

## The Goshawk Society

# Flier

Issue 23-4

November 2023



## GA26 back on the road

Story begins on page 10

1

#### Goshawk Society Officers

Chairman: Al Briseno - abtxrroc@gmail.com

Technical Director: Tim Jayne, Jr. - tim@royceparts.com

Secretary: John Carey – john@jbcarey.net

Treasurer: Gary Phipps – gsphipps 11@comcast.net

Goshawk Society Newsletter Co-Editors:

US Editor: Mary White – mcwhite@triad.rr.com Activities Chair: Mary White – mcwhite@triad.rr.com

Website: www.goshawksociety.com



The Goshawk Society *Flier* is the official publication of the Goshawk Society, an affiliate of the Rolls-Royce Owners Club, Inc. (RROC). The RROC is dedicated to the maintenance and preservation of Rolls-Royce and Bentley automobiles and its 9,000 members who own or admire the marques. Member submissions are welcomed.



The Goshawk Society Al Briseno II Chairman 10205 Oasis St, San Antonio, TX 78216 tel: 210-827-2591 email: abtxrroc@gmail.com Rolls-Royce Owners Club Mark Lizewskie, Executive Director 191 Hempt Road Mechanicsburg, PA 17050 tel: 717-697-4671 email: rrochq@rroc.org

"Rolls-Royce Owners Club", "RROC", "Rolls-Royce" and "Bentley" and all associated representations, trade and service marks, and logos are protected images. Use or duplication without appropriate permission is prohibited.

Copyright (Goshawk Society & RROC) 2021 All rights reserved.

#### Chairman's Message

#### HAPPY HOLIDAYS!

Greetings everyone. The heat of summer has given way to the crisp mornings of fall. Hopefully where you live the cooler weather has given you the opportunity to take those last country lane drives before you put up your PMC for the winter.

Touring the backroads and seeing the wonderful changing of the leaves in a classic pre-war car is truly something special.

Tim Jayne's YouTube Channel is currently featuring a series on a Phantom III restoration. The two episodes Tim has posted are very good and informative. I recommend you view the series. Let's support Tim by subscribing to his channel.

With winter approaching touring in our PMCs will lessen, but for those of us who live in climates that do allow us to drive our cars, I encourage you to take advantage of those good-weather weekends and take your PMC out for a drive along some newly found country road.

On the Society front, we need to start looking at election of new officers. If you would like to participate in the administration of our society, please send me an email so that we can you include you in the list of possible candidates for office.

I wish each of you a Happy Thanksgiving, Merry Christmas and a very Happy New Year. We will speak again in 2024!

I look forward to seeing each of you along the beautiful back roads and until then, Stay Safe and Keep Motoring On!

Al Briseno II



#### Calendar of Events

The **PI Society** is planning a 5 day **YO-YO tour** April 28-May 3 that will be based in Hershey, PA. The Society allows all pre-war RR/B's on the tours, so consider coming along. Come early to attend Tim Jayne's afternoon tech seminar on Saturday, April 27 at the RROC HQ in Mechanicsburg, PA Contact Henry at henry1hensley@comcast.net for details

The **2024 RROC Annual Meet is in Franklin, Tennessee** (just south of Nashville) June 18-22. **On Wednesday the Goshawk Society meeting and tech session is from 9-10:30.** That afternoon, Mary, along with Jay Miller, are presenting a class on how to select a back roads route using <u>AAA.com</u> and other travel websites. They'll also show how to get the most out of your Garmin GPS. On Thursday Dominique Delbeke and Gil Fuqua are organizing a 75 mile tour with lunch at their farm for the vintage cars & their owners at the meet.

#### **MAP**\* Four to the RROC Annual Meet in Nashville

Rather than plan a separate Vintage tour in 2024, Doug and Mary White decided they'd drive either Bluebelle or Magellan to and from the RROC Annual Meet. **All vintage RR/B's are welcome to come along!** Keep in mind that more than half the fun is getting there (and back).

The trip will be around 530 miles each way so it will be a 3 day trip on the back roads of North Carolina and Tennessee. We'll take routes south of Asheville since there's no way to avoid I-40 if we go north

Day 1 (June 16): We'll leave Winston-Salem on Sunday morning and drive through Lincolnton, Rutherfordtown, and Lake Lure, then get on the Blue Ridge Parkway south of Asheville. The Pisgah Inn on the Parkway will be our stop for the night. (pisgahinn.com) We'll enjoy the natural breezes and mountain views and will have dinner at the Inn's award winning restaurant.

Day 2 (June 17): We'll travel south on the Blue Ridge Parkway to Balsam, then get on Rt. 74 and to drive through Bryson City and Almond. From there we'll take Rt 28 and 143 through Robbinsville to take the Cherohala Skyway to Tellico Plains. We'll stay at the Lodge at Tellico Plains for the night - cabin-style rooms are featured. (Lodgeattellico.com) We can drive a mile into the village for dinner or we can stop at the local market on our way in and get provisions to grill our own dinner at the lodge's covered pavillion.

Day 3: (June 18) We leave for Franklin this morning and drive through the hills of east Tennessee past Athens and Pikeville to Franklin. The Embassy Suites by Hilton on Crescent Centre Drive will be our home for the next 5 nights. During the meet, we'll participate in all the driving events offered.

After the meet, we depart Franklin on Sunday, June 23 and head back to the Lodge at Tellico Plains. On Monday we'll go through Murphy, Franklin, Highlands, Cashiers, and Brevard and hope to spend the night at the Highland Lake Inn in Flat Rock (if their restaurant is open). On Tuesday we go through Saluda, Tryon and Lincolnton to Winston-Salem.

Let Mary know if you're interested <u>soon</u>, even if it's a "maybe" Mcwhite@triad.rr.com or 336-408-0415) There are no registration or event fees, it's just a Mary and Doug tour. If you need to trailer your car to Winston-Salem, we'll look into parking the rig somewhere in the area. Considering we'll be traveling in late June when schools are out, it's best to book rooms early. We can hold rooms at the Lodge at Tellico Plains until early February, but the rooms at the Pisgah Inn can't be blocked since it's a Blue Ridge Parkway concession.

\*Mary and Doug

### Rules are Made to be Broken!

R. Pierce Reid The Vintage Garage, Vermont USA, Copyright

There are certain things that in the world of Rolls-Royce and Derby Bentley have taken on the aura of Holy Writ. Things you are told not to disturb. Not to open up. Not to mess with. And most of the time, that advice is good. Until it's not.

One such item that we are always admonished to 'leave alone' are the clutch pressure springs that were used on from the 20 HP through the late 20/25 and on the 3.5L Derby Bentley, as well as on the Phantoms 1 and II. "Never take them apart!," say the articles, the manuals and the experts. It's generally really good advice. Until it's not.

Recently, we were presented with a 3.5L Derby Bentley that had a very badly burned out clutch. As part of the rebuild at The Vintage Garage, we made the decision to add heavier clutch springs. Though the 3.5L Derby Bentley does not suffer from the clutch slipping problems of its much-more-powerful brother the 4.25L (Borg and Beck 10" Clutch), the center plate design makes it very susceptible to overheating and permanent damage.

#### Henry's Bad Choice

Before going into the 'fix' let's discuss the design of the 'center plate' clutch that is used on the Small Horsepower as well as most Phantom 1 and Phantom II chassis. Because it is an Achilles heel, prone to damage if slipped even once, and understanding both its design and proper use while driving can help avoid expensive damage.

The main weakness with this style of clutch is that it uses a thin 'center plate' sandwiched between two friction linings that are attached to the flywheel and large cast-iron pressure plate. As clutch designs go, this is completely backwards! The 'proper' way to design the linings, as used in the Borg and Beck style clutch that has been in production for some 80 years, is to attach the linings to a thin center plate. Then have your metal 'friction' surfaces on the large heat sinks that are provided by the flywheel itself and by a large, heavy iron pressure plate. This means that the considerable amount of heat generated by friction when letting the clutch out... dissipates in a large metal mass.

Henry Royce, however, opted to use a thin center disk. No exact record of his thought process remains... but the most educated guess is that he felt that the linings (asbestos at the time) could not be adequately balanced

and would create a slight vibration. A precision-machined center 'saw blade' disk, however, would balance perfectly. And the linings, fixed to large rotational masses of the flywheel and pressure plate, would not cause any noticeable vibration. It is probable that he counted on his clientele to drive the car 'as instructed' and to not slip the clutch – ever!

Regardless of how the Royce clutch design was arrived at, it has a serious weakness, which is that the thin metal plate can and will turn red hot (even ablating metal away) in seconds when the driver slips the clutch. All that friction energy in a 1/8" (or less) thick disk that can't carry off heat like a larger mass. So the metal gets hotter and hotter and can literally turn red hot. Upon cooling, the metal will have hardened spots and soft spots... it may be warped.



Severely overheated clutch plate showing hard areas (circled in green) These are raised above the softer (worn away) area. These high spots lower the contact area of the clutch and create slipping and, by extension, more heat and wear.





Clutch so badly overheated that it not only warped, but ablated significant amounts of metal away from the slots built into the perimeter. Note the 'heat snakes' as seen in the earlier photo. High Spots of hardened metal that cause more slipping.

And it will not properly work against linings, which may also now be glazed.

It literally takes a few seconds, followed (typically) by a long period of the clutch degrading as the owner attempts to adjust and take up slack... on parts that were ruined at the outset.

It is worth noting that the Springfield Rolls-Royce works recognized the issue during production of the later Springfield Phantom 1 cars and moved the linings to the center plate, while creating a new pressure plate with a solid running face. Derby abandoned the "Royce Clutch" at the time of the 25/30 and the 4.25L Bentley, going with an off-theshelf Borg and Beck clutch. (However, even the far superior Borg and Beck clutch had issues with the 4.25L cars, as the output of a 'new' engine was simply enough to overpower the clutch. They are powerful cars! This is exacerbated today because asbestos linings are no longer available and they performed much better than modern linings.) By the advent of the Phantom III, a 'Royce Clutch' with linings on a center plate was also being used.

#### **Letting the Smoke Out**

At The Vintage Garage, we do several clutch replacements each year and they are, sadly, not inexpensive! Especially in the Small Horsepower cars where the entire transmission has to come out – no small task. Even the Phantom 1 with its "Clamshell" bell-housing hides the clutch behind layers and lots of heavy parts.

Fortunately, most of these clutch rebuilds are avoidable when owners understand the design of the clutch (thus the above technical history) and follow a few simple driving tips.

Derby Bentley "Heavy" Clutch showing housing that carries a spring center plate. This allows some movement between the shaft and driven 'Fan plate.' On earlier cars the two parts were rigidly bolted together. Blade is warped due to overheating.

First, the most common 'cause' of burned clutches is loading trailers. It can be nerve-wracking to try and drive up ramps, line up the car, not hit a wall or a car in front of you... those who have driven into trailers know the challenge. So when driving into trailers, owners often will slip the clutch while trying to ease a car into the trailer. This can be instant death to a clutch! By the time you smell it or see smoke, the damage is almost certainly done. So if you are loading a trailer... use gravity (downhill) to roll a car in. Try and use a winch. Or get the car in first gear at low idle and drive it slowly and deliberately up the ramp. Here the hand brake (it is NOT a parking brake) is your friend. You can use that to stop the car while rapidly pushing in the clutch pedal. You don't have to move your feet. Practice using your HAND brake... in conjunction with your foot brake while driving. They are meant to be used together. And the HAND brake can exert a lot of braking force on the rear drums.

The second common cause of burned clutches comes when people try and 'hold on a hill' at a stop sign or red light. As emphasized above, mere seconds of clutch slipping on a hill can and will destroy a clutch. Here, again, drivers should use the hand brake, not the foot brake, to hold on the hill. And while easing the clutch out, use your right foot on the accelerator to increase RPM's, then release hand brake while rapidly engaging the clutch. There is massive torque in a Rolls-Royce engine (even the 20 HP). This torque will pull you away on a hill in an intentionally-low first gear. But you have to release the clutch like you mean it! It's not like a little buzzy high-HP low torque Subaru or Honda or Toyota... the massive flywheel, crankshaft and rotational weight of a Rolls-Royce engine, combined with a very, very low first gear, will pull you away on a hill with a quick and deliberate clutch engagement. Practice. Your checking account will thank you!

The last major cause of clutch wear is over-filling the engine with oil or over-using the Bijur pump. The over-filling with oil is particularly an issue with the later Borg and Beck clutches in Small HP cars. If overfilled, the car will leak oil out the rear of the engine, especially going up hills! This gets turned into a mist that will get into the clutch. Make sure the 'oil level' needle is between ¾ and full. NOT pegged against the 'full' side of the gauge. 7/8ths is fine.

Similarly the Bijur system will constantly put oil into the throwout bearing. But over-oiling here can introduce too much oil into the center where, again, it turns to mist and gets into the clutch. On the later small HP cars, the throwout bearing is replaced with a sealed unit and the Bijur spigot is plugged. However this is not possible on the earlier cars where the bearing is a three-piece thrust bearing. So while lots of Bijur usage is good for your springs and brake parts... it's not good for your clutch. Follow the Handbook!

#### **Putting it all Back Together**

Rebuilding a Rolls-Royce or Derby Bentley clutch is fairly straightforward. The most difficult aspects of the rebuild are having the tools, facilities and knowledge to remove the transmission and related parts. Thus, some specialist knowledge and equipment is often helpful. There are shouldered/tapered bolts holding the center plate together. Often replacement requires the use of a lathe or a mill. A pneumatic riveter is a must. And having an ability to do a mag-na-flux or crack test on key components is important (carriers crack, especially if overheated.)

But the process, as described in the Derby Bentley Technical Manual (which is a great reference for its cousin the Small Horsepower) is well-documented.

#### **Modern Improvements**

Trying to improve on Henry Royce's designs is always fraught with peril. While all his decisions may not make sense today, trying to modify things can result in major issues of reliability and also safety.

That said, because of the weaknesses in new clutch lining materials, a few modifications are now occasionally undertaken. One of these is the fitting of heavier springs into the clutch. (There have also been some new 'clutch kits' put on the market by UK Specialists, that either allow a larger Borg and Beck or the retrofitting of a more modern clutch on earlier Small HP cars. But as yet, we have not tested these at The Vintage Garage and

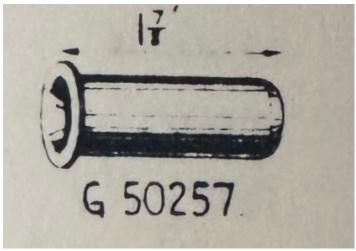
are focused on maximizing the performance of the original Royce design.)

It is this process that requires us to go where others 'fear to tread' when it comes to addressing the eight clutch spring packs that are screwed into the rear of the clutch and which provide pressure to the moving rear plate.

New, heavier, springs are available from suppliers in the UK. However fitting them is not a simple matter because both standing height and spring pressure must be very closely matched on each spring. This involves not only measuring the 'pack' but also the ability to test



Complete spring assembly. Same unit was used (different sizes) in Small HP and in the P1 and P2 'Royce' Clutches.



Spring guide from 20 HP parts catalog. These are no longer in production so best option is to true the hole and make new top hats. Same basic part was used in all the Royce Clutches up to the Borg and Beck



Clutch Spring Guides showing wear in the stamped housing. The wear allows the springs to 'wobble' instead of sliding straight and smooth. Checking several other 'old' clutches revealed this to be a common problem.

the compression of springs that require more than 150 lbs to compress to a 'known' height. A job for a precision spring tester.

In addition, on a recent project, in examining the spring guides, we found severe wear on the cups and on the screw retainer (that sets the height.). As a result, these retainers were 'hanging on' by the barest of margins and had one let go, it would have jammed the clutch immediately – forcing the pressure plate at an angle in its splines.

Thinking that this may be an anomaly on this particular Derby Bentley 3.5L, which has seen some extensive service over the decades, we pulled some pressure spring 'sets' from parts and dismantled them, looking for good used cups. And almost all of our used units were also severely worn in the same manner. A good indication that these parts wear significantly over time. But as Rolls-Royce and Bentley doctrine has always said "Don't take apart the pressure spring packs" the wear may have gone unnoticed and un-remedied on many cars over the years. You learn something new every day!

As new spring guide 'cups' are not available (apparently, no one knows they are needed!), we decided to bore out the holes, truing to .375." From there, we can turn up new guides with a .365" OD and a wider bottom flange. This allows the guide to have some 'give' but also keeps the heavy clutch spring straight against its guide, something that worn distance pieces/guides were not doing. We turned up eight new pieces out of a stainless bar and the new springs went together perfectly.



New spring guide 'top hats' ready to assemble.

Using a spring tester, we then set the height and the pressure springs are ready to go back in the car. Of note, now that we are aware of the potential need to refurbish these spring packs, we will be inspecting these whenever we refurbish a clutch. And we have made arrangements with Tim Jayne at Dennison-Jayne Motors to do a production run of the new distance pieces/spacers, so they will be much more economical than one-off parts! Expect 'kits' to be

available later this year.

Note nice fit of the new top hat to the guide

Owners who are redoing their clutches are similarly advised to have these spring packs checked. Though this may be a specialist job for many shops, the spring units can be removed from the clutch through the inspection plate in the bell-housing and do not necessitate dismantling the whole clutch. These can easily be shipped to a specialist for refurbishment, measuring, testing and return.



Using a spring tester to make sure all the spring packs are going to put equal pressure on the clutch



New guide with new top hat fitted together. Just a few thousandths of clearance, not large wear/slop.

#### **Back Together**

Once the internals have been rebuilt, the clutch mechanism is re-centered and tightened down and is ready for long service. It is worth noting that original asbestos clutches often ran for years with minimal adjustment. While modern materials may not be quite as good as the 'vintage' mineral-clutches... there is no reason they should not last for years with proper driving technique!

So with stronger springs, new linings (and proper friction faces) provide a mechanical solution. And driving technique provides the 'human' solution. Once drivers understand the operation of a Royce Clutch... and its weaknesses, needless clutch replacements can be avoided!

And while there remain things that should be addressed with great caution and things on a Rolls-Royce or Bentley that should be left alone.. if a part moves it can wear. And given enough time, it will wear out. Meaning that the rules about what should be dismantled (or not) is a rule Until it is not!





Clutch assembly showing new springs and arms in place. Arms have been fully refurbished including welding up the worn ends and fitting new bushings. These are wear parts!



Tested springs in place. Note that large HP cars have shim washers included with them. Small HP do not. Springs are within about 5 percent of each other. All tested before peening the ends.

Left: New "Heavy" springs and the guides dismantled. The stamped guide has been trued and new top hats have been turned. "Past Practice" says never take the spring packs apart. Based on new knowledge, they should be checked. But will require a spring tester to reassemble!

## The Saga of finding a 1923 Twenty HP, GA26

By Paul Huckle, North Carolina





Engine cosmetically good but doesn't run well

I have owned a wide variety of pre war cars over the years whilst living in the UK and USA. They were mainly Austin or Morris vehicles but I had more exotic choices, like a 1912 De Dion Bouton and even a 1904 Cadillac Model A for London to Brighton events.

I always thought a pre war Rolls-Royce would be interesting to own. For thirty years I was on the emailing list of a well known Rolls Royce and Bentley dealer in North Wales. I even visited this establishment a couple of times but was discouraged on the basis that 'closed cars tended to have small driver compartments and being tall I would find them uncomfortable.

Around 2000 I visited John Fasal, the well known prewar R-R expert, ostensibly to buy a



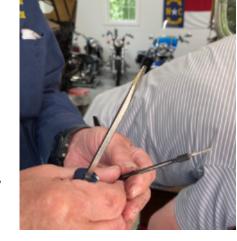


Low speed jet needle won't seat smoothly in jet



Needle chucked in lathe shows it is bent

Doug White makes a house call GA26 at Paul Huckle's garage



Bent low speed jet needle

copy of his seminal 'Twenty' book, but was graciously given a tour and shown his cars, particularly his ex Maharaja of Udaipur Twenty, 42 GO. Suitably enthused, I have read and reread John's book more than any other in my automotive library!

Fast forward to Covid lock-down during which many people did strange things. Mine was to take the plunge and purchase remotely a 1923 Barker replica Twenty, GA26. The car was previously owned by a gentleman in Portugal who had bought and completed the restoration of the rebodied vehicle more than ten years previously. I was reassured that such long ownership suggested this wasn't someone trying to flip a poor car.

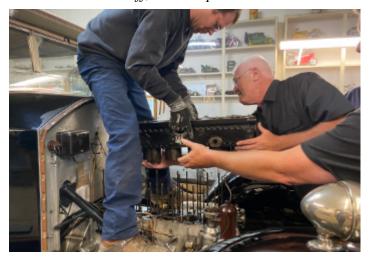
I was further encouraged by the dealer's description, 'an extremely correct, authentic looking re-body, completed about ten years ago to a very high standard ....... Aesthetically appealing from any angle, running nicely, driving well and offered serviced, prepared and ready to go'.

Following a number of telephone conversations a price was agreed and the car was shipped from Wales to the USA. On arrival the car did indeed look great. After a couple of short trips however I couldn't get it run very well. I replaced all the ignition components to no avail, on the basis that 'most carburetor problems are ignition'. The dealer was helpful with advice over the phone but suggested starting to tweak the carburetor settings should be an action of last resort.

Research led me to Doug and Mary White. They graciously came to visit the car and Doug, throwing



Heads off, block exposed



Carefully lifting block off studs



Slogging bar to remove crankshaft pully nut

my caution to the wind, started to dismantle the carburetor. He quickly diagnosed at least a bent slow running jet. Mary said, "Sounds like Paul needs to talk to Pierce". "Who", I innocently replied, "is Pierce".

I sent the entire carburetor to Pierce Reed at The Vintage Garage for rebuilding. It came back like new but the car still wasn't running well. Pierce suggested sending the car to him ahead of an upcoming Small Horsepower seminar. We could use the car to demonstrate some of the finer points of trouble shooting a Twenty and I could save a few dollars as he wouldn't charge me for labor during the seminar.

To cut a long story short, Pierce soon established that the block had been cracked, probably by the cooling water freezing and that the crack had been temporarily fixed using 'weld it' or similar. Over a couple of cycles of running and cooling, the crack in the block had reopened and water was getting into the engine. I left the seminar with the understanding that an engine



Nate pointing out freeze crack in block wall



Crackcase after removal of rods and pistons





Dual thin shell bearings in rod, instead of babbit



Line boring new main bearings



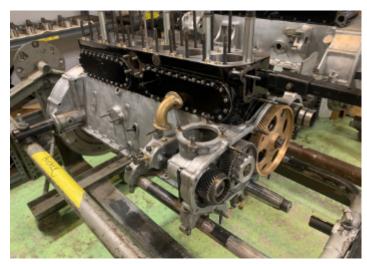
Front gear set and crankshaft damper



Bronze timing gear with pitting due to tight meshing



Radiator deconstructed



New block on crankcase



New head on block



Deconstructed distributor

rebuild was in the works but with confidence that The Vintage Garage had the experience and capability to do it properly.

Pierce is an automotive archeologist. The more he dug into the car the more he revealed. The cylinder head was also cracked, probably in the same freeze event, the engine had been line bored inaccurately, causing the timing gears to mesh tightly and start to grind, there were signs that water had been inside the engine for some time. The springs were tired and the steering sloppy, suggesting the car had experienced some heavy use during its life. Oh, but the body was beautiful and Pierce says 'we can fix everything but ugly'.



Like new with the Vintage Garage Crew

The race was on to get the car renovated and back on the road in time for the Gettysburg Annual meeting. So, new block, head, pistons and valve gear were ordered. New main bearings were fitted and the block was line bored. All the engine ancillaries were reconditioned or replaced. The AutoVac was rebuilt to eliminate the electric fuel pump someone had retro fitted. The tired suspension was rejuvenated by re-arching all four springs. The radiator was rebuilt with a new core and a front end rebuild using new king pins fixed the poor steering. A set of Blockley tyres were ordered from the UK. Many other items were fixed as the team worked their way through the chassis.



On the road again

Photo: Gates

Despite numerous set backs, and searching for parts we hadn't anticipated needing, Pierce and The Vintage Garage crew had the car completed and delivered to me in Gettysburg. During that week it attended its first meet, had a 100 years birthday celebration with other 1923 cars and ran successfully on its first tour. We drove it triumphantly home to North Carolina without any trouble - okay, well it rained and we don't have sidescreens and it turns out the roof isn't that waterproof!

#### So what have I learnt:

It is always better to buy a known car from a Club member rather than from even a well known dealer.

The RROC is filled with delightful friendly car crazy people who are willing to give advice and help to anyone who needs it.

There is no substitute for entrusting your car to a shop that has experience in your model of car. Many may think they know how to rebuild a pre war Rolls, few have the deep experience to get it right.

There is no better feeling that driving in a car that you have complete confidence will make the journey, unconcerned that the car may just decide to 'cease to progress'

The quality will remain long after the price is forgotten - I hope!



Paul with open wallet

#### Two Twenties at the Hilton Head Island Concours d'Elegance





David and Ruth Gillespie showed their newly restored 1929 Twenty Park Ward Coupe and were presented with the Palmetto Award in the Classic - Closed class.





Mary and Doug White drove Bluebelle, their 1923 Twenty Sanderson and Holmes tourer to Hilton Head for the Concours. On Friday, they participated in the tour to Bob & Alice Jebson's Gregorie Neck Plantation to view his classic car collection, one of the finest in the Southeast.

Bluebelle was in the Luxury Marques, drop head coupe class. She did not get an award, competition was tight. But Mary received the Ladies Choice Award given by the Women Driving America group. It's given to a woman who drives the cars, teaches and encourages other women to get behind the wheel

