





**PELICAN PAPERS** 

**WINTER 2020** 



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THE QUARTERLY NEWSLETTER OF NORTH ATLANTIC PACKARDS

A Region of Packard Automobile Classics, Inc.



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#### Pelican Papers, Winter 2020

The Newsletter of North Atlantic Packards, *published four times a year* A Region of Packard Automobile Classics Incorporated

> Editor: Drusilla Carter http://www.napackards.org

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## North Atlantic Packards 2020 Activity Calendar

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May 15-17 2020	<b>Dust Off Tour</b>
Jackard	See article in this issue for details!
June 2020	<b>PAC Brunch Tour</b>
Jachard	Details TBD
June 28-July4 2020	<b>PAC National Meet</b> Rohnert Park, CA
July 12 2020	<b>Bay State Antique Auto Club Annual Show</b> Endicott Estate, Dedham MA
July 17 2020	Misselwood Concourse d"Elegance
	Endicott College, Beverly MA
August 2020	NAP Picnic
<i>Jachard</i>	Details TBD
September 12, 2020	<b>Cars and Coffee</b>
<i>Jackard</i>	LaFerriere Classic Cars, Greenville RI
October 2020	<b>Studebaker Packard Day</b> Larz Anderson Museum, Brookline MA
October 15-16 2020	<b>NH Lakes Region Tour</b>
Jackard	Details TBD
October 2020	<b>Sutton Farm Tour</b>
Jachard	Details TBD
November 14, 2020	<b>NAP Tech Seminar</b>
Jachard	Parkers Packards, Holden MA

activity

date

Gachard NAP exclusive functions

#### **Director's Comments**



I had planned to use this space to talk all about the North Atlantic Packard activities that we had coming up this summer, but instead we find ourselves in the middle of a pandemic. At this point we have to adopt a wait and see attitude and hope for the best.

Prior to the mayhem we find ourselves in, Joel Stern and the Board of Director's had begun to pull together a pretty stellar Dust Off Tour for the Central Massachusetts area. We will watch what is going on in New England and adjust dates accordingly. At this point we find ourselves at a bit of a loss because the time frame of everything is still unknown. Once we have a clearer picture we will get in touch over mail, email and phone with any updates.

I encourage you to reach out to each other during this time and check in on one another. I know that most of us are stuck at home, so let's try to be there for each other. And maybe talk a little shop too to calm our frayed nerves.

While I am disheartened to see car events cancelled for the spring, I am hopeful that you will still get out there and enjoy your vehicles. There is no better time than now than to load the family into the Packard and go for a drive. Let's remember that these cars were made to be driven!

- Parker

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# *From the Desk of* Drusilla Carter, Editor



Welcome to the quarantine edition of the *Pelican Papers* - because what better to do than read about our favorite cars while we're all staying home and dreaming about driving them again? (Judging by the number of requests coming in for back issues of national publications, it's a favorite activity among Club members!)

In this issue you'll find some information about what we hope will be the upcoming activities for this year, including the annual Dust Off Tour, as well as a fascinating article forwarded by one of our members.

During this stressful time I hope you are all staying well and using the extra time we all have to get those Packards all ready for driving season. And if there is anything I or any of our board members can do for you, please let us know.

- Drusilla



#### Dust Off Tour 2020 May 15-17, Worcester MA area

(Editor's note: due to the ongoing COVID-19 situation, please note that the calendar is subject to change)

Our proposed plan for the Dust Off Tour 2020 is as follows. (Again, all of the details need to be worked out over the next few weeks and are subject to change).

May 15th, 16th and 17th, Friday through Sunday

May 16th, 10:00 a.m. General Membership Meeting at Parker's Packards, Holden MA.

11:00 a.m. brunch brought to us via a Chuck Wagon! aka, Canteen Truck, aka, Roach Coach

12:30 p.m. we leave for a 20 mile drive to the Grafton Clock Museum located in ... Grafton!

2:30 p.m. we leave for a drive to Tower Hill Botanical Gardens in Boylston

4:30 p.m. ish we leave the Botanical Gardens and head to the Old Mill in Westminster for dinner. We have had a Chritsmas party there in the past. A great place!

6:30 p.m. ish we can head to the hotel.We are looking into the Chocksett Inn located in Sterling and the Colonial Inn located in Westminster. Like I said, this is a project under development.

Sunday, May 16th 9:00a.m. Board Meeting

10:00a.m. leave the hotel and head to the Brimfield Fairgrounds. Put on your most comfortable footwear! We will work on obtaining reserved parking for our group.

Shop, Eat, drink and be merry. Then, go home!

At this point in time, we have no prices confirmed. Hopefully, the costs will be one half of the cost of the past two year's Dust Off Tours.

A stay at the hotel on Friday night will be strictly your decision. You may choose to stay at the hotel only if you want the convenience of being in the area to meet at Parker's for the 10:00 a.m. Membership Meeting on Saturday morning.

There are no activities planned for Friday and with a start time of 10:00 a.m., on Saturday at Parker's, many of us may decide to commute on Saturday morning from our homes.

## Other Activities Information

Though many details need to be worked out over the next few months, I thought it would be prudent to let the membership know as soon as possible about our schedule of events.

Hopefully you can pencil these dates onto your calendars so that when the time comes, you will be prepared to attend a number, if not all, of the events.

In June we are going to pick a weekend and do a day trip to New Bedford and visit a museum or two and have a stop for lunch .

On July 12th The Bay State Auto Club is having their car show at Endicott. We plan on have a "Packard" representaition at the show. Polish up that chrome!

August 15th is our annual picnic at Fran's house in Connicticut. Bring an appetite! If you have been to one of Fran's past picnics, you know what I mean!

September 12th, in Greenfield Rhode Island there is going to be a visit to the Laferriere collection of classic cars. This should really be a neat event!

October 14th -15th - 16th Dave Wesson is planning a Lakes and Leaves Tour. I believe it will be in New Hampshire but I must confirm the itinerary with Dave. For now, reserve the dates!!

October, usually the third weekend, will be the Studebaker - Packard exhibit at Larz Anderson.

November we will be having our annual meeting at Parker's Packards where we will be educated on some interesting aspect of our autos.

So, there you have it, sort of. This is all preliminary but the dates, for the most part, are accurate. So, like I said before, write them onto your calendars so we can have the best outings ever.

Joel Stern

Activities Director

### Rolls-Royce vs. Packard: Who Built a Better Merlin? By Graham Kozak Autoweek Feb 6, 2020

The saga of the Roll-Royce Merlin V12 supercharged aircraft engine is one of the most gripping engineering and manufacturing stories of the 20th century. Here was an incredibly complex piece of machinery, conceived before the clouds of World War II gathered and continuously refined in the pressure cooker of combat, that would go on to power some of the most unforgettable piston-driven warplanes ever designed—the Supermarine Spitfire and the P-51 Mustang among them.

And at the center of its story are two great automotive marques, Rolls-Royce and Packard, which built Merlins by the tens of thousands simultaneously on both sides of the Atlantic.

If you have even a passing interest in automotive, aviation or military history, you've probably heard some variation of the Merlin tale. The received wisdom, at least in America, usually runs along the lines of: If Rolls-Royce birthed a stupendous engine, Packard brought American mass-manufacturing know-how to the equation, perfecting the design and mechanizing production. And so the Axis powers were beat back by this perfect transatlantic alliance of British ingenuity and American industrial might.

There are many variations on tis basic storyline, more than a few of which are contradictory. Most recently, I was told very matter-of-factly (and by a Brit, if that makes any difference) that Rolls built a more precisely fitted, finely tuned engine that had slightly higher performance potential for a given unit. Packard, by contrast, built one that was ultimately easier to construct consistently and overhaul at specified intervals—and that one of the ways Packard accomplished this was by building Merlins with *looser* tolerances than its counterpart on the other side of the Atlantic.

There's an appealing counterintuitiveness to the notion that a (marginally) sloppier engine makes for a more effective fighter plane powerplant; it's a bit like that chestnut about adding armor to the parts of the bombers with *no* bullet holes. Blueprinted, handmade and expertly tuned Merlins might have been nice to have under ideal circumstances, but WWII demanded materiel in almost unfathomable quantities. On the surface, it's conceivable that two pretty good Detroit-built Merlins were worth one exquisite Merlin handcrafted in Crewe.

On the other hand, I've also read that Packard's cutting-edge manufacturing methods made for Merlins with tighter, more consistent tolerances. Both of these cannot be true. Or can they?

Since Autoweek is talking tolerance this week, it seemed like an opportune time to dig a little deeper into the Merlin story—which, after all, is a big point of pride for Packard car owners like myself. I can only imagine Rolls-Royce owners look back this period of history with equal admiration.

But much like Abraham Wald's WWII-era work on aircraft survivability, it's tough to say exactly how much of this neatly packaged story is nothing more than enticing elaboration spun around just a few spindles of fact.

From this modern vantage point, it might seem inevitable that Rolls-Royce would join forces with Packard to produce Merlins. Rolls-Royce Limited was established in 1904; the Packard Motor Car Co. was founded in Warren, Ohio, a few years earlier, in 1899, and set up shop in Detroit in 1903. Both built their global reputations as top-level luxury automakers on the strengths of their engineering expertise and high production standards.

As WWII approached, both companies had extensive experience with aircraft engines under their respective belts. Packard's early efforts resulted in the successful Liberty V12, which arrived several months after the United States' April 1917 entry into World War I. Rolls-Royce began producing its Eagle V12 in early 1915, also to power warplanes; it started development of the PV-12, the engine that would become the Merlin, in the early 1930s and had running prototypes by 1933.

The first "production" version of the engine was the Merlin I, which arrived in 1936, but fewer than 200 examples were built. The Merlin II was developed about a year later, and from there it was off to the races: A dizzying number of variants would follow in quick succession.

Engineering refinements meant that by the end of the war, the Merlin 66, an intercooled variant of the engine sporting a two-stage, two-speed supercharger, was making 2,050 hp (increased from 1,030 hp in the Merlin II)—and these improved engines were allowing aircraft to operate at significantly higher altitudes, as well. If you want to dive into the minutiae of Merlin development, it's worth grabbing a copy of *The Merlin in Perspective—The Combat Years*, by Alec Harvey-Bailey; there's simply too much info to relate it all here.

Packard had investigated the prospect of building Merlins under license as early as 1938. Though these initial discussions went nowhere, the British declaration of war on Germany in September 1939 meant that a new manufacturing partner was urgently needed.

Ancillary production of the Merlin might have gone to a different American automaker entirely, however, if not for its mercurial founder and namesake. In 1940, Ford Motor Co. initially committed to build 9,000 Merlin engines—6,000 for the British and 3,000 for the American armed forces—in mid-1940, over a year before the United States entered the conflict. The company even went so far as to take delivery of Rolls-Royce blueprints and an example engine before Henry Ford suddenly and controversially backed out of the deal, asserting that his company would not supply materiel to any foreign powers involved in conflict. (A.J. Baime relates this incident, and the detrimental effect it had on Edsel Ford, in *The Arsenal of Democracy: FDR, Detroit, and an Epic Quest to Arm An America at War.*)

Enter Packard. By mid-June 1940, Packard had taken possession of the plans and parts initially given to Ford, and began an ambitious program—led by Packard engineering boss Col. Jesse Vincent—to tool Detroit up for Merlin production. This involved everything from the time-consuming task of redrawing plans for the engines from British third-angle projection to the first-

angle projection used in American manufacturing to creating the tooling and jigs needed to assemble them. Packard also needed to figure out how to obtain (or create) fasteners that used British thread standards—some of which had been further modified by Rolls-Royce to meet specific needs.

As Robert J. Neal writes in *Master Motor Builders*, a tome documenting Packard's non-automotive engines:

"This was but the beginning of a monumental task of redesigning an engine which was not originally designed for mass production so that it could indeed be made by American massproduction methods, and so that it could be fitted with American fittings and accessories as mentioned above [for example, carburetors, fuel pumps, generators and so on] or British accessories and fittings, depending upon which government the engine was intended for."

Neal also notes that "the British did not specify tolerances and fits, and Packard had to take parts from an existing engine and make measurements to determine these specifications as best as they could, using engineering judgement where necessary."

This notion is also reflected in the March 1946 issue of *Flying* magazine, which includes a retrospective on the powerplant by Paul H. Becker titled "Mass Producing the Merlin":

"It took the war to prove that the aircraft engine is not that complicated micro-micro-inch construction problem peacetime talk has made. It is larger, lighter-per-horsepower and has more parts than the automobile engine. But it can be made with the same ease, relatively cheaply, and on a similar assembly line."

Later: "The secret of the this low-cost, high-production manufacturing is the assembly line. Rolls-Royce manufactures a 'fitter's' engine with parts being brought to the unit under construction on a bench. If the part doesn't fit, it is machined until it does meet required specifications.

"An American assembly line reverses this procedure. A conveyor belt brings the engine to the parts which always fit for by American methods all parts are made so precisely that they are always interchangeable."

Packard's assembly line was undeniably cutting-edge. It probably helped that America was not at war when ground was broken for it—and anyway, the threat of Axis bombers flying to the Midwest to flatten it was somewhat less than the chances of the Luftwaffe raining fire on the manufacturing plants of the Midlands. See it in all its glory here:

All of this seems to back up the claim that Packard went its own way when building the Merlin, at least when it came to tolerances. This is a little misleading: The Merlin II service manual, released May 1938, lists exacting fits and tolerances for the engine and every subsystem on it.

Did Rolls-Royce simply forget to include this vital information when it handed Ford, and then Packard, stacks of documentation two years later? It beggars belief. Neal and others must be

referring to the fit and tolerances of the parts *produced*, rather than as-installed—a distinction that will make more sense as we explore Rolls-Royce's prewar manufacturing methods.

In any case, Packard's version of the Merlin XX, which the Detroit automaker dubbed the V-1650-1, was ready to run by August 1941. It did feature a number of improvements over the British-built Merlins, such as a two-piece cylinder block. Some of these improvements were developed by Packard engineers in an effort to make the complex engine easier and quicker to build in quantity. Others, however, like the two-piece block, were actually designed by Rolls-Royce and not yet implemented in production.

And to give a sense of how thoroughly this largely parallel, if somewhat staggered, transatlantic development effort has clouded the record, Neal states that Packard modified the design twopiece block to better facilitate production; when Rolls-Royce eventually implemented a slightly different two-part block, Packard subsequently adopted the Rolls-Royce design. Simple!

Following the attack on Pearl Harbor in December 1941, and the United States' declaration of war on the Axis powers, civilian automobile production quickly ceased; by early 1942, Packard was free to focus all of its effort on military engine production.

If there's a key to understanding Rolls-Royce's Merlin manufacturing tolerances, or the asserted lack thereof, it might be Ford—Ford of *Britain*, that is. British Merlins were eventually built at a quartet of facilities: Rolls-Royce Derby, plus two Rolls-Royce "shadow factories" at Crewe (currently Bentley's works) and Glasgow (twice the size of Crewe, its foundry provided castings for the other operations), and a Ford factory in Manchester.

That last factory began churning out engines in mid-1941, but not before Ford, like Packard, overcame a few hurdles. Stanley Hooker's autobiography, *Not Much of an Engineer*, deals mostly with his work on Rolls-Royce jet engines. But its section on Merlin development, the superchargers of which Hooker played a role in developing, is illuminating:

"In my enthusiasm, I considered that Rolls-Royce designs were the *ne plus ultra*, until the Ford Motor Co. in Britain was invited to manufacture the Merlin in the early days of the War. A number of Ford engineers arrived in Derby, and spent some months examining and familiarizing themselves with the drawings and manufacturing methods. One day their Chief Engineer appeared in (Merlin development head Cyril Lovesey's) office, which I was then sharing, and said, 'You know, we can't make the Merlin to these drawings.'

"I replied loftily, 'I suppose that is because the drawing tolerances are too difficult for you, and you can't achieve the accuracy.'

"'On the contrary,' he replied, 'the tolerances are far too wide for us. We make motor cars far more accurately than this. Every part on our car engines has to be interchangeable with the same part on any other engine, and hence all parts have to be made with extreme accuracy, far closer than you use. That is the only way we can achieve mass production."" A Rolls-Royce automobile engine may well have run better and smoother, and have been assembled with tighter tolerances, than a comparable Ford motor. But that's only because the company employed tradesmen who could fit the parts. Rolls-Royce was crafting Swiss watches; Ford was cranking out Timexes. And sometimes, the occasion calls for a Timex.

This was only sustainable because Rolls-Royce cars were fantastically expensive, and its production was *tiny*. For some perspective here, note that total Rolls-Royce automobile production from 1936-1939 totaled 6,244 (and that includes 3,824 units of 20/25 production, which spanned 1929-1937; thanks to Mark Lizewskie of the Rolls-Royce Foundation for the information).

Packard sold 98,000 units *in 1940 alone*. It may have been a luxury automaker, but it was clearly operating at a scale that dwarfed Rolls-Royce—and it achieved those production figures by embracing mechanized production. When it came time to build the V-1650, Packard was in an almost indisputably better place to build it in quantity than Rolls-Royce was when it began developing the Merlin in the early to mid-1930s. And a large part of that was Packard's ability to use modern industrial processes to create low-tolerance, highly interchangeable parts.

The mistake here, and the foundation of the file-to-fit Rolls-Royce Merlin idea, is likely in conflating *early* engines, which were built in relatively limited quantities throughout the early to mid-1930s, with the mighty (and mightily improved) mass-produced Merlins that emerged as the war progressed.

The initial Merlin engines may well have had a large number of hand-fitted components; the first generations, after all, were borderline-experimental. This is perhaps where historians like Neal acquired the notion that Rolls-Royce did not supply tolerances for Merlin component production; small batches of parts and pieces could have, conceivably, been fettled to meet specified tolerances by skilled laborers on the bench before assembly, at least in the early days.

Of the total of 168,068 Merlin variants built, Packard produced 55,523. Rolls-Royce did even better at 82,117 (32,377 at Derby, 26,065 at Crewe and 23,675 at Glasgow), and Ford of Britain ultimately built 30,428 at its Manchester facility. (Note: These numbers vary slightly depending on the source.)

Rolls-Royce did not manage its incredible overall production numbers—again, greater than those achieved by Packard, albeit at multiple plants—by adhering to its prewar manufacturing methods: It did so by mechanizing. Its factories may not have looked exactly like the clean, ultra-modern Merlin production facility Packard constructed at its East Grand Boulevard plant, as period footage shows:

But the storied marque, or at least the aircraft engine-building portion of it, evolved to meet the demands of wartime. And that meant taking the craftsman out of the equation to whatever extent possible—or in other words, embracing mass production.

As Harvey-Bailey writes in *The Merlin in Perspective*: "Prior to the War the majority of operations in aero manufacture, build and test had been skilled in both a Trade Union and actual

sense. In Derby, after almost a quarter of a century of the business growing up with the workforce, the true skills had become ingrained and many vital bits of knowledge were almost part of the atmosphere in which people work and often not formally documented.

"With the development of the new factories, men and women had to be trained to make and repair aero engines in areas where the skills were not endemic. Union rules and demarcations had to be eased by dilution agreements, and such were the aptitudes of the British that all over the country the so called butchers, bakers and candlestick makers and their wives and girl friends increased the trickle of engines to a river of power."

So where does that leave us? Like so many historical yarns, the idea that American know-how was able to build a better Merlin (either through greater precision or some degree of calculated, mass-producible impression, depending on whom you ask) than Rolls-Royce is hard to dispel out of hand. But it's even tougher to prove conclusively, especially (as Neal notes, regretfully, in *Master Motor Builders*) given that so many Packard records were destroyed when the company folded.

If there's any truth underlying the mythos, it's likely to be in the somewhat incongruous comparison of the early Rolls-Royce Merlins and later mass-produced American Merlins—and it would still hold true if you stacked the earlier engines up against those Rolls-Royce itself would construct in great quantities once it began employing unskilled labor and modern production methods. Remember, Packard, and for that matter, Ford of Britain, were able to jump more or less into mass production of the Merlin, while Rolls-Royce took the engine from a blank sheet of paper to eventual mass production at its three facilities.

Owing to variations in development programs, the varied aircraft they powered and the different mission profiles they fulfilled, it is difficult to compare Packard and British-built Merlins directly to determine if one was in fact "better." Harvey-Bailey's assessment seems to reflect the consensus:

"At Squadron level there were times when there were fortuitous variations in reliability either way but when dealing with large numbers of engines at Group or Command level there was good consistency in results between British and Packard engines. The 60,000 engines produced by Packard for the RAF and USAAF were of inestimable value."

Ultimately, workers on both sides of the Atlantic were able to build an engine for the ages, flown to victory in all of the major theaters of combat. In the legend of the Merlin, any theorized variation in fit and tolerances cannot be more than a very tiny footnote.

# NAP HOLIDAY BANQUET

The North Atlantic Packard Club celebrated the holidays this year on January 26th. Nearly forty members gathered at Bella Costa in Framingham, Massachusetts and were treated to an Italian Feast! It was one of the largest holiday gatherings that I can remember in recent years and it was so nice to be able to see and connect with older and newer members alike. Parker spent a few minutes addressing the club about upcoming events for 2020 and we enjoyed a slideshow of members cars that were submitted on the big screen. A nice time was had by all and it was a great start to the 2020 motoring season.









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