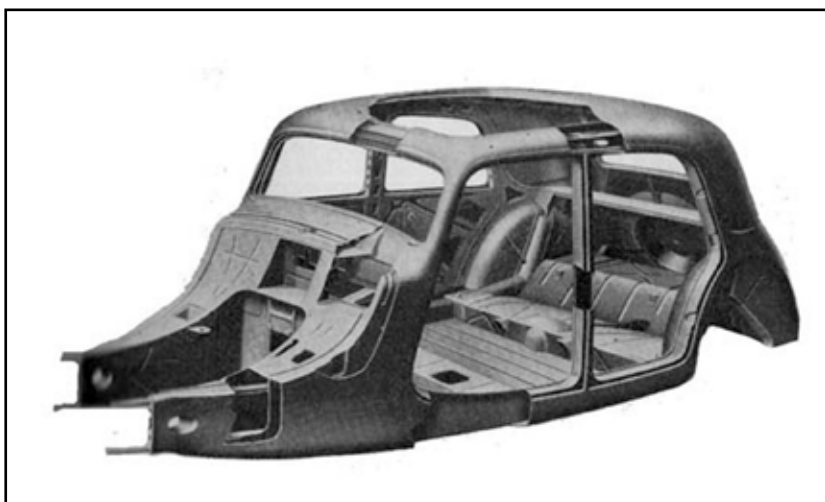
The Opel Unibody with Bolt-on Front End

Opel chose a unibody design that fully welded only the cockpit area. Forward of the firewall or bulkhead, however, use was made of heavier, thicker tubular structures that were bolted to the unibody. This forward structure consisted of twin "Y" shaped rods lying horizontally, each relying on an angled rod pointing up to the windshield pillars for support. As such the exterior sheet metal forward of the doors had no load-bearing properties.

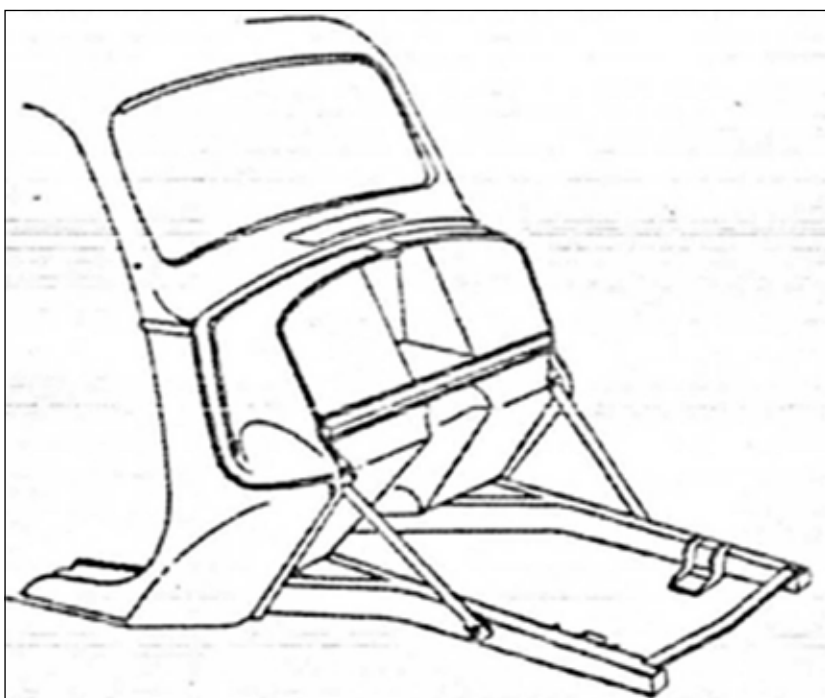
One advantage of this arrangement involved ease of repair in a frontal collision, as there was no need to stretch a chassis back



1941 Nash 600 (Author)



1934 Citroen (Citroen Media Archives)



1937 Vauxhall (GM World, July/August, 1960)

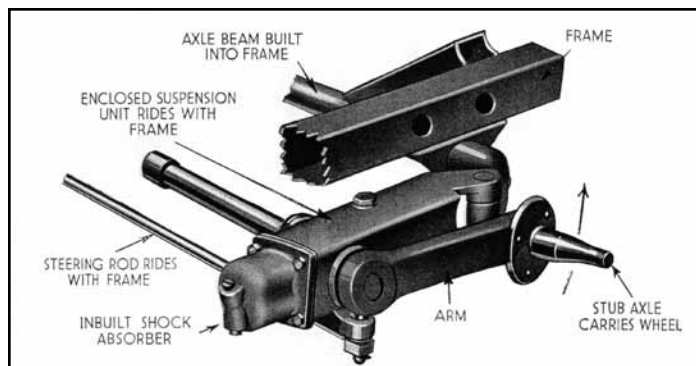
to its original dimensions. The mangled front subframe could simply be replaced, assuming the damage had not compromised the cabin structure.

The 1937 Vauxhall 10 that copied the Opel unibody design was the first British car to adopt a unibody structure. Not long after its introduction, rumors started circulating within the trade that the Vauxhall could not be repaired following an impact. Arthur Palmer-Phillips, Vauxhall's Sales Director, quickly convened a meeting of insurance companies at which the actual damage of a car was displayed along with the bolt-on parts that were needed to repair it. This quick action stopped the rumors and ensured comparable insurance rates to other light cars.

Nevertheless, ease of impact repair was not the primary reason for the bolt-on tubular structure. Like most of GM's North American 1934 models, which adopted independent front suspension, Opel and Vauxhall followed the trend with newly introduced models. Because the industry surge in the use of coil springs exceeded supply, the Dubonnet suspension design was adopted for Pontiac and some Chevrolet models as well as their European cousins.

The Dubonnet system consists of a trailing arm that rotates side-to-side, for steering, but does not move up and down. At the tail end of this arm a horizontal torsion bar connects to a leading arm which bounces up and down connecting to the wheel hub. This design imposes a concentrated twisting load at the forward end of the trailing arm. Such a concentrated load required a thick structure as its base, that exceeded the ability of sheet steel to handle in such an early application. Hence the need for a thicker tubular steel sub frame which in turn bolted to the unibody cabin structure.

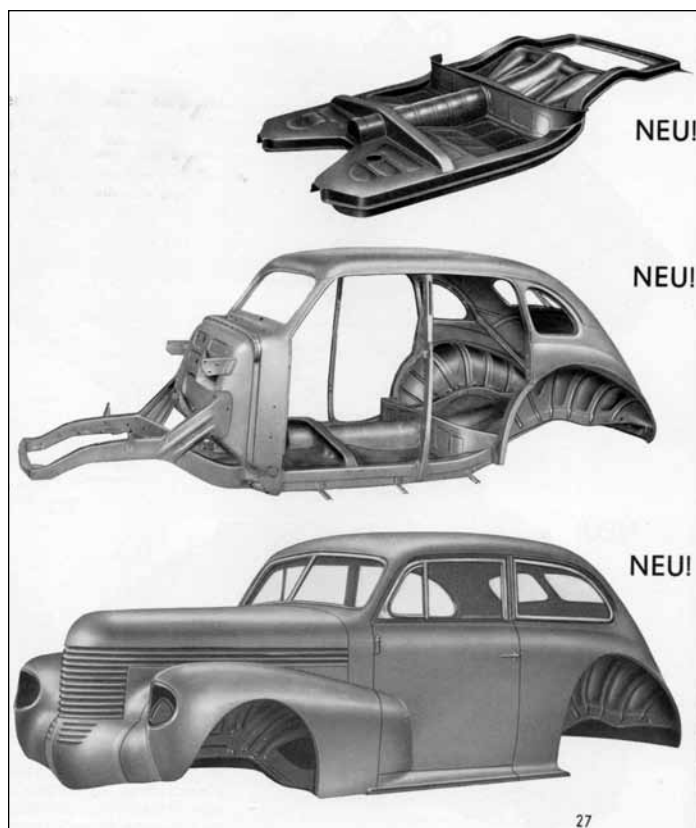
A further justification likely involved the export markets where these Opels and Vauxhalls were sent in dismantled form or CKD (completely knocked down) components. These foreign assembly plants were at the time (1935) still receiving Fisher bodies that incorporated a wood structure. Expecting these remote plants to suddenly adapt to leading edge welding of unibodies likely was not deemed appropriate. As shown in the accompanying photos, the semi-knocked down shipping box only needed to be big enough to house the unibody cabin from the firewall back with the remaining components including powertrain, suspension, fenders etc. all stuffed inside the cabin. This practice was still used as late as 1950 as these photos relate to the export of a 1950 Opel Olympia to Mexico.



1938 Vauxhall Ten Dubonnet Suspension (Vauxhall Heritage Archives)



1950 Opel Olympia Knock Down Pack (GM World, December, 1950)



1939 Opel Kapitan (Opel Archives/ Eckhart Bartels)

The last Pre-War unibody design from Opel was the 1939 Kapitän. The Dubonnet suspension had been replaced by double wishbones, also known as “short long” arms. Thus, the suspension loads were less concentrated allowing for a pressed steel subframe ahead of the firewall but still bolted to the unibody cabin structure. The Kapitän lacked the previous “Y” shaped longitudinal members of previous Opel and Vauxhall models. Instead, the two forward frame rails travelled further back under the floor area, taking on a cantilever role. This arrangement reduced the diagonal loads up to the bulkhead from the horizontal members. Rather than a strong tubular brace, pressed sheet steel handled these diagonal loads. This would be the last totally new body from Opel and Vauxhall to incorporate the bolt-on front end. The all-new introductions from Vauxhall in 1951 and Opel in 1953 had fully welded unibodies.

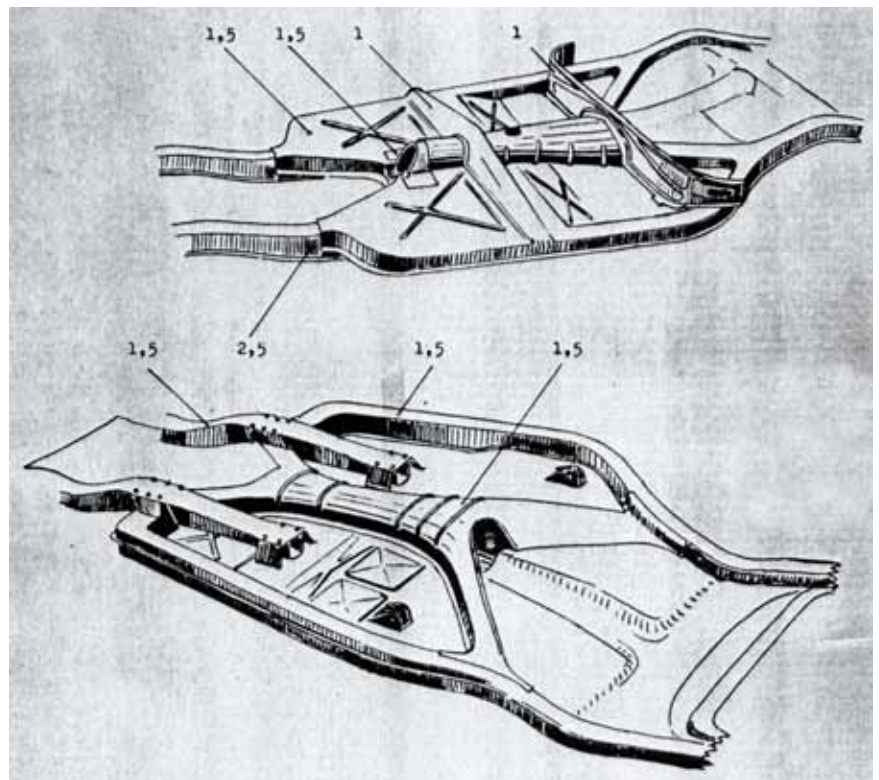
Background to the First Holden

Australia has a knack of creating situations or circumstances that dictate terms to the likes of GM and other parent companies with subsidiaries Down Under. Although Ford and Buick established body manufacture in the UK prior to World War I, Australia in 1917 mandated that all automobile bodies be built locally. The reason was to limit the cargo on ships heading to the country out of fear that more cargo meant more ships and therefore more targets for the German navy. This restriction was relaxed slightly after the war, but tariff regulations were most effective in the perpetuation of the domestic body building industry, of which Holden had the largest customer base.

When the Depression brought Holden to its knees, GM felt pressured to buy the company for fear that some other client might do likewise, thereby jeopardizing GM’s access to bodies. Before the government could stipulate that Holden continue



1934 Citroën 7A (Author)



1939 Opel Kapitän (Opel Archives/Eckhart Bartels)



1948 Holden 48-215 (Holden Archives)

serving other clients, GM assured this practice would continue. [4] In addition, exchange control restrictions prevented GM-Australia from sending dividends back to the USA so they were applied to the Holden purchase. [5]

Even though the USA remained neutral in WWII until December 1941, Holden's British born managing director, Larry Hartnett, rapidly set about gearing up Holden to support the Allied effort. He was also appointed Director of Ordnance Production reporting to the Director-General of Munitions, after agitating government officials to prepare for the conflict. This position was somewhat similar to William Knudsen vacating the GM presidency to serve as Director of Production, Office of the Under Secretary of War, except that Hartnett retained his role at Holden. Not long after GM had extricated itself from an unsuccessful investment in Fokker Aviation, Sloan was furious to discover that Holden, through Hartnett, had invested in the Commonwealth Aviation Corporation without any prior approval. [Hartnett p93-94]

Sloan, a staunch free-enterprise advocate, had concerns that the railways and telephone operation were all government owned and operated in Australia, failing to fully appreciate the vast barren areas of the country. In short Sloan had reservations about Australia and Hartnett.

But Hartnett had vision and confidence in what Australia could accomplish. His networking with industry leaders and government officials allowed him to exert a great deal of influence. Hartnett planted seeds for full manufacture in an April 1935 letter to Sir John Butters, a Holden director, in the expectation that these points be

conveyed to appropriate government officials. [6] As early as 1935 when he saw the direction Opel was taking with unibody designs, he could foresee the opportunities that this technology could offer Holden. [7] As it was, by 1939 Holden had already built a unibody Vauxhall J-Type 14 HP going so far as to varying the design of the British counterpart with additional windows. When planning the Fishermen's Bend plant construction in 1936, Hartnett's layout anticipated full production. [8] His role of Director of Ordnance Production could not have put him in a better position to reach appropriate government officials and industry leaders providing an appreciation of the industrial capacity of the country.

Australia did receive a vote of confidence from one senior GM committee. Under the direction of Albert Bradley, the GM 'Policy Governing Matters Dealing with Postwar Industrialization in Overseas Countries' in June 1943 identified only Australia for full manufacture.

However, the head winds at GM continued to mount. Hartnett's great relationship with his superiors Jim Mooney and Graeme Howard largely evaporated when both these top executive at GM Overseas Operations left GM to serve in the military. Neither was reinstated in his prior position after the War, resulting in Mooney leaving to head Willys and Howard joining Ford to manage their overseas operations.

Edward Riley rapidly moved to the top of GM Overseas Operations. Riley, however, simply had not earned enough credibility in the role to stick his neck out for Hartnett and his vision. Riley had enough on his plate trying to determine the future of many plants that had either been bombed, occupied or were likely to face severe material restrictions when fighting ended. Brazil

		1938 Vauxhall J-Type 14/6	1939 Opel Kapitän	1948 Holden 48-215
Length	Inch	168	182	172
	Cm	426.7	462.0	437.0
Wheelbase	Inch	105.0	106.1	103.0
	Cm	266.7	269.5	261.6
Track F/R	Inch	50.5/51.0	53.1/52.2	53.0/54.0
	Cm	128.3/129.5	134.8/132.6	134.6/137.2
Weight	Pound	2470	2712	2231
	Kg	1120	1230	1012

and Argentina may not have incurred conflict, but their access to foreign capital evaporated soon after the War stalling their automotive plants.

It took GM a while to decide if it even wanted to retain ownership in Opel. GM only announced in November 1948, just after the release of the Holden 48-215, that they would resume control of Opel. Having received a tax write-off for its German investment, GM was reluctant to have to repay the tax credit for bombed-out plants, some of which had been stripped by the Russians. If the dire economy subsequent to WWII was any indication, the outlook for Opel was bleak. Fortunately, an arrangement was made with the tax authorities and Opel would enjoy renewed success.

The Holden Unibody

With Opel out of the picture during the development of the Holden, it is easy to assume that the development of the Holden body did not benefit from Opel's expertise in the area of unibodies. Nevertheless, that was not the case. Russ Begg, who had been instrumental in the Opel designs, would play the same role for Holden.

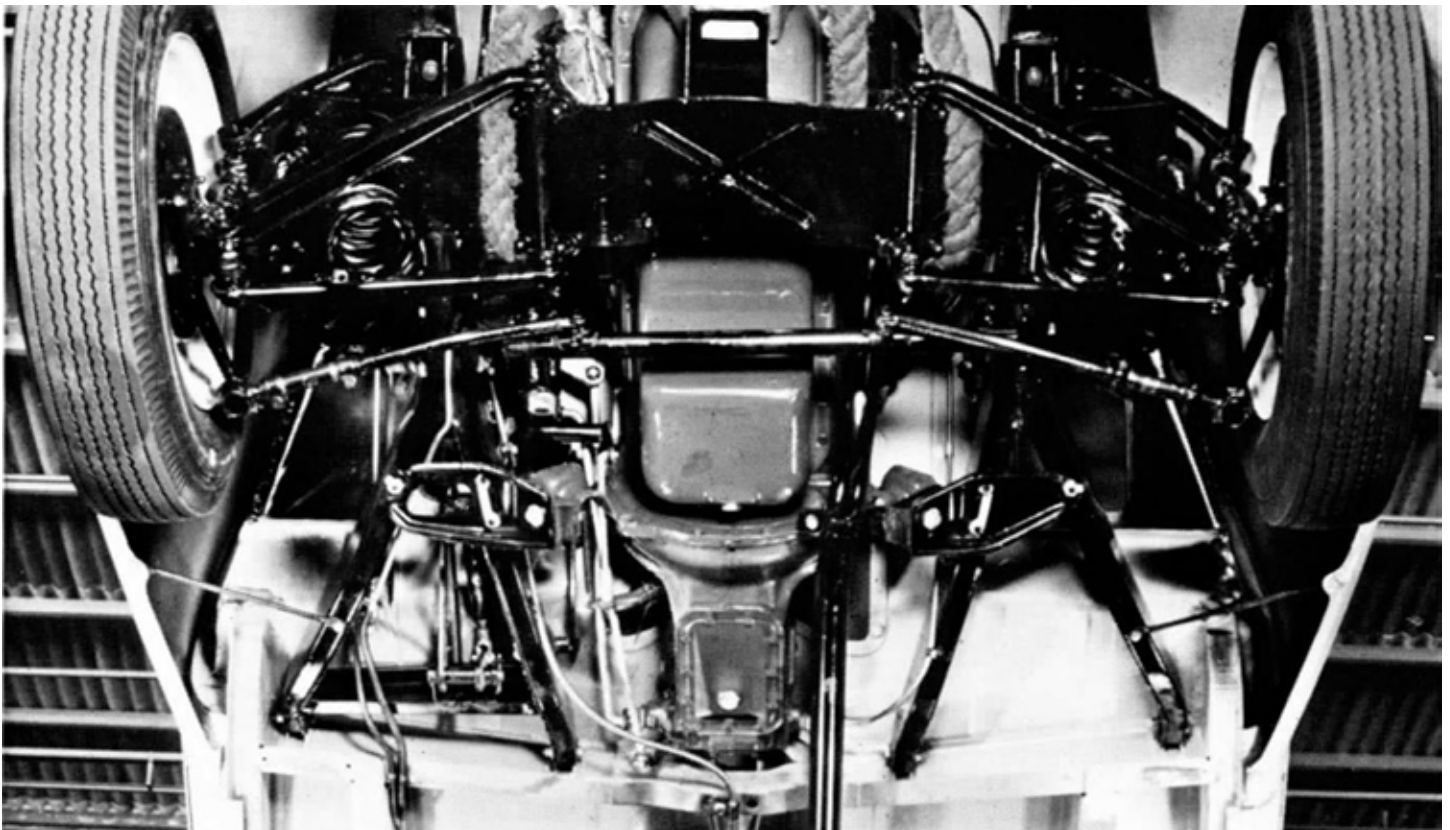
Russell S. Begg (1887 – 1957) graduated from the University of Michigan in 1909 with a B.Sc. His early career was spent with several automotive manufactur-

ers such as Packard, Jordan, Stutz and most importantly E.G. Budd. After joining GM, Begg worked under Lou Thoms at GM's Product Study Group as well as serving as Deputy Chief Engineer at Opel between 1934 and 1936. Then in 1936 he was appointed Opel's Assistant Chief Engineer. He returned to the USA from Germany at the outbreak of WWII.

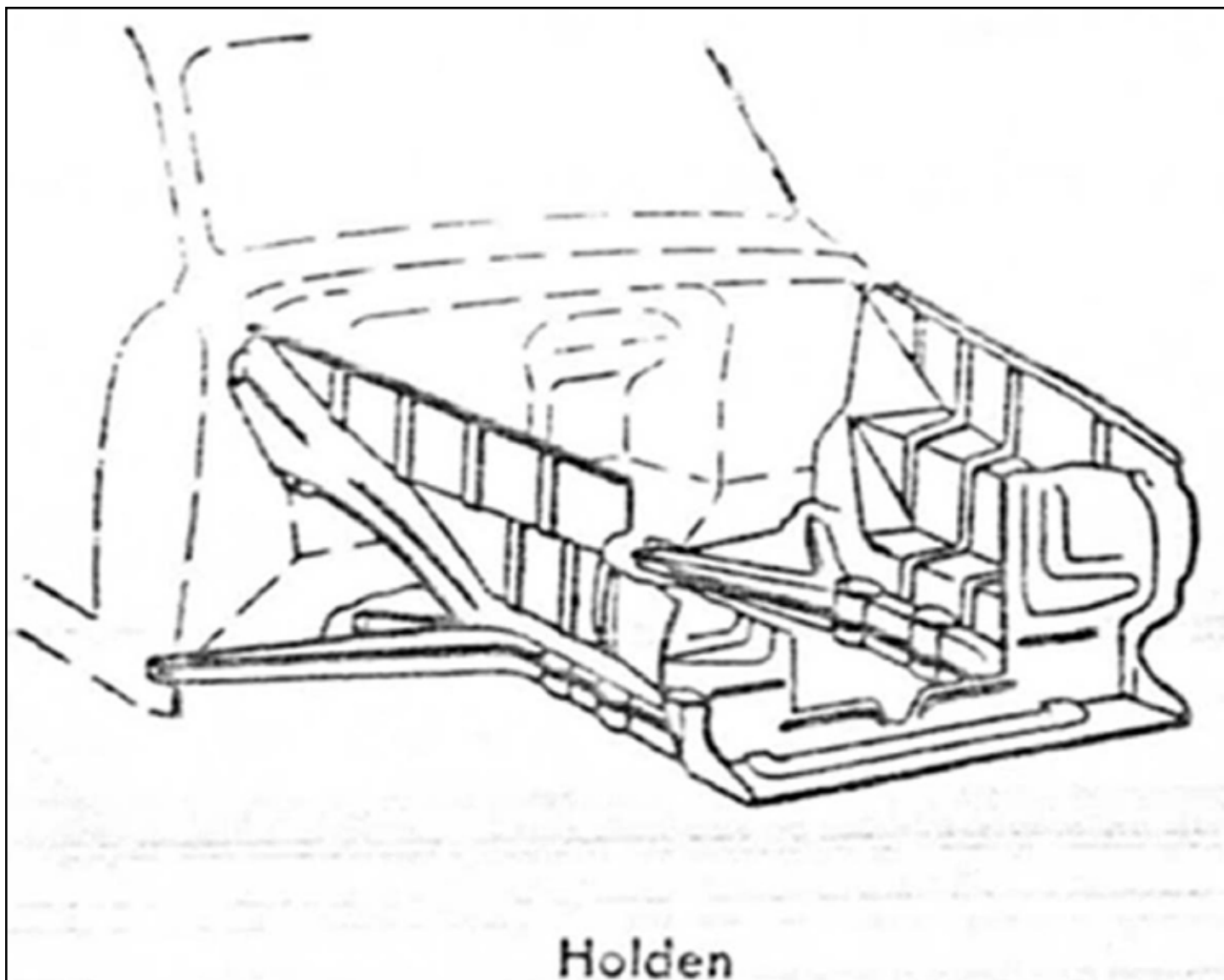
Believed to be the GM expert in unibodies at the time, he was the ideal person to head the engineering of the Holden project from GMOO in the USA in 1944. By 1947 he was appointed Holden Chief Engineer.

The Opel Kapitän may have been the most advanced GM unibody with its wider longitudinal bolt-on pressed rails. Mindful of the rugged Australian conditions, Begg did not adopt the newer German design. Instead, he reverted back to the twin "Y" shaped members of earlier Opels and Vauxhalls. Holden's development, however, did utilize the full front inner fenders to transfer the load through to the cowl and A-pillars.

During the approval process to build the Australian car, which happened in November 1944, Hartnett was made aware of a prototype that eventually fathered the Holden car. Walter Appel, a GM Overseas Operations engineer, pointed out the similarities of the Australian requirements to some prototypes that were at the GM Proving Grounds.



1948 Holden 48-215 (Dr. Norm Darwin)



1956 Holden XRay (Holden Archives)

These prototypes were born out of a conviction of Bill Knudsen, a previous general manager of Chevrolet, that a small 6-cylinder engine was not more costly to build, in comparison to an equal capacity 4-cylinder. His contention was that the four would require a more substantial and costly gearbox than the six, whose 50% greater engine pulses imposed a smoother reduced load on the transmission. He was right. The displacement chosen for this evaluation was 132.5 cu. in. or 2171 cc, which ended up as the capacity of the Holden car. [9]

Although these engine and transmission alternatives could have been evaluated from bench testing, the project went further with two 102-inch wheelbase bodies created and a third with a much longer 112-inch wheelbase, similar to a contemporary Chevrolet. Little is known of the longer third body, identified as Project # 195-Y-17. The other two warrant greater scrutiny

because of claims that they were built at Opel.

- Project # 195-Y-13 had the 4-cylinder engine with independent front suspension and 4-link rear suspension.
- Project # 195-Y-15 had the 6-cylinder engine but with a beam axle front suspension. This is the project number Hartnett claimed as the basis for the Holden, but the Australian car had an independent front suspension.

The beam-axle suspension raises questions. In a European context, a 102-inch wheelbase car would have been an up-market model at a time when only the cheapest Opel or Chevrolet was without an independent suspension. So which market was this prototype prepared for?

Dr. John Wright relies on an interview by Don Loff-

ler of a Holden old-timer, Jack Rawnsley, in his claims of the bodies built at Opel. Norm Darwin, President of Automotive Historians Australia, has shared an article by Marc McInnis, previously Holden Public Relations Manager for NSW, that supports Opel as the origins of these two prototype bodies. Both these sources claim that the bodies were extracted from Germany at the outbreak of WWII along with Begg.

It is fair to assume that these prototypes were created at Opel from the expertise of Russell Begg. Their light weight of 2,200 pounds indicated that they were unibody designs but further confirmation of the German origin of these bodies would be most welcome.

Like the Kapitän, the Holden 48-215 used a double wishbone suspension rather than the Dubonnet system with its concentrated load. Therefore, the design did not need the earlier thicker tubular bracing. In addition, there were no immediate export plans for CKD packs, whose boxes could be smaller, benefiting from a shortened unibody. Accordingly, the continued use of a bolted front area ahead of the bulkhead suggests that this practice is what GM was comfortable with for its overseas unibody designs. Holden would continue this bolt-on feature whereas Opel and Vauxhall were fully welded in the early 1950s as mentioned earlier.

It is remarkable that the Holden 48-215 was incredibly light, yet would be subjected to a pounding of a conventional off-road vehicle, because that was how it was used. The 2171 cc 6-cylinder engine could outperform virtually anything up to its price-class and many above this figure. Most of all, Australians were proud

of their home-grown car and the fact that it symbolized the industrial maturity of the country.

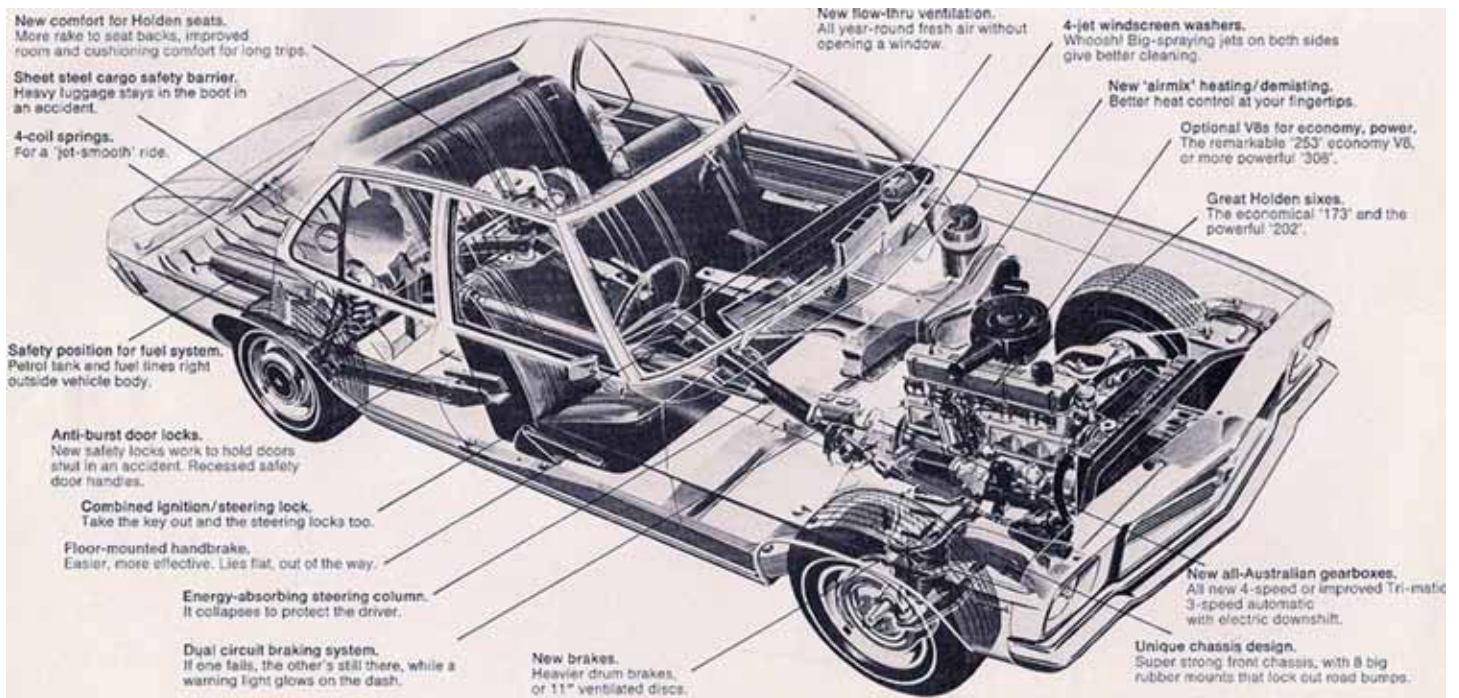
Unibodies by Fisher

Until the arrival of the 1960 Chevrolet Corvair, Fisher Body was totally committed to a body-on-frame design, even though some other North American competitors such as Chrysler brands had started using unibodies in the early 1960s even for their full-sized cars. The Corvair was small enough that GM realized it was time for a change. Whereas most unibody designs bolted the front fenders on, the Corvair was fully welded front to back. This likely was done to ensure a fully sealed front trunk.

The senior compacts, introduced in 1961, namely the Buick Special, Oldsmobile F-85 and Pontiac Tempest, were also unibody designs but with front fenders that could be unbolted. Surprisingly, like the Corvair, they were all designated as the Y-body, even though one had the engine in the rear. The senior compacts had a short lifespan as unibody designs, because from 1964 they became intermediates and had a separate chassis as did all full-sized GM cars.

When the sales of the Ford Falcon and Chrysler's Valiant far exceeded those of the Corvair, GM recognized the need to field a conventional car, which became the Chevy II. Its arrival in 1962 indicates it was a rushed program. Surprisingly, a shortened version of the senior compact unibody was not hastily modified for the Chevy II. Instead, Chevrolet adopted the Holden design of a

Early Fisher Body Unibodies		
• 1960 – 64	Chevrolet Corvair	Y-Body
• 1961 – 63	Buick Special	Y-Body
• 1961 – 63	Oldsmobile F-85	Y-Body
• 1961 – 63	Pontiac Tempest	Y-Body
• 1962 – 74	Chevrolet Chevy II	X-Body
• 1966 – 70	Oldsmobile Toronado	E-Body



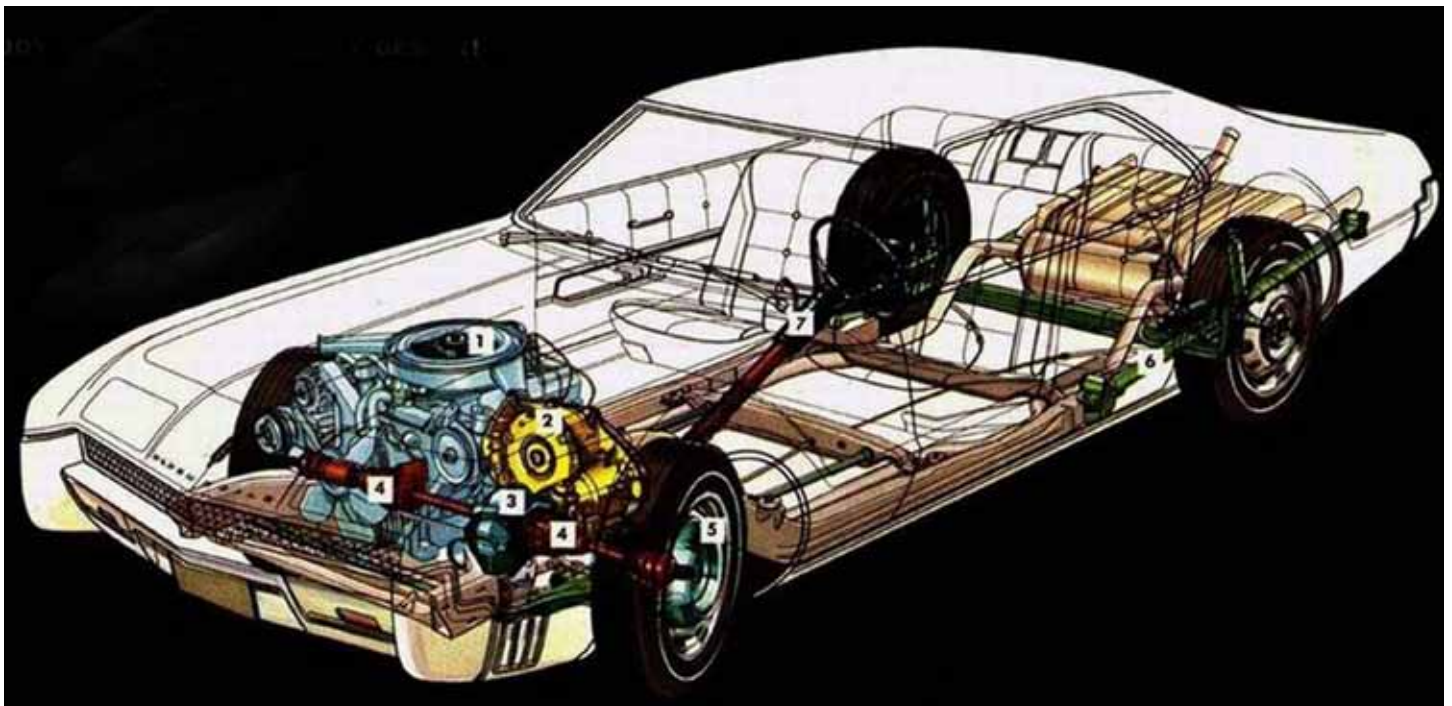
1973 Holden HQ Kingswood (Holden Sales Brochure)

bolted on front end ahead of the bulkhead and unibody cabin, but there were no shared panels.

Although Cord had pioneered front-wheel-drive in North America, Oldsmobile's decision to revive this layout with the 1966 Toronado was bristling with new engineering features. The compact V8 drivetrain sat on what could be called a long sub-frame or a half chassis. The frame or chassis travelled far enough under the

unibody cabin to reach the forward locating points of the rear leaf springs. The same arrangement was used for the 1967 Cadillac Eldorado. Both these semi-unibody cars were assigned the E-body category, but the rear-drive body on chassis Buick Riviera also shared the E-body designation.

With the Ford Mustang sharing the platform of the Falcon, it was not surprising that the rushed 1967 Ca-



1967 Toronado (Oldsmobile Brochure)

maro and Firebird Pony Car twins utilized the bolt-on front end design of the already planned second-generation 1968 Chevy II. This unibody design leaned heavily towards the Toronado long sub-frame arrangement.

Conclusion

The above article portrays an innovative approach to unibody designs by first Opel and then Vauxhall. At Holden, Hartnett had been paying careful attention to the evolving unibody developments. The Australians were justly proud at how versatile Holden had become catering to a wide variety of clients, beyond the GM brands, using their body building expertise. In reality, they were further advanced than their Fisher Body counterpart and able to cater to low volume runs.

Russell Begg may have been an American, but he honed his skills in Europe and ensured that the demanding nature of Australian needs was addressed in a car that was far more than the sum of its parts. The Australians were happy to see their ideas incorporated in the Chevy II. But they were also pragmatic enough to recognize that the second-generation 1970 Camaro and Firebird had the ideal platform for their HQ Holden in 1971. As Norm Darwin, President of Automotive Historians Australia has related, the HQ's release was delayed because the Aussies wanted to copy the extended bolt-on subframe from the GM Pony Cars. The HQ and its derivatives would be the last Holdens to use a detachable front clip.

The bolt-on front unibody design has received the input of GM engineers from around the globe in its development and maturity. Born in Europe, it was stress tested in the bush conditions of Australia, ready to help Fisher Body adopt hybrid unibody designs for America.

(References)

- 1 *Special Interest Autos*, August-October 1973, p26
- 2 John Reynolds, *The Classic Citroën 1935-1975* p 17
- 3 Laurence J. Hartnett, *Big Wheels and Little Wheels*, 1964, p
- 4 *ibid* p73
- 5 *H ibid* p64
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Assistance provided by:
Dr. Norm Darwin
Eckhart Bartels

Arthur Bishop – Steering to Achievement

by Norm Darwin PhD.

“Why is Australia so neglectful of its engineers? They did, after all, change the world,” wrote Robyn Williams, journalist, and broadcaster, in his foreword to Arthur Bishop’s biography, *Driven by Ideas*.¹ Williams lamented the indifference we Aussies have for our inventors and inventions. They include: Henry Sutton (television); Lawrence Hargraves (flight); Robert Hanbury Brown (radar); David Warren (black box flight recorder); Fiona Wood (spray on skin); Graeme Clark (cochlear implant); Arthur James Arnot (electric drill); John O’Sullivan (WI-FI); Ian Frazer (cervix and Gardasil cancer vaccines); Jim Frazer (deep focus camera lens); and Mark Lidwell & Egar Booth (pacemaker). These neglected great Australian patents are rarely mentioned. Instead the usually touted rural-themed stump-jump plough, Sunshine Harvester, Coolgardie meat safe, Hill’s hoist and coupé utility are celebrated.²

One name missing from this list, amongst others, is Arthur Ernst Bishop OA (1917-2006), an engineer with multiple Australian and American patents for 84 automotive and aeronautical steering and wheel-related functions including a concrete mixer.

The Beaufort Bomber (and later Beaufighter) conceived for Australian production in 1939 was based on an English aeroplane, the Bristol Beaufort that was designed to carry torpedoes and would become one of Australia’s front-line aircraft and the first Australian all-metal aeroplane built. Production of the Beaufort resulted in many modifications to the Bristol design, to suit both durability and the inability to source components in England. An Australian Beaufort Division under the Aircraft Production Commission had been established in 1939 with John Storey (later knighted) as director. Storey had been General Motors-Holden’s production manager and he soon turned to his former employer for

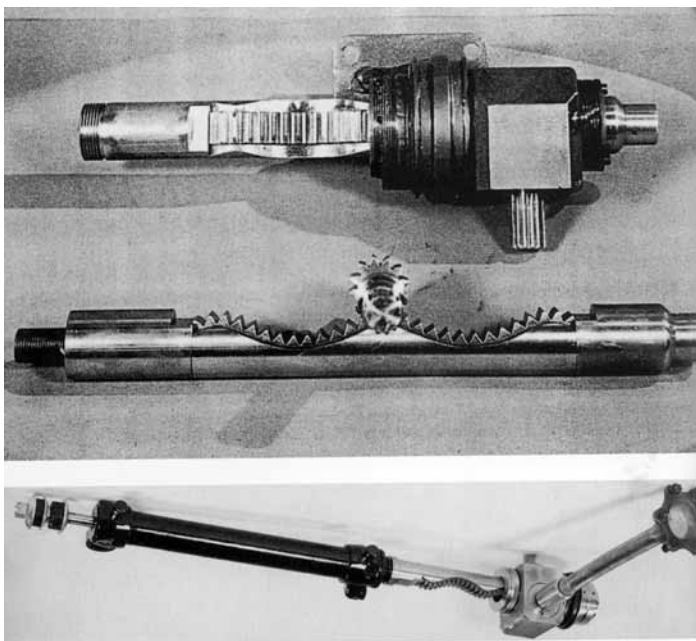
engineers as it became apparent the Bristol design was in some areas technically flawed. A.T. Ross in *Armed and Ready* said of the plane:

“Bristol’s plans, drawings and manufacturing data were grossly inaccurate. The Bristol Aeroplane Company (BAC) is not taking the Australian operation seriously.”³

The bombing of the English BAC factory in late 1940 ended any proposal to ship components to Australia. When BAC advised they could not supply the complete undercarriage, Storey turned to George Niblett at National Motor Springs in Sydney. Niblett was a hands-on practical untrained engineer, relying on his production manager Reg Wood, who in turn asked engineer, Arthur Bishop to redesign the undercarriage. Arthur Bishop was the grandson of Joseph E. Bishop, coachbuilder and nephew of the Bishop brothers who



1971 Holden Statesman de Ville, Bishop variable ratio power steering first used as standard equipment on this car.



Bishop designed power steering for Packard.

ran the *Coach and Motor Body Builder* journal. His father, John Bishop, had joined the *Painter & Decorator* as a journalist and his uncle Joe owned West's Wheel Works, a place of great interest to the enquiring mind of a young lad.⁴ Bishop has been described as a modern-day Leonardo da Vinci by Australia's Powerhouse Museum's Rob Renew, who said:

"Undoubtedly the most prolific and successful inventor of mechanical things that Australia has produced. And he should be much better known than he is now."⁵

Born in Roseville, NSW and educated at Sydney Boys High School, Bishop enrolled in a mechanical



Arthur Bishop at his drawing board c1940.

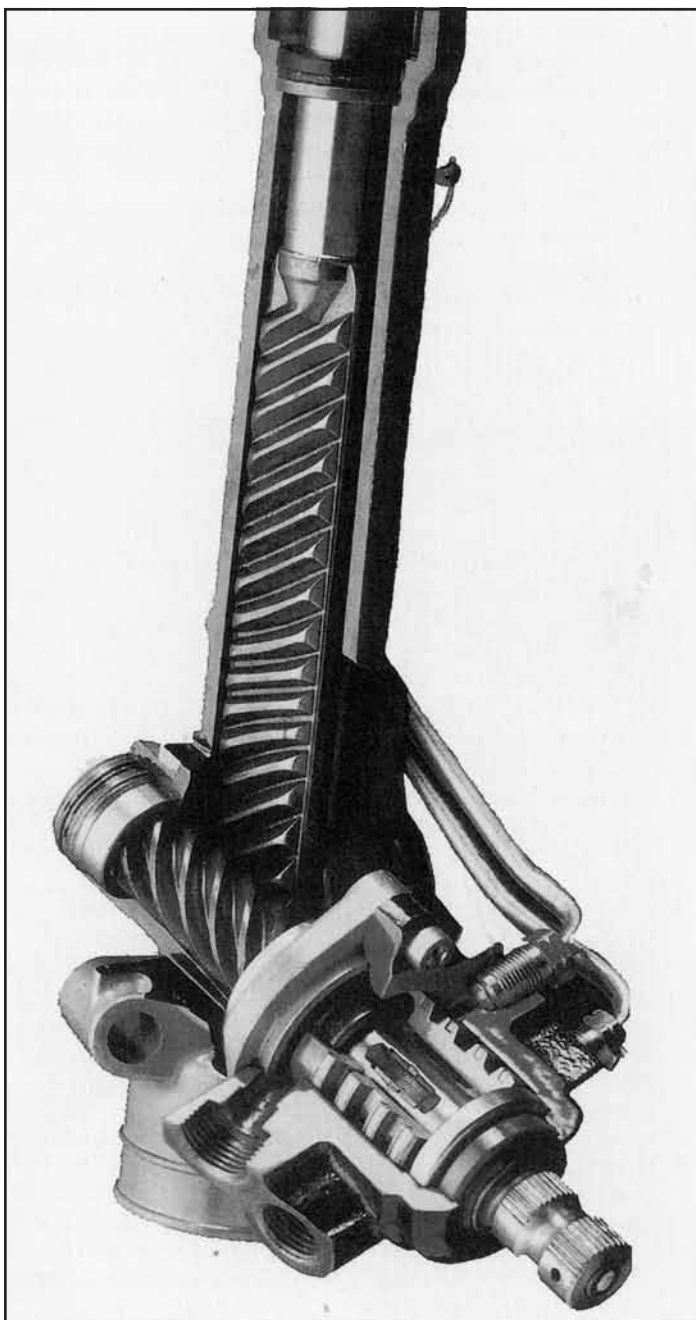
engineering course in 1933 at the Sydney Technical College (now University of Technology, Sydney), graduating with honours in 1938. He then worked part time for his cousin, Eldred Bishop, at his auto spares manufacturing plant. In 1939 Bishop began designing complex machine tools working for CC Engineering, where he met Reg Wood. Then followed a period at Standard Telephone & Cables (STC) before being co-opted onto the Beaufort project by Wood.



Australian built Beaufort bomber.

The Department of Aircraft Production (DAP) utilised two major co-ordinating contractors, the Government Aircraft Factory and Commonwealth Aircraft Corporation. They produced 700 Beaufort Bombers and 365 Beaufighters between August 1941 and August 1944. Forty-six of the Beaufighters were also modified to MK1X standard as transport planes. The original engine, a British Laurus, was abandoned for the American designed Wasp, produced by CAC at Fishermans Bend. Initially tail wheels and undercarriages collapsed after landing on rough island and outback airstrips until Bishop redesigned them. The tail wheel also shimmied, sometimes badly enough to pry the torpedo loose. Bishop worked on the tail-wheel problem and designed a shimmy damper that he submitted for a patent in July 1943 as *Means for damping swivelling oscillations in caster wheels*. Then followed a further 80-plus patents over 50 years, his most important being those associated with a design on variable ratio (VR) steering systems beginning in May 1954 for automobiles.⁶ Bishop's design on aircraft landing gear and tail wheels was adopted readily in America on several aircraft, the first being the Douglas A26 Invader bomber. However, Bishop found the British reluctant to admit his design was superior to theirs.

The Lancaster bomber also suffered from shimmy and Bishop was sent to Britain to provide a remedy. There he encountered a wall of challengers put in place by the English engineers. They thought his solution was too simple. By contrast, theirs was cumbersome and

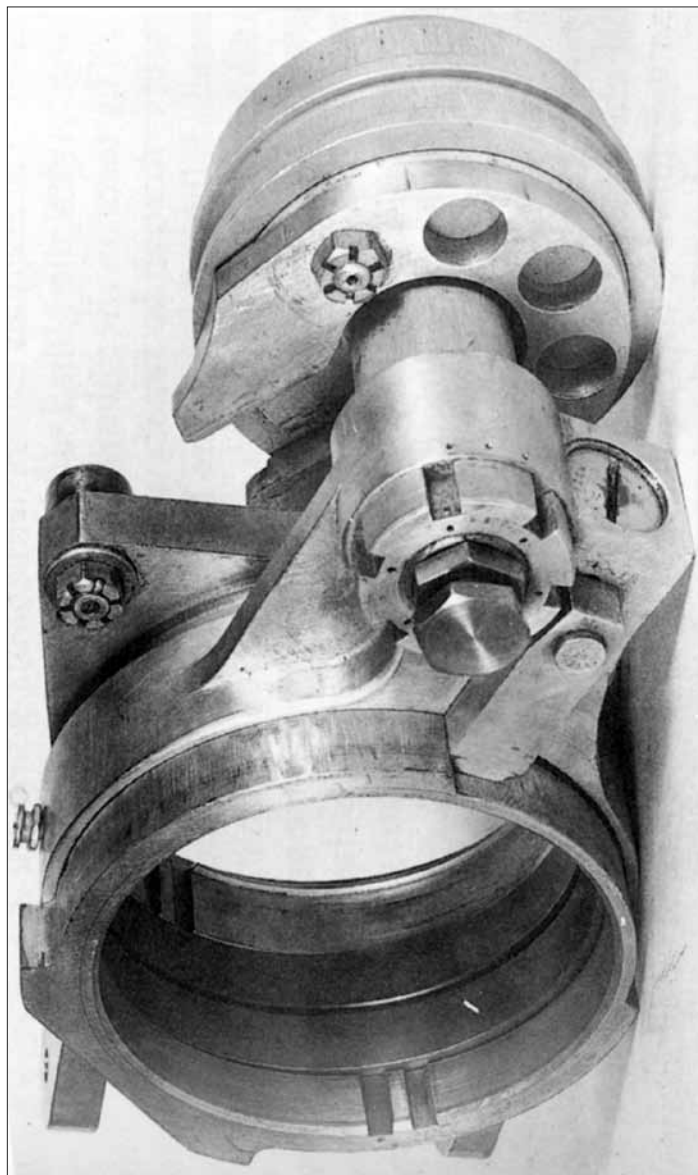


1971 Bishop VR power steering cutaway.

heavy and could never be retracted whereas Bishop's solution came with a retractor design. His biographer records:

He faced men who were wrenchingly arrogant, blinkered, and self-satisfied. Bishop commented, "what makes it difficult here is that you just never find young chaps here in good positions." The adoption of these Australian innovations was more than technological achievement and a tribute to Australian ingenuity; it is also a story that swells with human frailty, frustration, and nerve.⁷

In the end, Bishop's solution was the only viable option and the British had to purchase the Bishop design from Australia. The shimmy design was taken up in America, where nose wheels were violently vibrating on coral based Pacific island strips. In October 1947 Bishop travelled to Wright Field in Dayton, Ohio, to witness the results of tests on a landing strip fitted with ruts to simulate the corrugations. On the day Bishop arrived to see his damper in action, the colonel in charge decided he had doubts about the tests which to date had eliminated all shimmy. The colonel ordered the shimmy damper be removed, and as he took to the pilots seat he found the plane was uncontrollable at 50mph and had to abort the take off. To make matters worse, all the test equipment and cameras were shaken loose and fell off the aircraft—and smashed up. Consequently, all A26 bombers were then fitted with Bishop's damper.⁸



Bishop Shimmy Damper.



Kirby-Bishop Variable Ratio Steering.

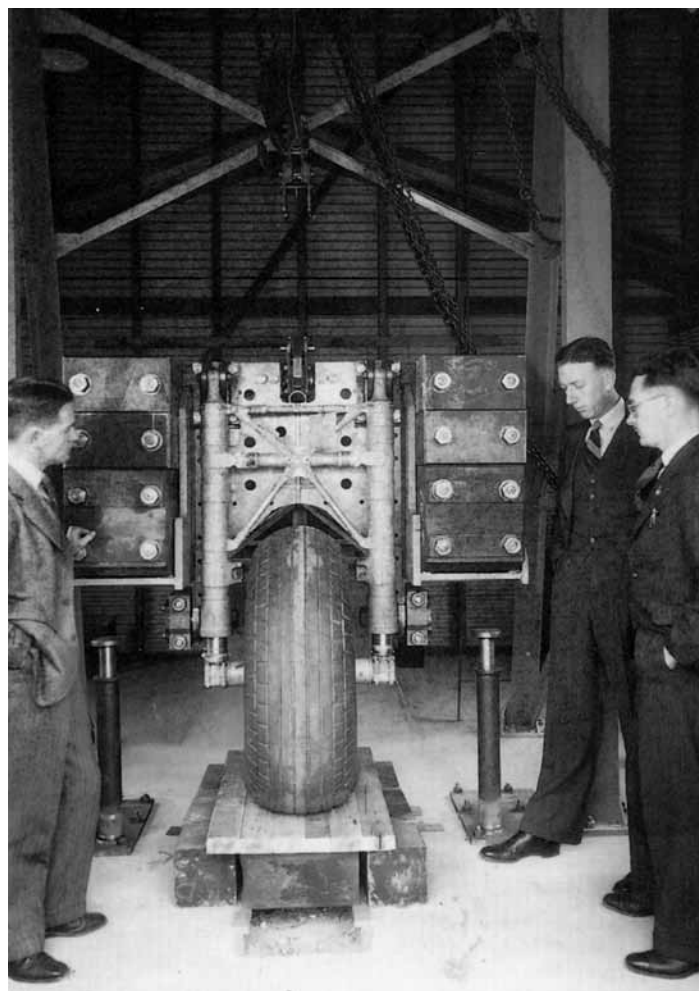
The trip to Ohio was to result in Bishop developing hydraulic power steering for plane nose wheels and then automobiles. His biography records the design for a variable-ratio power steering for the B29 bomber took place under the lights of a Porkey's hot-dog stand near Wright Field. Using a child's maths kit, Bishop sketched the beginnings of a key patent.⁹

To illustrate Bishop's and Australian inventiveness, in 1942 a "drop test machine" was built to test and validate aircraft landing gear in the Beaufort Undercarriage Annex, where Bishop was Chief Engineer. When a landing bomber descended at 12 feet per second, exerting 26,000 pounds on touchdown, the machine had to replicate and record stress, rate of deceleration and acceleration. The Australian test rig recorded readings every 250th of a second. In contrast, the British machine recorded every 25th of a second. It took an American university 18 months to study the problem before they built one that recorded every 50th of a second.¹⁰

Bishop developed his first VR steering for the 1957 Packard, but it was never fitted in production. He then developed an improved system for the Mk 10 Jaguar. These were produced by Bendix in the UK.¹¹ Both Ford Australia and Holden adopted the Bishop variable ratio power steering on their Ford Fairlane (1973) and Holden HQ (1972) models. These were produced by Bendix-Technico, now a division of James N. Kirby.¹² Both GMH and Ford steering box cover

plates were branded with "Kirby-Bishop," perhaps the only instance where the designers name as well as the manufacturers, appears on a GM product. Bendix US had at the time infringed a Bishop patent and were being sued. However, Bishop had to drop the legal action in order to get the GM Holden business.

In 1980 Bishop developed a new form of forging steering racks using what he calls "flash-less" forging. The rack blank was stamped with a very precise die to form the rack teeth. This VR rack was first used on the GM J-car or Camira as it was known in Australia. Over 16 million J-cars were produced in America, UK, Germany and Japan between 1981-2005 and Bishop's steering rack was used in many of them.¹³



Bishop designed landing gear rig.

Bishop also designed the very sophisticated machinery needed to manufacture the various steering system components including an automated slot-milling machine. These machines were made by James N. Kirby Engineering in Sydney and were used in the production of high-precision valves for over two million power steering assemblies a year and were fitted to Ford cars in the USA.

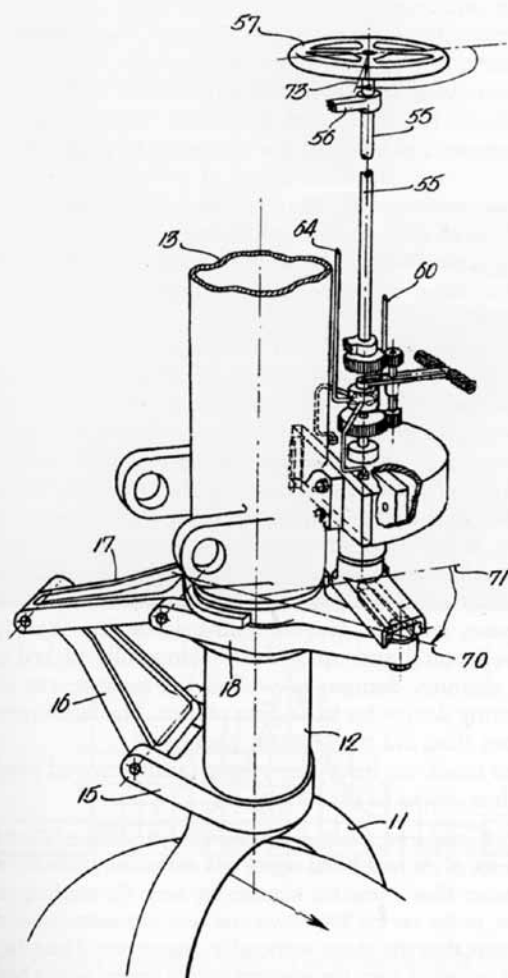
May 16, 1950

A. E. J. BISHOP
APPARATUS FOR TRANSLATING, ACTUATING, AND
RESTRAINING FORCES TO VEHICLE WHEELS

2,508,057

Filed Dec. 3, 1947

3 Sheets-Sheet 1



US Bishop "Shimmy" patent.

The 'Variatronic' power steering control unit, a speed sensitive steering control that offered high levels of 'feel' when driving and low-effort steering when parking, was introduced after intensive engineering development by Bishop's company.¹⁴ In 2008 the companies ActivRak won the "innovation of the year" award.

Bishop held two important ethics during his lifetime as an inventor. First, he was never satisfied with an idea, as he continued to make improvements, sometimes causing friction with those that just wanted to get on and make it. Bishop also recognised the importance of protecting his designs, continually patenting, and then licencing their use. In this way his company, Bishop Steering Technology Pty Ltd was able to fund considerable R & D effort that led to invention and further patent applications. Patent registration was consistently applied using the Patent Cooperation Treaty to enforce strict compliance.

Today the Bishop Steering Technology Pty Ltd company is owned by Stahiverarbeitung GmbH in Germany and produces steering systems for some 23% of the world's automobiles including VW Group, Mercedes-Benz, BMW Group, Hyundai Group, General Motors, Geely & Stellantis groups. The company now holds over 350 patents related to steering systems.¹⁵

Summary

Arthur Bishop is known to few Australians and even less elsewhere, yet his steering system designs are commonplace. It was said that engineering inventiveness and business success are not necessarily linked,¹⁶ Bishop has shown this is not necessarily the case. His legacy will continue.

Arthur Bishop's story is uplifting and shows true grit and Aussie ingenuity, it is told by Clare Brown in his biography, *Driven by Ideas*.

(Endnotes)

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3. A T Ross, *Armed & Ready: The Industrial Development and Defence of Australia, 1900-1945* (Sydney: Turtin & Armstrong, Sydney, 1994), p297.
4. Brown, p6.
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6. Arthur Bishop, 1943, Means for damping swivelling oscillations in caster wheels, NAA Australian Patents Office, Canberra, ACT; Arthur Bishop, 1954, Improvements in the Variable Ratio Steering of Motor Vehicles, NAA Australian Patents Office, Canberra, ACT; Arthur Bishop, 1947, Frictional Damping for Caster Wheels, NAA Australian Patents Office, Canberra, ACT; Arthur Bishop, 1947, Locking System, Landing Gear, NAA Australian Patents Office, Canberra, ACT
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16. Jim Longworth, *Felix Caldwell: the man and his (nearly) forgotten engineering*, 17th Engineering Heritage Conference, 2013, Canberra ACT.



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Creative Tension: The Re-Ignition of the Holden Design and GM Design Relationship, 1990-2020

by John Field, Former Design Manager, Holden Design/GM Australia Design

(With acknowledgement to Richard Ferlazzo, Former Director of Design, GM Australia Design for additional information)

The early years of GM Holden's Australian vehicle design activities following World War II have been well-researched and documented by historians such as Norm Darwin, David Burrell and others. From the first 48-215 Holden to the 1966 HR model (the first to be designed in the Fishermans Bend Technical Center Studios opened in 1964), GM's experienced North American designers exerted a strong influence on the appearance of the products. There was ongoing control or oversight of the product development and mentoring of the local designers, with full-size models shipped from the Melbourne-based studios to the US headquarters for review and staff sent in both directions. The final design proposal always required approval from Detroit.

As the Holden Design team gained expertise across regular new model programs, by the end of the 1960s it had become a more autonomous and capable unit requiring less supervision. Into the 1980s and 1990s the volume of trans-Pacific travel decreased. However, there was still the occasional transfer of designers in both directions. GM Vice Presidents of Design Chuck Jordan and later Wayne Cherry would visit semi-regularly to formally sign off final designs. Progress photos of design development were diligently mailed to the United States as a courtesy, but feedback became less frequent. The Australian team had become trusted to make knowledgeable decisions for their own familiar, unique and profitable market. Through necessity created by a small population and isolated location, the design studio, like the other departments of Holden, had also become adept at achieving a lot with a little in terms of budget and staff numbers. The once-hefty tether between headquarters and outpost still existed but was now more tenuous. For a period Holden Design arguably had a closer connection with the GM Europe studio in Rüsselsheim near

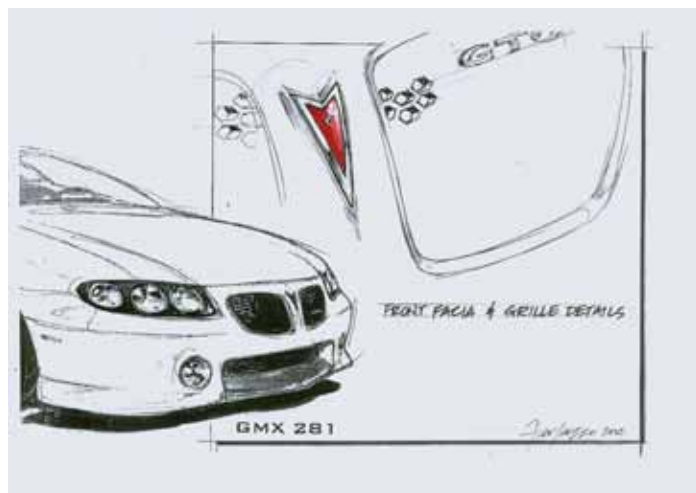
Frankfurt, with Opel being a source of vehicles sold by Holden or a provider of base platforms to be developed locally, primarily for various Commodore family car models. Personnel exchanges were commonplace and Holden Design contributed to several GME programs, one of the most intensive being for the 4300 Tigra small sports coupe in the early 1990s, for which numerous sketch proposals and scale models were developed.

Nevertheless, during the early 1990s Michael Simcoe was one of the local designers who was occasionally earmarked to undertake a stint at the GM Design studio in Warren, Michigan. While there he was involved in the design of the 1992 Buick Sceptre concept, elements of which influenced the design of the 1997 VT Commodore led by Holden Director of Design Phillip Zmood. Early in the development of the VT, GM took an interest in the vehicle as a potential US-market Buick and a small team of designers and engineers were sent from Warren to Melbourne to help develop a left-hand-drive version with appropriate brand cues, known internally as Project 127. While production plans were unfortunately canceled after the design was completed, the collaboration was to create a template for future co-operation between the two studios. The effort was also valuable in enabling the local manufacture and export of VT-based left-hand drive Chevrolet-badged models to the Middle East, South Africa and Brazil. This was an important milestone, as by now the Commodore and its variants were the only uniquely local vehicles designed, engineered and manufactured by Holden for the Australian market. Although it was the top-selling car in the country, sales were typically under 100,000 per annum. Any opportunity to increase production volumes through sales to export markets was of significant economic benefit to Holden and this became top-of-mind for many employees.

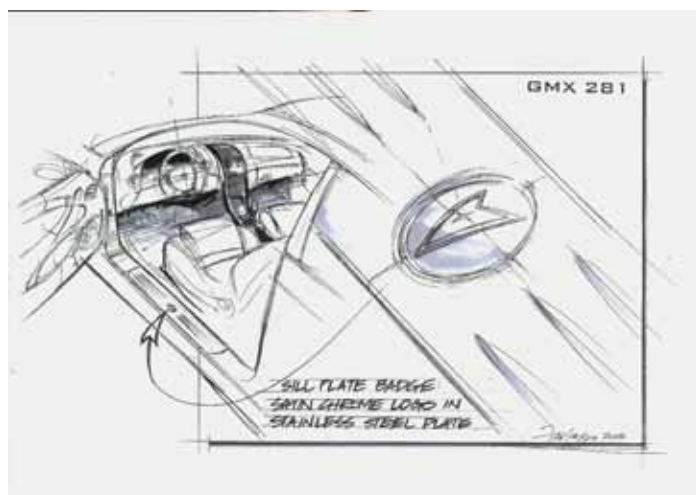
It was the reborn Holden Monaro, derived from the wildly successful VT Commodore Coupe concept of 1997 that fully re-ignited the relationship between the Holden and GM studios. Following the concept's acclaim after its showing at the Sydney Motor Show and despite a tight business case, approval was granted to develop it for production as a 'halo' vehicle and spiritual successor to the popular Monaro muscle car models of the 1960s and 1970s. An American-born Design Program Manager working on the new Monaro as an employee at Holden Design, in collusion with a compatriot in the Engineering department, boldly emailed GM executive Robert Lutz to make him aware of this fantastic vehicle and its potential in the US market as a Chevrolet Monte Carlo.

Also known as 'Maximum Bob' Lutz, the maverick industry veteran and car nut had already driven a Middle East-market version of the long-wheelbase WH Holden Caprice that was part of the GM test fleet. He had been impressed by that vehicle and quickly saw the possibilities for the coupe not as a Chevrolet, but as a new-generation Pontiac GTO. This gifted Holden the opportunity to improve the rationale for a low-volume niche vehicle via additional export market volumes. Left-hand-drive conversion was relatively straightforward based on work already done for Project 127 and the VT export variants. The vehicle entered the North American marketplace to great fanfare and interest, not only from the media and public, but also from GM leadership curious how a small isolated team on a low budget could develop such an impressive world-class vehicle.

By this time the next-generation VE Commodore was commencing development and following the reception of the GTO a niche was identified for a rear-wheel-drive Pontiac performance sedan variant for the North American market. A large contingent of GM designers, engineers and other experts was dispatched from Warren to the Fishermans Bend Technical Center to ensure the vehicle was designed to meet North American safety regulations, quality targets, brand requirements and other imperatives. These individuals arrived fresh from the corporate culture of the leviathan GM, which necessitated disciplined following of processes to keep large budget, complex projects employing thousands of staff under control. It wasn't unusual for engineers and designers working across the sprawling Warren campus to have never met face-to-face, and every team member generally had their 'swim lane' of expertise. A degree of



Pontiac 5. Front Facia and Grill Details.



Pontiac Sill Plate Badge. Satin Chrome Logo in Stainless Steel Plate.

conservatism existed in their approach, largely to avoid risk of product defects, warranty claims and litigation.

What they discovered at Holden was to be a culture shock; a tiny, proud and passionate team working in a relatively small facility working to tiny budgets. Everybody knew each other by sight, with individuals often multi-tasking and possessing a wide range of expertise. This pride and flexibility sometimes resulted in risk-taking behaviors as each department pushed strongly for their belief of what would create the best possible product. Most concerning to the visitors was an apparent lack of rigor and process in the development workflow, with decisions and timing gates seemingly overturned with reckless abandon in pursuit of product greatness. In reality, it was a relative judgment - the job would always get done thanks to the passion, hard work and commitment of the Holden 'family;' however, it appeared chaotic to the visitors. This phenomenon became



Holden VR Studio. Each design center had a VR studio having realistic full size virtual models viewable from any angle, with 3D glass if desired.

known internally as the ‘Holden miracle’. A notable example of this occurred during the development of a color display radio module for a VE upgrade model alongside a supplier new to Holden. Many technical issues plagued progress to the point where the Start of Production date was in jeopardy, leading to a potential

launch delay for the car and a significant amount of lost revenue. At very much the eleventh hour it was decided to change suppliers, resulting in many long stressful hours for those involved. Yet the car still made it on the road with a fully-functioning radio more or less on time thanks to the team’s dedication.

While the Holden approach appeared quite disorderly to the visitors from GM North America, they were duly impressed with the levels of passion, commitment and camaraderie within the Holden family. It explained much of how the team could ‘punch above its weight’, an expression they often used amongst themselves with pride. The small size of the operation also led to quite holistically well-resolved cars since lines of communication were less complex and it was easier for everyone to have input to the overall design as it progressed. That said, the Americans saw an urgent need to impose some of the discipline that had served them well, starting with the introduction to Holden of what was termed the 4-Phase Global Vehicle Development Process (4Φ GVDP in the acronym-loving GM’s parlance). This imposed strict timing gates on each stage of the project with deliverables and accountabilities from all departments including Design that had to be signed off at each point in order to proceed. This was difficult for some of



Map, GM Global Design Departments. Holden became vital in GM’s Design Centers, even more significant after the late 2013 plant closure.

Holden's designers accustomed to spending as long as possible finessing their creations to accept and created initial tension and resentment. However, the efficiency benefits of this disciplined approach soon became obvious and difficult to argue against. In fairness, it also became clear to the corporation that the Holden team was understaffed and overstretched in delivering these more complex projects, which had the positive effect of an increased head count allowance and thus greater employment opportunities for local talent.

The VE was released in North America in 2008 as the Pontiac G8 and later became the Chevrolet SS in updated VF guise, which demonstrated further improvements in quality and execution thanks in significant part to the expertise and technology brought by the GM contingent. Meanwhile, in recognition of the local team's experience and success with rear-wheel-drive passenger cars, Holden became the GM Global RWD Development Center. The 'Zeta' vehicle architecture that underpinned the VE Commodore was slated for the fifth generation of the Chevrolet Camaro sports car to be launched in 2009. Once again a team of designers and engineers from Warren was co-located at Holden's Technical Center to collaborate on the execution of an initial design theme provided by the American studio. The locals took on the responsibility of executing this iconic performance vehicle with relish, and by now were fully integrated with GM's global systems and practices. Greater access to the latest technologies enabled further efficiencies and quality outcomes. 3D CAD data describing the shape and layout of the vehicle could be shared across the globe instantly, with designers and engineers at both sites being able to review and comment on progress on their own computer screen. This would typically occur overnight due to the time zone difference, with feedback from across the globe being available first thing in the morning. It was no longer necessary to ship full-size design models overseas at great expense for review or approval; the CAD data could be milled as a 'tracer' clay model at either studio for quick turnaround of feedback. The same design was effectively visible full-size in both studios at once, with any hand-modeled modifications to the clay buck able to be scanned. Data was uploaded and milled onto the model at the other end. Each Design Center housed a Virtual Reality Studio with a large projection screen capable of displaying realistically rendered CAD models of cars in full size which could be rotated in real time, simultaneously at both sites and viewed with 3D

glasses if desired. Video-conferencing tools improved communication and relationships, with faces being able to be put to names, enabling instantaneous to-and-fro group discussions. Travel between the countries increased with more face-to-face meetings and reviews, further building professional rapport and even long-term friendships. The Australians gained newfound access to the latest automotive trends and technologies via the vast GM supplier base, as well as a parts bin of proven corporate common components, all of which could be applied to the locally-made Commodore variants. This avoided the development cost and time of designing unique parts. Building upon this momentum, a version of the long-wheelbase Caprice model was developed as a Police Patrol Vehicle for the North American market. With input from the police forces a number of significant changes were made, including a column-mounted transmission shifter and unique seats to provide clearance for gun holsters. The Chevrolet PPV was well received by police officers appreciative of its capable dynamics and functionality, and further embedded the level of respect for Holden's abilities within the GM world.

By now the Holden studio played a vital role within GM's global array of design centers, alongside those in the US, Germany, South Korea and the PATAC studio in China, which former Holden Director of Design Phillip Zmood had been instrumental in establishing. This role became even more critical for the designers and engineers employed at Holden's Technical Center following the December 2013 announcement of the cessation of local manufacturing by GM. It was no longer economically feasible to develop a specific local vehicle for such a small market, particularly in the rear-wheel-drive passenger car segment which was now in decline. The Commodore and its variants would be replaced by re-branded imported front-wheel-drive GM models, alongside more popular small cars, SUVs and pick-ups already manufactured in large volume elsewhere. With no more unique Australian vehicles to be designed, the product development team members' future livelihoods were dependent on their ability to contribute to GM's global projects. Fortunately, the combination of respect for the team's capabilities, cost-effectiveness enhanced by favorable exchange rates, and a surplus of projects meant that a variety of production and advanced vehicle programs were awarded to the Australian outpost. This change of status and role for Holden Design warranted a name change to GM Australia Design, abbreviated internally to GMA.

The ability of the local designers to create appealing concepts and provide fresh perspectives was highly valued by the other studios responsible for their own projects. As a group, designers would regularly participate in short term projects known as ‘sketch blitzes’, where a week or two was spent intensely sketching interior and exterior concepts around a specific brief in friendly competition with their colleagues around the globe. The idea was to collect a diverse range of competitively-spurred ideas with a few being selected for further development, sometimes by the designer responsible for the concept or sometimes taken over by the program’s home studio designers.



VT- Coupe Concept 149 in Clay.

GMA’s submissions were accepted with appreciation and on numerous occasions were selected to proceed further. One notable example was the Buick Avenir luxury car concept unveiled at the 2015 North American International Auto Show in Detroit. GM’s Vice President of Global Design at the time was Ed Welburn, who had a particular passion for Buick and along with his design team in Warren had a profound understanding of the brand’s heritage and design cues. Welburn, like his predecessors, was a semi-regular visitor to Fishermans Bend and was generous in his praise of the team’s abilities. GMA Design was invited to contribute concept sketches for the Avenir, and while Buick had an earlier historical presence in Australia and designers were familiar with the brand, it could be perceived that they lacked the deeper understanding of their American counterparts. However designer Warrack Leach presented a proposal that captured Welburn’s heart and imagination over and above all the others presented, a massive recognition given the circumstances. Leach went on to lead the design execution of the vehicle within the GMA

studios, with the Avenir landing the ‘Best Concept Vehicle’ award at the Detroit auto show. Incidentally, the runner-up was the Chevrolet Bolt EV which was also built in the GMA studios. Previous Holden Director of Design Michael Simcoe, who had succeeded Phillip Zmood, was at the time GM International Design Vice President under Welburn. In a stunning success story, Simcoe was soon to replace Welburn as Vice President of Global Design. He summarized GMA Design’s status when he commented “Avenir and Bolt EV are clear illustrations of the creativity and capability we have in the global design studio in Australia. To have these vehicles recognized on the world stage and to receive not one, but two, awards from our peers is a fantastic achievement and one in which everyone should be immensely proud.”



VT- Coupe Concept 149 in Clay.

Successes such as these, cemented GMA Design’s reputation as a professional outfit with a full range of design capabilities, from concept initiation through advertising-standard imagery and videos to final build of fully-functional models. Local talents such as Andrew Smith and Sharon Gauci accepted high profile design positions at GM North America with others being offered exchange roles around the globe. At the same time designers working in Detroit relished any opportunity to visit GMA and experience the ‘family’ atmosphere along with Melbourne’s culture and climate. GMA Design was entrusted with numerous production and advanced design projects for all of GM’s global brands, many of which have been unveiled to the public while others remain under wraps, perhaps forever. In some cases the concepts were initiated by the local team,



Four cars and dash simulator. As the Holden team gained experience in the late 1960s it became more autonomous and capable of requiring less supervision.

while in others the basic design theme was provided with a considerable amount of refinement and design resolution needing to be undertaken. Production vehicle examples include the Buick Enclave SUV and the 7-Seat Chevrolet Blazer, both for the Chinese market. Those projects required close collaboration with both the US and China design facilities, engineers and suppliers. Two electric autonomous vehicles, the Cadillac Social-Space and Buick Smart Pod, are representative examples of advanced one-off concept models, both employing complex and challenging electro-mechanical functions developed by the team. Cutting edge technology was applied as a matter of course, such as VR glasses which enabled full-size virtual models of exterior and interior designs to be evaluated without the time and expense of clay models. The model data could also be shared between the global studios and be reviewed and annotated simultaneously at both sites from each user's virtual perspective.

The final major project undertaken by GMA Design prior to its closure, along with the Holden brand, in 2020, was a coupe concept for Buick, which was completed by the North American studio and revealed in mid-2022 as the Wildcat EV concept. The discontinuation of local product development was no reflection on the professionalism and passion of the staff, and while its existence was fought hard for by its many supporters at GM's headquarters, it was primarily a decision based on hard financial and global realities in a fast-changing world. Right until the end the 140-strong GM Australia Design team and their engineering colleagues were highly regarded for their expertise in achieving a lot with a little, honed over decades through the necessities of being resident of an isolated nation with a small population. While technology helped reduce the tyranny of distance, the 'can-do' mindset remained and was a source of great pride and camaraderie within the Holden family. This was what most impressed the visitors from



VT- Coupé Concept 149 in Clay.

Michigan and inspired them to apply as much as possible to their own work ethic. In return the Australians were provided greater access to GM's vast knowledge base and shown the benefits of discipline and rigorous application of processes to improve the outcomes for the product and the customer, things the locals were always passionate about.

At first glance, the term 'creative tension' can have a negative connotation. The reconnection of the Australian and North American design studios over the

last three decades of the former's existence certainly resulted in some cultural challenges that needed to be overcome for co-operation in a creative environment to be successful. However, creative tension can be defined positively as an "aid to facilitating creativity and change," which is, after all, what the design process is all about. Each design team brought a unique set of skills and experiences which, when combined and shared, helped write a significant chapter in the story of trans-Pacific automotive partnerships.



The Pontiac GTO in the American Market.



1973 LH TORANA 6 CYL. 4 DR SEDAN CLAY MODEL



1973 LH Torana 6-cylinder 4 door sedan clay model. The Australian team had become more trusted to make knowledgeable decisions for their own successful market.

Women & Automobiles Across Two Continents: An [Unfortunately] Brief Historiography of Women's Automotive Scholarship in Australia and America

by Christine Lezotte PhD.

Since the turn of the twentieth century—and the beginning of the motor age—writers of various persuasions residing in multiple locations have set upon the task of interpreting the automobile's vast and varied history. The first automotive histories—of auto companies, auto industry leaders, and popular accounts of the automobile's impact—appeared in the early 1920s and proliferated over the next 50 years. With only a few precursors, scholarly examinations of automotive history were first published in the late 1960s and early 1970s. Influenced by the cultural turn, historians looked beyond events, individuals, and manufacturers to analyze the automobile's social, economic, and political impact. Combining analyses of industrial developments and cultural influences, scholars employed a variety of new and often unconventional sources to explore how the automobile affected not only those in power, but people at all levels of society.

While these post-1960s automotive histories were successful in acknowledging the automobile as a “way of life, effecting change and influencing cultural values,” they were slow to recognize women as influencers and participants in automotive culture.¹ In her 2002 survey of transport history, British scholar Margaret Walsh noted that for too long, “the subject has had a predominately, if not exclusively, masculine appearance.”² In these accounts, written primarily by men for a male audience, women were often “missing” from automotive history. The absence of women's experience in traditional automotive chronologies created a need from a female perspective to establish a separate yet complementary automotive historiography.

The first historiography of women's automotive history was compiled by Walsh in 2007. In her review, Walsh argued for the necessity of considering gender

when conducting transportation services research. As Walsh asserted, looking at automotive history through a gendered lens produces different, often unexpected perspectives. Feminist scholars, suspicious of traditional concepts of accuracy and impartiality, often reject the “master narrative” of history to ask new questions and stimulate new approaches.³ Thus a gendered approach to automotive history, reimagined as “women's automotive history,” provides an opportunity to uncover pieces missing from the existing historical record. Not all groups were similarly affected by the automobile; women's experiences differed considerably from those of men. Thus, women's automotive history challenges common, masculine-focused perceptions of women's engagement with cars and reveals strategies called upon by female motorists to become recognized as legitimate automobile owners and drivers. It addresses the gendered assumptions built into transportation engineering, planning, and marketing and the way those assumptions have influenced how women as drivers are regarded and portrayed. It goes beyond “exceptional” women in automotive history—industry leaders, product designers, and motorsports pioneers—to consider how everyday women used the automobile, the automobile's impact on women's lives, and women's role in shaping automotive practices and policy. As a subdiscipline of historical studies, it revises current automotive history to include women as drivers and influencers and contributes to a broader understanding of women's presence and involvement in automobile culture. This body of work disrupts common assumptions about women's relationship to the car, and accomplishes what Joan Hoff Wilson defined as a feminist approach to history—“the actual status of groups of women should be described from their point of view and then compared with the



The rise in automobile ownership in early twentieth-century America was accompanied by editorials and imagery that depicted the woman driver as a danger behind the wheel. Although the female motorist was often portrayed in a humorous manner, such images stemmed from very real societal concerns over the effect of women's automobility on long-established ideas and practices (William G. Steward, "When Woman Drives," 10 August 1915, image courtesy Library of Congress, Washington DC).

status usually assigned to them as isolated objects judged exclusively by male standards."⁴

It wasn't until the late twentieth century that five feminist historians—two Americans, one Brit, and two Australians—began the groundbreaking process of writing women into automotive history.⁵ While the recovery of the woman driver from the automotive archives was launched in the United States, Australia emerged as an important and prolific location for the exploration of women's participation in automotive culture. Thus, a combined historiography of both American and Australian women's automotive research is enlightening for a number of reasons. Automotive history scholarship is plentiful on both continents and follows a similar timeline and trajectory. In addition, Australia and America

have highly developed, active, and enthusiastic car communities—i.e. curators, collectors, enthusiasts, car clubs, and popular and academic historians—who have contributed to automotive histories in varied and significant ways.

Considering Walsh's 2007 retrospective as a point of departure, this historiography examines the trajectory of women's automotive history scholarship in both Australia and the United States. It argues that, despite vast differences in the automotive histories of each country, accounts of women's incorporation into the automotive record are remarkably similar. It reveals that, although historical accounts in both Australia and the United States often portray women drivers with the same broad brush, women in each location have called upon unique strategies - influenced by country, culture, and history - to control the narrative and establish themselves as legitimate drivers. Beginning with popular histories of the 1950s, and moving through scholarship of the early twenty-first century, this collective body of knowledge examines the impact of women's automotive history in both locations, considers the manner in which the histories diverge and overlap, and questions how and whether such research has altered the dominant masculine narrative concerning the automobile and car culture.

1950s

Popular histories of the automobile combine interesting sociological observations with industrial history. As Michael Berger noted in his comprehensive reference guide to automotive literature, the rapid rise in automobile ownership and interest during the 1920s generated a proliferation of histories of automobile companies, biographies of auto company founders, and anecdotal observations regarding the automobile's impact on everyday life.⁶ Both Australia and the USA produced narratives of this description during the 1950s. *The Story of Australian Motoring*, published in 1956 and compiled by Keith Winsor, is a collection of essays by various contributors that focus on the automotive histories of different geographical areas on the continent.⁷ The chapters cover many of the same topics, such as first automobiles in the area, pioneers in the field, reliability trials, establishment of automotive companies, manufacturing plants, dealerships, and organizations, car-related innovations, societal effects of the automobile, and early automotive events. The volume also

Manners Maketh the Motorist

A Few Words with the Woman Driver

By H. UNITE-CROSS.

Note that so many women are driving their own cars it is well that they face a few facts. One or two of the things said by the writer of this article will make them a little angry; but his general conclusions are to be agreed with.

MEN have seemingly made up their minds that if women are going to play the motor game there isn't to be any special code of manners favoring the ladies. If fact, some men have made up their minds that there are not going to be any motoring manners at all!

According to Marie Russel Ullman, a motorist of consummate skill, women cannot expect to receive any special consideration or courtesy when driving a car, and there are many who declare that any adherence to the customs requiring preference for ladies when at the wheel is decidedly dangerous to the welfare of the motorists and the general community. At present a sort of atavism prevails in the mind of the woman motorist, and there is little doubt that she expects such consideration as would be meted out to her, as a matter of course, in other phases of life.

Women Drivers' Little Failings.

According to the mere man motorist women drivers commit the following most heinous crimes in the traffic calendar: A corner is invariably cut a little too sharply; an intersection is blithely passed over before the traffic signal is given; her car is usually left too far out from the kerb; in a parking space her car is generally located in the most awkward position. In passing a car, or being passed by a car, women are apt to cut things very fine; they like to see (so it is alleged) who is in the passing car, and thus they fail to allow sufficient room to pass comfortably. At any rate they have the habit of holding too much road and forcing the passing driver to seek the extreme side of the road, and to compel him to provide the provisional margin for safety.

The woman driver is in control of the machine; she is serving the same function

as a man, and therefore, it is claimed, she should wait her turn in parking spaces, at corners, in garages and in the multitude of situations that are the meeting spots for motorists. Ladies are apt to presume upon occasions and expect the right-of-way over the man-controlled car. This, as I have

moment's indecision on the part of a man through a desire to be courteous to a lady may cause a serious accident.

It must be remembered when piloting a car that it is a business, and that those driving have similar objects in view, viz., to get somewhere with the least delay and with due regard to the safety of other motorists and those necessary road evils, pedestrians. Since the law admits no exception on behalf of the lady driver should she be found among those apprehended for a breach of the traffic regulations, she must foot the bill like a man. Such being the case, all persons driving are placed on the same footing, and share the same moral responsibilities; so it behoves the motorist of either sex to obey the law, and by observing such regulations only a uniformity of action will be secured, and no misleading interpretations can then be placed on anyone's intentions. It will be appreciated that if courtesy is to be extended to ladies it will be observed by some but not by others, with a consequent result that confusion will be worse confounded when an unusual traffic situation arises, and in many cases will end in only one way—disaster.

Real Road Courtesies.

Ladies, I trust, will not misunderstand me and accuse me of taking up a false position, because there are manners for motoring just as there are rules for every walk of life. Even prizefighting is conducted under the Marquis of Queensbury's rules, and these, like other guides to conduct, in the last analysis amount to true courtesy, and promote chivalry, too, if they are effectively carried out by all.

First and foremost we must urge on women who motor that it is essential to give correct indications of what is their next move at a turn or a crossing, or when maneuvering for a position in a parking station.

When passing a car where it is apparent

(Continued on page 57.)



Imagine the smiles that would greet such an outfit as this to-day! Yet these two girls were expressing the very last up-to-the-minute twank when the picture was taken twenty years ago. And the motors and millinery of to-day will look just as comical when pictured a score of years hence.

indicated, is due to the ingrained custom—and custom dies hard—of expecting from men the same deference as when meetings occur on foot. But to extend this practice to motordom is dangerous, as a

Much like their American sisters, female motorists in Australia were the frequent subject of negative stereotypes. Australian editorials often offered criticism under the auspices of “advice” to the woman driver. Writes H. Unite-Cross, “women drivers commit the most heinous crimes in the traffic calendar: a corner is invariably cut too shortly; an intersection is blithely passed over before the traffic signal is given; her car is usually left too far out from the kerb; in a parking space her car is generally located in the most awkward position.” (H. Unite-Cross, “Manners Maketh the Motorist: A Few Words with the Woman Driver,” 30 December 1924, 25. *The Australian Woman & Mirror*, *The Bulletin Newspaper*, Sydney, image courtesy National Library of Australia, <http://nla.gov.au/nla.obj-414093603>).

includes many photographs, anecdotes about driving in various states and territories, and commentary regarding the changes brought on by the automobile. In terms of women's participation in automotive history, there are some—often humorous - references to “pioneer” lady motorists, including Miss V. Courtenay Peters, who drove a 14-16 h.p Darracq, Grace Palotta and her Oldsmobile “Miss Floradora,” and female racer Mrs. Thomon, who, in the 1905 Dunlop Sydney-Melbourne contest, lost a point “for getting water in the carburetter [sic].”⁸ Although the inclusion of women in histories of this era is unusual, the female driver is rarely taken seriously. In a chapter dedicated to the “lighter side of motoring,” women's entry into automobile culture is described in this manner: “there still existed women brave enough to take to the sport in face of all its early hardships and disadvantages (especially to the hair, hands, and complexions).”⁹

The final section of “The Vintage Years,” a poem that serves as the volume's introduction, provides a telling commentary of how Australian historians regarded women in automotive culture:

You drove along your blissful way,
And thought, ‘This is the life!’
But even in that distant day,
You recked without the wife.

For then was born the motorists' curse
Our back street driver dame;
Instead of better, she's got worse,
She'll always be the same.

A hundred years from now, I ween,
She will be with us still,
As nagging as she's always been,
‘Watch where you're driving, dill!’

Oh cars may change in shape and look,
So that you'd know them never;
But wives are like the poet's brook,
Yes, they go on forever.¹⁰

Women stereotypes emerged in the early twentieth century as a response to a growing interest in driving among the female population. The fear of women's desire to expand their social and economic horizons through automobility was very real; consequently, critics during this time often used humor to disparage the

driving skills of novice female drivers. While women driver jokes were prevalent throughout the twentieth century, women's designation as “backseat drivers” evolved from gender and power relations within the car. One of the first references to women as backseat drivers appeared in a 1915 article in the New York publication *The Sun*. “Ingenious Devices Joy Riders of To-Day Display” provides the following backseat driver definition: “the sex is generally feminine, and the inspiration is a combination of fear and hope. The backseat driver takes it upon herself to do all the duties of a chauffeur except, of course, run the car, which is a minor matter.”¹¹ Katherine Parkin, in an examination of woman driver stereotypes over the past century, notes how the automobile's introduction in the early 1900s elicited a strong cultural response: women who could not drive were shrews who chose instead to criticize men's driving.¹² As Parkin attests, “the stereotype of women as ‘backseat’ drivers empowered men to mute women's guidance and feedback.”¹³ While the notion of women as backseat drivers is credited with originating in the USA, the inclusion of this poem in the opening chapter of an Australian publication focused on the nation's automotive history suggests the stereotype was, in fact, universal.

Get a Horse!: The Story of the Automobile in America, written by M.M Musselman in 1950, devotes an entire chapter to the woman driver.¹⁴ In “Milady at the Wheel,” Musselman describes the transition from electric to gasoline vehicles as applied to the female motorist. In particular, he attributes the eventual failure of the electric vehicle to its ladylike features—curved plate glass windows, burgundy-colored broadcloth upholstery, ruffled silk curtains, vanity compartments and bud vases - and its designation as the “approved car for well-to-do matrons with numerous chins.”¹⁵ As a result of this association, writes Musselman, “the average man would rather have walked down the street without his pants than drive an electric coupe.”¹⁶ Although women, in fact, were interested in the power and range provided by the gasoline-powered automobile, the press portrayed them as mentally incapable of making the instant decisions necessary at speeds over 25 miles per hour. The notion of women as too flighty, nervous, inept, and timid to handle these gas-powered machines was championed by men who feared women's automobility would not only diminish their femininity but would cause them to abandon the gendered societal roles men relied upon. Even when acknowledging that women viewed



While women were encouraged to drive electric automobiles as a means to keep them close to home, Australian adventurers Gladys Sandford and Stella Christie chose a gasoline-powered Essex 6 for a three-month, 17,600 km cross-country trip, driving East to West and North to South across Australia – and back again. (“Gladys Sandford and Stella Christie in Perth with the Essex 6 they toured around Australia,” 1927, image courtesy Library of Western Australia, 012692PD).

the automobile as a source of emancipation, Musselman questions, if not mocks, women’s driving ability. Commenting on the advent of the electric self-starter, Musselman declares, “When it no longer took muscle to start a car, the ladies quickly commandeered the family bus and the era of the accordion fender and the baffled traffic cop was at hand.”¹⁷ As Berger argues, stereotypes of the woman driver, often tempered through the use of humor, were called upon to limit the number of women on the road as well as to “minimize the impact of the automobile as a vehicle for the liberation of women.”¹⁸

Accounts of early automotive history in Australia and the U.S. such as those offered by Winsor and Musselman represent very different trajectories. America’s automotive narrative is one of early innovation and domination; from the turn of the twentieth century until well into the 1980s, the US was the world’s largest producer of automobiles.¹⁹ U.S. automotive histories often reflect the entrepreneurial spirit of an emerging industry,

with focus on the individuals and manufacturers responsible for America’s ascension in the automotive market. Although there were a few small-scale auto manufacturers in Australia at the start of the twentieth century, the cars found on the road were primarily American and British imports, or U.S. cars manufactured in Australian factories. Consequently, Australian automotive accounts often reflect the dichotomy in sentiments surrounding the motor car—embraced as the “ideal” means to discover the “real” Australia in outback and rural regions or resisted for the “new technology and irreversible transformations it wrought.”²⁰ Yet despite dissimilarities in the respective automotive chronologies, negative stereotypes applied to women drivers had few geographical boundaries. While national variations often colored how Australians and Americans embraced the automobile, the categorization of women as inept, foolish, skittish, and mentally challenged behind the wheel was universal.



Adventurous American women also took part in cross-country road trips. Rather than view the automobile as merely a respectable means to shop and make social calls, American suffragettes Alice Burke and Nell Richardson relied on a 1916 Saxon, referred to as the “Golden Flyer,” to drive across the United States and generate support for the female vote. (“Suffragettes – Mrs. Alice Burke and Nell Richardson in the suffrage automobile ‘Golden Flyer’ in which they will drive from New York to San Francisco,” 7 April, 1916, image courtesy Library of Congress, Washington DC).

1960s – 1970s

The first social histories of the automobile started to appear in the mid-1960s. Berger and his contemporaries recognized John B. Rae’s *The American Automobile: A Brief History*—published in 1965—as “the first scholarly treatment that combines in a single volume an analysis of the social, economic, and political dimensions of the subject.”²¹ The book not only deals with automobile manufacturing and its internal dynamics, but also with the automobile and its broader context—the automobile’s impact on American society. While Rae’s account was often critiqued as overly optimistic, it legitimized automotive history as a field of serious study.

In *The American Automobile*, Rae examined the social impact of the automobile—its influence on manners, customs, and living habits—in the context of a “hypothetical individual.” This “individual” was always gendered male; as Rae notes, “he lived in a metropolitan area and most likely in a suburb; he owned an automobile; he and his family were almost completely dependent on their car for transportation beyond walk-

ing distance, or frequently within walking distance.”²² Women represented over 40% of registered drivers in the U.S. at the time *The American Automobile* was published; however, Rae only acknowledges them as housewives.²³ In fact, “woman” does not appear in the index nor is the term ever used in print. The automobile, suggests Rae, allowed women to perform tasks necessary to the smooth running of a suburban household while men earned the family income in the city. While Rae recognizes the importance of the automobile to women’s domestic lives, he does so somewhat disparagingly. As he exclaims, “Since the husband and father spends most of his day elsewhere, Suburbia is definitely a matriarchy. This social phenomenon may be ranked as one of the major consequences of the automobile.”²⁴ In *The American Automobile*, Rae does not consider the automobile as a source of emancipation or empowerment for women but rather as a domestic technology necessary to women’s cultural role.

The first social history of the Australian automotive industry was published in 1969. John Goode’s *Smoke, Smell, and Clatter* combines general automotive and motorsports history with analysis of the automobile’s effect on Australian culture.²⁵ Goode relies on historical photographs and illustrations from automotive sources and his personal collection as well as archival accounts and anecdotes to address how the automobile impacted the Australian way of life, including leisure, work, production, sport, family, and habits. Goode refers to those who drove vehicles “notorious for their smoke, smell, and clatter” as pioneers who through determination and grit ensured that motor vehicles became “a form of transport for everyone.”²⁶ The “pioneers” in Goode’s account include both men and women; singled out is Mrs. H.W. Holmes, who with a partner completed and successfully ran the first petrol car to be built in Australia.

Not only does “woman” appear in the book’s index, but Goode devotes a section to women’s influence on car buying. Unlike Rae, he does not present women solely as sharers of the family automobile; rather, he references both homemakers and businesswomen as major car buyers. As he exclaims, “High wages and easily obtained high-purchase finance made it possible for even an office typist and other working women to become car owners”; Goode speaks of female consumers as “a group with minds of their own.”²⁷ Although Goode does occasionally cast women as obstacles to men’s automotive habits, the female motorist is most often presented as an individual with agency rather

than a male appendage, which in retrospect was quite revolutionary in mid-century automotive histories on any continent.²⁸

1980s

The first histories of women's participation in car culture came not from automobile literature but from the field of technology studies. In 1983, Ruth Schwartz Cowan—writing about changes in household technology during the period of US industrialization—included the motor car in her examination.²⁹ Prior to the introduction of the mass-produced Model T in 1908, automobiles—both rare and costly—had been primarily playthings for the idle rich. Shopping and the transporting of goods and persons took little time, and a large part of that time was spent by men and servants. Industrialization altered the makeup of the home; as separate sphere ideology took hold women became solely responsible for household chores which included the transportation of goods and children.³⁰ As Cowan articulates, “the automobile had become, to the American housewife of the middle classes [...] the vehicle through which she did most of her significant work, and the work locale where she could most often be found.”³¹ Rather than making life easier for the middle class woman, argues Cowan, the automobile significantly increased women's workload.

James Flink's *The Automobile Age*, published in 1988, is often considered the most influential automotive history of its time.³² Concentrating primarily on the U.S. industry, but also incorporating an international perspective, Flink offered both a critical survey of the development of automotive technology and the automotive industry and an analysis of the social effects of automobility on workers and consumers. Flink's overarching objective in *The Automobile Age* was to illustrate how the automobile transformed American life.

Flink does include women in his investigation, as he offers insights on the ways automobiles intersected with women's lives. Like automotive writers of previous generations, Flink cites women's (presumed) preference for the silent, odorless electric and argues that subsequent concessions to comfort and convenience in automobile design were made with the female motorist in mind. While Flink, unlike Rae, devotes more than a few paragraphs to women's automobile use, it is within the context of women's roles as wives and caretakers. He often refers to women in the singular as “Mother,”

which suggests the importance of cars to women was as domestic technologies rather than any source of pleasure or work transportation. As noted by Joseph Corn in his review of *The Automobile Age*, those looking to Flink for insights on the ways automobiles intersected with women's lives will find provocative and defensible assertions, “but they will also be frustrated because he devotes only two pages to the topic.”³³

What is perhaps most significant in Flink's assessment of the female automotive consumer is his citation of Ruth Schwartz Cowan's scholarship. This is most likely the first instance of a male automotive historian including and acknowledging the contribution of a feminist scholar. Flink's assertion that “cars have probably had a greater impact on women's roles than on men's,” therefore, is not to be taken solely in a positive manner, as might be implied on first glance, but regarded in the context of Cowan's work—that the availability and popularity of the automobile made women's lives more difficult in many ways.³⁴ Although *The Automobile Age* can be criticized for its predictable view of the female motorist, it can also be commended for taking the contributions of a female historian seriously.

The next major automotive history to come out of Australia was *A Nation on Wheels: Australia and the Motor Car*, authored by Shane Birney and published in 1984.³⁵ It is an oversized volume filled with a great number of photographs and advertisements. As such, it has important value as a photographic history of the automobile in Australia. The book was originally promoted as “the story of the great Australian love affair with the motor car and the histories of the giants of car building in Australia.”³⁶ The many photographs provide visual evidence of the automobile's influential role in Australian life and culture. While the book includes many examples of men's relationship to the automobile—as participants in auto organizations, motorsports, reliability trials, muscle car culture, and car modification—the female motorist is never mentioned in the narrative.

As a book dominated by photographs, *A Nation on Wheels* features many images that include women. Women appear in photographs of reliability trials (in the back seat); in advertisements posed next to the car; seated next to male companions; as models at the 1960 auto show; with children at family car gatherings; or as fashion accessories. However, the women are not identified and are positioned primarily as passengers and enthusiastic spectators, never as drivers.³⁷ In his



By the 1930s, the American housewife's traditional job description gained a new category: chauffeur. As Ruth Cowan asserts, "the suburban station wagon is now 'Mom's Taxi.'" ⁶⁸ (Angelo Rizzo, "Woman Driving Car with Sunglasses and Hair Covered with Bandana," 1957, image courtesy Library of Congress, Washington DC).

examination of automotive youth culture Birney asserts, "a typical driver was a male in his twenties who drove with one hand draped over the wheel, his body slumped against the door and the other arm protruding from the window—more often than not a girl beside him."³⁸ Birney's book would have one believe that in the mid-1980s, Australian automobile culture was an exclusive male domain, where women were invited to observe but not participate. In terms of women's automotive history in Australia, it is a significant step backward from the work produced by John Goode 15 years earlier.

1990s

In 1988, *The Car and the City*, a symposium organized by Martin Wachs and Margaret Crawford, provided a forum for rising voices in the field of women's automotive history. In the book of the same name that incorporated many papers from that conference, two essays are especially notable for their focus on women's

engagement with the automobile in both a cultural and historical setting.³⁹ In "Men, Women, and Urban Travel: The Persistence of Separate Spheres," Wachs—a professor of urban planning - applies Cowan's work in technology studies to consider how gender influenced urban travel. In his analysis of men's and women's segregated travel patterns, making note that women experience the relationship between the car and city differently than men, Wach asserts, "the automobile is one of the most 'gendered' aspects of American urban life."⁴⁰ Taking the notion of gender and automobiles one step further, Virginia Scharff, in "Gender, Electricity, and Automobility," addresses the critical role "ideas about maleness and femaleness have played in the making of the car culture and the engendering of automobile design."⁴¹ The argument that manufacturers' notions of masculinity and femininity shaped how cars were and continue to be created was a revolutionary concept that subsequently influenced Virginia Scharff's future contributions to women's automotive history.

In the development of the conference essay into *Taking the Wheel: Women and the Coming of the Motor Age*, Scharff produced groundbreaking scholarship that revisited and challenged male automotive history by placing the female motorist at the center of the investigation.⁴² In *Taking the Wheel*, Scharff offers a detailed social and cultural analysis of how automotive decision makers called upon gender—what Cowan and Wach introduced as separate sphere ideology - to shape the production and marketing of the motor car as a means to separate women's automobile use from that of men. Scharff convincingly disputes many of the gendered assumptions applied to early female motorists; in particular, she dismisses the notion that the majority of driving women preferred the quiet, clean, slow, expensive, and limited-range electric over the noisy, dirty, fast, powerful, and capable-of-long-distance-runs gasoline-powered automobile.⁴³ The author also maintains that while the automobile was often called upon in the performance of domestic tasks, it was also successfully used as a tool for group advancement—primarily in the suffrage cause - as well as in women's work or pleasure as professional racers, cross-country tourists, and during WWI, as mechanics, teamsters, and ambulance drivers. As reviewer Warren Belasco noted, “besides providing historical context for the enduring woman driver stereotype, Scharff's narrative sheds new light on the ‘masculine creation myth’ of the early automotive industry.”⁴⁴

While Scharff's work focused primarily on white urban women, Katherine Jellison, in 1998, turned her attention to how women used cars in farming communities. In *Entitled to Power: Farm Women and Technology, 1913-1963*, Jellison calls upon sources such as advertising and women's correspondence to illustrate how patriarchal farming culture framed women's automobile use.⁴⁵ Unlike women in the city, rural women were encouraged to drive as part of their expected role within the family. While men worked in the fields, women drove into town for tractor parts and supplies; like their city sisters, they were also responsible for transporting children and for purchasing consumer goods for the family, often driving great distances to do so. However, rather than an emblem of independence, insists Jellison, rural women's extensive automobile use “was a symbol of the extent to which women's activities were defined by their place within the patriarchal family.”⁴⁶ It was only when women were not using cars in family service could they get behind the wheel for personal means, such as

attending club meetings or visiting relatives in distant communities. While the investigations focused on very different cultures, Scharff and Jellison brought attention to how gender was often called upon to manage or constrain women's car use.

Kimberley Webber, in a chapter written for the Powerhouse Museum publication *Cars and Culture: Our Driving Passions*, looked to motoring journals, automotive advertisements, and women's autobiographies to inform her investigation of women's early automobile use in Australia.⁴⁷ Such resources, Webber contends, suggest a dichotomy between how the automotive industry viewed the female motorist and how women actually experienced the automobile.

Much like in the United States, the electric—with its slow speed and limited range—was promoted by manufacturers as the women's car. Advertised as the “vehicle of the home,” Australian marketers called upon gender prescriptions to position the electric as a natural extension of a woman's domestic life.⁴⁸ However, as Webber points out, Australian motoring journals of the early 1900s reveal a conflicting sentiment. Women's pages in *The Motor* and *Australian Motorist* reveal that most women were not, in fact, looking for the safety and luxury offered in electric vehicles, but turned to the internal combustion engine for speed, power, and independence. As Webber argues, while advertised as the perfect car in which to do some shopping and make social calls, “the electric could be guaranteed not to carry the women of the household beyond acceptable boundaries into the great outdoors.”⁴⁹ Thus despite the efforts of manufacturers and marketers to direct women toward a vehicle that ensured the female motorist “would not stray too far,” Australian women—much like those in America - rejected the electric in favor of the gasoline-powered automobile.⁵⁰ Webber's research contributes to the argument that, despite differences in automotive history and culture, women's automotive participation in Australia and the US was similarly influenced by notions of proper femininity and fear of what women might do with the autonomy and freedom promised by automobility.

2000s

The influence of Scharff and Webber is evident in feminist scholarship produced at the turn of the twenty-first century. Margaret Walsh, a Brit who received graduate degrees in the U.S., produced several works

that moved beyond the early years of automobility to address women's car use in post war America. Walsh was well known for her work in transportation history; in 2002 she authored a historiography of transportation services—including the automobile—through a gendered lens.⁵¹ A subsequent “by chance” web-based project for the Henry Ford in Dearborn, Michigan, provided Walsh with the opportunity to further engage in scholarship on a subject that was—at the time—virtually non-existent.⁵² After the success of this project, Walsh went on to publish a number of journal articles devoted to the history of women and automobiles in the US.⁵³ In these accounts, Walsh notes how women's return to domesticity after World War II reinstated the gendering of automobility initially promoted in the early auto age. While marketers in the early twentieth century promoted the electric as the woman's car for its feminine attributes and limited range, post war advertisers discovered a growing market in the suburban woman, who viewed the automobile as “the ideal way in which she could fulfill her multi tasks as modern mother, wife, and worker.”⁵⁴ In this series of articles, Walsh moves beyond the 1950s to consider how women's changing automotive preferences were ignored by American automakers, which allowed imports to successfully break into the U.S. market. Walsh effectively picks up the strands recovered by Cowan and Scharff to contribute to the chronology of American women's car use over the later twentieth century as well as to examine how the male-controlled automotive market continues to limit and qualify women's automotive use. A dedicated and determined researcher, Walsh relied on both primary and secondary sources—printed material, advertisements, federal government documents, qualitative data, policy documents and reports—to construct fascinating accounts of the woman driver during a particular era of American life. In doing so, she challenged and revised the male automotive narrative.

It was during the twenty-first century's first decade that Australian scholar Georgine Clarsen embarked on an expansive project that addressed women's early engagement with the automobile in multiple locations.⁵⁵ In *Eat My Dust: Early Women Motorists*, Clarsen relies on newspaper articles, travel journals, advertising imagery, and oral histories to piece together stories of women's automotive experiences in her native Australia, Britain, British colonial Africa, and the USA.⁵⁶ Through these narratives, Clarsen brings attention to the commonality of experiences of women whose automotive interest and knowledge were continually questioned and ridiculed,

as well as broader differences in how women's roles in automotive culture were defined by geography and national identity. While women's struggle to be recognized as competent and knowledgeable motorists had been addressed by Scharff, Webber, and Walsh, Clarsen breaks new ground as she distinguishes British, American, and Australian women's automotive participation. Rather than addressing Australian women's automobility in isolation, Clarsen notes how women's automotive motivation in Britain was precipitated by a loosening of gender roles; American women's engagement was often as consumers; whereas Australian women's motoring functioned as a form of nation building. What is particularly noteworthy in this volume is Clarsen's unapologetic discussion of race, a topic that has been seriously underexplored in traditional treatments of automobile history and culture.

Since the book was published in 2008, Clarsen has contributed additional investigations into women's automobile histories as well as treatises on the importance of considering automotive history through a gendered lens.⁵⁷ In these examinations, Clarsen pays particular attention to the role of the automobile in meaning-making. As she declares, “women's active engagement with automobiles were not simply paler copies of men's, but were constitutive of notions of what a car is and how it might be used, and of the social meanings and bodily experiences of femininity. They also expressed alternative visions of hegemonic national car cultures.”⁵⁸ Clarsen's extensive scholarship is valuable not only as a source of knowledge regarding the early woman driver, but also for how it calls upon women's relationship to the automobile to frame debates about class, gender, sexuality, race, and nation.

One of the most recent contributions to women's automotive history includes Judith Glover and Harriet Edquist's 2015 survey of current research into the Australian automobile industry.⁵⁹ Through the investigation of women's automotive experience in the early decades of the twentieth century—women as drivers and mechanics, their opportunities as production workers, and as designers and engineers—Glover and Edquist have effectively built on the research of fellow Australians Kimberley Webber and Georgine Clarsen to bring awareness to the various ways women have engaged with the automobile. In “Women in the Early Australian Automotive Industry: A Survey,” Glover and Edquist bring together varied sources—photographs, newspaper articles, mail correspondence, RACV archives, online

resources, automotive forums, journal articles, dissertations, and automotive design archives and publications—to recover Australian women from automotive obscurity and to bring attention to how women experienced automobility as workers and drivers.

Glover and Edquist examine women's efforts to become recognized as legitimate drivers through long distance auto tours and participation in the growing sport of auto racing. Both automotive activities provided opportunities for women to gain proficiency not only as drivers, but as mechanics as well. The authors cite Clarsen's argument that the media's fascination with female drivers "criss-crossing" the continent was an important component of nation-building as well as a means to present Australia as modern and civilized.⁶⁰ In this most recent offering, Glover and Edquist move beyond existing research to offer a detailed and comprehensive examination of the female motorist's engagement with the automobile as well as insight into Australian women's determined and persistent endeavors to contribute to the growing automotive industry as mechanics, production workers, engineers, and designers.

In *Women at the Wheel*, published in 2019, Katherine Parkin combined disparate parts and pieces from a variety of sources—advertisements, government records, women's publications, popular music, newspaper comics, television, marketing literature, and historical documents—to construct an interesting and insightful amalgam of American women's involvement with the automobile. Parkin effectively assembled these resources to illustrate how the male-dominated automotive industry and cultural forces worked to stereotype and diminish the woman driver from the beginning of the motor age until the present day, as well as to demonstrate how these clichés have little basis in reality. While the gendered nature of automobile culture is how the majority of feminist scholars frame women's automotive history, Parkin takes that approach a step further as she delves into topics that, as reviewer Ella Howard notes, are somewhat "less predictable."⁶¹ For example, Parkin addresses the dangers women often faced when confronted by police officers whose actions could be described as predatory if not criminal. On a more positive note, the author reflects on how the women's movement served as impetus for the formation of women-only automotive repair establishments.

Through the use of interdisciplinary materials—a combination of archival and library resources with Internet and popular culture sources - Parkin goes

beyond traditional research methods, which serves to expand interest beyond academia to a wider audience. The voluminous array of sources Parkin accumulated come together to offer a complete picture of the kinds of challenges women experienced in buying, driving, and maintaining an automobile. In doing so, writes Howard, Parkin reminds readers "that the history of women and cars is really that of women and power."⁶²

Today and Beyond

As this brief examination argues, traditional accounts have been slow to consider women as significant actors in automotive history. Part of this failure is due to a reluctance to consider gender as a legitimate category of analysis; the masculinity long associated with the automobile and its industries has perpetuated a method of inquiry with a limited, often determinedly male-focused perspective. However, as Walsh asserts, considering automotive history through the lens of gender "moves more towards reality by recognizing the different circumstances of the sexes make women and men feel and identify with events and views in different ways."⁶³ Scholars of women's automotive history have not only uncovered numerous and varied examples of women's automobile use, but have underscored the multitude of meanings women apply to the automobile and the driving experience that often differ from those of male counterparts. These analyses do not negate or diminish men's experience; rather, as Walsh notes, "they modify the subject area by placing women in the center or in a relational situation with men."⁶⁴

Considering automotive history through the lens of gender—as demonstrated in this brief historiography - has provided new avenues to pursue in the recovering of women's automobile participation and practice. It redirects the focus from automotive production to automotive consumption. While Rae and Flink briefly acknowledged the effect of female automotive use on everyday life, it was and continues to be feminist scholars of automotive history—including Cowen, Scharff, Walsh, Webber, and Clarsen—who brought important recognition to female automotive consumerism and its tremendous influence and impact on automotive marketing and production decisions. Secondly, a gendered lens uncovers the longstanding methods and means by which women's automobile use has been ridiculed and undermined. As evidenced by the examples referenced here, automotive histories—whether emanating from Australia



*American women were not alone in their dependence on the automobile for the performance of household tasks. Female motorists in Australia also called upon the family car for the domestic responsibilities of grocery shopping, transporting children to and from school, and what Walsh refers to as “trip chaining,” or stopping to do domestic errands on the way to and from work.”*⁶⁹ (Boon Loo, “Knox Shopping Centre,” 1992, image courtesy of Pictures Collection, State Library, Victoria, H93/40/65).

lia or the USA—often regarded women’s relationship to the automobile in much the same stereotypical manner. The portrayal of women as backseat drivers, or as inept, timid, unskilled, and unknowledgeable motorists appears to have few geographical boundaries. Such universal treatment suggests the ingrained masculinity associated with the automobile and its industries effectively overrides the vast cultural and historical differences between the two nations. Feminist historians of the automobile have challenged and altered that perception. Thirdly, observing automotive history from a gendered perspective not only presents the commonalities among female drivers in both Australia and the United States, but also considers how geography and nation influence women’s automobile use. Such accounts pay particular attention to how women in each country relied upon unique strategies to establish themselves as rightful drivers.

Without an established archive to draw upon, feminist scholars have relied on new, varied, and interdisciplinary resources to construct innovative if not pioneering histories of women’s relationship to the automobile. Through the examination of automobile history through a gendered lens, these accounts challenge, revise, and provide a necessary counterpoint to the dominant masculine narrative concerning the automobile and car culture. Contemporary automotive scholars—including John Heitmann in the U.S., and Australia’s Graeme Davison—have recognized the scholarship of feminist historians such as Cowan, Scharff, Webber, and Clarsen and incorporated it into their respective works.⁶⁵

Yet while women’s automotive history slowly gains recognition as an important subject of study, additional work needs to be done. Women of color are noticeably absent from the literature, as are indigenous women and women of the working class. While societal and ethnographical studies of women’s involvement with cars have started to make an impact, there are dozens of untapped female automotive cultures waiting to be explored.⁶⁶ Writing in 1983, Charles Sanford challenged scholars to remedy the lack of literature addressing the relationship between women and the automobile. As Sanford wrote, “what is needed is both an intimate feminine viewpoint from several perspectives about women’s experience with cars and fairly objective, even statistical, studies of the same experience.”⁶⁷ Perhaps this brief historiography will serve as an impetus to automotive historians everywhere to consider the participation of over half the population of drivers, and to include the actions and influence of the female motorist in present and future histories of the automobile.

(Endnotes)

1 Michael Berger, *The Automobile in American History and Culture: A Reference Guide* (Westport CT: Greenwood Press, 2001).

2 Margaret Walsh, “Gendering Transport History: Retrospect and Prospect,” *The Journal of Transport History*, Vol. 21, No. 1 (2002): 1-8, 1.

3 Margaret Walsh, “Gender in the History of Transportation Services: A Historiographical Perspective,” *Business History Review*, Vol. 81 (2007): 545-562, 549.

- 4 Joan Hoff Wilson, "The Illusion of Change: Women and the American Revolution" in *The American Revolution: Explorations in the History In American Radicalism*, ed. Alfred F. Young, (Dekalb: Northern Illinois University Press, 1976), 383-446, 386.
- 5 Americans include Ruth Schwartz Cowan in 1983 (see *More Work for Mother: The Ironies of Household Technology for the Open Hearth to the Microwave*, (New York: Basic Books, 1983)), followed by Virginia Scharff in 1992 (see *Taking the Wheel: Women and the Coming of the Motor Age*, Albuquerque: The University of New Mexico Press, 1991). Margaret Walsh, a British scholar, wrote extensively on transport history during the 1980s (see "Gendering Transport History: Retrospect and Prospect" and "Gender in the History of Transportation Services: A Historiographical Perspective") before shifting focus to American women's post war automobile practices (see "Gender and Automobility: Selling Cars to American Women after the Second World War" in *Journal of Macromarketing*, Vol. 31, No. 1 (2001): 57-72 and "At Home at the Wheel? The Woman and Her Automobile in the 1950s," Eccles Lecture, *British Association of American Studies Conference*, (2006): 1-21, The British Library). Kimberley Webber was the first Australian to incorporate gender in discussions of automotive culture and history (see "Women at the Wheel" in *Cars and Culture: Our Driving Passions*, ed. Charles Pickett (Sydney: Powerhouse Publishing, (1998): 86-103); Georgine Clarsen soon followed in 2000 (see "'The Dainty Female Toe' and the 'Brawny Male Arm': Conceptions of Bodies and Power in Automobile Technology", *Australian Feminist Studies*, Vol. 15, No. 32 (2000): 153-163.)
- 6 Berger, *The Automobile in American History and Culture*, 3.
- 7 Keith Winsor, comp., *The Story of Australian Motoring: The Complete History of Motoring, from the First Horseless Carriages to Our Cars of Today*. (Melbourne: Motor Manual, 1959). Winsor lists the book's contributors in the acknowledgements; however, while some chapters are attributed to specific individuals, others are not. Those who may or may not have authored the cited chapters are: the Royal Auto Clubs, Mrs. H.W. Holmes (daughter of Col. Harley Tarrat), Mrs. Howard Lewis (wife of the late W.H. Lewis), Mr. Harry B. James, Mr. Steward Ross, and "the various oil companies, tyre companies, and car manufacturers," 7.
- 8 Davies, Herbert, "The Motoring History of Victoria" in *The Story of Australian Motoring*, 47-79, 79.
- 9 "Down Memory Lane – Looking Back" in *The Story of Australian Motoring*, 231-238, 231.
- 10 "The Vintage Years" in *The Story of Australian Motoring*, 8-9.
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- 12 Katherine Parkin, *Women at the Wheel: A Century of Buying, Driving, and Fixing Cars* (Philadelphia: The University of Pennsylvania Press, 2019).
- 13 Ibid., 2.
- 14 M.M. Musselman, *Get a Horse! The Story of the Automobile in America* (Philadelphia: J.B. Lippincott Company, 1950).
- 15 Ibid., 243.
- 16 Ibid., 241.
- 17 Ibid., 247.
- 18 Michael Berger, "Women Drivers!: The Emergence of Folklore and Stereotypic Opinions Concerning Feminine Automotive Behavior," *Women's Studies International Forum*, Vol. 9, No. 3 (1986): 257-263, 259.
- 19 See Pilot Guides, "History of the American Car Industry," <https://www.pilotguides.com/articles/american-car-industry/> [accessed February 10, 2023].
- 20 Rosemary Kerr, "Through the Rear View Mirror: Landscapes, Legends, and Literature on the Australian Road," *Studies in Travel Writing*, Vol. 17, No. 2 (2013): 188-206, 188.
- 21 Berger, *The Automobile in American History and Culture*, 3. See also David N. Lucsko's "John Bell Rae and the Automobile: 1959, 1965, 1971, 1984" in *Technology and Culture* Vol. 50, No. 4 (Oct. 2009): 894-914; and Margaret Walsh's "Gender and the Automobile in the United States," *Automobile in American Life and Society*. University of Michigan-Dearborn (2004-2010), http://www.autolife.umd.umich.edu/Gender/Walsh/G_Overview.htm [accessed February 10, 2023].
- 22 John B. Rae, *The American Automobile: A Brief History*. (Chicago: The University of Chicago Press, 1965), 219.
- 23 See Margaret Walsh, "Gender and Automobility: Selling Cars to American Women after the Second World War."
- 24 John Rae, *The American Automobile*, 227.
- 25 John Goode, *Smoke, Smell and Clatter: The Revolutionary Story of Motoring in Australia*. (Melbourne: Landsdowne Press, 1969).
- 26 Ibid., 2.
- 27 Ibid, 77.
- 28 The 1970s also produced *Woman at the Wheel*, a collection of automotive advice columns taken from *Woman's Day* magazine compiled by Australian spouses Dolores and Pedr Davis. While the book serves an important historical resource on women's automotive use during this period, its lack of analysis and documentation precludes it from consideration in this historiography. See Dolores and Pedr Davis *Woman at the Wheel* (Sydney: Angus & Robertson, 1974).
- 29 See Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technology for the Open Hearth to the Microwave*.
- 30 Separate spheres ideology – practiced in nineteenth century America and revived during the Industrial Revolution - is centered on the notion that men and women "naturally" inhabit distinct and separate worlds. The public sphere – as the domain of men - consists of work, politics, and business; women's private sphere is one of domesticity - the care of children and moral guardianship of family in the home. See Linda Kerber's "Separate Spheres, Female Worlds, Woman's Place: The Rhetoric of Women's History," *The Journal of American History*, Vol. 75, No. 1 (June 1988): 9-39.
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- 32 James J. Flink, *The Automobile Age* (Cambridge: The MIT Press, 1988).
- 33 Joseph J. Corn, review of *The Automobile Age*, by James J. Flink, *Technology and Culture*, Vol. 30, No. 4 (Oct. 1989): 1066-1067, 1067.
- 34 Flink, 162.
- 35 Shane Birney, *A Nation on Wheels: Australia and the Motor Car* (Sydney: Dreamweaver Books, 1986).
- 36 Motor Book World review of *Australia on Wheels: Early Years to 1984* [formerly published as *A Nation on Wheels*], <https://>

www.motorbookworld.com.au/product/australia-on-wheels-early-years-to-1984-nation-on-wheels-by-birney/ Accessed February 11, 2023.

37 I was excited to discover a photograph of a woman who appeared to be in the driver's seat of a 1963 Dodge Phoenix, only to remember that unlike American automobiles, Australian vehicles are right-hand drive.

38 Birney, 227.

39 Martin Wachs and Margaret Crawford, eds. *The Car and the City: The Automobile, The Built Environment, and Daily Urban Life* (Ann Arbor: The University of Michigan Press, 1992).

40 Martin Wachs, "Men, Women, and Urban Travel: The Persistence of Separate Spheres" in *The Car and the City: The Automobile, The Built Environment, and Daily Urban Life*, eds. Martin Wachs and Margaret Crawford, (Ann Arbor: The University of Michigan Press, 1992), 86-102, 86.

41 Virginia Scharff, "Gender, Electricity, and Automobility" in *The Car and the City: The Automobile, The Built Environment, and Daily Urban Life*, eds. Martin Wachs and Margaret Crawford, (Ann Arbor: The University of Michigan Press, 1992), 75-85, 75.

42 See Scharff, *Taking the Wheel: Women and the Coming of the Motor Age*.

43 One of the most persistent arguments regarding women's preference for the electric – in automotive histories and museums – is that Henry Ford, the dominant manufacturer of gasoline-powered automobiles, purchased an electric car for his wife Clara. Scharff raises the question of whether the electric was requested by Mrs. Ford, or if, in fact, Henry hoped to restrict his wife's motoring through insistence on the low-powered electric vehicle.

44 Warren Belasco, review of *Taking the Wheel: Women and the Coming of the Motor Age* by Virginia Scharff, *The Journal of American History*, Vol. 78, No. 4 (Mar 1992), 1480-1481, 1480.

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46 Ibid., 124.

47 See Kimberley Webber, "Women at the Wheel."

48 Ibid., 88.

49 Ibid., 88.

50 Ibid., 88.

51 See Walsh, "Gender in the History of Transportation Services: A Historiographical Perspective."

52 See Walsh, "Gender and the Automobile in the United States."

53 These include but are not limited to: "At Home at the Wheel? The Woman and Her Automobile in the 1950s" published in 2007; "Gender and Automobility: Selling Cars to American Women After the Second World War, published in 2009; and "Gender and American Mobility: Cars, Women, and the Issue of Equality" published in 2015.

54 Walsh, "At Home at the Wheel? The Woman and Her Automobile in the 1950s", 3.

55 Clarsen's first investigation into the relationship between gender and automobility was "'The Dainty Female Toe' and the 'Brawny Male Arm': Conceptions of Bodies and Power in Automobile Technology", *Australian Feminist Studies*, Vol. 15, No. 32 (2000): 153-163.

56 See Clarsen, *Eat My Dust*.

57 See "Machines as the Measure of Women: Colonial Iron in

a Cape to Cairo Automobile Journey", *The Journal of Transport History*, Vol. 29, No. 1 (2008): 44-63; "The Flip Side: Women on the Redex Around Australia Reliability Trials of the 1950s", *Humanities Research*, Vol. 17, No. 2 (2011): 17-36; "Gender and Mobility: Historicizing the Terms," *Mobility in History: The State of the Art in the History of Transport, Traffic, and Mobility*, eds. Gijs Mom, Gordon Pirie, and Laurent Tissot, (Switzerland: Editions Alphonse – Presses Universitaires Suisses, 2009), 235-241.

58 Clarsen, "Gender and Mobility," 240.

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63 Walsh, "Gendering Transport History", 2.

64 Ibid., 5.

65 See John Heitmann, *The Automobile in American Life* (Jefferson NC: McFarland & Company, 2009, 2018); and Graeme Davison with Sheryl Yelland, *Car Wars: How the Car Won Our Hearts and Conquered Our Cities* (Crows Nest: Allen and Unwin, 2004).

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68 Cowan, "Less Work for Mother," in *American Heritage Magazine*, Vol. 36, No. 6, Sept/Oct 1987, <http://www.americanheritage.com/content/less-work-mother> Accessed February 22, 2023

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Cooperation and Competition

How Packard, Studebaker, Nash, and Hudson, faced each other, and the “Big Three,” during the 1950s

by Stuart R. Blond

(Adapted from “Spellbinder – The Life of James J. Nance”)

Mr. Mason’s Plan

George Mason’s career in the automotive industry started around 1907 at his local Maxwell garage. By 1928, he was running the Kelvinator Corporation, manufacturer of home appliances. In 1936, Mason was approached by Charles Nash, who wanted Mason to join him at Nash Motors and, ultimately, to run the company. Mason did not want to leave Kelvinator. So, to get his man, Nash bought Kelvinator.¹

With Nash installed as chairman, and Mason as president of the now-merged Nash-Kelvinator Corporation, N-K thrived in the 1930s and 1940s. The far-sighted Mason knew that, after World War II ended, the landscape would change for automakers. According to *Fortune* in 1954: “George Mason appeared to be the only executive among the independent [automakers] who foresaw clearly what could happen to them in a fully competitive market. He realized that they had been favored by the government under the postwar material control plans, and that their huge percentage of the market was unrealistic... He believed independent sales in a free market would drop substantially before they would rise again to six or seven million units.”²

Mason also knew: “...that only a merger would save the independents during the time before the new plateau was reached. But, when times were good, no one was interested in his ideas. Only [George] Romney [Mason’s right-hand man], it seemed, understood what the boss perceived. In 1949, he prepared a report for Mason saying: “If future merger on any scale is going to be necessary, merger now while companies are financially strong would be the soundest course. Waiting until others are weakened may find all too weak financially to survive in the competitive car market.”

Romney noted that even under ideal circumstances, the merger of huge corporations took years, and that if companies waited until they were in trouble to begin mergers, it might well be too late.”³



Charles W. Nash and George W. Mason in 1947. Nash recruited Mason in 1936 by merging Kelvinator Corporation with Nash Motors. (Used with permission of the Nash Car Club of America.)

Mason almost pulled off a Nash-Kelvinator / Packard merger in 1948. On February 3rd of that year, at Packard’s Board of directors meeting, Mason, supported by Packard’s chairman Alvan Macauley, proposed a takeover of Packard by N-K through a stock swap: six shares of Packard shares for one share of N-K. Charles Nash would take over as chairman of the merged company and Macauley would retire. Mason would become president and Packard’s current

president, George Christopher, would retire. After the motion was “duly supported” and fully discussed, it was “declined” by Packard’s Board.⁴ “We might have been agreeable to a 55 to 45 per cent arrangement,” Packard’s Hugh Ferry later said, “but this would have been 66-2/3 to 33-1/3 in favor of Nash.” Mason insisted that this was just his first offer; he was never given the opportunity in 1948 to present another one.⁵

Origins of the Big Four

James J. Nance took over the presidency of the Packard Motor Car Company on May 1, 1952, after a strong 6-year run at General Electric’s Hotpoint subsidiary. In 1957, *Business Week* wrote that Nance “... took the job at the insistence of a group of bankers who believed he could put all four remaining ‘independent’ auto companies together into a full-line company.”⁶ “When asked what kind of deal it would take to get him,” *Business Week* reported in 1952, “Nance made it clear that being president of Packard... would hardly be enough. But he would be interested in Packard as the nucleus of a still-to-be-created Big Four member.”⁷



James J. Nance with a 1953 Packard Caribbean in Washington, D.C. (Used with permission of the James J. Nance collection at Cleveland State University – photo colorized by Craig Handley.)

In a 1976 interview with Richard Langworth and George Hamlin for *The Packard Cormorant* magazine, Nance stated: “I wouldn’t have gone into it just to take over Packard.” The grand plan, Nance told the duo, was to join Packard and, eventually, merge the company with Studebaker. George Mason, Nash-

Kelvinator’s CEO, had been trying for a year or two, without success, to work out a deal with Studebaker’s Harold Vance. With Vance fobbed off on Nance, Mason would handle a Nash-Kelvinator merger with the Hudson Motor Car Company. Then, eventually, a four-company combination would be created under the name “American Motors Corporation.”⁸ And, who would be running the new AMC? George Mason would be the chairman of the Board, and the president and CEO would be Nance.⁹



A.E. Barit, George W. Mason, George W. Romney – April 22, 1954, at the announcement of the American Motors Corporation. (Used with permission of the John A. Conde collection.)

“Nance’s Idea: Merge Packard”

The May 17, 1952 issue of *Business Week* devoted a full page to Nance’s joining Packard. The headline read “Nance’s Idea: Merge Packard.” The newsweekly reported that:

“Nance intends to make Packard the nucleus of a big new auto company—big enough to join the Big Three, General Motors, Chrysler and Ford—in a new Big Four. Nance’s idea is to merge Packard with one or more of the other independent auto producers, most likely Nash-Kelvinator. It was on the understanding that he could tackle something like this that Nance took the Packard job. “Putting Packard together would be one way to cure some of the problems,” *Business Week* concluded, “as well as add to the number of dealer outlets and widen the line. Such a union might sound attractive too, to an outfit like Nash. If not, there are other possibilities. The Detroit Athletic Club bar has cooked up many a merger that never came off. But

no one should be surprised to learn any day that Hudson, Studebaker, Nash, Packard or Willys really was involved in a merger made up of some combination of those named.”¹⁰

On June 6, Packard’s vice president of industrial relations, Wayne Brownell, wrote a memo to Nance that the company should build V-8 engines for Nash and to sell each other’s cars in their dealerships. “It would be a natural for Nash and Packard dealers to dual, because Nash does not have a large car and Packard does not have a small one.”¹¹ In fact, discussions with Nash were being held as early as March 1952, regarding a proposed Packard V-8. “It is contemplated,” the minutes from the March 20 meeting of the operating committee read, “that they [Nash] would purchase from Packard the cylinder block and certain miscellaneous parts. The arrangement contemplates, in addition to the cost of the parts, that Nash would pay a portion of the tooling expense.”¹²

Planning for the Future

Nance and his team recognized the need to separate the luxury-class Packards from its medium-class cars, dubbed “Clipper” for 1953. “You can always downgrade a name,” he told Langworth and Hamlin in 1976. “That’s easy in merchandising, to take a high-priced product and bring it down the price scale... [After World War II, Packard] chose to go with the small car. In my judgment, as a marketing man, they just turned the luxury car business over to Cadillac on a silver platter.”¹³

Competing with Cadillac became a top priority for Nance during 1953. Approval was given for a number of long-wheelbase sedans and limousines, to be produced by the Henney Motor Company. As well, several formal sedans by Derham were produced; both added additional custom touches that Nance truly wanted. Another model with the custom touches was the Caribbean, a convertible modified by the Ionia Manufacturing Company, which built 750 during 1953.¹⁴

Packard’s product planning committee met in November 1952, and a decision was made to retool the Packard line for 1954, to facelift the Clipper, and introduce a new V-8 engine across the board for 1955. Nance discussed reducing the Clipper’s price or offer a new six-cylinder car. Nance asked William Graves, his vice president of engineering, to investigate purchasing six-cylinder engines from Nash.¹⁵

Two months earlier, Nance’s executive committee discussed what Nash would pay to help Packard produce the new V-8. The proposal: Nash would pay 1/3 the cost of the “general tooling and development expense and pay the entire cost of any special tooling associated with their engine only.” And, Nash would pay Packard the costs of the parts plus seven percent.¹⁶

On November 17, Graves and treasurer Walter Grant met with George Mason, George Romney, and Nash-Kelvinator’s chief engineer to discuss, not only Nash’s six-cylinder engine, but Packard’s V-8. Nance’s “most pressing desire was to sell Packard V-8s to Nash and have Mason pay some of the engine’s burdensome tooling costs.” Mason, of course, did not want to share Packard’s burden to produce the V-8, not without Packard putting some money into N-K’s bank account. “Packard was willing to consider using the Ambassador’s untrimmed front seat and adjustment mechanism, a Nash rear-axle assembly, and perhaps its six-cylinder engine.” The N-K team first proposed building Packard bodies in its Milwaukee plant “in white” (with their prime coats). This was vetoed by the Packard team as, Grant later wrote to Nance: “We would be shipping a substantial amount of air.” Mason then suggested that N-K manufacture the large Packard stampings and ship them “nested” to Detroit. The Packard men shot down that proposal as well, insisting than N-K pay “a fair share of the initial common tooling” for the Packard V-8. As to what a “fair share” would be, neither side could agree.¹⁷

On December 10, Nance reported to the Board on the V-8 program, and the negotiations with Nash-Kelvinator “for their use of certain parts of the Packard V-8.” Tooling and equipment costs were provided to N-K, along with a proposed cost-sharing arrangement. “The next move in these negotiations is now up to the Nash-Kelvinator.” An interim expenditure of \$3.26 million was approved “to purchase very critical items of equipment for the V-8 program.”¹⁸

In February 1953, an additional \$2.1 million was approved for the new V-8 by the Board. “Preliminary conversations” with N-K were reported as Packard selling N-K some 30,000 Packard V-8 engines per year, on a cost-plus 7 percent basis—providing that N-K paid \$three million in initial tooling costs. “No offers or commitments were made,” the minutes read, “and nothing further has been heard from Nash.”¹⁹ On March 26, Nance reported to the Board that he talked to Mason, and that they were “not at this time” pro-

posing to buy Packard-produced V-8s—but that Mr. Mason “asked the door be left open for consideration at a later date.”²⁰

The Urge to Merge

By 1953, the Big Three were producing nine basic body shells for their 12 makes of cars; General Motors had four shells, Ford had three, and Chrysler had only two. Among the independents, 10 shells covered six makes; Kaiser had two, Willys had one, Hudson had two, Nash had two, Studebaker had two, and Packard had one. The following year, the Detroit *Free Press* asked: “If upwards of 40 percent of the manufacturing cost of an automobile is the body, can the independents with five percent of the market afford [the same amount of] basic bodies [as] the Big Three? ...If Kaiser, Willys, Nash, Hudson, Studebaker and Packard had interchangeable bodies and common sources for engines, transmissions and other components, the economics to be effected [sic] might well encourage establishment of a Big Fourth.”²¹

Nash-Kelvinator’s George Mason, of course, was thinking along the same lines, as he had been for years. On June 16, 1953, Hudson’s president, A. Edward Barit, met with Mason at Detroit’s Book-Cadillac Hotel to discuss a merger between Hudson and Nash-Kelvinator. “After a two-hour lunch, they shook hands on the essential points of a plan to merge Hudson and N-K into a new company.” On August 31, Mason wrote to Barit that American Motors Corporation (Mason’s name for the new company), would have a divisional setup, much like GM, with Nash, Hudson, and Kelvinator becoming separate divisions. Mason planned that future Nashes and Hudsons would use common tooling, wherever possible.²²

On August 10, Nance wrote to Packard’s treasurer, Walter Grant: “Asking how bashful Packard ought to be in its initial pursuit” of Studebaker and Nash. “Nance was seriously thinking of getting married,” James Ward wrote later, “but was not yet sure to whom.”²³ (If Nance knew anything about the proposed N-K / Hudson merger, he didn’t tell anyone. Or, he was unaware of Mason’s timeline.)

Within two weeks, rumors began circulating about Mason’s plans. At Packard’s Board meeting on August 26, Nance spoke to the rumor that N-K would acquire Hudson. Nance stated that Packard had recently been approached on the possibility. “Upon full discussion,”

the minutes read, “it appeared to be the consensus of the Board that Packard should not be interested in any merger or consolidation with Hudson.” The Board felt that, if Hudson could be purchased on the cheap, then “the matter would be open to further consideration.” Nance said he would check out the Hudson dealer organization and see if the Hudson Hornet could “be suitable as an interim low-price car in the Packard line.” The Board discussed other companies and decided “that the most advantageous combination the company could make would be with the Studebaker Corporation.”²⁴ On October 7, *The New York Times* published an article about a possible Nash-Hudson merger. Asked to comment, Nance replied that Packard “was not at present involved in any merger talks.”²⁵

Nash and Hudson

In November, George Mason was still claiming publicly that Nash-Kelvinator could still survive on its own. He told the *New York Times* that it was “ridiculous” that the independents had to merge to survive; Nash could go it alone as the strongest independent.²⁶ (Mason obviously kept his talks with Hudson’s A. Edward Barit in June quiet.) On October 26, the United Press moved a story across the wires that: “A new auto company with assets to challenge the Big Three was being rumored today... This much is known definitely—Hudson Motor Car Company and Nash-Kelvinator have passed the exploratory stage of a possible merger or ‘working agreement’ of some kind for production of cars.”²⁷ (Perhaps Barit didn’t keep *his* mouth shut.)

On November 12, *Newsweek* quoted Paul Hoffman as saying that Studebaker had been approached by another company and “if it were advantageous to Studebaker, we’d buy.” The other company was not named. On November 27, Barit announced “strictly exploratory” talks with another company, identified by *The New York Times* as Nash.²⁸

While George Mason was publicly denying merger talks, on December 3 he chaired a Board meeting of Nash-Kelvinator in which the Nash / Hudson merger was discussed. Mason:

“...reviewed the informal discussions that had taken place among the members of the Board with respect to effecting [sic] a consolidation with Hudson Motor Car Company. He informed the meeting of developments in connection with his negotiations with the rep-



Paul Hoffman, James J. Nance, Harold Vance in New York City – June 22, 1954, at the announcement of the Studebaker-Packard Corporation. (Used with permission of the James J. Nance collection at Cleveland State University.)

representatives of that company, including the reactions he had had to the basis for consolidation that had been informally proposed by members of the Board.” Mason’s Board then instructed him to negotiate formally a “consolidation or merger” with Hudson, based on one share of Hudson’s common stock being worth about two-thirds of Nash-Kelvinator common stock.²⁹

Over at East Grand Boulevard on this same date, William Graves sent Nance “a proposed product lineup,” as James Ward later termed it: “...in which Packard dealers would sell [Studebaker] Champions... and Packards, and South Bend dealers would handle Champions, Commanders and something Graves referred to as the ‘X-Car.’” Several weeks later, Nance

and Studebaker officials hesitantly approached substantive merger talks under the guise of negotiating the interchangeability of parts. Graves met with Studebaker’s Harold Vance and Harold Churchill, and they agreed that the 1956 Champion would remain unchanged while the Commander and Clipper would be built on the Commander platform, and the Clipper would use a modified Commander body. The Packard would be ‘an enlarged version of the Clipper,’ possibly using front fenders and grilles from the mid-priced cars. Later, Graves had another meeting in South Bend and returned with a proposed Packard shrunk to a 122-inch wheelbase. ‘I believe this is livable,’ Graves grumbled.”³⁰



James J. Nance, looking at Packard's new 1955 V-8 engine – Mill & Factory, April 1955. (Author's collection.)

The Nash / Hudson Merger, and the Nash / Packard Meeting

In Detroit, Nance reported to the Board of directors on December 21, 1953 that, to avoid excessive and noncompetitive tooling costs in the future “some interchangeability in design” would be necessary between Packard “and some other independent make or makes of automobiles.” On the engineering level talks continued between Packard and Nash on Packard's new V-8 engine and transmission. Walter Grant reported that the company would need to obtain additional financing for future operations, due to the loss of its defense business, reduced automobile sales, and an expected loss during 1954 of some \$7.5 million. The Board agreed to obtain a \$20 million loan to fund operation through the end of 1956.³¹

On January 14, 1954 the creation of American Motors Corporation was approved by the Boards of both Nash-Kelvinator and Hudson.³² Asked to comment on the matter, and whether Packard had plans to merge with the soon-to-be AMC, or any other company, Nance told the Associated Press: “Since Packard

launched its new program a year ago, it has been approached by many financial interests with reference to mergers or combinations of various types. These informal discussions have been related to practically every type of independent interest in the automotive industry. There is no basic change in the situation as previously outlined, that Packard will continue to concentrate on its long-range development program... Neither now nor in the future will Packard consider any combination that would not work toward these objectives.”³³

In fact, two weeks earlier, Nance met with Paul Hoffman, chairman of Studebaker, about a possible merger. (Studebaker was in trouble in late 1953, having lost \$500,000 in November.) “Hoffman was willing” to consider a merger, Nance later recalled, but Studebaker's president, Harold Vance, still needed convincing.³⁴

At Packard's Board of directors meeting on January 19, 1954, Nance recommended a “major modernizing job on the present cars for 1955.” This would include a new wrap-around windshield, sheet metal, V-8 engine, and a new transmission. The Board then discussed “merger developments in the industry,” particularly the Nash-Kelvinator / Hudson merger.³⁵

Later in the month, Nash-Kelvinator's Mason met with John McQuigg, vice president of the Lennen & Newell advertising agency. Mason discussed creating a larger combination of Nash, Hudson, Packard, Murray Body Co., Borg-Warner and Auto-Lite. McQuigg later wrote a report to Nance: “George indicated to me the other night that the current setup [the announced Nash / Hudson merger] might be regarded as ‘Step No. 1.’” McQuigg told Nance that he would be meeting with Mason again later in the week and would let Nance know what transpired.³⁶

Still later in January, George Mason and George Romney met with Nance and other Packard executives at the Book-Cadillac Hotel in downtown Detroit. Mason proposed that, with Packard joining the new AMC, the expanded company could produce a total of seven series of cars using just two body shells: “Body A,” a basic-volume car [the low-priced Rambler] and “Body B,” for the large Hudsons, Nashes and Packards. Packard's V-8 engines, Twin Ultramatics and rear axles would be used in most “B” models. Mason's proposal concluded: “American Motors offers Packard new opportunities for greater volume, earnings, security, prestige and public service.”³⁷ Nance thanked Mason and told him that his presentation would be presented to the Packard Board of directors.³⁸



George W. Romney, with a Packard-powered 1955 Nash Ambassador. (Used with permission of the Detroit Public Library, National Automotive History Collection.)

The Packard / Studebaker Meeting

Nance reported on his program, and on the industry situation in general, at Packard's Board meeting on February 17. George Mason's approach to Nance was reported, with Nance stating that Mason wanted him "to go with him to see Dillon, Read & Company about bringing Packard into the American Motors combination."³⁹ Mason wanted Dillon, Read to examine the financial arrangements of the two companies; Nance in the meantime wanted to learn more about the future plans of the soon-to-be AMC. Mason also wanted to nail down obtaining Packard's V-8 engines, while Nance wanted Mason to pay for some of the tooling costs.⁴⁰ The meeting concluded with Nance reporting on a conversation he had with William Harding, senior merger partner of Smith, Barney & Company, who proposed that all four independents merge. Studebaker's Vance and Hoffman were interested, he said, but only if more companies than just Packard were involved.⁴¹

Packard expected losses during 1954 of \$11 million before taxes (and \$5.6 million after).⁴² Circumstances were far worse with Studebaker, as all 12,000 production-line workers were laid off during the week of March 7. Paul Hoffman remarked: "[Sales were] far below expectations so far this year... An atmosphere of 'pessimism and distrust'" was to blame. Studebaker would lose over \$6 million during 1954's first quarter.

Nance and Ferry met with Vance and Hoffman in New York City on March 16. They all agreed that Lehman Brothers "would make a survey for the purpose of sending the respective representatives of Packard and Studebaker the feasibility and suggestions as to how the possible merger of the companies could be accomplished... at the earliest possible moment." Years later, Ferry "complained that Hoffman misrepresented Studebaker's affairs to him at the meeting."⁴³

Just the day before, Vance and Hoffman had held a news conference at the Chicago Auto Show, where they pooh-poohed rumors that had Studebaker ready to merge with anyone from Ford to AMC. "For the last six months," Harold Vance said, "none of us have been able to devote the time we should to our regular duties. We have been too darned busy trying to answer all the rumors of mergers that were floating around—rumors without foundation." Hoffman chimed in: "Don't worry about the independents—we are glad to be one."⁴⁴

Within three weeks, a financial plan was worked out, and by May 1, a report, "Benefits of a Merger," was issued. Written by Packard's Walter Grant and Studebaker's E.C. Mendler, it bypassed the normal outside firms usually hired to collect such information. The two gentlemen later admitted that their joint effort was a "brief, preliminary... somewhat cursory study," and was based on "a volume of sales... which appear reasonable of attainment," and "is consequently conservative." They admitted that they weren't looking at the two companies' relative strengths, or suggesting "a satisfactory financial basis for a merger."⁴⁵

Crunching the Numbers

While Studebaker's 1953 sales (in dollars and automobiles) inched ahead of 1952, profits dropped to a dismal \$2.7 million. Consider these numbers:

Studebaker⁴⁶

In millions	1950	1951	1952	1952
Net sales	\$744.0	\$503.3	\$585.3	\$594.5
Net profit (after taxes)	\$22.5	\$12.6	\$14.3	\$2.7

Now, contrast Packard's for the same period:

Packard⁴⁷

In millions	1950	1951	1952	1952
Net sales	\$174.4	\$179.6	\$233.7	\$335.8
Net profit (after taxes)	\$5.2	\$5.6	\$5.6	\$5.4

Although Packard was a smaller company than Studebaker at the time, its profits were consistent. Part of Studebaker's problems began when Paul Hoffman, a true "car guy," left in 1948 to run the Marshall Plan for President Truman, leaving Vance to become both president and chairman of the Board in South Bend. Hoffman returned to Studebaker in February of 1953, but much damage had been done in his absence. Wages were allowed to grow unabated (they were the highest in the industry), and, even after an average cut of 14 percent in 1954, they remained above the industry norm.⁴⁸

As Nat Dawes wrote in 1975, "Adding to Studebaker's woes at this time, Defense Secretary 'Engine Charlie' Wilson implemented a new 'narrow-base' procurement policy which led to broad defense cuts." Wilson's cutbacks affected Packard as well.⁴⁹

By early 1954, Studebaker was losing money, and the Board of directors voted to cut the dividend from 75¢ per share to 40¢ per share.⁵⁰ Model for model, Studebaker automobiles cost more than comparable Chevrolets, Fords or Plymouths. And as the Ford / GM sales war heated up in late 1953 and early 1954, sales started drying up among all the other automakers. As Nash and Hudson had already agreed to combine, Packard and Studebaker had nowhere else to turn except to each other. James J. Nance thought that he could negotiate a deal that would keep him in charge of the combined companies, and, incidentally, benefit the shareholders of Packard. He succeeded in the first part. As for the second part, Richard Langworth summed it up: "Nance had been sold a bill of goods by those old sharpies in South Bend."⁵¹

The Proposed Merger

On April 19th, Packard's 1954 shareholders meeting was held at its Detroit headquarters. A shareholder who lived in South Bend asked Nance about rumors that Packard and Studebaker might merge. "We have no negotiations at the moment," Nance replied. (Being in the middle of a shareholders meeting, strictly speaking, he was correct.) "We have been merged, by rumor, with everything from wheelbarrow companies on up," Nance stated. "We're not opposed to the principle of merger, but it would result in a company no better off than the components that make it up." He concluded that any merger must be "good for

the company as well as its shareholders... those just merging for selfish reasons aren't going anywhere." Packard would not consider a merger where it was "absorbed," but "we would have to go in on an equal footing."⁵²

Later that day, Nance advised Packard's Board that George Mason of American Motors had made a presentation to both him and Hugh Ferry. (This was the late January 1954 meeting, held at the Book-Cadillac Hotel.) The Board minutes dryly read: "Mr. Nance had advised Mr. Mason that the presentation would be presented to the Packard Board. Therefore, at Mr. Nance's request, Mr. Grant, using charts furnished by Mr. Mason, made the presentation to the Board. No official action was taken."⁵³

With all of the principals long gone, we have no way of knowing the discussion that took place that day during the Board meeting. Six years later, George Romney's biographer, Tom Mahoney, wrote: "Before the merger with Hudson was concluded, Mason proposed that Packard join American Motors in a 'combined product program.'" George Romney's assistant, John Brown, Jr., had met secretly in his home with Howard Hallas and John Conde, preparing charts and easels for a presentation to be given to Packard's Board of directors."⁵⁴ "I cannot tell you who did the renderings of the proposed Packards-on-Nash bodies," Conde wrote to the author 29 years later. "The work we were doing in preparation for the presentation to the Packard Board of directors was highly secret, so I think they probably were made by Ed Anderson [Nash's styling chief]."⁵⁵ According to Mahoney: "Packard expressed misgivings over the Hudson part of the merger and declined... to join in it. Nance soon was working out a merger of his own with Studebaker."⁵⁶

The matter of Mason's proposed Packard / AMC merger would be discussed one last time at Packard's next Board meeting. But for today, Nance had one more AMC matter to discuss—Mason's request to purchase 80,000 of Packard's new V-8 engines and 60,000 Twin Ultramatics to be used in the 1955 Senior Nashes and Hudsons. Packard would make a profit of seven percent over its costs, supplying a "substantially complete engine, but less the manifold, some of the wiring, etc." Nance remarked that while the Packard V-8 was competitive in cost, each Twin Ultramatic was priced about \$20 more than the Hydra-Matic, which AMC was then using. Negotiations with AMC would continue, and the Board would be kept in the loop.⁵⁷

Nash + Hudson = AMC

On April 30, 1954, Nash-Kelvinator Corporation and Hudson Motor Car Company merged to become American Motors Corporation. The shareholders of both companies approved the merger on March 24; N-K shareholders voted 93.2 percent in favor, while 85 percent of Hudson shareholders approved it.⁵⁸

At its birth, AMC showed a book value of \$197,793,366. It had some 30,000 employees, 58,000 shareholders, and 10,000 dealers and distributors. It also had, as historian Pat Foster wrote, “Two distinctly different lines of cars that, unfortunately, competed against each other.”⁵⁹ In terms of financial health, consider the following:

Nash-Kelvinator⁶⁰ (N-K’s fiscal year ran from October 1 to September 30)

In millions	1950	1951	1952	1952
Net sales	\$112.5	- ? -	\$358.4	\$478.7
Net profit (after taxes)	\$28.8	\$16.2	\$12.6	\$14.1

Hudson⁶¹

In millions	1950	1951	1952	1952
Net sales	\$267.2	\$186.1	\$214.8	\$192.9
Net profit (after taxes)	\$12.0	-\$1.1	\$8.0	-\$10.4

It should also be noted that during 1952 and 1953, most if not all automakers were raking in money from the government for defense work. Thanks to the penny-pinching ways of George Mason, Nash-Kelvinator did not have a money-losing year during the 1950’s pre-merger years.⁶²

“Proposed Acquisition Transaction”

On May 13, 1954, a “Special Meeting” of Packard’s Board of directors was held. Nance reported estimated losses for the first half of 1954 at \$2.5 million, with a \$10 million loss expected for the entire year. Nance stated that “the organization has been reduced to a minimum, and further major savings cannot be anticipated in this area.” The dealership total had dropped from 1,319 at the beginning of the year to 1,221. Nance stated that a “major program” was under way to increase the number prior to the introduction of the 1955s.⁶³

Nance then turned the Board’s attention to the “proposed acquisition transaction with Studebaker Corporation.” The Board examined a report from Lehman Brothers, “Studebaker and Packard, Part II: Suggested Basis of Consolidation,” and one written by Packard’s Walter Grant and Studebaker’s E.C. Mender, “Benefits of a Merger of Studebaker and Packard.” After a “full and complete discussion,” the Board adopted a resolution that “it is the sense of this Board and the best judgment of its members that the Studebaker Corporation acquisition proposal is, from the standpoint of this Company and its shareholders, the most desirable and advantageous proposal of its type which has been presented to the Board.”⁶⁴

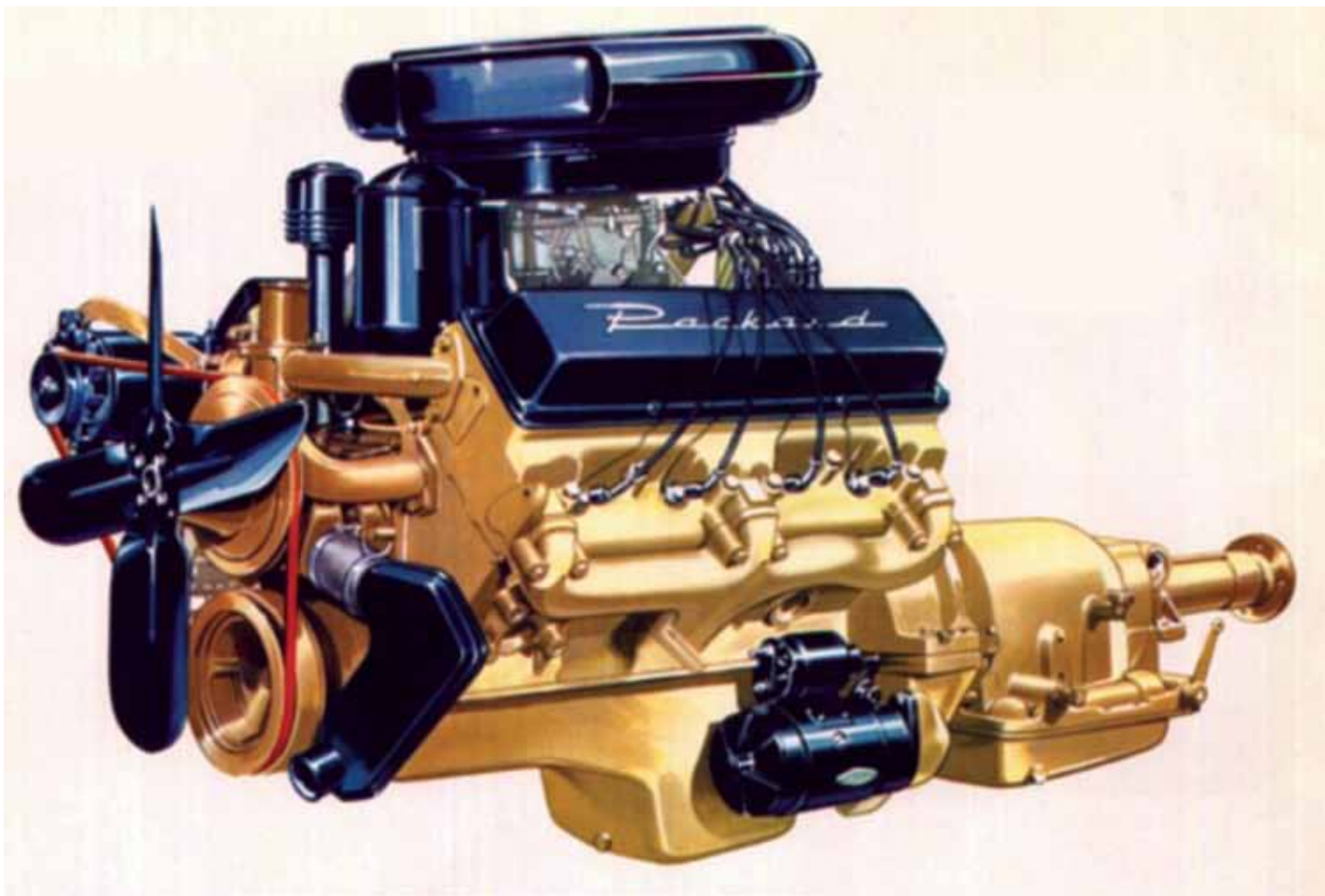
As to George Mason’s plan to merge Packard into AMC, the Board once again discussed it, and “on motion duly supported, it was determined that in view of the decisions made this day with respect to the Studebaker proposal, no action should be taken at this time regarding the American Motors plan.” Nance was authorized to inform Mason of the Board’s decision.⁶⁵

Twenty-nine years later, John Conde, who worked at N-K in the public relations department, related to the author: “All of us working on the merger were told in *April 1954* [Conde’s emphasis] that the Packard and Nash-Kelvinator Boards had approved the plan for the consolidation, but that the sole reason for its failure was the unwillingness of Nance to take second or third place to Mason in the new company. Had it not been for Nance, Packard would have merged with Nash and Hudson.”⁶⁶

A careful study by the author of the Board of directors minutes during 1954 for both Packard and Nash-Kelvinator / AMC found no such “approval” of any Packard / AMC combination. Years later, certain AMC partisans would raise the matter of an “approval” by Packard’s Board as “proof” that Nance torpedoed a Packard / AMC merger—but the fact is Packard’s Board *never* approved a merger or combination with AMC. (Mason ran a very taut ship at N-K / AMC. While Nash’s proposed merger with Packard in both 1948 and 1954 was discussed, on the record, in the Packard Board of Director’s minutes, there was no mention of either merger in the N-K / AMC Board minutes.)⁶⁷

The Wall Street Meeting

Packard’s Board of directors met on June 22, 1954 in New York City. Although the Board took “no ac-



Packard's 1955 V-8 engine and Twin Ultramatic, as Packard illustrated it. (Courtesy of www.OldCarBrochures.com.)

tion" on Mason's plan to merge Packard into AMC at their meeting on May 13, Mason still had need of Packard's new V-8 and Twin Ultramatic transmissions. Nance reported that a formal proposal had been received from AMC to purchase these items; the arrangement would last five years "on the basis of Packard's costs plus a profit of seven percent." The Board thus authorized continuing negotiations with AMC on this matter.⁶⁸

Attention then turned to the proposed "Purchase Agreement between the Company and Studebaker Corporation, providing for the purchase by the Company of the properties and assets of Studebaker and the assumption of its liabilities." Nance reviewed the "negotiations and considerations which led up to it," and the provisions of the agreement were reviewed. After a "full discussion," the Board unanimously voted in favor of it. Nance noted that the name of the new organization was "required" to be changed to the "Studebaker-Packard Corporation." The effective date of the new entity was October 1, 1954.⁶⁹

The Announcement

After Packard's Board meeting on June 22, the scene was set at the Waldorf-Astoria Hotel in midtown Manhattan for the most momentous announcement in Packard's history—the formation of the Studebaker-Packard Corporation. James Nance and Harold Vance signed and sealed the 15-page agreement,⁷⁰ and, under a poster that proclaimed "America's Fourth Full-Line Company—Studebaker-Packard," as the *Wall Street Journal* related: "Mr. Hoffman, Mr. Nance and Mr. Vance clasped hands before whirring newsreel cameras and popping flash bulbs, recited the usual expressions of confidence in the future." Questions were asked by the press and answered by Paul Hoffman, in generalities. Would the upcoming 1955 Studebakers share Packard sheet metal and the new Packard V-8? "No," replied Hoffman. Would Studebaker offer the Packard transmissions in their cars? "If Packard can supply Ultramatics at lower costs than our present supplier it would be very interesting." How long did it

take for these companies to agree to combine? “The Studebaker-Packard combination had been ‘kicking around’ for about six years. Informal talks began a year ago, and ‘more serious discussions’ were launched six months ago.” The Packard Board agreed with the deal just a few hours before; Studebaker’s Board was also on board, having approved the deal that same morning. Hoffman was asked about a future pairing with the two-month-old American Motors Corporation: “At the present moment,” he replied, “our energy and hopes are on this particular transaction.”⁷¹

Both sides insisted that the combination of the two companies was not a “merger,” *Business Week* reported. “It’s an agreement to join forces,” Hoffman said. By creating a full-line company with cars in all price classes, Studebaker-Packard was ready to compete with General Motors, Ford and Chrysler, which wasn’t the case with the other two “merged” companies, Kaiser-Willys and American Motors.⁷²

The deal was approved on August 17 by the shareholders of both companies, 89.9 percent for Packard, 99 percent for Studebaker.⁷³ Two days after the Studebaker-Packard announcement, AMC’s George Romney wrote to Nance, congratulating him and stating it would “make cooperative relationships of the type we are currently developing all the more beneficial to both organizations.” Nance responded with a short (48-word) letter that seemed to downplay any further talk of a full AMC / S-P merger.⁷⁴ The negotiations for Packard’s new V-8 engines and transmissions that AMC needed would take another two months to conclude.⁷⁵

Time Magazine Weighs In

Time magazine had a take on the new Studebaker-Packard Corporation: “For weeks, the auto industry has been alive with rumors of a merger between Studebaker and Packard so that the two independents could compete better against the Big Three... In effect, Packard will take over Studebaker.” Looking back at past mergers (Kaiser-Willys, and Nash-Hudson), *Time* continued:

“If the merger goes through, it will be the third for the auto industry in a little more than a year... But it is a necessary step and a shrewd move for both... By joining forces, they can put together a sales organization of some 3,900 dealers across the U.S. and offer customers a complete line of cars from the cheapest Studebaker

Champion (\$1,700) to the most luxurious Packard limousine (\$7,500).”⁷⁶

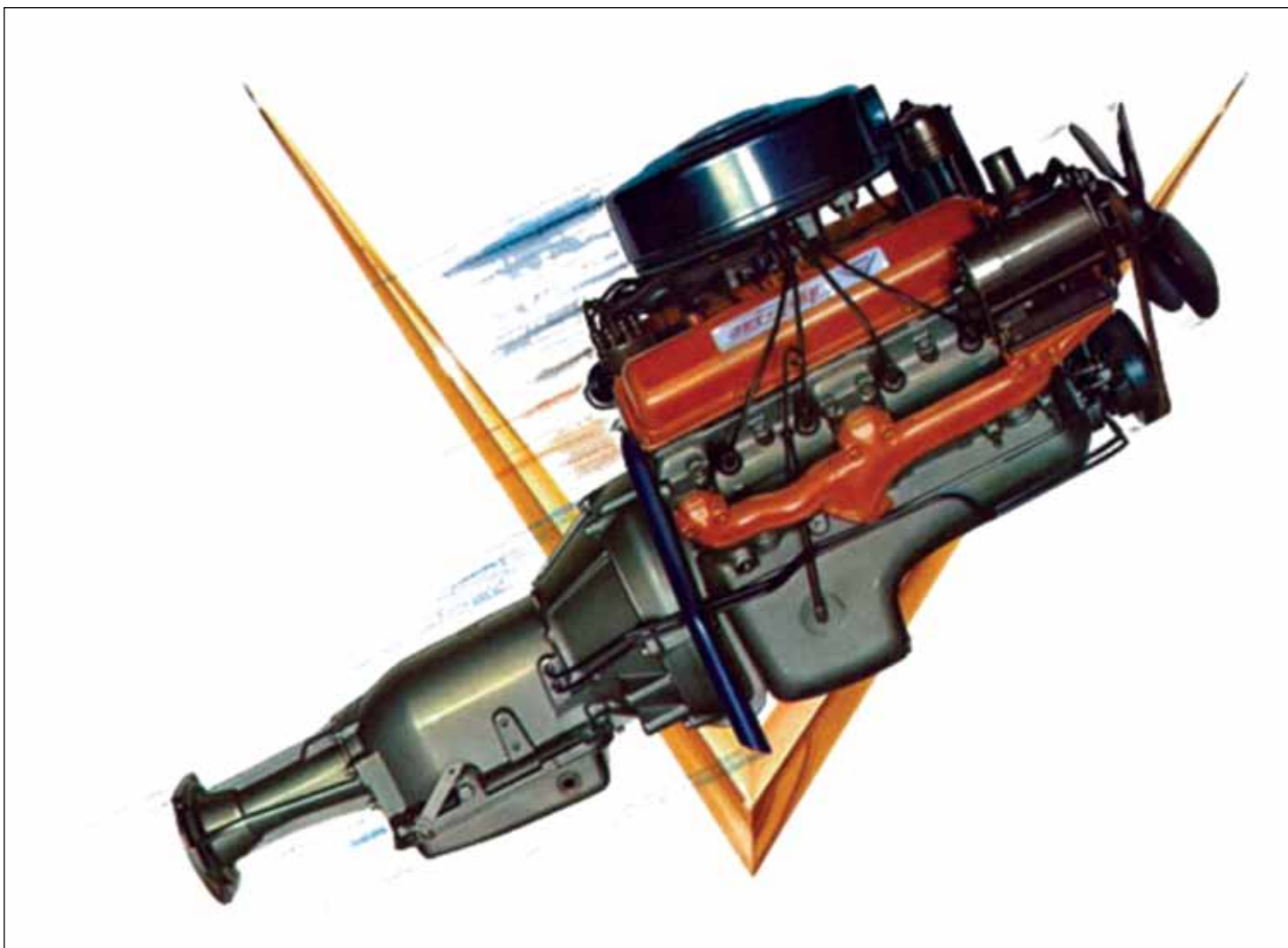
Whether the future S-P would combine with AMC was a question on many people’s minds at the time. Discussing the proposed S-P merger before a meeting of security analysts in New York City, along with Harold Vance on July 12, Nance told the gathering that “the big advantage in the merger will be primarily in marketing.” Nance observed that Studebaker had about 2,500 dealers and Packard about 1,200; ultimately Nance wanted the two companies to be represented in 4,000 marketing areas, with selected dealers carrying both Packards and Studebakers. When asked about a possible merger between S-P and AMC, Nance said: “We are not engaged in any negotiations.”⁷⁷

The Last Chance to Stay Independent

On July 21, 1954, Nance wrote to Walter Grant, asking him to “take a look at AMC to determine the extent of our interest, should we be approached on their merging with Studebaker-Packard Corporation.”⁷⁸ (Did Nance forget the Board of directors meeting on May 13, where the Packard Board took “no action at this time” on George Mason’s proposed merger with AMC? Or, did Nance want it only on *his* terms, now that the S-P merger was an all-but-done deal?) On July 28, Packard’s Board heard a report on the status of the Utica plant, where new Twin Ultramatics were going into production; the program for the new V-8 engines was on schedule, “although it will be a very close schedule.” As to the agreement with AMC for the sales of V-8 engines and Twin Ultramatics, it was finally agreed upon.⁷⁹

Three weeks after Nance asked Walter Grant to investigate the “extent of our interest” regarding a possible merger with AMC, Grant wrote to Nance on August 10, supporting the idea of an S-P / AMC merger due to the “very rapid deterioration of the operating picture of all independents.” Although AMC, Packard, and Studebaker were losing massive amounts of money during 1954, a merged company, Grant wrote, “would be in no worse position than either is individually at present, and might lay the groundwork for a grouping of additional companies within the corporate structure.”⁸⁰

At a meeting on August 16, Packard’s Board discussed “at length” the entire agreement, and “after further discussion, and upon motion duly supported,”



Packard's 1955 V-8 engine and Twin Ultramatic, as Nash illustrated it. (Courtesy of www.OldCarBrochures.com.)

passed up the last chance to stay as an independent auto maker, and unanimously voted in favor of Packard purchasing Studebaker.⁸¹

The V-8 engine / Twin Ultramatic agreement with AMC was concluded on August 22. It read, in part: "Insofar as it is possible to do so, on a competitive and advantageous basis of price, quality and style, Packard will endeavor to purchase from American Motors products suitable for use by Packard... To the extent possible, Packard will endeavor to make such purchases in dollar amounts at least approximately equal to dollar volume to purchases from Packard to American Motors... Packard shall be the sole judge of whether products offered to it by AMC can be purchased by Packard... on a competitive and advantageous basis."⁸²

At the time, this agreement was seen as a win for both Nance and George Mason. Nance would have money to help pay for the new engines and transmissions, and Mason would have the means to modernize

the drive trains on his larger 1955 Nash and Hudson lines.⁸³

The Last Packard Off the East Grand Boulevard Line

In its August 30 issue, *Time* magazine reported on the approval given by the Packard and Studebaker shareholders to the merger. As to American Motors, *Time* stated: "Following Studebaker's lead, American Motors also started tuning up for 1955 last week. With second-quarter losses of \$3.8 million, the company asked 3,500 workers at its big Kenosha, Wisconsin Nash plant to accept a new contract, in the hope of cutting costs and increasing productivity."⁸⁴

Two days later, Packard's treasurer Walter Grant was spending the weekend going over the books at Studebaker headquarters, trying to figure out Studebaker's break-even point. Grant, try as he might, could not come up with a solid number. During negotiations

with Packard in June, Studebaker gave their break-even figure as 165,899, a number presented to the banks and insurance companies to borrow money for the new Studebaker-Packard Corporation.⁸⁵ (Studebaker's E.C. Mendler, who came up with the figure in June, would later deny having done so.)⁸⁶

On Thursday, September 16, the last Packard, a Clipper sedan, was assembled at the East Grand Boulevard factory. The next day, the first of some 6,000 truckloads of machinery and tooling began to be transported from East Grand to Conner Avenue, to convert that facility to assemble Packards as well as build bodies. But—it would take two months before the next production Packard was completed.⁸⁷

On October 1, 1954, the Studebaker-Packard Corporation officially came into being. On October 4, the first meeting of the S-P Board of directors took place at the Waldorf-Astoria Hotel in New York City.⁸⁸

A New Packard for 1955—and Its New V-8

Packard's model lineup for 1955 was reduced to 8, from 1954's 15. The Clippers were offered as Deluxes, Supers and Customs on a 122-inch wheelbase. The senior Packards now rode on a 127-inch wheelbase and included the Patrician sedan, Four Hundred hardtop and Caribbean convertible. The design of the 1955 Packards was acclaimed as a Dick Teague triumph; few spotted the origins in John Reinhart's basic 1951 body shell, dubbed "high pockets" around the styling offices.⁸⁹

As Packard's foundry was closed after production ended on the 1954 models, the blocks and cylinder heads for the all-new V-8s were produced by Lakey Foundry and Machine Company. The cast steel crankshafts were produced by the Richmond division foundry of Auto Specialties Manufacturing.⁹⁰ Early in 1954, prior to signing the contract with Lakey, Packard's vice president of manufacturing, Ray Powers, contacted George Mason, about having AMC produce Packard's new V-8 block. The price that AMC quoted was \$33.48 each, versus Lakey's quote of \$30.70 each. (And, Powers learned, AMC would not be able to produce the Packard block in volume until mid 1955, which was, understandably, much too long for Packard to wait.)⁹¹

The Clipper Deluxes and Supers were powered by a 320-cubic-inch version of the V-8, while the Clipper Customs and all Seniors featured 352-cubic-inches.

American Motors Corporation agreed to purchase the 320 engine, along with the new Twin Ultramatic, for use in the Nash Ambassadors and Hudson Hornets. Packard developed experimental versions of its new engine for use in non-Studebaker trucks, but, aside from AMC, no company outside of S-P ever used the engine.⁹²

A Welcome and a Departure

On October 7, a "Welcome Nance" dinner was held in South Bend. In attendance were mayors, labor leaders, and representatives of the business and civic community. The Guest of Honor avoided specific predictions regarding Studebaker-Packard's hoped-for 1955 production, sales and employment. It was noted, however, that at Nance's news conference in New York City on October 4, he stated that at full operation: "Studebaker should be employing 15,000 workers in South Bend. It now has 10,000 hourly workers on its payrolls. Packard in Detroit, now down for plant changes, will have about 12,000 workers at full-scale operation."⁹³

With all of his plans in motion for Studebaker-Packard, Nance was probably giving little thought to George Mason's long-hoped-for four-way merger. At the same time Nance was speaking in South Bend, Mason was in a Detroit hospital. Four days earlier, Mason flew back to Detroit from a fishing vacation in Wyoming. Stricken that evening with acute pancreatitis, he was taken to Harper Hospital. Although he was well enough to speak to George Romney from his hospital bed about AMC matters, he developed pneumonia and died the morning of Friday, October 8, 1954. He was just 63 years old.⁹⁴

"At the time of his death," *Time* magazine reported, "he was dickering with Studebaker-Packard for another merger that would have resulted in the world's second largest auto firm (behind General Motors)."⁹⁵ Years later, Richard Stout noted that Mason "had the vision and know-how to put the independents together. Mason's death prevented that from entirely happening. The tragedy struck scarcely a week after the last meeting of Mason and Nance, and the merger plans went no further."⁹⁶

Taking the Reins at AMC

On October 12, the day after Mason's funeral, George Romney was elected chairman, president and

general manager of AMC by the Board of directors.⁹⁷ (Romney was hired in 1940 to run the Detroit office of the Automobile Manufacturers Association, by AMA president Alvan Macauley.⁹⁸ After joining Nash-Kelvinator in 1948, Romney was elected a vice president on February 2, 1950. On February 5, 1953, he was elected executive vice president and a member of the N-K Board.⁹⁹)

Romney took control at AMC quickly, and met the press on October 28 in New York City. He denied any merger was being contemplated between AMC and S-P, and that there had been no discussion of such a project. Instead, there would be an overall “product reciprocity” between the two organizations. *The New York Times* reported: “Such procedure will afford advantages of a merger... and effect widespread economies, with each company buying some parts and services the other can offer at lower costs.”¹⁰⁰

By the time of his New York trip, Romney may have come to the conclusion that the “product reciprocity” agreement was in trouble—if not dead. In mid-October, Bernard Chapman and Elmer Bernitt, of AMC’s manufacturing operations, met with Ray Powers and Albert Behnke (who headed Packard’s manufacturing and procurements). Chapman and Bernitt returned to AMC headquarters, and informed Romney that Packard “didn’t recognize any obligation to buy from American Motors.” On October 22, Romney read a news ticker at AMC headquarters that Packard had taken an option on a Murray body plant in Detroit.¹⁰¹ Unable to reach Nance by phone, Romney sent a telegram to his home: “Believe consummation of deal with Murray as it is reported to us would be contrary to the spirit, contractual and moral obligations of your current understandings with us... Believe you and I should meet and discuss this entire situation.”¹⁰²

“Nance replied by letter,” Romney’s biographer reported: “He denied any breach of faith. He maintained that Packard was doing American Motors a favor in selling them its V-8 engines, and that Packard was free to buy wherever it pleased. ‘In view of this, we regret that our company name was used in a discussion with the press of a reciprocity policy.’ Romney felt that this letter was a repudiation of the written agreement, and ordered Meade Moore [AMC’s engineering vice president] to proceed with a V-8 engine program.” The cost to AMC would reach \$10 million, but it would save some \$200 per unit over Packard’s V-8.¹⁰³

According to historian Robert Neal, the “product reciprocity” agreement was “very loosely written.” Included in the agreement between S-P and AMC for the V-8s and Twin Ultramatics was a clause for “Reciprocal Purchases.” Packard had submitted production bid requests to AMC for 157 parts” Neal wrote. “Other vendors were also given the opportunity, and AMC was the low bidder on only 18 of them. These items did not include any large body stampings, since Packard had Conner Avenue for that production, but did include engine block castings, on which they were high.”¹⁰⁴

A Late Start for 1955

At Studebaker-Packard’s Board meeting on December 17, 1954, Nance reported that AMC would be purchasing Packard-made V-8s and transmissions for their large cars. However, Nance pointed out, “that there was no reciprocal commitment on the part of [S-P] in the agreement.”¹⁰⁵

It was not for lack of trying that S-P did not purchase more products from AMC’s. As noted earlier, AMC price to produce Packard’s new V-8 block was higher versus Lakey Foundry. Even in smaller products, AMC quoted higher prices: Front cowl top and windshield panel (\$7.56 vs. \$4.59), front fender splash-er (\$2.07 vs. \$1.35), radiator lower splasher (1.66 vs. \$1.115), battery carrier (\$0.15 vs. \$0.086).¹⁰⁶

Packard wasn’t the only brand having a late start in the 1955 marketplace. The large Nash and its badge-engineered cousin, Hudson, were not introduced until February 23, 1955.¹⁰⁷ This late date was due to George Mason’s insistence that his 1955s feature an up-to-the-moment wrap-around windshield. This decision, one of the last Mason made before his death, ensured that AMC’s Senior cars would arrive in the marketplace very late, indeed.¹⁰⁸

On April 11, 1955, Nance announced that Studebaker-Packard earned its first profit in March, which was unspecified. He said as well that Packard production reached its initial target of 2,000 units per week, and that anticipated financial benefits of the merger were being achieved. To top it off, combined “unit sales” of Studebakers and Packards for the first three months of 1955 were running 71 percent ahead of comparable 1954 levels.¹⁰⁹

On April 17, the Associated Press ran an article stating: “The auto industry’s ‘Little Three,’ American

Motors Corporation, Studebaker-Packard and Kaiser Motors, are improving their production standing. Whether they have their 'comeback' well under way is yet to be determined, but they report encouraging reaction to the just-completed introduction of their new 1955 models... The heads of AMC and S-P, George Romney and James Nance, are exuding optimism. Romney recently told stockholders he expects at least a 25 percent increase in his company's car sales this year... Nance has said that Studebaker-Packard will aim at the production and sales of something like 300,000 units... Neither Nance nor Romney underestimates the job ahead. If they build up their operations to the point where they can account for substantially more than their present percentage of market, they will have to make their gains at the expense of General Motors and Ford."¹¹⁰

Planning for the Future at AMC and S-P

In April, Packard's Walter Grant heard from Ralph Isbrandt, an AMC engineer, that AMC was working on tooling to produce their own V-8s. Earlier in the year, AMC had asked to purchase Studebaker V-8s for use in their lower-priced Nashes and Hudsons. Nance had replied: "No." Grant said that S-P could make a \$2.8 million profit on the sale, which "would provide a margin of safety" for S-P. It "would open the door to closer relations with AMC, but would not be irrevocable depending on which course might be followed in the future." Nance was not of a mind to follow through: "I am not at all happy with getting these overall blanket statements that the company has to do this or that, without a presentation of assumptions on which these conclusions are predicated."¹¹¹

Nance possibly reconsidered the proposal after learning that Studebaker's six-cylinder could not "take any more horsepower." How about a swap, he thought—trade the Studebaker V-8 for the Rambler six?¹¹² On September 6, 1955, Packard's Walter Grant and William Graves made the journey to AMC's headquarters for a presentation before George Romney. Sometime later, Romney wrote to Nance, turning him down—gently. Romney expected AMC's sales to rise in 1957, and he would need all the six-cylinder engines he could build for the Rambler.¹¹³

On May 7, the New York *Times* reported on Studebaker-Packard's first quarter loss of \$5.7 million. A week later, Nance admitted that his remarks about the

loss "reflected very negatively on me personally, as being irresponsible to the financial fraternity."¹¹⁴ On May 8, the Los Angeles *Times* published an article, "Recent Auto Mergers Begin to Show Results," in which AMC's efforts to save costs bore fruit. AMC planned to spend some \$60 million in an expansion and modernization program, including a new plant to produce its own V-8 engine. The article ended with this intriguing note: "Some usually well-informed sources say the joining of Studebaker-Packard and American Motors is about as certain as anything can be in the auto industry. They add that it could happen this year."¹¹⁵

1955 in Review, Awards, and Rumors

As the 1955 model year wound down, the officers of Studebaker-Packard could pat themselves on the backs for a job fairly well done, at least by comparison with 1954's production figures. Packard production totaled 55,247 for the model year, an increase from 1954's total of 31,291. And, the Packard division had been earning a profit since March.¹¹⁶ To Packard's total should be added the 16,799 V-8 engines produced sold to AMC for the Nash Ambassadors and Hudson Hornets.¹¹⁷ The Studebaker division had increased production from 81,939 automobiles in 1954 to 133,827.¹¹⁸ However, the Studebaker division showed a net loss for the year, which dragged down the entire financials of the corporation.¹¹⁹ Looking to drag down S-P's financials further were the actions of American Motors. On July 21, the AMC Board met and George Romney "outlined the V-8 engine program and reported on the comparable cost of the Packard engine with relation to the proposed American Motors engine."¹²⁰

Motor Trend named its "Top Cars" for 1955 in its September issue. The Packard and Clipper Custom (with the new Torsion-Level suspension), were declared the "Newest Concept in Motoring." "Not since the introduction of 'knee action' springing in 1934," the editors wrote: "...has there been a really new approach to *production* automotive suspensions until this year."¹²¹

In the same issue, both Studebaker-Packard and American Motors were proclaimed to be "over the hump" in terms of their survival. "Vast differences exist on the surface between the operating philosophies of the companies. S-P's Nance aims at having a miniature General Motors... whereas Romney is taking every advantage of common tooling, also a leaf out of GM's

book... Nance wishes he had the common tooling, but would design around Romney and his problem, which is product confusion between the outwardly similar Hudson and Nash... Packard's emergence once again as a truly fine car is balanced by AMC's emphasis on the Rambler, which could ultimately develop as the fine car of the low-price field. Tremendous efforts by both in these separate directions have resulted in substantial increases in the second hand (or 'Blue Book') value of both products. This, of course, is why we say that each is over the hump."¹²²

AMC and S-P may have been over the hump, perhaps, but they were destined to go it alone in the marketplace. On May 26, AMC's Board of directors held a meeting. Nearly half of it was devoted to rumors about a possible AMC / S-P merger; they make for interesting reading: "Several members of the Board reported that direct and indirect overtures had been made to them on behalf of Studebaker-Packard Corporation, looking toward negotiation of some form of consolidation with American Motors Corporation... The Board, after thorough analysis of the pertinent factors, rejected the idea that any such combination with Studebaker-Packard would be in the best interests of the corporation, at this, or any foreseeable time... The Board was in complete agreement that 'merger' rumors and innuendo had a deleterious effect upon the company's business and future prospects and undermined the stability that was necessary for successful operations... After a lengthy discussion in which all members of the Board participated, it was agreed that it was vitally necessary for the president [Romney], in every way possible and expedient in his judgment, to refute the rumors that the corporation was contemplating any such merger or that any such combination was inevitable or essential to the success of the corporation's business... Upon motion of Mr. Cross, seconded by Mr. Brown and unanimously carried, the president was directed to take all necessary steps to refute rumors of any merger—pending, contemplated, or inevitable-to-occur—with Studebaker-Packard Corporation."¹²³

Going Their Own Way

On March 6, 1956, American Motors Corporation introduced their new 250-cubic-inch, 190-horsepower V-8 engine, in the Nash Ambassador Special and the Hudson Hornet Special. Building their own V-8s cost AMC some \$10 million, but George Romney thought

it was worth the expenditure, as the per-unit cost was \$200 less than what he had to pay Studebaker-Packard for the Packard V-8.¹²⁴ By the end of the model year 4,145 had been installed in the Senior Nashes, and 1,757 in the Senior Hudsons.¹²⁵

By that time, the Studebaker-Packard Corporation was in a death spiral. The quality of the early 1955 Packards produced at the Conner Avenue plant was horrific, and word spread among the dealers and, eventually, to the buying public.¹²⁶ A series of recalls on the 1956 Packards resulted in a severe drop in sales, and Studebaker-Packard faced bankruptcy by mid-1956. After exploring all options, on July 26, S-P's Board accepted a "Joint Program" with Curtiss-Wright.

Production of the Studebaker-based 1957 Packards would be shifted to the Studebaker factory in South Bend (Packard production ended in Detroit on June 25, 1956). James J. Nance and Paul Hoffman would resign from S-P, and Harold Churchill would become the new president. (The real boss would be Curtiss-Wright's president, Roy Hurley, under a three-year advisory management contract.)

C-W would pay S-P \$35 million for long-term leases for various plants.¹²⁷

Rolling On

The automobile industry rolled on in late 1956. On September 5, 1956, the Automobile Manufacturers Association voted to approve the Ford Motor Company's application for membership. George Romney was, as well, elected president of the association, replacing James J. Nance. Harold Churchill, S-P's new president, was also elected to the AMA Board.¹²⁸ The AMA accepted Nance's resignation "with regret," and issued a resolution, signed by Romney, extending its deepest appreciation to him for his services to the AMA and the automotive industry.¹²⁹

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Models of Automotive Firms Past and Present: Insights from Transaction Cost Economics and Industrial History

by Mark P. Forbes

Preamble

I started this study over three years ago as my Master's Dissertation. Since then, the world has changed rapidly. COVID and its afflictions upon humanity, business, and the capitalist system were all things I had thought of as temporary and unrelated to my work. In combination with the war in Ukraine, these and other events are causing further shocks to international capitalist systems pushing the world close to recession and the associated automotive sales slump. As time passes and I dive deeper into the economic theories of Schumpeter and Chandler, I realize that the past two years have served as a crisis test for how firms operate and an opportunity for course adjustment.

My opinion regarding Tesla's relationship to Transaction Cost Economics remains largely unchanged, though in need of expansion regarding the influence of suppliers as well as alternative models of production. However, Tesla's long-term program of vertical integration prior to the pandemic has proven to be the firm's greatest strength – that is because Tesla was able to maintain its supply of microchips and associated electronic components, sustaining profitable production whilst competitors that had contracted out were and continue to struggle to assemble complete vehicles. My work below alluded to the threat of Tesla's leadership being distracted by other projects and the firm financially suffering from such distractions. Over the last year, Tesla stock has peaked at \$384.29 and bottomed out at \$101.81, currently with a market cap of \$375,772,541,431 or almost six times the value of General Motors Company.¹ In the last several months, that distraction has taken the unexpected form of Twitter which continues the trend of Elon Musk returning to his

technological company roots.

My larger intent is to integrate and develop the ties between history and economic theory in such a way that is accessible and academically useful to demonstrate patterns and definitions of success and failure within the North American automotive industry with a special focus on independent or small firms and their influence on the industry. This in turn will help contextualize the rise of new electric vehicle focused firms, namely Tesla, but also Lucid, Lordstown Motors, and Rivian, and the development of more entrenched firms such as the North American Big Three.

—Mark P. Forbes, January 2023

Tesla, Déjà vu?

Tesla, Inc, the world's leading producer of electric cars, turned twenty on July 1st of 2023. By 2021, Tesla has produced over one million vehicles and lost over six billion dollars. However, between March 22nd, 2020 and January 10th, 2021 their stock value rose from \$93.90 to a peak of \$884.49 despite 2020 being its first and only profitable year at a net profit of \$721 million.² This meteoric rise is very rare for any company and is unprecedented for an independent automaker.³ Tesla's rise can be profitably studied in the context of automakers in the early to mid-twentieth century. Just as Tesla has been gaining a foothold in the infancy of electric automobile technology, independent automakers such as Jordan, Packard, and Ford (up to roughly 1920) faced a similar issue during the first quarter of the 20th century. A better understanding of the modern firm's management can be achieved by comparing the strategies and decisions from both the distant and recent past. There is a dual purpose to this paper; the first being to analyze



Somewhere West of Laramie

SOMEWHERE west of Laramie there's a broncho-busting, steer-roping girl who knows what I'm talking about.

She can tell what a sassy pony, that's a cross between greased lightning and the place where it hits, can do with eleven hundred pounds of steel and action when he's going high, wide and handsome.

The truth is—the Playboy was built for her.

Built for the lass whose face is brown with the sun when the day is done of revel and romp and race.

She loves the cross of the wild and the tame.

There's a savor of links about that car—of laughter and lilt and light—a hint of old loves—and saddle and quirt. It's a brawny thing—yet a graceful thing for the sweep o' the Avenue.

Step into the Playboy when the hour grows dull with things gone dead and stale.

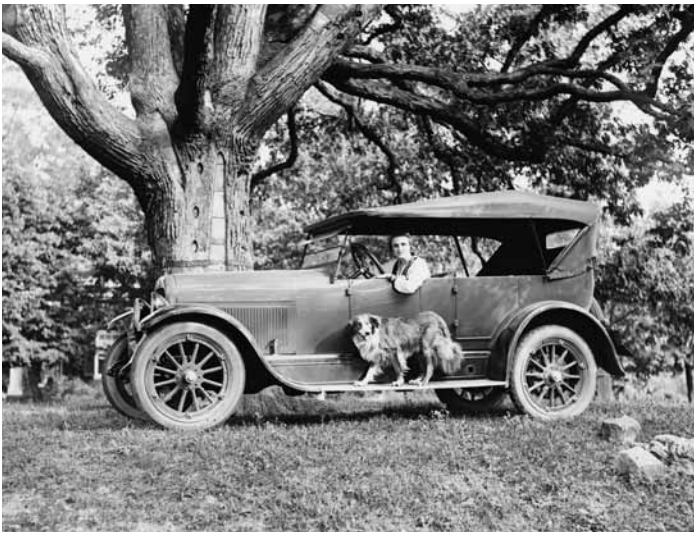
Then start for the land of real living with the spirit of the lass who rides, lean and rangy, into the red horizon of a Wyoming twilight.



JORDAN

JORDAN MOTOR CAR COMPANY, Inc., Cleveland, Ohio

Advertisement for the Jordan Playboy, made by the Jordan Motor Car Co., shows cowboy on horse racing girl in convertible. Illustrated in Saturday Evening Post, June 23, 1923, p. 129. Reproduction of drawing by Fred Cole. (Library of Congress.)



Jordan Car, 1920, photograph taken during the Fredricksburg Tour. (Library of Congress.)

the phenomenon of independent automakers within their historical contexts and the second being to explore and validate the utility of Transaction Cost Economics (TCE) in revealing the potential models of firms and why their leadership chose those models. TCE defines itself in its framing of business decisions in terms of what scale of purchase or contracting production is viable or more importantly, profitable, to firms of varying sizes, with smaller firms tending towards contracting and larger towards vertically integrating.

In historical context, there have been thousands of independent automakers; though few made it to profitability or even a complete product, and even fewer operated in a growing niche market. The current changeover to the electric vehicle market is akin to the transition from carriage industry to gasoline-powered vehicles during the first twenty years of the twentieth century. In transitionary periods, a company's growth is closely linked to how it is operated; namely, to the goal of the firm in question, the ambitions of its leadership, and the profitability of its chosen manner of operations. These are many of the issues that surface when the historical context of Tesla's independent predecessors is analyzed; some chose to operate in the margins, simply assembling cars from components available on the market; others were determined to innovate and maintain status despite a market flooded by larger competitors. Finally, one company, Ford, emerged out of failure and dogged perseverance, to become the largest manufacturer of automobiles in the world. Each of the selected historical case studies analysed produced a profit in its first year despite differing methods of operation. Whereas

most companies succeed or fail in their first years of operations, Tesla has bucked that trend, beginning with years without making a net profit or even assembling a substantial number of vehicles. Considering historical context combined with Transaction Cost Economic Theory, it is possible to understand why Tesla had such a late start despite being an early innovator of electric vehicle technologies and additionally why it is in danger of overextension within a transitioning marketplace.

The Essentials of Transaction Cost Economic Theory

The analysis of several historic case studies and their relation to Tesla's current operation benefits from a rudimentary understanding of Transaction Cost Economics. Originating in 1937 by Ronald Coase (1991 Nobel Prize winner in economics), TCE altered the contemporary definition of the financial and organizational limitations placed upon extreme vertical integration associated with large firms as well as refining the very definition of the firm and the human relationships within it. Vertical integration is defined as a company's capacity to produce and sell its products using in-house services. A good example of a highly integrated firm is a furniture company that owns and operates its own tree plantations, sawmills, jigging facilities, assembly plants, and sales network. On the surface and in many cases, the prior example might be described as more profitable due to the firm's control of the supply line, theoretically eliminating the complexities involved in outsourcing work, the primary complexities being overhead costs and intercorporate partnerships.

The importance of the theory of transaction cost economics lies in its redefinition of the relationships and human capital involved, setting limits on the integration and efficiencies of firms. The larger the firm becomes, the more exchanges (inter-corporate or in-house) it is forced to make. In turn, the more exchanges it makes, the more expensive each of these exchanges may become due to limits to moving existing resources around. Decision-makers have to decide whether to take on the costs or go into the market for the additional requirements, or abandon the expansion. Considering all of the above, a rapidly expanding enterprise such as Tesla may be threatened by unhealthy expansion and excessive integration that may position it beyond the point of potential cost efficiencies. Historic automotive enterprises suggest that by expanding too fast, investing too heavily in in-house capacity, ignoring potential outside



Packard Motorcar Company Automobile Plant, 1900-1910. (Library of Congress.)

specialists as potential contractors capable of producing components of higher quality for a lower price, Tesla may be heading for failure. In exploring corporations on various ends of the TCE scale, the reader will see a correlation between size (and ambition) and the efficient use of vertical integration as the ability of human capital and relationship struggles to keep up with the structure of the firm in question. The alternative is to go to the market, and that too has costs (commissions, license fees, contractor profits, etc.) and risks (the non-trivial tie-in between the lead firm and contractor and possible changes that make the latter obsolete).

Jordan: Contracting ‘Everything’ and Selling the Sizzle

The Jordan Motor Car Company of Cleveland, Ohio, is unique as a case study in that it was a very small independent car manufacturer with a flair for publicizing its product lineup of assembled cars between 1916 and 1931 (much like Lotus of the second half of the twentieth century).⁴ The purpose of bringing Jordan into an assessment of Tesla is to set up a contrast between the quick organization and production start-up made possible by Jordan’s contracting out the overwhelming majority of parts production, only assembling the parts into cars in-house as compared to Tesla’s rush to internalize pro-

duction. Like Tesla, Jordan was founded in a transitional period within the transportation industry. Whereas Tesla is a frontrunner in electric car technologies and in need of more specialized parts (e.g., batteries and electric motors), Jordan was part of the second wave of automotive producers emerging or evolving from ex-bicycle and carriage manufacturers throughout the Great Lakes region. Jordan found itself able to outsource general parts production to third parties already producing components for other auto manufacturers. Jordan serves the purpose of contrast quite well because of a remarkable source.

The management of Jordan focused on what the company founder and president Edward “Ned” Jordan summarized as the “Design for Survival” in his 1945 reminiscence and advertising manual *The Inside Story of Adam and Eve*.⁵ This “Design for Survival” centered on the claim that “every *new* industry, every *new* business must pass through five periods: Engineering . . . Production . . . Merchandising . . . Auditing . . . Service. And those five are dependent upon five others – Men . . . Money . . . Machinery . . . Merchandise . . . Market.”⁶ Jordan summarizes these periods as one might summarize the business cycle in relation to TCE, in that in order for any firm to succeed, it needs to understand diminishing returns in light of a yet unstandardized market, the impossibility of standardizing the components of an entire product lineup, and the necessity to maintain good relations with the consumer and suppliers.⁷ Each of these ingredients requires the firm in question to maintain effective leadership at all levels, which Jordan broke down so aptly. As a smaller company, Jordan did not require a large leadership cadre. That allowed it to focus on a market niche. Indeed, market identification was the firm’s principal ‘real business.’ In Jordan’s case, it was a matter of understanding that his financial limitations (with the company capitalized for \$800,000) made it impossible to produce a complete vehicle in-house.⁸ Under the advisement of his managers who were lured from his

original employer and automotive competitor (Jeffery of Kenosha, Wisconsin). Jordan chose to assemble rather than integrate and produce a complete vehicle in-house.⁹ Such an endeavor led Jordan to contract dozens of suppliers throughout the Great Lakes region. This practice saved the firm the expense of purchasing expensive tooling to engineer and mass-produce auto bodies and engines.¹⁰

Jordan was small enough to avoid the high costs involved in organizing a large firm and managing depreciating returns involved with internal organization. Jordan protected itself from the dangers of an overstretched management team and organized itself as a niche screwdriver firm assembling between 1,000 and 8,500 cars annually rather than becoming a large-scale enterprise such as Ford or Tesla, which set out to produce hundreds of thousands of units at an early point in their industrial development.¹¹ Jordan's lithe management team was able to organize profitable assembly within a year of the company's foundation. The majority of initial expenses went towards constructing the assembly plant in Cleveland. This is unlike Tesla, which only attained its first annual profit in 2020 (on the back of high stock prices and over a billion dollars in emissions credits). Within three years, Jordan had established itself as a mid-level luxury auto manufacturer, undercutting the more substantial and integrated Packard and Cadillac. With prices ranging \$1,650 to \$3,000, the firm achieved its record profit of roughly \$700,000 by 1923.¹²

By contracting out the overwhelming majority of parts production, the company was able to focus on Edward Jordan's specialty, advertising that enticed youthful buyers with a high quality custom styled product exemplified by his 1923 "Somewhere West of Laramie" advertisement. His achievement was a sales pitch that presented the vehicles as flashy and the right complement to a liberal youth culture. TCE theory would describe such a corporate design as lithe in that the managers, rather than focusing on producing every single component thereby assuming associated tooling and training costs (as described by Williamson) and forcing an increase in managers, was able to thrive, as Jordan described in his reminiscence: "There is only one aristocracy and that is the aristocracy of capacity... the ability to do at least one thing, however simple it may be, a little better than anybody else."¹³ In this case of a very crowded market in its infancy much like the electric car market of today, Jordan differentiated his company

from other producers not in technological superiority or scale of production riding on the back of vertically integrated giants, but in flash and sex appeal through his ability to capitalize on his marketing genius, selling an assembled product as a fashionable status symbol.

Jordan was much more successful as an automaker than most of its contemporaries due to an extreme adherence to focusing its smaller management team on generating sales and publicity and contracting out for many parts. Whilst Jordan's small team was successful in quickly assembling and marketing a successful product line, they still made the rare error – attempting to market a European styled (compact) luxury car in 1927 to dismal public interest and putting Jordan into the red for the year.¹⁴ However, the company stoically pushed through and returned to profitability prior to the Great Depression which ultimately finished Jordan in 1931.¹⁵ Although Jordan's misfortunes can easily be blamed on its expensive attempt to create a new market segment, this was not the case. In 1992, Tim Howley explored the end of Jordan and concluded that the company's cost-saving contract and assembly style of management shielded the company from much of the Depression, unlike many auto manufacturers.¹⁶ In his view, the failure of Jordan, the company, should be attributed to the management failure of Edward Jordan and his waning focus and drive. Edward Jordan copied the life depicted in his advertisements a little too closely, distracting himself and his cadre of managers from steering Jordan out of the Depression. Rather, he indulged himself in alcohol, womanizing, and taking impromptu vacations much to the dismay of his family.¹⁷ His conduct led to his eventual divorce and even greater distraction in 1928 with his wife Lottie leaving him (splitting their stock in the firm) and the dismal failure of the compact luxury car Jordan Little Custom the year prior.¹⁸ Edward Jordan's issues led to a drastically weakened management of the company. Despite efforts to recover the firm through proposed mergers with other luxury auto manufacturers and attempted reorganization by Cleveland bankers, Jordan failed.¹⁹

Tesla has taken a different route from Jordan. Instead of immediately contracting out to pre-existing parts manufacturers in order to start quality assembly quickly (which admittedly would be more difficult with the highly evolved modern car as opposed to its primitive antecedent in 1916), Tesla pursued an ambitious integrated plan akin to Henry Ford's approach. In 2006, the contemporary independent automaker Tesla under Elon Musk pledged a

so-called “Master Plan” to bring Tesla to the mainstream under a four-step program of starting small with low production number vehicles and pushing downmarket as they have done to date.²⁰ One of the problems with such a strategy was that it effectively fixed Tesla to a course of developing new technologies (e.g. batteries and motors) and large-scale production facilities. As such, Tesla had to absorb what Williamson described as asset specific costs rather than minimizing such expenses through pre-existing contractors and technological specialists. Rather, Tesla grew from a very small concern with no production experience or sales network to an as of yet medium sized but unprofitable firm.

Donald Davis’ 1988 book *Conspicuous Production Automobiles and Elites in Detroit, 1899-1933* describes a division of early automotive leaders between owner-managers who were funded by a sort of “gasoline aristocracy” centered on bankers and the upper class and engineer-entrepreneurs who were largely self-funded and offering a product not for themselves but for the buying public.²¹ Davis suggests that this division of leaders involved not just their individual decisions but also differences in class, ambition, and education.²² These factors influenced how the American automobile was developed and dictated that the center of American automotive production would be in Detroit not another industrial city such as Philadelphia, South Bend, or Buffalo.

The importance of Davis’ thesis comes into play when studying the individual circumstances of automotive leaders such as Edward Jordan and Henry Ford – each of whom is best described as engineer-entrepreneur based on his dedication to “keen entrepreneurial spirit . . .” and “democratizing a product that remained the exclusive property of the rich and powerful.”²³ Although Edward Jordan was an engineer-entrepreneur working beyond the financial clout of Detroit’s elite, he accessed financing through a narrow band of relationships garnered during his tenure at Jeffery in Kenosha to develop his firm in Cleveland, another aspiring automotive boom town.²⁴ The division of automotive leaders leaves questions of motivations and obligations. Jordan’s rise was made on the back of niche advertising and offering a quality automobile for less. His fall was due to his own hubris and personal problems, which are both potential vulnerabilities to personalities who overstep their limits. As often is the case in automotive history, the Jordan and Tesla contrast brings out the problem of highly visible corporate personalities in an industry. Elon Musk is not

Edward Jordan. Their abilities and flaws were quite different and that possibly influenced their responses to the dilemma of transaction costs.

Packard, Prestige, Contractors, and Production: A Story of Long Term Planning

While an extreme example of contracting and the dangers of short-term lapses in management is found in Jordan, a more middle of the road example is visible in Packard Motor Car Company. Packard was different from Jordan, Ford, or Tesla in that it was the preeminent American producer of luxury cars from its foundation in 1899 to its ill-fated purchase of Studebaker in 1954 (and resultant death as a brand four years later) and exit from Detroit in 1956. Packard’s corporate strategy was to move steadily downmarket from initial prestige cars (with a significant amount of vertical integration in producing their vehicles’ primary components) to upper-middle class cars during the Great Depression, taking advantage of idle production capacity and Packard’s reputation to rescue floundering sales, and finally moving to the middle class during the postwar period with the production of fleet vehicles. Such a tactic of adjustment demanded the internalization of specific parts production during different eras, and in light of a centralizing industry following the Second World War. Packard’s history suggests a warning for Tesla in the format of three potential dangers centered on the ideas of TCE. Together, the dangers pushed (but did not force) Packard into an ill-fated relationship with Studebaker. The three considerations are the financial burdens of technological and prestigious leadership, the struggle for an upmarket firm to push downwards to broaden appeal without risking reputation or quality in pursuit of scale, and the dangers of larger conglomerates simply buying out crucial parts suppliers and taking over specific markets.

TCE serves to bring attention to the need for prestigious firms to maintain a lead in technology, styling, and quality over competitors and the almost artisanal nature of a luxury automotive concern. These multiple criteria necessitated constant management by visionary leadership as well as the maintenance of the human capital necessary to design, manufacture, and assemble innovative products for the target market. Packard maintained its sales lead over its competitors, including Cadillac, Auburn, and Lincoln through the 1940s. Packard accomplished this through a constant pursuit of excellence,

quality, and engineering using a combination of in-house production and engineering capacities whilst outsourcing a mix of some components, thus reducing costs and allowing management to focus on technical perfection. One critical component, which Packard outsourced, was auto bodies. Packard consistently designed and assembled its own remarkable engines from its foundation to its effective end as a marque in 1956. For instance, it offered the first automotive V-12 in 1915, designed by engine savant Jesse G. Vincent, who understood the inherent smoothness of twelve cylinders as opposed to a V-8 used by competitors such as Cadillac. Packard adapted its design to produce the Liberty engine of the First World War.²⁵ The asset specificity, the TCE concept advanced by Williamson, of the production involved in Packard's V-12 programme is simple to explain.

Unlike Jordan, Packard already possessed a skilled workforce, most of the tooling necessary to produce components, and the knowledge that they had a monopoly on automotive V-12s, which was exploited as an attention-grabbing market ploy catching competitors on their back foot. Such advantages were followed by several innovations, including the inline eight in 1924, which, due to the casting technology of the time and Packard's dedication to quality, often surpassed its contemporary V-8s in terms of performance and smoothness. Packard's inline eight was only replaced by Packard's new line of V-8s in 1955.²⁶ This focus on engines was an example of a firm absorbing the cost of asset specificity. The company's constant modernization of the inline eight for thirty years worked well. The product specificity had a good marketing dimension, but also a risk feature. Packard's attachment to its inline eight was an opening for other companies to exploit through the production of vogue V-8s following the Second World War, leaving Packard's inline eight as an anachronism.

Packard, like the remaining independent automakers (Hudson, Nash, Studebaker, Kaiser-Frazer, and Willys), struggled through the 1950s with the decline of military contracts and in the face of what became the GM-Ford sales war of 1954. During this period, Packard garnered engine and transmission contracts from Kenosha, Wisconsin's American Motors Corporation (which was without an in-house V-8 or automatic transmission) on the expectation that Packard would contract substantial components from AMC (namely auto bodies). This expectation was not fulfilled, and thus Packard lost not only the contract but also a method of

recovering the costs of development.²⁷ Packard maintained its in-house engine production through 1956 until its exit from Detroit, even designing and building its own automatic transmissions second only to their crosstown rival Cadillac. As such Packard maintained its corporate independence from most outside suppliers. This integration was not enough due to the changing relationships within the automotive industry following the Second World War and opportunistic competitors buying major component suppliers, thus exposing the



1931 Eighth Series Packard Eight Model 833. (Courtesy, Bull-Dozer.)

vulnerability of a firm reliant on outside contractors, a possibility noted in TCE theory.

Almost from its inception, Packard contracted out the totality of both its custom body production to specialty body builders and its mass-market designs to dedicated mass-producers. This decision placed a significant part of the firm's business and reputation in the hands of contractors. Packard's over dependence on a single auto body manufacturer, Briggs Manufacturing Company, from



1955 Packard Patrician. (Courtesy, Rex Gray.)

1941 to 1953 left Packard open to market shakeups and inter-corporate opportunism.²⁸ This would be a critical factor leading to the near collapse of Packard's automotive operations in 1953. Packard's long-term contracting-out of auto bodies was to be expected of a high-end automotive concern during the first thirty years of the twentieth century for three reasons: it was a transition period, coach builders and designers who possessed the material and human assets necessary to produce high quality bodies were available, and the small but wealthy target market for luxury cars did not necessarily want a 'standard' car.²⁹ Thus, the use of a multitude of contractors offering custom designs in a relatively stable market was a safe option for any luxury maker such as Packard or Jordan. As a result, Packard was able to contract out its body production to significant numbers of coachbuilders on the expectation of quality workmanship and even to collaborate on designs such as the 1941 Clipper with the establishment of long-term corporate relationships. Packard did not need to manage its body production, thus reducing its transaction costs. But this move to the market left the firm open to changes in the market and opportunism by larger firms such as Chrysler during the postwar period.

Packard's 1930s offerings centered on upper and upper-middle class cars (otherwise known as the 'Senior' and 'Junior' lines). In such a market, Packard found itself with a declining number of potential coachbuilders and opportunities to integrate body production either through the purchase of or merger with a firm with both the capacity and human capital to produce auto bodies. But Packard's leadership focused on the production of its wildly successful Junior line and chose to contract the entirety of its body production to Briggs in 1941 on the assumption that Briggs, a firm specializing in auto body production and contracting out to a multitude of other firms such as Chrysler and Ford, would consistently fulfill Packard's demands for high quality bodies for a lower cost than Packard could manage in-house.³⁰ Such assumptions left the relationship open to market shakeups, with the Second World War interrupting Clipper production just as it started. During the postwar period, consistent labor unrest within Briggs led to subpar body production and quality control issues for Packard throughout the late 1940s and early 1950s.³¹ The error in judgment was recognized too late as Packard's vice-president of engineering reminisced:

Briggs told Mr. Macauley that they could build bodies cheaper than we could. This was the first

very serious mistake. If we couldn't build bodies cheaper, we had no business being in the auto business...³²

Such a relationship left Briggs capable of cutting off Packard's auto body supply, and it effectively did so in 1953 when Chrysler (which was attempting to further integrate and remain relevant as a member of the Big Three) purchased it. This left Packard no auto body capacity in its East Grand Boulevard assembly plant. Its options were limited. It could lease Chrysler's (nee Briggs) Conner Avenue plant with roughly twenty percent the square footage of Grand Boulevard and massively downsize its automotive operations, abandoning the automotive industry for its still profitable military contracts, despite government preference towards the Big Three, or contract out body production to Nash-Kelvinator and ship bodies from Kenosha.³³ Packard management leased the Connor Avenue plant in 1954 and was in turn forced to downsize whilst organizing and developing the human capital necessary for body production that in turn was a contributing factor in the delayed release and reduced production of Packard's all new 1955 lineup.³⁴ Such conditions were all contributing factors to Packard's buyout of a theoretically healthy Studebaker of South Bend, Indiana, on October 1, 1954. The merger was sound on paper. Packard's engineers and designers were still ranked amongst the best in the industry and Studebaker was capable of producing over 300,000 cars per year.³⁵ However, Studebaker-Packard now had a leased and cramped Detroit luxury car plant and a South Bend operation incapable of selling enough cars to break even.³⁶

While Packard successfully integrated much of its development and production, even using its specialized workforce to produce military hardware or components for other independent firms, it was overwhelmingly reliant on auto body contractors throughout its existence, and this proved to be one of the nails in Packard's proverbial coffin. In terms of TCE, it had exemplified a mix of internal development at a high level and contracting out. The strategy made economic sense in stable circumstances, all things being equal. Nevertheless, the industry was dynamic; all things could not remain equal. Companies that internalized all processes may have had short-term internal adjustment costs, but in a longer term they could gain strategically. TCE had a lot to offer with respect to how firms function, but the full scope, including strategic moves, is revealed with history's contribution. Such an

internalization of costs and strategic vision is built upon who founded the firm and how. Davis reminds the reader that while Packard was a Detroit firm, it only came to Detroit by the promises of financial support and growth in exchange for serving a niche upper class clientele in producing small batches of custom automobiles from the early 1900s through the 1930s.³⁷ This left Packard with reduced strategic options in terms of growth as time went on due to its attachment to local suppliers and an unsteady adaptation to middle class markets during the Great Depression and postwar periods.

Packard had the opportunities to purchase or merge with specialized firms such as Nash-Kelvinator whilst it was still a healthy company pushing downmarket and, possibly avoiding reliance on opportunistic contractors and competitors. This situation was similar to Tesla's current relationship with battery supplier Panasonic. While Panasonic is cooperating with Tesla in designing and manufacturing much of the automaker's battery supply, it has also been shopping for other interested parties such as Toyota as a way of redistributing cost and preparing for a diverse EV market.³⁸ Unlike Packard, Tesla has made it clear that it aims to be self-sufficient in terms of battery production by roughly 2022, reducing the risk of market opportunism to their corporate existence but also taking on the extra management responsibilities in producing their own batteries.³⁹

Ford Motor Company: The Transition Years 1903 to 1922

Ford Motor Company of Detroit is one of the 'Big Three' American alongside General Motors and Stellantis (nee Fiat-Chrysler) and renowned for its founder's development of the Fordist system of production.⁴⁰ It would be impossible to describe Ford as an independent company today due to its massive scale and multitude of divisions, but the company was a start-up in a crowded market when it was founded in 1903. During the period from 1903 until 1922, Ford made the shift from contractor to being the largest producer. Significantly, for positioning the firm in TCE theory, Ford was the most integrated automotive firm in the early twentieth century. This feat was accomplished because of Henry Ford's intention:

I will build a motor car for the great multitude... constructed of the best materials, by the best men

to be hired, after the simplest designs that modern engineering can devise...so low in price that no man making a good salary will be unable to own one-and enjoy with his family the blessing of hours of pleasure in God's great open spaces.⁴¹

This should be familiar to the reader, as the aforementioned 'Tesla Master Plan' describes a similar intent, one to build a simple electric vehicle for the masses and to improve the technologies involved in its engineering and production.⁴² However, there are a multitude of differences between Ford and Tesla, namely the amount of time it took each firm to start scale production or become profitable. Each firm integrated its production and increased its production capacity, but Ford advanced through the development of innovative modes of production to produce a car for the masses. In contrast, Tesla began production for a niche market and worked its way down market from sports cars to SUVs and sedans.

Although snippets of Ford's early years are common knowledge, a review will help show how an independent automaker grew from Henry Ford's third and last chance at a successful business to the world's most productive automaker in the world within just three years, surpassing the 200,000 cars-per-annum mark by 1913.⁴³ Ford's initial operation did not feature a moving assembly line. That only came in 1913, five years after the first Model T. Ford, like Jordan, began by using groups of employees to assemble outsourced parts from companies such as the Dodge Brothers. As significant parts producers, that firm had financial reason to support Ford through the exchange of parts for stock.⁴⁴ This initial setup allowed Ford to out-produce most other corporations during its early years whilst reinvesting profits into increasing its vertical integration and the construction of the Piquette Avenue and Highland Park assembly plants in 1904 and 1910, respectively.⁴⁵ According to TCE, the importance of such developments and Ford's early use of contractors is that Ford, as a relatively small firm, could avoid over-commitments and focus on engineering a product closer to the founder's goal, and accomplish that on the back of an already profitable venture. This allowed Ford to develop its now legendary Model T and lower its price whilst improving quality throughout its nineteen-year production run.

Ford's use of outside contractors and its gradual integration of parts production would lead to the foundation of what was then the largest and most modern industrial complex in the world, its River Rouge facility. At the



Henry Ford, 1919. (Library of Congress.)

same time, the Ford contract was very lucrative to the Dodge Brothers, a point made by renowned automotive historian Beverly Rae Kimes. The profits received from the ever-expanding contract paid for greatly increasing the Dodge Brothers' plant capacity. Meanwhile, Ford paid a generous annual dividend, and some went to the Dodge Brothers for their ownership of Ford shares.⁴⁶ This dividend amounted to roughly \$1 million per annum by 1916, a sizable return for the Dodge Brothers original \$10,000 investment.⁴⁷ These cash flows funded the Dodge Brothers diversification into auto production thereby allowing it to become both a contractor and a competitor to Ford. The Dodge Brothers witnessed the success of Ford's development of its own human capital and specialized equipment; hence, they decided to evolve from strictly an auto parts manufacturer to an automotive concern in their own right in 1914.⁴⁸ Doing so necessitated the reinvestment of dividends earned from their stake in Ford. The Dodge Brothers imitated Ford's production model under the one roof at River Rouge whilst taking the simplicity of the Ford Model T and developing their first cars as a step up with greater

features and higher quality.⁴⁹ In doing so, they became the second largest producer of automobiles by 1916.⁵⁰

By 1916, Ford had already started to shed its contractors, having grown large enough to support most of its own parts production, although it still contracted out much of its auto body work. Greater integration and the buyback of shares became two obstacles to Henry Ford's mission of producing a car affordable to anyone earning a decent wage as well as providing superior wages to all of his employees and thus drawing skilled labour from other Detroit firms. These goals and the growing interest of the Dodge Brothers led to litigation by the Dodge Brothers against Ford 1917-1919. This case holds significance in regard to TCE in that it depicts an opportunistic shareholder and supplier (Dodge Brothers) restricting the expansion of a firm that is both at once its competitor and a major source of income in order to protect its own expanding business. This strategy was at the expense of Henry Ford's attempts to increase wages whilst lowering prices. The costs of the case delayed Ford from investing in the construction of the River Rouge plant and greater integration for two years and only ended with the court's order that Ford pay a special dividend of \$19.2 million to shareholders.⁵¹ The majority of shares belonged to Henry Ford.⁵² This result reinforced Henry Ford's disdain for investors and bankers and pushed him to buy out the other shareholders for a massive \$125 million.⁵³ Davis reminds readers of the similarities between Henry Ford and the Dodge Brothers in terms of semi-educated and rural origins, placing each of them outside the direct reach of urban finance but close enough to the automotive boom to aspire towards their own enterprises and contributions – with or without and certainly against the grain of Detroit's financial elite.⁵⁴ These parallels, like those of Ned Jordan, show the reader that social outsiders can be wary of financiers out of concern for their own independence and the long-term health of their enterprises despite the potential benefits of outside financing.

There is a parallel between Ford and Tesla. Each aimed to drive prices continuously downwards during periods of transition from one mode of transportation to another when there was significant doubt regarding the potential for the gasoline powered car and electric vehicles respectively. Ford focused on getting a product to market using large-scale contractors such as the Dodge Brothers and earning a profit whilst engineering its Model T and putting the world on wheels. Tesla, on the other hand, spent five years engineering its Roadster

on a heavily-modified Lotus chassis and another four devolving its Model S, without earning any profit.⁵⁵ Ford succeeded in its mission to provide vehicles for the masses whilst maintaining substantial profits and paving the road for future innovators such as Tesla. At the announcement of the retirement of the Model T and introduction of the Model A, Henry Ford said this:

The Model T car was a pioneer. There was no conscious public need of motor cars when we first made it. There were few good roads. This car blazed the way for the motor industry & started the movement for good roads everywhere. It is still the pioneer car in many parts of the world which are just beginning to be motorized. But conditions in this country have so greatly changed that further refinement in motor car construction is now desirable & our new model is a recognition of this...

The Model T was one of the largest factors in creating the conditions which now make the new model Ford possible. The world-wide influence of the Ford car in the building of good roads & in teaching the people the use & value of mechanical power is conceded. Nowadays everybody runs some kind of motor power but twenty years ago only the adventurous few could be induced to try an automobile. It had a harder time winning public confidence than the airplane has now. The Model T was a great educator in this respect. It had stamina & power. It was the car that ran before there were good roads to run on. It broke down the barriers of distance in rural sections, brought people of these sections closer together & placed education within the reach of everyone.”⁵⁶

Tesla’s Master Plans are reminiscent of Ford’s speech above. Tesla’s original 2006 Master Plan started with the simple lines:

As you know, the initial product of Tesla Motors is a high performance electric sports car called the Tesla Roadster. However, some readers may not be aware of the fact that our long term plan is to build a wide range of models, including affordably priced family cars. This is because the overarching purpose of Tesla Motors (and

the reason I am funding the company) is to help expedite the move from a mine-and-burn hydrocarbon economy towards a solar electric economy, which I believe to be the primary, but not exclusive, sustainable solution.

Critical to making that happen is an electric car without compromises, which is why the Tesla Roadster is designed to beat a gasoline sports car like a Porsche or Ferrari in a head to head showdown. Then, over and above that fact, it has twice the energy efficiency of a Prius. Even so, some may question whether this actually does any good for the world. Are we really in need of another high performance sports car? Will it actually make a difference to global carbon emissions?

Well, the answers are no and not much. However, that misses the point, unless you understand the secret master plan alluded to above. Almost any new technology initially has high unit cost before it can be optimized and this is no less true for electric cars. The strategy of Tesla is to enter at the high end of the market, where customers are prepared to pay a premium, and then drive down market as fast as possible to higher unit volume and lower prices with each successive model.⁵⁷

Like Henry Ford, Elon Musk put forth his and Tesla’s intent not just to create product but to change the way people travel. But instead of simply creating a vehicle so inexpensive and inclusive that it put America on wheels as the Model T accomplished, Tesla from the beginning aimed to “expedite the move... towards a solar electric economy” with the understanding that the firm had limited human capital and specialized equipment. Tesla aimed to develop public confidence in EVs.⁵⁸ In turn, this cultural strategy forced a transition period from gasoline-powered vehicles to electric vehicles and required entrenched automakers to either follow suit, by either developing their own electric vehicles, focusing on improving the internal combustion engine in the face of ever-increasing emissions standards and gasoline prices, or trying to take leadership from Tesla.

Henry Ford was successful in garnering sufficient financial and material support from Detroit society. In

his 2016 “Master Plan, Part Deux” Elon Musk admitted his doubts in his ability to follow suit:

I thought our chances of success were so low that I didn't want to risk anyone's funds in the beginning but my own. The list of successful car company startups is short. As of 2016, the number of American car companies that haven't gone bankrupt is a grand total of two: Ford and Tesla. Starting a car company is idiotic and an electric car company is idiocy squared.⁵⁹

This simple statement clarifies Tesla's reluctance to rush for scale. Elon Musk recognized the massive finances and human experience necessary to create an automotive concern and rather than rush for scale and shatter the status quo of automotive production, he chose to develop Tesla slowly and carefully, recognizing the risks of investing in a new technology. Unlike Ford, Musk was unwilling to bring on the financial powers of local financiers in order to scale up quickly and get a product to market thus generating funds to reinvest into growth. In addition, Tesla did not follow Ford's example of contacting out sub-components to jump-start assembly. Instead, Tesla purchased very small amounts of components from small-scale producers such as Lotus and shipped them to the USA for modification and assembly, factors partly responsible for the minuscule Tesla Roadster production run.⁶⁰ Nevertheless, in their delays and management styles, Tesla and Musk have trained talent and forced recognition of the market potential for electric vehicles. One result is that a number of Tesla employees have been headhunted by pre-existing automakers or formed their own automotive firms (e.g. Fisker and Lucid Motors). With this rising opportunism, Tesla is caught in a tempest of competition readying for an all-out retail war, just as many American independents found themselves during the 1930s and 1950s with the consolidation and technological advancements of the automotive industry.

Tesla and Transaction Cost Economics

In the end, the question of Tesla's future and the justification of its stock value returns to the words of Edward Jordan: “There is only one aristocracy and that is the aristocracy of capacity... the ability to do at least one thing, however simple it may be, a little better than anybody else.”⁶¹ At this time, Tesla produces more elec-



Elon Musk at the Tesla Annual Stakeholder Meeting, 2014. (Courtesy, Steve Jurvetson.)

tric vehicles than any one of its competitors, on the back of an eccentric management team with its focus spread across all levels of production, sales, and development. According to TCE, such diversification necessitates a firm to be large enough to absorb the expenses involved, develop the human talent and specialized equipment, and maintain its outside suppliers all the while predicting and managing both internal and market opportunism.

Although distant in chronology, the Jordan case study and TCE imply dangers facing Tesla from within the company itself. Tesla's figurehead, Elon Musk, like Edward Jordan, but in a different way, may be spread thin. Musk is spread thin between his technological ventures and controversial actions. Examples of this are his Tweet threatening to take Tesla private, his refusal to shut down production during COVID-19 lockdowns, his corporate ties to the People's Republic of China, and Tesla's continued reliance on government subsidies. Like Jordan, a large part of Tesla's future relies on its small leadership cadre, specifically Elon Musk, who like Edward Jordan and Henry Ford, can be described as a dreamer looking to future possibilities of doing something different. Whereas Jordan management suffered and eventually collapsed when Edward Jordan became distracted, Musk continues to work a careful balancing act between his other ventures, SpaceX, Neuralink, and The Boring Company. However, each may become the distraction that endangers Tesla's continuation as an automaker.

Returning to questions of production, Tesla had many potential paths open when it opened its doors in 2003, such as inviting private investors to finance

the quick development and sale of a complete product and using any amount of outside contracting to lessen the initial capital requirements. Jordan, Packard, and Ford each used a varying degree of integration and demonstrated the possibility of profit and production during a technological transition period similar to that which Tesla has faced since its foundation. However, as described above, Tesla management was wary of such investment, seeing the risks involved and how much stock investors would demand for laying out the groundwork for the assembly and sale of an unfamiliar technology. Then one must consider the dangers of any start-up becoming overly reliant on a single contractor, such as Briggs, and the risk of a shareholder/supplier such as Dodge Brothers entering the market. This issue raises the other side of TCE. The focus of this analysis has been on automotive manufacturers. However, study of parts suppliers would increase the knowledge base of TCE decision factors within the historical context. After all, in order for companies to contract out, there must be a supplier willing to fulfill the need.

Tesla now faces another turning point. As noted previously, Elon Musk fits the definition of engineer-entrepreneur much like Henry Ford or Edward Jordan. On July 31st 2021 BBC reported on a number of recent quotations regarding his personal views regarding his position at Tesla stating: “I rather hate it and I would much prefer to spend my time on design and engineering and have to [be CEO] or, frankly, Tesla is going to die.”⁶² These quotations taken during a trial suggest his discomfort but necessity at leading Tesla and that he understands the company’s position within a rapidly evolving market. This leads to the question of how much the future of Tesla is dependent on Elon Musk’s leadership as compared to the situations faced by preceding independent automakers. In addition, Musk’s goal of creating an electric vehicle market has been realized. The viability of this new technology has been proven and with the danger of climate change and climbing gasoline prices, market demand for electric vehicles has outpaced supply.

Tesla now faces competition from the automotive giants such as Ford, Volkswagen (nee Volkswagen), Renault, amongst many others. These competitors are experienced in large scale production, complete with financial and government backing, and capable of slowly and profitably converting production from gasoline powered vehicles to electric vehicles either through the use of contractors such as Panasonic or by simply

purchasing the necessary suppliers. In terms of TCE theory, they can scale up by planned reassignment of some current human and physical capital. These firms also have the connections required to contract out, and they have the benefit of now-proven technologies needed for assembly. Tesla has reached a point where it must choose whether to operate as a supplier of technology and/or components to these firms, to continue with the status quo, or to merge with a complementary firm, which lacks electric vehicle technology but possesses the necessary facilities to produce vehicles on a massive scale making up for Tesla’s shortcomings. Such decisions will be made in the knowledge that government subsidies, the cornerstone of Tesla’s existence, will become unnecessary due to the widespread adoption of electric vehicles by competitors and buying public. The potential loss of this major source of funding will occur whether or not Tesla is ready and has become fully integrated on a scale sufficient to support its transaction costs and supply a quality product in sufficient amounts to fill demand and earn a net profit for its shareholders. Each of these future pathways must be analyzed in its historical context and in the light of TCE in an attempt to demonstrate the theories behind mergers and the unforeseen effects of such ventures.

Future studies could focus on the mergers and buyouts of General Motors, Chrysler, and Auburn-Cord-Duesenberg during the first third of the twentieth century; Kaiser-Frazer, Nash-Kelvinator, and Packard during the 1950s; and the global subsidiaries of the American Big Three during the 1990s. The future of analytical studies of the automotive industry, studies drawing on the theoretical insights and case studies of TCE, is bright. The future of electric vehicles is brighter. The historian’s goal of providing credible narratives constrained by the best available evidence and theories can be realized when investigating together the internal combustion and the electric eras. They form a common tale of *Déjà vu*.

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Mediating the World Class Imperative: U.S. Automotive Journalism, the Big Three, and the Globalized Automotive Industry of the 1980s

by Vincent L. Stephens

“Because of the ripple effect of car purchases on the economy, the industry’s solvency, or lack of it, is usually a barometer of the nation’s financial stability. The car is also a cultural artifact with an impact unrivaled in the history of technology.”¹

A touchstone moment of my childhood came in the mid-1980s, when my parents purchased for me at Christmas a Crayola Designer Kit comprised of a drafting board and design tools. Their kind gesture acknowledged my burgeoning interest in automobiles, which grew into my adult identity as an automotive enthusiast. I used the kit to design cars for the Pinewood Derby competition hosted locally by my Boy Scout troop. I also purchased books on cars, attended auto shows and watched the automotive television magazine *Motorweek*.

The key to understanding myself and others with similar interests as enthusiasts was reading such magazines as *Car & Driver*, *Motor Trend*, and *Road & Track*. Ironically, as I developed an interest in automobiles U.S. consumers were losing interest in cars manufactured by the Big Three U.S. automakers—Chrysler Corporation, Ford Motor Company, and General Motors. The oil shocks of 1973 and 1979 led many consumers to question the design, quality, and desirability of American cars.² Integral to this growing skepticism was the expanding profile of imported cars, especially those manufactured by Japanese automakers. Finally, in the 1980s the U.S. automotive market grew increasingly globalized. Following Volkswagen’s opening of a plant in Pennsylvania in 1978, Japanese automakers began assembling cars at U.S. plants beginning with Honda, which opened one in Marysville, Ohio, in 1982. U.S. automakers entered

into joint ventures with Japanese automakers to learn more about Japanese production methods and expand their car lines. These included GM’s partnership with Toyota, NUMMI; Chrysler’s collaboration with Mitsubishi, Diamond Star; and Ford’s relationship with Mazda, the American Automobile Alliance.³ Most importantly domestic automakers faced an awakening which Maryann Keller (1989) noted “It is no longer possible to view foreign competition as a temporary business problem. Indeed, the world is in partnership with American business as never before. This fact produces a mandate for today’s American business leader that he not only consider the global business community and respect the competition, but also that he strives to understand the *ontology* of non-Western cultures. And he must be willing to be open to learning from the successes of his competitors.”⁴

U.S. automotive journalists played a central role in articulating the challenges and potential of the Big Three in the global market. Their complicated position between writing for U.S. based publications and fulfilling their professional responsibilities as product reviewers and industrial critics, as well as magazines’ reliance on automotive advertising, fostered a distinct positionality in the patriotic rhetoric associated with the United States of the 1980s. Engaging with their critical perspectives on the imperative for the Big Three to engage more intentionally with global competition is essential for understanding the decade.

By noting the myriad political and social changes of the era, historians have commonly challenged simplistic characterizations of the 1980s as the “decade of greed” characterized as “the vapid, hedonistic, amoral years of America’s new gilded age, when yuppies reigned and greed was good.”⁵ One of the most shared subjects

within this paradigm of critical reconsiderations are reassessments of the Reagan administration.

Two important observations historians have articulated related to this essay are the emergence of a distinct “Reaganite patriotism” during the decade and the nature of his economic policies. A unifying thread among interpretations is resurgent patriotism. Multiple historians have chronicled the Reagan era as one of renewed optimism and confidence in the stature of the U.S.⁶ The prosperity of the business sector, including increases in private wealth, combined with vigilant opposition to communism countered in the minds of many Americans the military defeats and economic woes of the late 1960s and 1970s. The nationalistic spectacle of the “Miracle on Ice” hockey game at Lake Placid, New York, during 1980 Winter Olympics, the fervor of the 1984 Olympics held in Los Angeles, and the patriotic appeals of Reagan’s oft-cited “Morning in America” reelection theme symbolized a pervasive optimism.⁷ Though multiple articles from the 1980s revealed the disparate relationships various American subcultures had to national pride during the “Era of Good Feelings,” including low-income families and African-Americans, the mood pervaded the nation.⁸

Economic expansion, including low inflation, declining unemployment, and economic growth informed the patriotic mood.⁹ Ironically, though Reagan “favored individualism, private ownership of property and free enterprise” and “opposed government intervention in enterprise through regulations,” he made an exception for the U.S. automotive industry in 1981 when he requested Japanese automakers participate in a voluntary restraint agreement (VRA) limiting the number of vehicles they imported to the U.S.¹⁰

I argue that U.S. automotive journalists were writing *in* a context of renewed patriotism during the 1980s but were not necessarily *of* it. Notably, their writing about domestic automotive affairs was not fundamentally compromised by the desire for domestic automakers to compete successfully with imports. Journalists typically opposed protectionist policies and viewed changes to stagnant corporate cultural practices as the lever for improving the quality of domestic vehicles rather than government intervention. In doing so, they were far more critical of the national mindset than the era’s patriotic fervor might suggest. The domestic automobile industry’s decline signified broader changes in technology, the environment, labor relations and consumer trends, among others, that forced the once dominant

companies to acknowledge the ascent of global competitors. Journalists played a critical role in chronicling the tension between an isolated and more globally informed approach to designing automobiles.

The Big Three in the Reagan Era

The global shift Keller described must be understood in the context of Reagan’s presidency. The economic, moral, and patriotic appeals of his campaign communication strategy helped him win the 1980 and 1984 elections.¹¹ One of his chief ways of supporting the U.S. automotive industry was in asking Japanese automakers to participate in a voluntary restraint agreement to ease the competition for U.S. automakers and give them more time to build more fuel-efficient vehicles.¹² Though Reagan advocated for the importance of free trade and competition for U.S. automakers, this was a strategic move. On April 11, 1984 he delivered a triumphant address regarding the agreement’s positive financial impact on the U.S. automobile industry at a Ford assembly plant in Kansas City, Missouri.¹³

After four years of Japanese automakers restricting their total exports to 1.85 million, however, he declined to ask Japan to continue and allowed the agreement to expire in March 1985.¹⁴ This move angered the chairmen of Chrysler and Ford, and the president of the United Auto Workers (UAW). GM held back because it allowed them to import 300,000 forthcoming Japanese built cars to the U.S.

At issue was a fear that the Big Three had insufficient time to develop competitive products that would appeal to the public’s interest in more efficient cars. James M. Rubenstein summarized the issue pointedly noting “The U.S. auto industry remained in denial through the 1980s about the quality gap between domestic and Japanese cars; enthusiast magazines were biased in favor of foreign novelties, *Consumer Reports* was run by Nader-inspired safety freaks, J.D. Power surveys were unscientific.”¹⁵ Unaddressed by this backlash from domestic automakers was genuine accountability for the “quality gap” in reliability and other more subjective issues regarding technology, engineering, and performance. These are key areas where journalists offered important counterpoints. Despite domestic automakers’ perceptions of them as “biased” in favor of imports, examining their product reviews and editorials renders them as irreducible to a single ideology. U.S. automotive journalists, who reviewed cars, performed instrumented

testing, and/or wrote editorials, were open about their desire for U.S. automobiles to compete effectively.

Textual analysis reveals this desire as more of a general enthusiasm for well-engineered, cars than overt nationalism. Journalists were attuned to the domestic industry's economic struggles and their impacts on its employees. Yet, some viewed voluntary restraints as a lack of faith in the abilities of domestic personnel to design competitive products and an excuse for the Big Three to avoid changing their corporate culture. Whether intentionally or not, they echoed Reagan's 1984 sentiment that "I believe if Americans work together to improve quality, become more productive, hold down costs, and invest in tomorrow's technology, then we can out-compete, outperform, and out-sell the pants off anybody."¹⁶

Automotive journalists seemed far more ambivalent toward the conclusion of Reagan's remarks, however "And echoing Mr. Caldwell [chairman of Ford Motor Company's board], I believe in America being first, because America is best."¹⁷ Journalists' positioning between wanting the Big Three to produce competitive products was less about nationalism than an investment in the *potential* of U.S. industry personnel and concerns that corporate hubris would paralyze the Big Three.¹⁸

I trace the trajectory of these affective investments by discussing the rise of automobility in post-World War Two U.S. life and the unprecedented dominance of the Big Three from the mid-1950s-late 1970s. This industrial development must be understood as shaping the parallel development of automobile enthusiast communities and automotive journalism. These contexts illuminate why the voices of automobile journalists are essentially discursive. Automotive journalism of the era challenges overly broad rhetorical understandings of the 1980s as uncritically patriotic.

How Did We Get Here?

U.S. Dominance and Automobility

American automobile manufacturers peaked commercially in the mid-1950s and constituted a virtual oligopoly. So dominant was GM that there were concerns it could attract antitrust action.¹⁹ As Halberstam noted the post-World War Two era was highly lucrative for U.S. automakers because "Everyone seemed hungry for cars. There was virtually no competition. The auto industry had been in effect an American industry, a protected industry (too expensive for would-be domestic competitors to enter), in the wealthiest country in the world."²⁰

Factually speaking, U.S. automakers were world leaders in automotive production.²¹ As a result car ownership per household increased steadily as private ownership became the dominant transportation mode.²² Finally, the built environment, supported by U.S. government legislation and corporate investments, made automobile ownership a necessity in many parts of the country.²³

Accompanying the sales and profits for domestic automakers was the rise of automobility and the emergence of cultural tropes defining mobility as a distinctly American mode of being. Cotten Seiler argued that 1895 began the automobile age in the U.S. and Rubenstein noted how "Social analysts in the United States during the 1920s and 1930s observed the creation of an 'automobile psychology'" signifying the increased presence and influence of the automobile in American life. Relatedly, Seiler traced automobility's "ascent and zenith between 1895 and 1961."²⁴

James Flink illuminated the practical and symbolic values associated with automobility. Practically, automobiles offered alternatives to horse drawn vehicles and their negative health and physical impacts. They were also imagined to reduce the density of city life and reduce the isolation of farmers. Symbolically, the automobile amplified mythic values, notably individualism, "privatism, freedom of choice and the opportunity to extend one's control over physical and social environment," and the promise of geographic and social mobility.²⁵ Though Seiler challenged the construction and implications of these presumptions effectively, the way this informed automotive fandom is most salient to the present discussion.²⁶

Commenting on previous efforts to historicize automobiles in the U.S., Seiler noted that "While this work documents richly the chronological rise of cars and highways, it tends to ignore, or to attribute to human nature or self evident 'national values,' the socially constructed dispositions and historically specific exigencies that underlie the desire to drive and to pave."²⁷ The American automotive industry was clearly a prime driver of automobility through manufacturing automobiles, marketing them, and supporting dealer franchises. U.S.-based journalists, to some degree, were discernibly influenced by this structural reality.

The rhetoric of national values clearly inflected automotive journalism of the 1980s. As my textual analysis of monthly automotive magazines illustrates, journalists commonly reviewed domestic products with the tacit

assumption that imported competitors had expanded the field in many market segments which demanded higher levels of engineering, build quality, and value from domestic automakers. Whereas reviews of imports tended to focus on the product primarily, domestic reviews were written with high stakes as though a flawed product indicated industrial decline. Yet, when examined closely, journalists' embrace of the automobile as a symbol of cultural freedom did not inhibit their ability to critique the nature of domestic automakers who had functioned historically as the leading industrial purveyors of automobility.

American Automobile Enthusiasts and Automotive Journalism

The automotive enthusiast community grew steadily from automobility's ascent. Since the late 1940s, automotive magazines have served as central conductors of the trope of mobility. Despite the wide interests covered by the term "automobile enthusiast" which Lucsko noted includes people who "read about cars," "work on cars," "attend shows and races," and "belong to car clubs" limited critical attention has addressed "those who love not simply the mobility associated with the car, but also the car itself."²⁸

The rhetorical contributions of automotive magazines to enthusiasts, and casual consumers is especially overlooked in understanding cultural attitudes about automobiles. William Aspray, Melissa G. Ocepek, and George Royer cited them as consumer magazines that "write about topics people want to know about, and the long run of these magazines means they must be at least somewhat successful in capturing the interests of their readers correctly."²⁹ Similarly, Michael S. Malone's analysis of different genres of criticism categorized magazines like *Car & Driver* in the "product review" section and noted "At the highest levels, product reviewing does require superior writing skills—especially for automotive publications, which pride themselves on entertaining copy."³⁰ Despite this recognition the voices of journalists who write for popular publications that review automotive products and offer editorial perspectives on car related issues (e.g., trade policies) are underutilized. This is a strange omission in critical discourse regarding the tensions between the financial interests of the American automotive industry, the rise of Japanese automakers, and the tastes of U.S. consumers.

As consumer guides for new cars and commentaries

on the automobile and society since the 1940s, magazines constitute a major portion of what Ingrid Piller defined as automobile fan discourse. The genre includes "any text produced for car aficionados or any people interested in automobiles" in a range that included television documentaries, radio shows, websites, and automotive sections in newspapers.³¹ Among the more enduring titles are *Road and Track* founded in 1947, which was followed by *Motor Trend* in 1949; *Sports Car Illustrated* (now *Car and Driver*) in 1955; and *Automobile* magazine in 1986.³² Other more specialized magazines have co-existed with these magazines, ranging from *Hot Rod* which began in 1948 and including *Autoweek*, which began as a biweekly publication before it became a news weekly in 1964.³³ Though the category warrants a comprehensive academic history, that task exceeds the scope of this essay. My critical focus is on the most successful monthlies, several of which had high annual circulation in the millions during the 1980s. They are crucial chronicles of the first time the domestic automakers experienced significant threats to their post-war sales dominance.

The core of monthly enthusiast magazines are automotive reviews, and the dominant form is instrumented road tests. These commonly involve a battery of performance tests, including acceleration, handling ability, braking distances, and measures of fuel economy. Subjective impressions of interior ergonomics, design, ride quality, build quality, and value are also integral to road tests. Though instrumented testing of individual vehicles are common, journalists also report on initial impressions of new models, compare multiple vehicles, and file travelogue style feature stories from multiple locations.

One of the most practical ways to understand the role of U.S. automotive journalists in the rhetoric of the emerging global market is to explore how their writing invokes the tensions between domestic and global products, and the implications of these tensions. In the following section I analyze the editorial content pertaining to domestic cars in all 12 1987 issues of *Car and Driver* magazine and 1989 issues from *Motor Trend* magazine. Both were among the most popular monthly automotive magazines of the decade. I chose 1987 for its unique significance for the Big Three. GM's market share declined dramatically from 41% to 37% in 1986 despite introducing a raft of new downsized premium product lines.³⁴ In the same year it introduced several important new mainstream car lines. Comparatively,

Ford launched the multi-billion-dollar Ford Taurus and Mercury Sable in 1986 which helped increase the company's market share from 18% to 20%.³⁵ By 1987 Chrysler had recovered from a U.S. government bailout. Its success repaying the loan in 1983 helped it purchase American Motors Corporation and Jeep in 1987. By 1989 journalists were better positioned to examine how U.S. automakers had addressed the challenges of the decade and forecast the automotive landscape of the early 1990s.

Additionally, by 1989 the CEOs of the Big Three began stepping down, including Ford's Donald Peterson and GM's Roger Smith, who retired in 1990, and Chrysler's Lee Iacocca who ended his tenure in 1992.³⁶ 1989 was also the first time an import, notably, the Honda Accord, became the best-selling car in the United States.³⁷

I focus my close readings on two consistent aspects of the magazines. Notably, instances when reviewers who discuss domestic vehicles invoke the fate of U.S.-made vehicles in relation to imports and/or editorials that assess the competitive status of domestic automobile makers. The inflection of national origin and identity in reviews of cars differentiates automobiles from other types of products because consumers use automobiles to navigate the built environment in most parts of the country. Automobiles have also been iconized as an integral part of national identity, and informed the development of the enthusiast audience. In a trenchant analysis of the use of extended metaphors employed in "popularized expert-to-non-expert communication, specifically automobile fan discourse," Piller astutely noted "The metaphorical representation of cars, however, is far more interesting than most other machines because of the car's ubiquity and impact on modern life (economy, architecture, environment, social structure, culture, etc.)."³⁸ While some readers might casually read a magazine for a recommendation, regular readers form relationships with specific writers and the editorial tone of automotive magazines.

Throughout the 1980s, U.S. automotive journalists mediated what constituted "world-class" status in automotive products. By virtue of driving products from multiple automakers and countries they were uniquely positioned to assess vehicles comparatively. Enthusiast publications focused more explicitly on driving pleasure and subjective elements like design. Yet issues of quality, fuel efficiency and price, were shared with more consumer-focused publications such as *Consumer Reports*.

The influence of automotive magazines is discernible through sales impact. For example, *C/D*'s annual circulation statement revealed 1,163,668 as the average number of copies circulated during 1987.³⁹ Magazines also impact automotive advertising; manufacturers regularly integrate awards recognition, including *Motor Trend*'s "Car of the Year" awards and *Car and Driver*'s "Ten Best" list.

Reading Car and Driver and Motor Trend magazines

Both magazines employed full-time editorial staffs with similar roles (e.g., editor, technical editor). During the 1980s monthly issues were comprised of editorials, a news section, driving impressions, road tests, feature stories, and, typically, a comparison test. Both magazines also published an annual new car issue focused on domestic cars in October. Finally, both were largely associated with prestigious industry awards.

Car and Driver gained notoriety for a bold March 1964 cover story that compared a Pontiac GTO with a Ferrari.⁴⁰ This story set the tone for its association with irreverence. Many of their more notable writers and editors, including David E. Davis Jr. and Brock Yates, were also known to infuse their reviews with social commentary.⁴¹ In the 1980s it featured multiple columnists per month many of whom addressed issues related to automotive regulations. In addition to road tests, columns and other common editorial elements *Motor Trend* published the monthly "Washington Report" which summarized policy issues and featured the "Streetwise" column written by automotive analyst Maryann Keller.

My close reading of the 24 magazines focuses on two elements related to domestic automakers: product reviews and editorial content. First, I focus primarily on product reviews of domestic vehicles, in various formats including individual road tests and driving impressions, that reference the national origin of a vehicle often in relationship to imports. I looked for comparative references to specific cars in a class (e.g., subcompacts) and/or language inflected by the "world class" nature of the car's market such as "import," "foreign," "global," and/or "international" competition. Second, I note when journalists assess the status of domestic automakers and/or address policy issues impacting the U.S. automotive market beyond product reviews. Regular editorial columns and guest columns were the main source of this content. I found consistent critical attention to both of

these areas in regular and guest columns. The editorial content illustrates how journalists invested actively in the standing of domestic automakers though there is variance in tone. Most of this writing exists on a spectrum between conventional editorial commentary and advocacy journalism.

Domestic Product Reviews

After reviewing the road tests of domestic products in both magazines I found three notable patterns inflected by nation: American concessions, comparative excellence, and American insularity. Below I describe each theme via examples which illustrate the myriad ways journalists incorporate the national identity of vehicles in their reviews.

The first theme, American concessions, describes congenial reviews of products representing distinctly American market segments. These reviews often recognized the Big Three as reluctant to embrace smaller cars given the historic profitability of larger cars. They often cited the uniquely American “character” of a car. *Motor Trend’s* August 1989 comparison test of two full-sized American sedans, the Chevrolet Caprice Classic and the Ford LTD Crown Victoria, spoke to a certain grudging respect for a segment the U.S. automakers still dominated. As reviewer Daniel Charles Ross noted, “Plainly, Ford and Chevrolet have targeted the old-line family car buyer with the LTD Crown Victoria and Caprice Classic, as a generally older driver who isn’t interested in technical brilliance, but in a familiar platform...Both of America’s final traditional sedans perform admirably the roles they are built to fill.”⁴² He accurately noted the prominence of both cars in their segment, their healthy sales, and profitability. The review did not, however, *question* the ongoing commercial viability of the U.S. dominated full-sized market especially as smaller, more fuel efficient, and performance-oriented cars gained commercial momentum.

A similar concessionary perspective informed Jim Miller’s driving impression (meaning non-instrumented testing) of the updated 1990 Lincoln Town car, a full-sized domestic luxury sedan. According to Miller “And in the meantime, the Lincoln really needs few excuses. This is, after all, the epitome of unabashed American-style luxury. For this class of car, performance is defined by 500-mile days on I-75, not from stoplight to stoplight or corner to corner...should please the more traditional buyers.”⁴³ He recognized the appeal of full-sized luxury cars to

“traditional buyers” and the new car’s advances over its predecessor. The review also ignored the declining demographics and market influence of “traditional buyers.”

Don Sherman offered a slightly more insightful perspective on the competitive potential of the full-sized American sedan in his “Counterpoint” comments on the 1987 Pontiac Bonneville SE noting “The full-sized American sedan has been battered and beaten during the past dozen years—by the government, by the oil barons, by surging import competition—but the incessant hammering has only toughened its resolve.”⁴⁴ Reviewer Csaba Csere echoed Sherman “Of the five GM divisions, Pontiac has by far the clearest view of its future. It knows that it needs import-car converts, and it knows that to attract them it needs cars that are undiluted by misguided efforts to hold on to the shrinking market for traditional American cars.”⁴⁵ Csere and Sherman’s focus appeared somewhat insular by focusing on other GM full-sized efforts, rather than domestic or potential import competition in this market, yet they articulated how the Bonneville at least brought a more contemporary sensibility to a vulnerable segment.

There are more overt examples of American journalists applauding aspects of domestic cars while conceding to their shortcomings compared to imports. In his review of the new 1987 Chevrolet Beretta GT—featured on the magazine’s cover with Chevrolet’s patriotic tagline from the 1970s—*Car and Driver’s* Rich Ceppos stated “No, they don’t offer the sort of jewel-like quality and attention to detail that Hondas are known for, but, they’re better than previous GM efforts, and their prices look reasonable. Besides, this is the land of baseball, hot dogs, apple pie, and you-know-who, isn’t it?”⁴⁶ Ceppos



The Chevrolet Beretta was a front-wheel-drive two door coupe produced by General Motors from 1987 until 1996. Designed in the same studio as the Camaro and Corvette, a convertible was the pace car for the 1990 Indianapolis 500. (Courtesy, GM Heritage.)

tacitly applauded the Beretta as a good *American* effort while gently noting its comparative shortcomings. This element also informed Arthur St. Antoine's review of the 1987 Lincoln Mark VII LSC where he stated "In a world full of Acura Legend Coupes, Audi 5000s, and Volvo 780s, this lack of fine-tuning hurts. Ford deserves plenty of credit for plumping up the LSC and heading it in the right direction."⁴⁷ Ceppos and St. Antoine's comments were ultimately concessionary in their acknowledgement of how domestic automakers were gradually pushing themselves to improve in the global market.

Jack R. Nerad's driving impression of the 1990 Chrysler LeBaron sedan in *MT* fused the insular "traditional buyer" taste reference with the comparative concession tone noting "It's not going to send the German or Japanese engineers rushing back to the CAD [computer aided design] machines to upstage it, but it will provide solid value to those upwardly mobile professionals who rather like the sound of Chrysler instead of Dodge or Plymouth attached to their driving machines."⁴⁸

When examined collectively, these excerpts find journalists honoring the "traditional" tastes domestic automakers have relied on and their relevance for certain marques, such as Lincoln; acknowledging notable

improvements in the execution of domestic products while simultaneously noting the need to meet the standards of import. There are also vestiges of pride with a begrudging nod to the vulnerability of domestic dominated markets.

The second theme, comparative excellence, refers to instances where journalists reviewed a domestic car positively and cited its U.S. origins to amplify its exceptional competitive status in the globalized market. During the 1980s domestic automakers introduced numerous benchmark products, including the 1984 Chevrolet Corvette, 1984 Dodge Caravan/Plymouth Voyager, and 1986 Ford Taurus/Mercury Sable; journalists waxed enthusiastically as beacons of domestic automakers' engineering and design capabilities.⁴⁹ Commentators often inflected positive reviews with patriotic fervor.

The notion of successful domestic cars as those possessing "international" elements spoke to domestic automakers' burgeoning aspiration to "world class" status. The internationalization of domestic products emerges in multiple examples. For example, Csere's review of the new 1988 Pontiac Grand Prix noted the brand's recent increase in sales "Clearly, the excitement builders are doing something right" which he attributed



The fifth generation of Grand Prix models (1978-1987) marked a downsizing from the previous design. For the first time in Grand Prix history, a V8 engine was not standard equipment. The sixth generation (1988-96) featured front wheel drive and a V6, The Grand Prix was the Motor Trend Car of the Year for 1988.

to the division's "commitment to producing a line of cars that are attractive, entertaining, and international in flavor."⁵⁰ The magazine was so enthusiastic they placed it on the cover with the "88 New Cars" headline with a red, white, and blue American flag graphic overlay.

Patrick Bedard's driving impression of the 1988 Lincoln Continental referenced its domestic origins twice noting "This is the first American luxury liner in several decades in which the driver gets to have more fun than the passengers," and ended on the triumphant note that "On the basis of our driving so far, we'd say America is back in the prestige-car business."⁵¹

Journalists also championed domestic products designed to compete with domestic *and* import competitors rather than just among Big Three competitors. In a road test of the Chevrolet Corsica LT Larry Griffin concluded "The Corsica LT is rare among American cars: it can be driven with the kind of exquisite fluidity that tells you that the mechanism has been designed and refined by people who care... we were thoroughly impressed."⁵² In *MT*'s road test of the new 1989 Chevrolet Corvette ZR1, Jim Miller declared it a world class competitor with European performance cars noting "the ZR-1 easily matches the credentials of such registered exotics as Porsche's 928S 4 and Ferrari's 328 GTB."⁵³

In an effusive review of the Ford Taurus SHO sport sedan *Motor Trend*'s Ross highlighted its national stature, declaring "The nation's hottest domestic sedan is also the Taurus SHO. The fact that the car even exists is cause enough to believe a minor renaissance is underway at domestic auto makers."⁵⁴ The review also referenced its more global execution, "However the SHO program may have been sold, its result is the first affordable American sedan approaching performance equality with BMW's best. America's Team needed a car like this." Ross concluded unambiguously, and perhaps with tongue-in-cheek "The empire strikes back. A chorus of God Bless America, please."⁵⁵ In each example, journalists presented the coexistence of high quality and domestic status as noteworthy proof of the ability of the Big Three to produce competitive vehicles.

The third theme is American insularity. In examining the magazines, I noticed that in less favorable reviews journalists often invoked a domestic product's origins to illustrate how it has missed the "world class" target. Journalists frequently tied these to broader critiques of domestic corporate automotive culture's insularity.

One of the most common subthemes of American insularity were critiques of European style pretensions

often signified by performance and/or luxury-oriented trim packages. Ceppos's critique of Buick's 1987 LeSabre T Type Coupe noted it is "typical of the Euro-tinged cars Buick has been sending us for the last several years: long on promise and short on substance. Since the recipe for pseudo-BMWs continues to elude the folks in Flint, going back to pseudo-Cadillacs makes perfect sense. In today's tough market, there is no point in doing anything unless you can do it well."⁵⁶ This echoed a theme Csere noted in a lackluster review of Oldsmobile's Ninety-Eight Touring Sedan "The Ninety-Eight Touring sedan is a nice first step, but nothing more." The sentiment derived from the author's concern about its fitness to compete with "an army of imports marching upmarket and several domestic brands building respectable world-class sedans."⁵⁷

Two years later *Motor Trend* was equally leery of such pretenses in General Motor GM-10 sedans. Regarding the 1990 Chevrolet Lumina Euro Coupe Ross questioned, "Why American manufacturers chase some ill-defined image of excessive European flavor in a price-sensitive class..." and continued "There is nothing remotely European about the Lumina in any conceivable way." Rather, he viewed it as "a thoroughly American family sedan, with good parts and bad parts, a description not unlike that for most cars built here. But Euro? Negative." (93).⁵⁸ Miller's commentary on a road test of the 1990 Oldsmobile Cutlass Supreme Sedan asserted "I suppose someone at Oldsmobile had visions of building an Americanized BMW 535i. The plasticized interior, video instruments, and limp chassis strike me as a half-hearted effort and surely aren't going to create any tidal waves in Munich."⁵⁹ The underwhelming execution of the 1990 Pontiac Grand Prix Sedan also generated critical ire for its mediocrity. Ted Orme noted "the STE sedan is a disappointment. It's a good car that will probably be well-received by droves of buyers who don't give a hoot about blasting away from stoplights and slaloming through the countryside. But as Voltaire pointed out, 'Better is the enemy of good.' And when you're this close, why not go for great?"⁶⁰

Another critical subtheme within the insularity category was a critical perception that domestic automakers were unwilling to challenge embedded cultural practices to produce competitive products. In a review of the 1987 Chrysler LeBaron coupe, Ceppos ended with the following "What Chrysler needs to face up to is that the LeBaron's size-and-price class is already chock full of tasty morsels from Japan and Europe that

are forging head on all fronts. In this difficult world, just being okay is no longer enough.”⁶¹ His comments implied Chrysler’s reluctance to address the Coupe’s competition realistically.

Cadillac’s foray into the international luxury sport coupe market, 1987’s Allanté convertible, was a commercial and critical disappointment. Ross’s review of the updated 1989 version assailed the car and company “The Allanté was always intended to be a low-volume image-maker, though not as low-volume as it turned out to be. Cadillac should have planned image at a premium price, not an outrageous price, and successfully sold some cars. One wonders what image—or damage—was generated by a program as important as Allanté that fell on its face right out of the gate.”⁶² The company’s failure to price it competitively, combined with initial flaws like insufficient power, reflected a constant critique that GM released cars before they were market ready. The 1984 Pontiac Fiero, which was canceled in 1988 after multiple recalls and declining sales, was a common example of this practice; hence, the automotive press’s frustration with the Allanté.⁶³

The frustration journalists expressed in these reviews stood out because it contrasted so sharply with journalists’ enthusiastic responses to world class efforts like the Corvette and the Taurus. The negative reviews indicated how a series of embedded corporate practices stagnated the competitiveness of newer offerings layered with the subtext that domestic companies undervalued their consumers and expected them to tolerate mediocrity. In a searing 1992 column *Automobile* magazine’s editor David E. Davis Jr., summarized the domestic industry’s woes as the result of a corporate culture of “lazy and complacent” automotive industry executives who dismissed criticism of the domestic industry for years by pointing to sales figures. As he noted “Sales were excellent, profits were plentiful, and continued growth appeared to be automatic,” a tendency that stifled innovation among the Big Three, “Then the Japanese came along... They came to compete, and if the former established order became a casualty of their competition, tough.”⁶⁴ Similar critiques of Detroit’s culture of complacency emerged from multiple automotive journalists. For example, Keller attributed GM’s decline to corporate practices she organized into four sections titled “goliath complex,” “parochial world view,” “leadership by the numbers,” and “contemptuous paternalism.”⁶⁵

Though the “concession” lens overpraised conservative, aging products and overlooked declining market

segments, the more negative “insularity” critiques seem partially driven by the understanding that many of the cars competed in expanding market segments that grew more competitive with import and domestic competition. For example, at the beginning of the 1980s the domestic marques Cadillac and Lincoln, and the European marques BMW, Jaguar, and Mercedes-Benz were among the most prominent makers of luxury cars. In 1986 Honda introduced the luxury division Acura followed by Nissan’s introduction of Infiniti and Toyota’s debut of Lexus in 1989. These new Japanese brands significantly changed the parameters of the luxury market.⁶⁶

Domestic Editorial Content

Product reviews were arguably most central to the readers of automotive magazines, but most magazines complemented reviews with news and editorials. These forums provided a dedicated space separate from reviews for journalists to assess broader issues including technological developments, consumer trends, and regulatory policies. In 1987 *Car and Driver* featured regular monthly columns by the editor and various contributing editors, most of whom also reviewed cars. In 1989 *MT* published monthly columns by editor Mike Anson, and Jack Nerad, who both reviewed cars, a monthly column by Keller, who did not review cars, and the occasional guest editorial.

For the remainder of this section I discuss how journalists assessed the status of domestic automakers and/or addressed policy issues impacting the U.S. automotive market. I found consistent critical attention to both of these areas in regular and guest columns. The editorial content illustrated how automotive journalists invested actively in the standing of domestic automakers though there is variance in tone. Though I focus on *Car and Driver* and *Motor Trend* other monthly automotive magazines of the period, such as *Automobile*, engaged similarly.⁶⁷

Car and Driver’s columnist Brock Yates regularly opined about the progress of domestic automakers often in “stream of consciousness” style columns where he addressed multiple subjects. For example, in the April 1987 issue he asked a series of questions about the fate of domestic automakers. Yates asserted that “If General Motors is in so much trouble, why doesn’t the management do something truly dramatic to assure its work force, its dealers, its customers, and the financial com-

munity that it is in control? Why not ease Roger Smith and Jim McDonald into early retirement? Why not sell off Chevrolet, which is the largest but most ill-focused (and among the least profitable) of the five carmaking divisions?”⁶⁸

In other columns he focused on a single topic. In a January 1987 column on his favorite vehicles he included imports exclusively, and noted “I wish that I could include an American maker in that select group.” After he lamented the faded prestige of domestic cars, he heralded the promise of the Allanté, noting “There is no question that the Cadillac Allanté is a step in the right direction.” He continued advising U.S. luxury marques to go “world class” noting that what “Cadillac and Lincoln need is a commitment to building state-of-the-art sedans... That means automobiles that are as technologically advanced as any in the world.” He finished with an explicit reference to the United States’ World War Two victory “One way or another, it is imperative that the American automobile industry recapture the summit. The Germans are not invincible. They can be beaten. But victory will require the same kind of resolve, daring, and determination that knocked them out of first place in a much deadlier context, played out in the dark days of the 1940s.”⁶⁹

To reiterate an earlier comment about tone, Yates readily acknowledged his affinity to domestic automakers competing successfully with imports by essentially lauding promising products and offering product advice. Yet, he was overtly critical of the deficiencies of domestic products. Though his war comment veers into nationalistic territory, it was uncharacteristic of his writing and must be read in the context of his more critical comments. It’s worth remembering that his book *The Decline and Fall of the American Automobile Industry* was one of the first book-length studies to link the Big Three’s inefficient corporate practices to mediocre products.

Car and Driver’s editor Sherman also used his column occasionally to assess the domestic industry. In the October 1987 issue, featuring new domestic cars, he diagnosed the industry’s challenges. He was cautiously optimistic noting “In many respects, the Motor City seems poised and ready to say goodbye to mediocrity, but recent sales figures aren’t so uplifting. During each of the last three years, imports have bitten two percent more out of Detroit’s hide.” Lamenting the ongoing struggle of domestic automakers despite “years of VRA protection, UAW givebacks, CAFE-

standard relaxations, and DOT passive-restraint delays” he praised Ford which “has the best recent record in the Motor City” and had seen an increase in market share.

His response to GM was more mixed with praise for Pontiac (“GM’s one bright hope”), concern for Buick and Oldsmobile (“groping for new identities to give them a sense of where they should be heading”) and bigger questions for their prestige and volume leader divisions. For Cadillac he wondered “exactly how it will design, develop, manufacture, and sell expensive, world-class automobiles” and sought major leadership changes at Chevrolet. Regarding Chrysler, he nodded to CEO Lee Iacocca’s leadership but commented “It would be nice if the company had a platform or two that could take up where the venerable K-car leaves off, but none is in sight, unless you count the new (AMC) Premier. This lack of interest in advanced underpinnings will be a distinct liability for Chrysler in the near future.”⁷⁰ Like Yates, his writing evinced a clear investment in domestic automakers competing successfully yet he grounded this in a sober pragmatism that domestic manufacturers must change to be “world class.”

Motor Trend’s 1989 columns offered two additional years of hindsight on the decade compared to *Car and Driver* and its columnists also assessed the fate of U.S. automakers. The magazine’s most consistent industry assessment came from Keller’s column who usually wrote with a more business-oriented focus but addressed Cadillac, Buick, Ford, and the Big Three in several columns.

For example, in “Polishing Cadillac’s image” she acknowledged the challenges of the Allanté’s 1987 launch but “At the same time, Cadillac seems to be getting its act together with a restyled Sedan DeVille and a new organization determined to restore its prestige image by restyling and improving every car sold by the division by the early 1990s” (136).⁷¹ Keller was similarly plaintive and hopeful about Buick’s status, noting “Although the two energy crises are blamed for many of the products sold today by Buick, the reality is Buick lost its way when its designs were identical to competing GM brands and innovation meant gadgetry.” She ended positively noting “But at least Buick is showing signs of reviving. It can succeed only if the cars it introduces during the next five years are really different from other different models.”⁷² Though her tone was measured, she shared an interest in domestic brands succeeding but only through making changes such as Buick aiming for more distinctive brand specific designs. Regarding

Ford, Keller echoed other industry observers about Ford's mid-1980s turnaround noting "More than any other auto company, Ford has a definitive international strategy for the '90s..."—a shift tied to its products.⁷³

Keller's final column of 1989 examined the Big Three's performance in the 1980s with a consultative lens. Assessing Chrysler's struggles and successes Keller noted, "The company needs new mid-size cars and has to invest more money in engines and transmissions if it is to keep up with Japanese rivals who are emerging as the world's leaders in mechanical and electronic components." Keller recognized how GM had updated its platforms and diversified economically but noted its build costs remained higher than its rivals and saw product as key to addressing their market share decline. Based on their forthcoming products of the 1990s she noted "signs of hope." Though Ford enjoyed the strongest reputation among domestics during the decade, she outlined some of its challenges including developing new engines and maintaining its momentum in the financial services industry.⁷⁴

Nerad focused less on specific models than the impact of domestic decisions policy on the nature of cars and the driving experience for enthusiasts.⁷⁵ His January column referenced the potential impact of the Corporate Average Fuel Economy (CAFE) mandate for U.S. automakers on performance-oriented models like the Chevrolet Corvette and explored this in greater depth in June regarding how governmental and lobbying threats impact the "Golden Age of Performance."⁷⁶ In the September and October issues, he addressed America's restrictive speed limits, a common subject in U.S. automotive magazines at the time, by proposing a 100 miles per hour limit.⁷⁷

In many ways his columns reflected a discernibly libertarian bent among many automotive writers who favored a less intrusive regulatory climate regarding speed as well as issues of automotive safety which echoed the individualist themes of automobility. For example, the controversies surrounding the National Highway Traffic Safety Administration's (NHTSA) investigation into "unintended acceleration" inspired an editorial from Bedard who rightfully found the media coverage of the Audi 5000 dubious. *Car and Driver* also ran a feature story on the subject in the June 1987 issue.⁷⁸ The magazine's writers and other automotive magazines, viewed unintended acceleration as the outcome of driver error rather than a scientifically detectable engineering flaw.⁷⁹ Similar skepticism about the intrusiveness of seatbelt

laws and passive restraint requirements, and various columns about the limitations of speed limit laws also reflected the desire among many journalists for more driver autonomy.⁸⁰

The examples from *Car and Driver* and *Motor Trend*'s editorial pages illustrate journalists' clear investments in the status of domestic automakers in the higher stakes global market. Columnists consistently occupied boundaries between assessing general industrial issues and advocating for product reforms. Most columnists balanced providing constructive feedback to domestic automakers while maintaining an appropriate critical distance. While journalists interact with designers, engineers, and executives, their actual *influence* on manufacturers is difficult to quantify. Editorials routinely linked leadership strategies and product refinements as key mechanisms for improving domestic products. As noted, automotive columnists often espoused a more libertarian perspective on policy issues in ways that critiqued regulation and emphasized driver responsibility and consumer choice. The subtext of this echoes the individualism Seiler associates with automobility. Even as journalists soberly assessed the limitations of domestic products—especially compared to imports—they internalized the national ethos about the automobile as an ultimate expression of personal freedom. As such their roles as critics and enthusiasts were less discrete than conjoined to some degree. Central to this is an ongoing negotiation of fealty to U.S. cultural values to some extent.

1980s Postscript

Like many U.S. teenagers I was thrilled to experience the freedom promised by an automobility centered culture. As that personal process began, the reputations of American cars rebounded somewhat. The 1990s are understood as a product renaissance for domestic automobiles.⁸¹ Chrysler rebounded with acclaimed car and truck lines, GM experienced significant profit recovery in 1993, and Ford made great strides with popular products like 1994's highly anticipated new Mustang.⁸² While we cannot attribute the Big Three's reforms to journalism many of the changes critics advocated for during the 1980s surfaced in some of the more acclaimed domestic vehicles of the 1990s. Comparatively, a recession in Japan fostered higher prices for their cars and impeded growth plans such as Mazda's Amati luxury brand. At the same time Japanese automakers entered

historically U.S. dominated markets. For example, Toyota joined the full-size sedan market in 1995 with the Toyota Avalon.⁸³

The automobile industry changed permanently in other ways including the truck and sport utility vehicle (SUV) boom of the 1990s.⁸⁴ The 2000s also saw the demise of several U.S. name plates including Mercury, Oldsmobile, Plymouth, Pontiac, and Saturn. Perhaps the most significant disruption to domestic automakers was the impact of 2008's recession and the governmental bailout of Chrysler and GM. More recently, SUVs and car-based crossovers have eroded the previous sales dominance of passenger cars, and hybrid and electric vehicles have gained significant momentum.

Upon closer reflection U.S. automotive magazines were important chroniclers of how the domestic automotive industry had to mature or perish in the face of global competition.

Textual analyses of the reviews and editorials from *C/D* and *MT* featured in this essay illustrate the nuanced inflection of national values in journalism. As enthusiasts themselves, automotive journalists were willfully passionate about their subjects yet willing to confront how and why the domestic pioneers of automobility lost their commercial grip. In this respect the journalists were more than product reviewers or columnists. They were prescient observers of a newly globalized market the American automotive industry had to respond to with new approaches better suited to a changing world.⁸⁵

(Endnotes)

- 1 Brock Yates, *The Decline and Fall of The American Automobile Industry* (New York: Empire Books, 1983): 94.
- 2 John Heitmann, *The Automobile and American Life* (Jefferson, North Carolina: McFarland and Company, 2018), 196-97, 205-08.
- 3 Paul Ingrassia and Joseph B. White, *Comeback: The Fall and Rise of the American Automobile Industry* (New York: Simon & Schuster, 1994): 32, 35-59, 252; Mike Arnholt and Tim Keenan, "Foreign invasion: imports, transplants change auto industry forever," *Ward's Auto.com*, May 1, 1996, <https://www.wardsauto.com/news-analysis/foreign-invasion-imports-transplants-change-auto-industry-forever> (accessed March 6, 2022).
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6 John Ehrman, *The Eighties: America in the Age of Reagan*, (New Haven, Connecticut: Yale University Press, 2005): 71-73, 84-86; Troy, 2007, 16, 19-20, 147-74; Sean Wilentz, *The Age of Reagan: A History, 1974-2008* (New York: HarperCollins, 2008), 173-75.

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15 James M. Rubenstein, *Making and Selling Cars: Innovation and Change in the U.S. Automotive Industry* (Baltimore: Johns Hopkins University Press, 2001): 233.

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21 Flink (1990) notes "The American automobile industry further solidified into a joint-profit-maximizing oligopoly dominated by General Motors. The pattern that would characterize automobile manufacturing in the united states into the 1970s with only minor variations was well established by 1955, a banner year in sales. The United states produced about two thirds of the entire world output of motor vehicles, with 94 percent of the huge American domestic market held by Detroit's Big Three. GM had 50 percent, Ford 27 percent, and Chrysler 17 percent. The remaining 6 percent was shared by American Motors, Studebaker-Packard, and all imports, each accounting for a miniscule 2 percent," in James J. Flink, *The Automobile Age* (Cambridge, Mass, 1990): 278.

22 According to Rubenstein, U.S. car ownership grew steadily after World War Two "from 54 percent in 1948 to 60 percent in 1950, 65 percent in 1951, 70 percent in 1954, 80 percent in 1969,

and 90 percent in 1990,” 2001, 227.

23 Wells (2013) notes, “Then in the interwar years, after a series of significant technological and fiscal breakthroughs, powerful cars and expanding networks of smooth roads finally began to give motorists the ability to reliably overcome older environmental limits of private transportation. Only then did planners and engineers begin to make serious plans for completely car-centered landscapes that were designed not just to make driving easier but to unlock the full transportation potential of automobiles; only then did significant numbers of people begin to reorganize their everyday activities and landscapes around automobiles” and “By 1956, when Congress funded construction of the interstate highway system, nearly all of the basic patterns underpinning the creation of car-centered landscapes—as well as nearly all of the most significant environmental problems related to heavy car use—were firmly in place. With these changes, the United States became Car Country.” Christopher W. Wells, *Car Country: An Environmental History* (Seattle: University of Washington Press, 2013): xxxii.

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Stuart R. Blond was born in Los Angeles and grew up a car nut, learning to read license plates while standing on his mother's lap while his father drove. He purchased his first Packard in 1979, and joined every Packard club he could find. He joined SAH in the early 1980s. He has edited regional, national, and international publications for The Packard Club since 1983. He has written biographies of Packard's California distributor Earle C. Anthony, and Packard's President Alvan Macauley for *The Packard Cormorant* magazine, as well as a two-volume book on James J. Nance, from which the enclosed article was adapted.

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Norm began at GM-Holden Engineering and then Finance, he began writing in 1983 publishing the first book on the history of the company. Then followed a further nine publications on Australian Holden, Ford and local history. In 2014 Norm was accepted into the RMIT University doctoral research program as a mature student and commenced writing a doctoral thesis on early Australian car design. The early Australian automobile design history was subsequently published in January 2018, reflecting the thesis with additional illustrations and graphics. Norm was awarded a PhD in 2018 and is the second Australian automotive historian to hold a doctorate. Norm is the President of Automotive Historians Australia Inc, a member of the Society of Automobile Historians and the Royal Victorian Historical Society.

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Rudy Kosher, "Cars and Nations: Anglo-German Perspectives on Automobility Between the World Wars," *Theory, Culture, & Society*, 21 (2004): 121-144.

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