

INDIAN'S GLORIOUS FAILURE

PART ONE

In the annals of American motorcycling, the name Indian has created a level of interest unsurpassed by any other domestic marque. So much so that in the almost sixty years since closing it's doors, any number of individuals or groups have time and time again endeavored to revive the brand. It is a continuous undying loyalty to a virtually mythical name, still to this day reverberating in the motorcycle community, which helped to create the legacy left behind by the original Indian Motorcycle Company. And what are the building blocks on which this legacy was constructed? The foundation lies with the founders themselves and their commitment to building a machine that would surpass all others. And based upon their original ideal, Indian created a standard of quality, durability, innovation, and style for others to follow. The Indian motorcycle had a history of reliability. Its innovations include the first use of a chain for the final drive, the first rear wheel suspension in a large production American motorcycle, and of course, the first and only use of streamlining. And as for style; well, can anything compare to the striking beauty of the Art Deco influenced design of the skirted fenders of the 1940's and 1950's.

Perhaps though, the one thing that most unquestionably reinforces the steadfast unwavering loyalty to the brand itself is the measure and longevity of Indian's successful racing heritage. This long running success story spans the better part of five decades. From the second decade of the twentieth century to the sixth decade in the 1950's, Indian's competition successes are the outgrowth of their remarkable racing machines and the men who rode them. And it makes sense that Indian would have a big hand in motorcycle competition for it was the founders themselves who were involved variously in the competition arena before starting the Indian company.

Starting in 1911 was the victory at the Isle of Man Tourist Trophy by the upstart American company that took all of Europe by surprise. Following that were the countless board track wins garnered by the men who rode the elegant 4 valve and 8 valve racing machines. In the decade of the twenties, the surprisingly powerful side valve engines based upon the powerplus created by the incomparable Charles Franklin were again winning on board tracks and the dirt tracks and hill climbs emerging all over the American countryside. The 1930's were no different. Indian hit the ground running in the newly created Class C racing category with it's practically designed for competition Sport Scout which, in the hands of many Indian riders, claimed victory after victory on the half miles, miles, speedways, TT's, and road races that made up the bulk of Class C racing. These wins continued on into the 1940's as Indian's devoted group of engineers updated the already race proven Sport Scout engine in order to stave off the ever increasing competition from Harley-Davidson and their race specific WR. Indian's last great glory was garnered in the early 1950's by the famed Wrecking Crew and their respective tuners who remained loyal to the Indian name even while it was in the throes of it's demise. Of course, almost every success story has a number of failures which precede it. It was no different with Indian. It is the motorcycle that is the outgrowth of Indian's most infamous failure that is the basis of this story.

THE VERTICALS

The development and ultimate failure of Indian's post war single and vertical twin motorcycles has been thoroughly documented by many capable authors. Enough so that it

doesn't bear repeating here in any great detail except to summarize a few points. Ralph Rogers' vision for the future of motorcycling in general and the Indian Motorcycle Company in particular was the "gentleman's motorcycle". The motorcycles borne of his idea were underdeveloped, under tested, and rushed into production with many of the critical well adopted features replaced with inferior items for the necessity of cutting costs in lieu of the rapid depletion of Indian's and Rogers' finances. And perhaps most importantly, the American riding public, largely made up of returning service men, was severely underestimated. These men sang the praises of the smaller, lighter, European motorcycles with their inherent ease of handling. However, these were for the most part, very pedestrian military motorcycles, and not very robust to say the least. In most cases the American servicemen did not have the opportunity to put them under severe usage although I am sure they tried. And serenely pottering down the country lanes of England does not translate to roaring down the myriad of farm roads and highways crisscrossing the vast American landscape at continuous high speeds. The Indian verticals were designed with Europe in mind and consequently were in way over their heads when it came to performing in the United States.

THE POST-WAR RACING SCENE

In the years following the Second World War, Indian's change in direction left their storied racing program in a state of isolated limbo. After retooling from war production, Indian reintroduced only one model from its pre-war line-up of four different models. That was the Chief, which was basically an updated version of the pre-war design. And although Indian paid lip service to producing a nearly completely revised version of the Sport Scout, that endeavor was left to die on the vine. This left almost all of the many Indian competition riders without a means to replace their worn out pre-war racers. Indian's immediate solution to this problem was the creation of the magnificent Model 648 racing Sport Scout with its newly designed bigbase engine. Most of the men who had spent many years with the company felt that Indian needed to be well represented in the competition field. Rogers wasn't so sure and only reluctantly agreed to go ahead with the development of the 648 as long as there was not a great deal of time and money spent on the program. And while the 648 went on to some measure of success immediately and ultimately in Indian's last moment of glory, it was a stopgap measure at best. So much so that the money applied to the 648 came from the budget of the advertising department since Indian only produced the motorcycle to keep their name in the motorcycling press via their appearances in competition events. Apparently from the beginning it was decided that if Indian were to continue in the arena of competition that its racing machines were going to be based upon the vertical twins and not the v-twin Sport Scout. This would prove to be a monumental undertaking because the newly christened Indian Scout was in an inherent position of disadvantage compared to other overhead valve machines of the day. Remember, racing in America was still operating under Class C rules that allowed overhead valve machines an engine displacement of 500cc and side valve machines a displacement of 750cc. The Indian Scout was, by design, only 440cc.

THE LACONIA SCOUT

The Indian vertical twin motorcycle had at least one thing going for it. It was very light compared to the Harleys and even its own cousin, the Indian Sport Scout. The author had an

opportunity to ride a Laconia Scout on a dirt track and found the bike to be quite nimble and easy to maneuver. Unfortunately that was about the only thing it had going for it. According to Class C rules Indian needed to produce a sufficient number of machines to qualify the Laconia Scout as a production motorcycle. They decided on 24. How they arrived at that number is anyone's guess especially since the rules at the time stated that a minimum of at least 50 units needed to be manufactured with corresponding serial numbers. When Indian embarked on production of the Laconia Scout racers they decided to assign them their own series of serial numbers starting with the prefix BDJ and numbered 1001 to 1024 inclusive. Indian's engineers set to work to try to make the docile, underpowered machine of questionable endurance into a full-fledged racer. First, they started with the simplest means available to them dictated by Class C rules in order to gain some measure of performance. They increased the displacement from 440cc to 500cc by increasing the cylinder bore from 2.375" to 2.540" keeping the stroke at its as designed 3.00". This would eliminate the one large glaring inherent disadvantage when compared to other overhead valve motorcycles. Increasing displacement naturally increased horsepower in the vertical twin so now Indian was competing on a more level playing field. Because the Indian vertical twin engine was an entirely new design and relatively unfamiliar to the men in Indian's experimental department, it was going to be difficult for them to implement any wide-ranging changes in a relatively short period of time. They were going to have to go pretty much with what they had to work with. And because these machines were, by rule, supposed to be production motorcycles, there could not be any visually noticeable external changes like dual carburetors or the like. Apparently, there was not much done to the crankshaft or connecting rods other than rebalancing them as necessitated by the increase in weight of the pistons, which came about as a result of the larger cylinder bore. Dennis Leggett, who vintage raced a pair of Laconia Scouts in the 1980's and 1990's that had originally belonged to Indian dealer Herb Reiber, substantiates this. In a conversation with the author, he related that upon removing the cylinders in order to do a ring job he observed no evidence of any kind of lightening or internal polishing of the connecting rods or crankshaft. Based upon this evidence it seems likely that there were no modifications made to the valve timing by creating new cam lobe profiles. It is possible that there may have been some port shaping done to the heads as this could have been done with a minimum of effort using hand grinding and polishing equipment. What this would have most likely entailed would be just a basic shaping and polishing of the intake and exhaust ports. What percentage of increase in power this produced is a mystery. Carburetion for the street versions of the vertical Scouts was provided by the L&L model S-3. Since the later 500cc Warriors used the Amal Model 276 it is possible that the Laconia racers got the first applications of those units. The exhaust system was the basic stock exhaust header pipe with no muffler attached. At this point, insufficient time had elapsed for the magneto shortcomings to have become apparent so the Edison model AJ-2 magnetos installed on the street versions of the Scouts were retained. Stock Indian Warriors were rated at 29HP so it is conceivable that the Laconia Scouts produced a range of 30 to 35HP.

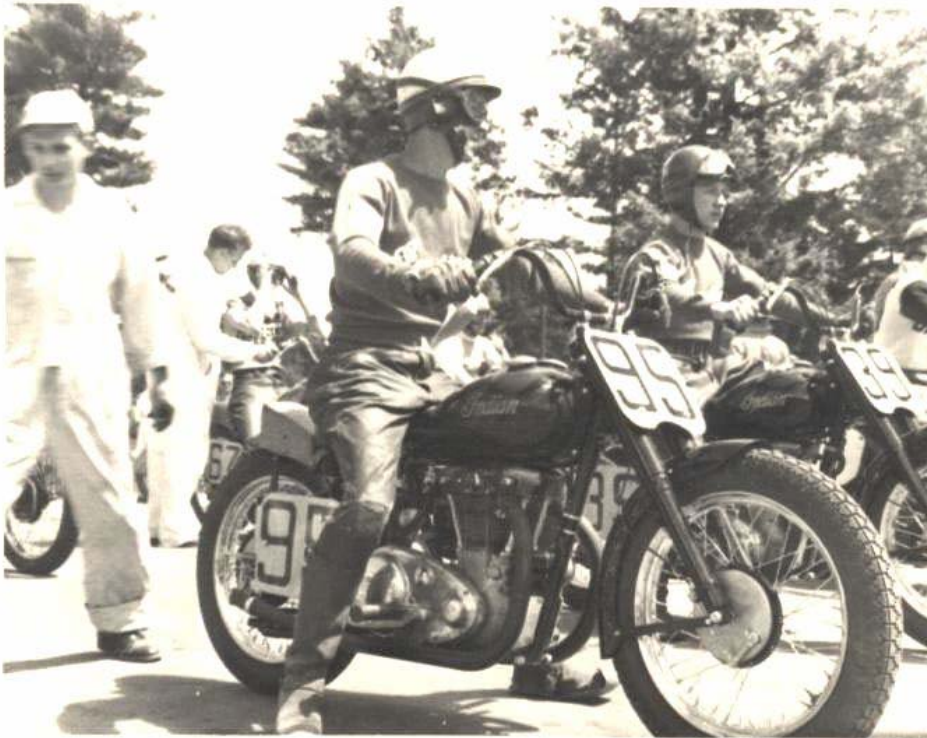
The eventual flood of complaints regarding the clutches and transmissions on the vertical twins that inundated Indian dealers and subsequently the Indian factory was at this time still only a trickle. In all likelihood, the men in Indian's experimental department knew that the lightweight construction of the vertical twin's transmission and clutches would not stand up to the rigors of racing. However, in light of the lack of time and severe lack of resources to make corrections, the decision was made to use the clutches and transmissions as they were constructed.

Having increased the power of the motorcycle as much as they could, Indian's racing department now set out to remove as much of the Scout's 315 lbs. as they could in order to increase the power to weight ratio. This was accomplished by trimming metal away from the front and rear fenders that came on the road going versions. Gas and oil tanks were standard issue vertical twin.

Due to a lack of any contemporary information, it is difficult to know whether or not there were any modifications made to the front forks to enhance the Scout's handling capabilities. As mentioned previously, its already light weight went along way towards creating a nimble handling motorcycle. From the few photographs available it would appear that brakes were standard issue. The bikes were fitted with a solo saddle and pillion pad on the rear fender. Thus equipped, Indian Scout vertical twin motorcycle was as race ready as it was ever going to be for its competition debut.

RACE DAY

The racing version of Indian's vertical twin Scout was unveiled at the 100 Mile road race at Laconia, New Hampshire on the weekend of June 18, 1949.



(Fig. 1) Two riders mounted on Indian Laconia Scouts on the starting grid waiting for the green flag to drop for the start of the 1949 Laconia 100 Mile Road Race.

The reason the Scouts made their debut at Laconia was just simply due to a matter of timing. In an interdepartmental document from a special committee to the General Policy committee dated July 11, 1947, Indian was discussing how to solve the problem of inadequate

competition representation for the coming year before the new models would be available. In paragraph (b) of Part II of the document outlining various alternative solutions to the problem of inadequate competition representation, it was stated that Indian was not going to be able to supply any new racing equipment based upon the new models for “at least eighteen months”. Eighteen months from July of 1947 would put the tentative date of availability of new equipment at the very end of 1948 or early 1949. Since the Daytona 200 mile road race is usually held in March and since Indian’s race department engineers and technicians were dealing with a brand new motorcycle design with which they were not familiar, and, since Indian was already behind schedule in its development of the new models it stands to reason that the new racers would not be available for the 1949 running of the Daytona 200. It is also possible that the Laconia 100 mile Road Race was chosen because Laconia is a four to five hour drive from Indian’s headquarters in Springfield, Massachusetts as opposed to an overnight train trip to Daytona, Florida. This way Indian officials could make it back in to work on Monday morning following the race on Sunday. All things considered, the first reason has much more credibility.

When the dust settled on the afternoon of June 19th, at least eleven of the twenty-four verticals had been sidelined and only three placed in the top twenty finishers. The single most prevalent weakness of the Indian verticals had reared its ugly head. The magnetos that Indian management had chosen to install on the new Indians had failed under the stress of racing. Now, we don’t know the nature of the failure. It very well could have been bearing failure or it could have been the coils. Most probably the magnetos didn’t just suddenly fail as one is led to believe when reading currently written accounts of the race. The spark probably grew weaker and weaker as the race progressed and at the end the engines were probably barely running much less making any kind of horsepower. Again Dennis Leggett related to the author that when he first started to vintage race the verticals, the magnetos were so woefully weak that the bike would hardly get out of its own way. His solution was to isolate the coil and use the timing mechanism hooked up to a total loss battery and coil. Based upon his solution a person could assume that the trouble with the magnetos was not the bearings. He said after he reworked the ignition system the difference in performance was quite noticeable.

Motorcycle historians have not been kind to the Indian verticals. Some of this is deserved. However when you put things in perspective and break down the actual number of vertical twins entered at Laconia and how many finished in the top twenty, it is comparable to the entries and results for Indian in the two previous years. In those races Indian riders were on Sport Scouts and the best result was Ted Edwards’ 2nd place finish in 1947.

When you consider what Indian’s technicians and engineers had to work with, and the complete lack of time for them to familiarize themselves with a model foreign to them, the results at Laconia in 1949 don’t seem too out of line for a racing machine’s first time on the track.

INDIAN'S GLORIOUS FAILURE **PART TWO**

POST RACE DEVELOPMENTS

On June 20, 1949, Indian's management and experimental department personnel returned to work to lick their collective wounds from the weekend's stinging disappointment at Laconia. Indian's management set to work instructing the sales and advertising department to create press releases that would best disguise the debacle that had just transpired. Meanwhile, on the third floor, in the experimental department, Indian's engineers and technicians gathered their observations and started to plan on how to develop the vertical twin to be more successful in future races. The question was however; would there be any more races in the vertical twin's future? Ironically, an event had taken place the previous April, even before the Laconia Scouts had made their racing debut, which was to provide an answer to that question. And officially, that answer was eventually going to be "no". In April of 1949, Ralph Rogers, who was just about at the end of his financial rope, made a trip to England to try to secure additional financing to see his dream of a "gentleman's motorcycle" through to the end. The securing of additional financing would come with a price that would ultimately affect Indian's racing program in a big way. A distribution company doing business as the "Indian Sales Company" was set up to distribute domestically manufactured Indian motorcycles to its various dealers. An outgrowth of this arrangement was that in November of 1949, the Indian Sales Company started to import British and European made motorcycles to be sold in the United States. One of these brands was Norton. And with the Norton brand came their magnificent 500cc Manx International racing motorcycle that was to dominate road racing in the United States for the next several years. And since Nortons were being sold through the Indian dealership network, they were going to be raced in association with the Indian name. In the quick stroke of a pen, the Indian Motorcycle Company would have their new road racing machine and the death knell of the vertical twin as a legitimate racing machine had sounded.

NEVER SAY DIE

As mentioned at the beginning of this article, one part of Indian's legacy was the dogged loyalty to the company of its employees. And nowhere was this more in evidence than in the experimental and racing departments. The men in Indian's racing department, as inconsequential in the overall company scheme of things as it had become, were not just going to sit idly by and let some imposter from across the sea come in and push aside the years of blood, sweat, and tears that these men and their predecessors had sacrificed in the cause of Indian's competition successes. And while "official" company policy was to effectively curtail any future development of the vertical twin as a racing machine in lieu of the Norton Manx, that didn't stop Indian's racing department men from doing their own under the table research and development in between official assignments. The men who were probably most responsible for this were Walt Brown, Erle Armstrong, and to a lesser degree perhaps, Jimmy Hill. In the annals of latter day Indian racing, these three men are nearly legendary in regard to keeping the competition program alive. Jimmy Hill's position in the company had been somewhat downgraded after he tested the new single and vertical prototypes and returned scathing reports illustrating their inadequacies. Management didn't approve and he was no longer used as a test rider. But a

motorcycle rider he was and so were Walt Brown and Erle Armstrong. All three rode competition, and in fact, both Walt Brown and Jimmy Hill were regularly seen on race tracks around New England in the early days of Class C competition in the 1930s. Photos exist showing both men on racing machines. And come hell or high water they were going to make a racer out of the vertical twin on a shoestring if need be.

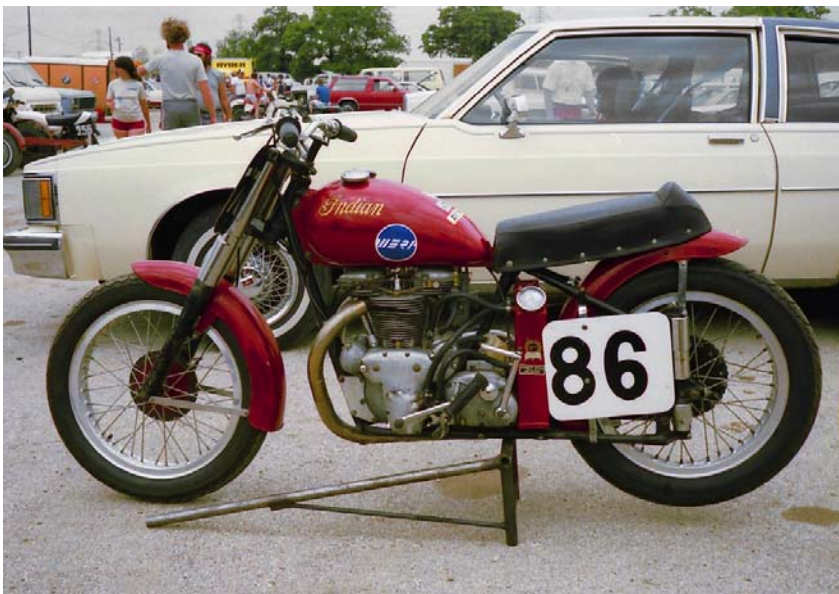
In discussing brand loyalty, Indian's dealer contributions to the cause of racing should not be underestimated. In fact, many of Indian's dealers started their motorcycling careers as racers. Names like Ed Kretz, Ted Edwards of Atlanta, Herb Reiber of Washington D.C., and Clem Murdaugh of West Chester, Pennsylvania are some of the most prominent. And it would be Herb Reiber and Clem Murdaugh along with Walt Brown who would figure most prominently in future Indian Laconia Scout development.

BUILDING A BETTER MOUSE TRAP

The men in Indian's racing department wasted no time in making an effort to make the Laconia Scout a more raceable commodity. Just four months after the disappointment at Laconia, service manager Walt Brown issued a Motorcycle Service Bulletin dated Sept. 12, 1949. The focus of this bulletin was the adaptation of the 741 rear hub to the competition model 249. In the text of the bulletin it explains how to fit the hub to the frame and line up the sprockets by using spacers of specific thicknesses and also how to lace the wheel to the hub. The reason for all of this is to take advantage of the large variety of sprockets available for use with the 741 rear hub. This would effect an immediate remedy to the limited amount of final gear ratios available for the vertical twin. There was no mention of trying to adapt any kind of brake mechanism to the hub so this set up was most likely intended for dirt track use only.

In determining the details of the vertical twin's future development, Walt Brown and the others had most likely come to the conclusion that if they were going to learn what needed to be done to make the vertical more competitive, then they were going to have to subject the bike to as many different types of racing situations as they could. This meant flat track on the miles and half miles, TTs, long distance speedways, and road racing other than Laconia. "Other than Laconia" is interpreted as meaning that the vertical twin was going to have to be subjected to the tortures of the Daytona 200 Mile Road Race. In order to prepare a vertical twin Scout for Daytona a few immediate changes were going to have to be made. Since Laconia was a 100-mile race as opposed to a 200-mile race and was contested on a relatively twisty one-mile racetrack with short straightaways, the engines were not subjected to the sustained high speeds they would be at Daytona with its two, mile and a half long straight-aways. This meant that fuel consumption was not as high at Laconia as it would be at Daytona and the fuel and oil tanks that were fitted to the original Laconia Scouts were adequate for the Laconia race. Daytona however, would be another story. Higher sustained speeds on the long straight-aways of Daytona would significantly increase fuel consumption. Subsequently, newer, higher capacity fuel tanks were manufactured specifically for Daytona. The other part of the equation that would be affected by the sustained high speed running at Daytona was the matter of heat building up in the engines. Heat dissipation in motorcycle engines of the day was accomplished in two ways. The first and most obvious method for an air-cooled motorcycle engine is, naturally, having the relatively cool air on the beach of Daytona in March flow through the cylinder and cylinder head cooling fins. This takes care of the top end of the engine. Cooling the lower end is accomplished by lubrication. Hydraulic lubrication reduces heat by two different means. First, the lubricating

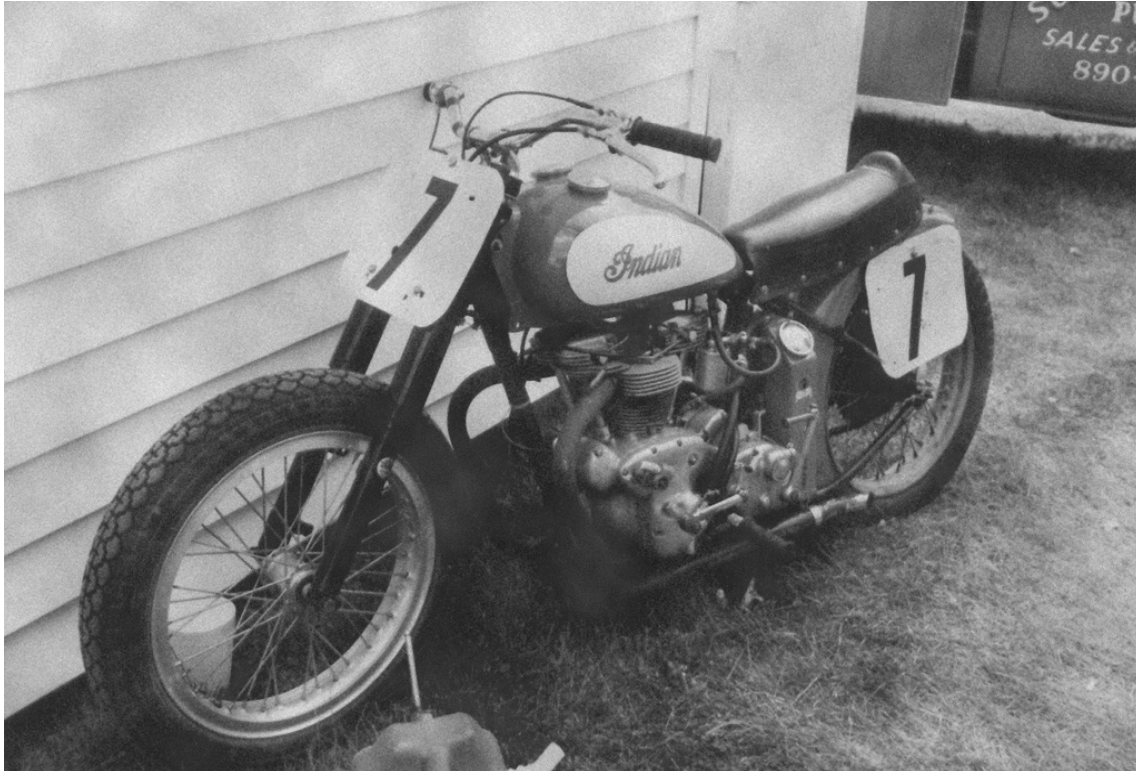
property of the oil reduces friction between interfacing moving parts such as connecting rod bushings and crankshaft journals. Since the byproduct of friction is heat, reducing friction effectively prevents an accumulative build up of heat in the engine's lower end. Secondly, the oil acts as a coolant. Oil that is pumped into the crankshaft bearings will absorb the heat that has built up in the engine as a result of combustion. This oil is then scavenged and returned to an oil reservoir or tank, carrying the heat with it. The more oil a tank holds the more the oil returning from the engine will be cooled, much the same way it will in a water-cooled engine with a larger radiator. So a new larger capacity oil tank was hand fabricated and installed in the frame behind the transmission, under the seat. Whether this oil tank was fabricated in the factory or by an outside source; perhaps one of the two dealers on the east coast; is a matter of conjecture. The fact is that a number of these oil tanks have shown up on present day examples of Laconia Scouts in the possession of collectors. An example of a post 1949 Laconia Scout in its first phase of development is shown in the photo below. The fuel tank appears to be the larger capacity Daytona gas tank identifiable by its slightly more bulbous profile and lack of cut-out for the saddle. The higher capacity fabricated "cigar box" oil tank is clearly shown in the photo. (Fig.2



(Fig.2). This is a current example of a Laconia Scout in its early post 1949 configuration. The fuel tank appears to be the larger capacity Daytona version and the larger Daytona specific "cigar box" oil tank is plainly evident. Notice the newer crossover exhaust system on this example. This machine may have originally been one of four Laconia Scouts owned by Washington D.C. Indian dealer, Herb Reiber. More recently the late Bob Shingler, noted Indian vertical collector, may have owned and vintage raced this machine.

As was mentioned before, Walt Brown and the others had decided to experiment with racing the verticals on various flat track miles and half miles. In the early days of rear suspensions being applied to motorcycles, common practice for flat track racing was to run without a rear suspension. Indian had pioneered the plunger spring frame rear suspension and this was also applied to the Indian vertical twins. The 1948 single cylinder Indian Arrow had come equipped from the factory with a rigid rear frame section on all three of its variations. One of the fortunate developments of the Arrows and Scouts was their modular design. This allowed

the engineers to replace the Scout sprung frame rear section with the rigid section from the Arrow and with very little effort create a rigid frame racer for dirt track use. The other benefit of this is that it made an already lightweight bike even lighter. The street versions of the vertical twins were built fairly low to the ground. This proved to be a problem for the dual exhaust pipes extending out of the cylinders and running down along both sides of the motorcycle. Flat track riding technique requires the rider to lean the motorcycle far over in the flat turns of a dirt track and slide the rear wheel to scrub off speed. Since flat tracks have only left turns, an exhaust pipe running down along the lower part of the left side of the motorcycle would be subjected to being damaged if the bike were leaned too far over or if the rider over slid his machine. To solve this problem the race department fabricated a crossover design exhaust pipe that extended from the left cylinder down the front of the engine and over to the right side running roughly parallel to the right side exhaust pipe. Since brakes were not permitted in dirt track racing, the internal braking mechanisms were removed from both the front and rear brakes. Sometimes a spooled front hub was used in place of the front brake drum and hub assembly making the bike even lighter still. No evidence has yet come to light on what a Laconia Scout in flat track racing trim actually weighed but estimates would probably put it in the range of about 250 lbs. Most half-mile races were no more than about 10 miles or 20 laps in duration so the smaller Laconia tank was suitable. Again, racing was done under Class C regulations, which required competition machines to be based on production machines. This effectively restricted Indian from the changing the production induction system so these later dirt track incarnations of the vertical twins still utilized a single carburetor. The photo below illustrates how the Laconia Scout appeared in flat track racing trim. (Fig.3)



(Fig.3) This example of a Laconia Scout in dirt track racing trim may have at one time belonged to Bob Shingler and been raced by Dennis Leggett. Notice the “cigar box” oil tank, the dual road race exhaust system, and the rigid rear frame section. This machine also has a couple of items that would appear on later variations of Laconia Scouts; dual petcock fuel tanks and a remote float bowl Amal carburetor.

The machine illustrated above carries a couple of special items that would see the light of day on later incarnations of the Laconia Scouts. The fuel tank, which at first appears to be the standard Laconia style has one special little change; dual petcocks. This was done to feed the remotely mounted float bowl that was used on the Amal carburetors. The other item is the remote carburetor float bowl itself. This application was used on several British racing machines and it is conceivable that its application on the Laconia Scouts was to insure a consistent adequate fuel supply to the carburetor body while under the demands of racing.

FORGING AHEAD

It is difficult to ascertain to what extent the Laconia racers were utilized in competition events following their 1949 debut. In the magazine reports of the day listing the finishing order of the various riders at competition events, the riders’ names were usually followed by the brand of motorcycle they were riding. In the case of a rider who would be competing on a Harley for instance, it was almost understood that he would be riding a WR model racer. In the case of a rider being shown as riding an Indian, it wasn’t readily evident as to whether or not he was riding a Sport Scout or one of the new vertical twins. Consequently, magazine reports cannot be counted on to enumerate how many vertical twin Scouts actually competed and how often. Photographs accompanying race reports would most often only show a photo of the race winner

and since a Laconia Scout was not often in that category, not many photos of them competing exist in the magazines of the day.

As mentioned previously, Indian dealers often made major contributions to the cause of racing on behalf of the company. In the latter days of Class C competition this might manifest itself by a dealer providing a race prepared motorcycle for a local rider who showed promise. In the early days of Class C racing this practice was strictly forbidden but as time went by these rules were ultimately relaxed to a degree where a dealer could have a rider race out of his dealership and provide some measure of support. Two of the four dealers mentioned previously figure prominently in keeping the Laconia Scout flag flying. Herb Reiber reportedly maintained a stable of at least four Laconia Scouts up into the early to mid-1950s along with one or two 648 racing Sport Scouts. Two riders along with Herb himself were featured in his racing program. Charles (Bee Bee) Smith was a nationally ranked rider of some renown on the east coast and was competitive in many of the national races held there. The other man was Guy White, a novice, who is seen in photos campaigning on Laconia Scouts wearing the red and white paint scheme unique to Reiber's racing machines. The second dealer was Clem Murdaugh, former national champion Class A hillclimber and all around racer. It is the example owned and raced by him that will illustrate the Indian vertical twin racer in its final and most highly developed form. As we shall see, the men in the race department; along with the dealers, will have gone to great lengths to create a racer out of the Laconia Scout worthy of the Indian name.

INDIAN'S GLORIOUS FAILURE **PART THREE**

FIGHTING TO THE END

In 1951 a young rider whose family name will forever be engraved in the honor role of Indian immortals joined the ranks of the company's employees. Twenty-three year old Jack Armstrong, son of the legendary Erle Armstrong, was a part-time racer and hill climber. In that capacity he also functioned as an unofficial test rider for the company. In the years immediately following World War II the aforementioned men in the experimental department had been formulating ideas into what would ultimately take shape as the Model 648 racing Sport Scout. In the spring of 1947 Jimmy Hill would build what would amount to a 648 prototype for Jack Armstrong to race in the 50 mile Novice event at Laconia that year. This was done in order to test the viability of the combination of parts used to ultimately make up the 648. Apparently they worked well together because Jack won the race and in all likelihood established himself as a qualified test rider for the company. The men hard at work trying to develop the Laconia Scout into a legitimate and competitive racer needed a test rider who would be available to them on a full time basis. Jack's recent hiring with Indian would fill the bill especially in light of Jimmy Hill's demotion from that capacity. It would be Jack Armstrong and Walt Brown who would carry the banner for Indian's factory efforts in developing the Laconia Scout from this point in time until the end.

PULLING OUT ALL THE STOPS

In Jerry Hatfield's wonderful book on the Indian Scout, Jack Armstrong relates the trials and tribulations involved with the continued effort to develop a competitive racing vertical twin. With Jerry's kind permission I will paraphrase Jack's observations regarding the final work done on the Laconia Scouts. Jack states that he had been racing the verticals on various types of tracks that made up the Class C circuit at the time. Primarily, these were miles, half-miles, the 100 mile race at Langhorne on the one-mile banked dirt oval, and the road race at Laconia. Walt Brown had come to the conclusion that the original die cast cylinders and cylinder heads were not of sufficient strength to stand up to the rigors of high RPM usage. Apparently, the stresses put upon the heads by cam loadings at 7,000 to 7,200 RPM along with the inherent heat build up was causing the heads to flex in the valve rocker area about .040 to .050". Walt set to work developing sand cast cylinders and cylinder heads in order to cure the instability problem of the valve rocker supports. The special heads are interesting in that for the first time the men in Indian's racing department decided to circumvent the rules of Class C racing and develop a head with the capability of adapting to multiple carburetion. Perhaps this was done in the hoped for possibility that Indian might at some point decide to manufacture a dual carbureted vertical twin. It is not known at this time if Walt Brown, in the course of developing the patterns for the new cylinder head castings, did any kind of flow bench testing in order to develop more optimum port shaping for enhanced airflow in the anticipation of adapting dual carburetors. According to Jack, the men in the racing department never went ahead with the dual carburetor set-up and it was left to him to finish the machining of the heads and adapt the dual carburetors.

Regarding the newer cylinders, it has become apparent that more than one set of the later castings were indeed manufactured, as a small number of these have shown up on currently

existing examples of Laconia Scouts. The newer cylinder castings are relatively easy to spot as they have only 12 cooling fins as opposed to the 14 that appear on original die cast versions. And of course the texture of the sand cast aluminum would be different in appearance as well.

By 1951 the men in the experimental shop most assuredly had been able to avail themselves of a significant amount of dynamometer time for testing of the vertical twin race motor. One outgrowth of this in combination with competing at different race venues would have been to create newer cam lobe profiles with a higher RPM in mind as well as a more flexible power band. The fact that these newer cams do exist came to the author's attention as he personally witnessed a set of higher performance cams designed for the vertical twin. The lobe profile to the author's remembrance, as well as collectors who have utilized these cams, is one of a longer duration. This is substantiated in a communication with Indian collector and restorer LeRoy Burgess who described the camshaft in his experimental model Indian Scout. In relating how the lobe profiles differed from stock vertical twin cams he stated that the lobe ramps were steeper in nature with a wider cam lobe apex and no noticeable difference in lobe lift. This would be indicative of a longer duration cam developed with a higher RPM power band in mind. It would make sense that having spent a large number of hours testing engines on the dynamometer that a number of camshafts with varying profiles could have been developed. How many different grinds made it out into competition use is anybody's guess at this point.

History has shown that the most searing problem with the original Laconia Scouts as well as most all of the Indian vertical twins was the ignition system, more specifically the Edison model AJ-2 magneto. By 1951 the problem had become quite pronounced and the engineers at Indian had taken steps to rectify it. Numbers of dealer Service Shots offer remedies to try to get the balky magnetos to provide sufficient spark in the street versions of the Scouts and Indian even went so far as to try to adapt an Autolite distributor in an effort to improve the troublesome ignition. Fortunately, the men in the experimental shop were not bound to the edict of the service shots and set about to solve the problem once and for all. What they came up with is interesting. Apparently they decided when all else fails, go back to what works and that is exactly what they did. And what they did is utilize the tried and true Edison-Splitdorf RM magneto that had proven itself reliable beyond all question in miles and miles of highway travel with Indian Chiefs and Fours, and hundreds of miles of competition with Sport Scouts. Indian made use of the RM model magneto utilized on the model 648 Sport Scout because it already had a longer armature drive shaft modified to fit into the oil pump opening originally occupied by an Autolite distributor. This longer armature drive shaft as well as a fabricated housing was necessary to fit the larger RM model magneto to the vertical twin. Because of the difference in the firing sequence from the v-twin it was necessary to alter the cam profile which opened the ignition points. This was a relatively simple matter involving the use of a degree wheel to measure the optimum timing and then grinding the cam to the appropriate profile to fire at 180 degree intervals. Fortunately the points cam on the RM model magnetos is a separate piece from the armature shaft. It is a one piece affair pressed onto the armature shaft and secured in position with a woodruff key. Because of the limited amount of points cams needed, Indian most likely ordered blanks from Edison-Splitdorf and simply ground their own cam profile as required. Jack Armstrong states that once the new magneto arrangement was installed and tested he encountered no further problems with ignition on the bike he raced. The author remembers seeing one of these units that had come from the parts inventory of Indian dealer Herb Reiber many years after his dealership had closed its doors. So, apparently at least one or possibly more of these examples had made it out of the factory and into competition.

Having created a new higher RPM power band for the vertical twin it was now necessary to try to take the fullest advantage of the changes. In order to do that, different transmission gear ratios were needed to keep the engines operating in the sweet spot of the RPM range.

Transmissions had proved troublesome over the ensuing years since the verticals were first introduced and the gear ratios selected for use by Indian were more in line with a sedate form of riding rather than racing. This meant keeping the engines operating in the low to middle RPM ranges. As noted previously, Indian at first tried to increase the range of gearing by offering an adaptation of the 741 rear hub to take advantage of an increased availability of rear sprockets. This was a quick fix at best and new transmission gear ratios were ultimately needed if the verticals were going to be utilized in any kind of serious racing. The ratios originally chosen for the transmissions on the street model verticals were as follows:

Low gear was 1: 2.78
Second gear 1: 1.91
Third gear 1: 21
Fourth gear 1: 1

The changes in ratios for the racing applications were:

Low gear 1: 1.91
Second gear 1: 1.45
Third gear 1: 1.21
Fourth gear 1: 1

Only the low and second gear ratios were changed leaving third and fourth the same as originally designed. In order to create these changes the number of teeth on the respective gears were changed in the following manner.

16 tooth low driving gear for 24 tooth low driving gear
28 tooth low driven gear for 24 tooth driven gear

20 tooth second driving gear for 23 tooth second driving gear
24 tooth second driven gear for 21 tooth second driven gear

25 tooth third driving gear for special 25 tooth gear with 24 tooth internal splines

27 tooth fourth driven gear for special 27 tooth gear with 23 tooth internal splines

Now, it would appear that initial standing start acceleration was going to suffer because low gear was no longer as low as it had originally been when developed for the street models. This was compensated for by the increase in power which offset the higher gear ratio. And this theoretical disadvantage was more than made up for by virtue of the fact that gear changes made throughout the race would result in a smoother transition from gear to gear especially when downshifting from third to second gear, as it would lessen the tendency for the bike to “nose dive” upon release of the clutch if the RPM level were not increased. At the very least, the new gear ratios made the Laconia Scouts less of a balky animal to ride.

From the very few photographs of racing vertical twins that have come to light it would appear that not much was done beyond the work applied to the Laconia Scout's power plant and drive train. Photos indicate that there apparently wasn't much done to improve the braking power

of the verticals. However, with the new close ratio transmissions, downshifting isn't going to scrub off much speed. Keep one thing in mind though. The vast majority of racing in the 1950s was on dirt tracks of half-mile and mile length and dirt track racing in those days forbid the use of brakes. Reducing speed on a dirt track was done by simply pitching the bike sideways in the turns and sliding the front and rear wheels while keeping the engine RPM up in the power band. Since road racing played such a small part in the overall scheme of competition and the fact that the Laconia Scouts were such a lightweight machine to begin with, it would make sense that the need for improving the braking on the bikes would have taken a low priority.

Suspension development does seem to be another matter. Based upon comparison photos taken by LeRoy Burgess, Indian was fooling around with different lengths of lower front fork legs. His photos show that three different lengths of fork legs exist. At the very least the longer forks would increase ground clearance on the Scouts which would be advantageous on dirt tracks. It is not known whether or not the racing department experimented with different hydraulic fork metering in order to increase fork travel dampening.

In spite of the lack of official interest by Indian management in promoting the vertical twin as a competition machine they at least realized that some persons were going to take the Scouts racing. For this they provided some measure of racing accessories so the rider could take part in various forms of competition. Ultimately Indian provided about three different variations of fuel tanks for the person who wanted to use his bike in all of the different types of competition. As mentioned previously, Indian developed the larger capacity fuel tank for long distance events such as Daytona and possibly Langhorne. The 200 mile event at Dodge City, Kansas had recently been added to the schedule of races although it is not known if any Laconia Scouts ever competed there. There was also a fuel tank with petcocks on both sides of the tanks. These may have been used in conjunction with bikes that had Amal carburetors with remote float bowls. These tanks would have been used to maintain a positive fuel flow to the carburetor float bowl at TT events where there existed left and right turns as well as hills and jumps. Finally, it appears that there was another variation of a dirt track type tank that contained compartments for both fuel and oil. Photos are known to exist of this fuel tank on a vertical twin prepared for dirt track use possibly made up by Jimmy Hill and Walt Brown. It is certainly possible that other variations of fuel tanks may exist and may some day see the light of day as more examples of the Laconia racers turn up.

By 1953 time was running out on the Laconia Scout and the Indian Motorcycle Company overall. The Norton Manx International was dominating road racing in the United States all the while associating itself with the Indian name. Ralph Rogers had long been out of the picture so his influence was no longer being felt in the experimental department. The engineers had by this time realized that they had done just about all that could be done with the vertical twin in its original form short of completely redesigning the engine and transmission from the ground up. Again Jack Armstrong verifies this stating that if they brought the horsepower level up to competitive standards then longevity and reliability would suffer. In lieu of this realization, the men in the experimental department reverted to what they had years of experience with and knew best. Left to their own devices and without any undue influence from Rogers, these guys came up with a couple of interesting hybrids utilizing Sport Scout engines in vertical twin frames. If they had ever been able to successfully develop a unit engine and transmission case with a hand clutch and foot shift for the Sport Scout, then Indian could have had a formidable machine that would have been able to compete favorably in road racing with the newly introduced Harley KR and the dominating Manx Nortons. As it was at this point, there was

simply not enough time, money, or interest left for any significant developments. The vertical twin's final development would be left to some of the legion of Indian's loyal supporters outside the confines of the Wigwam.

THE DEALERS TAKE OVER

As has been mentioned several times previously in this article, the Indian Motorcycle Company was blessed with a number of individuals who worked outside the confines of the Wigwam to further the cause of their favorite marque. Some names are legendary, some will never be known. Names like Fred "Pop" Schunk and Marvin "Red" Fenwick are synonymous with Indian motorcycle performance especially in the area of cam development. And of course Art Hafer and Dick Gross stand right up there with the best of them. Indian was not alone in having men outside the factory working to improve the brand. Harley-Davidson had its own group of "helpers". The legendary Tom Sifton immediately comes to mind. The difference however is that while Harley would for the most part be in competition with its outside supporters, most notably Tom Sifton, Indian would, on the other hand, openly embrace and willfully accept ideas borne of the men peripheral to the factory. And this would be to their distinct advantage. Case in point would be Red Fenwick, who in 1938 was an integral part of a motorcycle land speed record attempt at Bonneville by west coast Indian dealer Hap Alzina. And while the unlimited record attempt was not successful, two other attempts on regular production Chiefs and Sport Scouts produced Class C records. And the success of these led to the inclusion of Fenwick's cam profiles being used on the new 1939 "Bonneville" model Indians. Efforts such as these were also being made by the various dealers. With regard to final efforts in trying to wring every last ounce of performance out of the vertical twin the two men that played the biggest part in these efforts were most likely Herb Reiber and Clem Murdaugh.

In the early 1950s, Herb Reiber raced and maintained a stable of four Laconia Scouts. His main rider was BeeBee Smith who had set a 5 mile record for half-mile tracks at Richmond, VA in a heat race in 1947. Reiber's other rider was a novice by the name of Guy White. It is not known how much development Herb did to make his bikes race ready but he must have met with some success, as photos exist of Guy White mounted on a red and white Laconia scout holding a small trophy. Not much is known as to the location of the event, however a win is a win and as far as the vertical twins are concerned they will take anything that came their way. Of the four Laconia Scouts that Reiber campaigned, three are known to exist and are in the hands of various collectors. Serial numbers of two of the survivors are BDJ-1007 and BDJ-1008. These were Reiber's reserve machines. It is also known that the Scout ridden by BeeBee Smith is one of the three and is awaiting restoration by its current owner. The first two have a history beyond their original competition days as they were raced in latter day vintage racing events in the 1980s and 1990s.



(Fig.4) This photo shows two proud Indian riders holding their respective trophies. The rider on the left with the number 88c is novice Guy White riding one of Herb Reiber's Laconia Scouts. The other is nationally ranked rider Charles "Bee Bee" Smith, who also rode for Herb Reiber, mounted on his 648 bigbase Scout with vertical forks. Notice the specially modified crossover exhaust system on White's machine developed specifically for dirt track racing so as to prevent damage caused by over sliding on the turns.



(Fig.5) Here is one of Herb Reiber's Laconia Scouts in current vintage racing trim. This example is great for displaying three of the most notable factory racing accessories associated with the vertical twin racers. These include the factory under seat oil tank, large capacity Daytona fuel tank, and the sand cast 12 fin cylinders. Notice that the fuel tank has two gas caps as opposed to one gas cap and a recess in the tank for the ignition switch and the absence of a notch for the nose of the saddle.

THE INNOVATOR

Clem Murdaugh was an Indian dealer in Westchester, PA. He was also a racer and a national champion Class A hillclimber. More importantly, he was an innovator. And while he was happy to race the products that came out of the Wigwam, many times he viewed them as just a starting point. Clem was always trying new ideas and new combinations of things to see if he could go faster or farther in competition. Pushing the envelope was a matter of every day endeavor for him. Since the factory saw fit not to provide him with one of the five special bigbase engines in 1946-47 he decided to create his own by fabricating a sump on the back of a set of Sport Scout cases by simply welding on aluminum plates in the manner of the bigbase. Not being satisfied with the braking power or front suspension of the Sport Scout, he utilized the larger front brake and suspension of the post-war Chief by installing a Chief front fork and wheel assembly on his racing Sport Scout. Some of these innovations were successful, some were not. The point is, he kept trying to improve upon what he had. While most outside the factory had given up on the Indian vertical twin ever becoming a successful competition machine that was not in Murdaugh's nature. The result of his efforts is a fascinating machine that is illustrated in the photos below. Whether or not he ever got wind of what the engineers were doing at the factory is anybody's guess. But the results of his efforts to make a race worthy vertical twin go a long way towards illustrating what a bike built by Jack Armstrong and Walt Brown would have most likely looked like.

The Murdaugh vertical twin racer in all likelihood represents the ultimate incarnation of the Indian vertical twin as a competition machine.



(Fig.6) This pristine unrestored machine, at one time belonging to Clem Murdaugh, represents the Indian vertical twin racing motorcycle in its final most advanced form. From this side the machine presents a pretty typical appearance with a number of the factory accessories being represented including the under seat oil tank, fuel tank with left side petcock, and remote float bowl. What is out of the ordinary obviously is the handlebar mounted tachometer. The real surprises lie on the opposite side however.

THE ULTIMATE WARRIOR

The Indian vertical twin shown in the photo above is interesting in many respects, as we shall see. However, what is possibly the single most interesting thing about the bike is that it is NOT a Laconia Scout. The bike in the photo carries the serial number BEJ-1227 on the engine and 2501227 on the fork headstock of the frame. Incidentally, the serial numbers of Laconia Scouts never appeared on the frame. So, the numbers on the Murdaugh bike indicate that it is a 1950 500cc Warrior. Enthusiast Dave Henry acquired this bike along with a mountain of parts as well as a number of very interesting unrestored factory hill climbers and racing machines when Clem decided to sell off his dealership inventory many years ago. Dave eventually sold off Clem's entire parts inventory but before parting with the Warrior decided to have a go at vintage

racing the bike. Unfortunately at the time the bike didn't run. Dave thought that perhaps the bike had a stuck valve or possibly a broken valve spring. After having a couple of people try to get the bike to run he decided to have Bob Stark tear the engine down and rebuild it. This is fortuitous as it allows us to take a peak inside the engine of this machine through the eyes of Dave's memory as related to the author. Starting from the lower end, Dave remembers that Clem had modified the crank assembly by lightening the crankshaft counter weights. As well as that, he had lightened the connecting rods by polishing and drilling them. Dave also mentions that the rods were chrome plated. The bike contains higher performance cams and since this is not a factory Laconia Scout it is not known whether or not the cams are those developed by the factory. Bob Stark remembers that Harman & Collins had offered aftermarket high performance camshafts for the vertical twins sometime in the early 1950s so it is possible that Clem decided to go with the HC set up. Apparently very few of the other special factory modified parts for the vertical twin made it into Clem's dealership as well so he just decided to do his own modifications. Close up examination of the photos of Clem's Warrior show that the bike did not receive the sand cast cylinders and was instead equipped with standard die cast cylinders and heads. Be that as it may, this is where things start to get interesting.

IF ONE IS GOOD, TWO MUST BE BETTER

It is not known if any of the factory ideas ever made it out and about so it doesn't seem likely that Clem was aware of what Walt Brown and Jack Armstrong were up to at the time. That wouldn't stop Clem from doing his own experimentation however. He decided that one carburetor was simply not enough to satisfy him. So, he set about trying to figure out how to modify an existing cylinder head to accept a twin carburetor set up. This wasn't going to be easy. There is not a great deal of room on the rear of the cylinder heads to accommodate one carburetor much less two. If he were going to try to squeeze two carbs in a space that was barely big enough to fit one then he was going to have to relocate the float bowl. He did and its new location was on the left side of the machine underneath and to the rear of the fuel tank. Hence the need for the left side petcock. Fuel was transported from the float bowl to the twin Amal model 276 carburetors via two rubber fuel lines with banjo fittings at either end to accommodate the Amal set-up. Even without the float bowl in the way, fitting two carburetors to the cylinder head of the Warrior was going to require a complete re-arrangement of the intake manifold. Sometimes the most interesting thing about viewing a motorcycle in the experimental or prototypical stage is the crudeness with which things are accomplished. For the most part they are there to perform a function and appearance is not a high priority. Such was the case with the Murdaugh Warrior. In this case, dual carburetors required that the manifold come in at an angle from the right side as opposed to a straight shot in order to clear the rear frame down tube. The manifold appears to be fabricated from tubing that is welded to a flange mounting bolted to the intake port openings in the rear of the cylinder head. The carburetors themselves are secured to the manifold tubing using a clip-on or spigot mounting. This was available with the Amal 276 and was utilized by some of the British manufacturers. So now a significant increase in fuel flow was accomplished. What loomed on the horizon however was a problem much more daunting in nature.

LIGHTING THE FIRE

Clem undoubtedly realized, by virtue of owning an Indian dealership and trying to satisfy the multitudes of indignant vertical twin owners who brought him motorcycles with no spark, that the magneto utilized by the vertical twins wasn't going to do the job. It stands to reason that someone like Clem had, in all likelihood, tried his own methods of correcting the ignition problem inherent on the Indian verticals. At this point his racing experience came into play and the solution he arrived at was ironically parallel to what the factory had come up with. He decided also to go back to using the Edison-Splitdorf RM model magneto with its years of tried and true reliability. But instead of using the magneto built for the v-twins as the factory did he decided to modify and install a four cylinder type. Based upon the modifications needed to the v-twin magnetos that the factory had utilized one can only wonder what Clem had to do to the four cylinder magnetos in order to get them to match up with the timing requirements of the vertical twins. Photos of Clem's Warrior show what appears to be the magneto utilizing two adjacent spark plug wire receptacles instead of two diagonally opposed terminals. It is possible that Clem had decided on a wasted spark application similar to that used by Harley-Davidson on its WR racer; both plugs firing simultaneously, one on the compression stroke and one on the exhaust stroke. Without having ever seen the inside of the magneto on the Murdaugh Warrior one is left to his own best guess. All you can say is that it apparently solved the problem.

Clem had also realized that the transmission gear ratios were unsatisfactory for his racing needs and was able to obtain a set of the new close ratio gear sets and installed them in the transmission.

TESTING AND REFINEMENT

In all likelihood, Clem Murdaugh didn't have a dynamometer in the service area of his dealership. It is possible that he had access to one however. In lieu of that, when it came to testing the innovations that were applied to the vertical twin, Clem's dynamometer room was the myriad of lightly traveled country roads that criss-crossed the southeastern region of Pennsylvania where Clem had his dealership. And his dynamometer was the seat of his pants and the tachometer that he installed on his racing Warrior. Like many independent garage and shade-tree mechanics, the way you tested the changes made to any machine was to take them out on a secluded stretch of road and if the bike went faster than it did before then you knew you were headed in the right direction. The real test of course was on the racetrack and that is where Clem found out whether or not his innovations ultimately worked. In his case, changes created by the tuned megaphone exhausts and modified cam installations along with the dual carburetors could all be measured by feel; and keeping track of the power band was done by watching the tachometer. Clem's vast racing experience would tell him whether or not his ideas would make the bike competitive.

As LeRoy Burgess has pointed out, Indian was experimenting with longer fork legs and applying those to experimental models either for impending development of the TT model Warrior or to try to gain some increased ground clearance for the Laconia Scouts. Looking at photos of the Murdaugh Warrior it is apparent that the longer fork legs never made it onto Clem's racer. Again left to his own devices he found another way of increasing ground clearance by simply going to a 19" wheel. In this case 19" alloy Boranni rims with Dunlop ribbed racing tires. One added advantage to using the alloy rims is a savings in unsprung weight. Dave related

to the author that Clem had raced the Warrior at both Laconia and Daytona before finally retiring the bike. Clem never told him how many times he actually road raced the bike but it would seem that Clem raced it sometime into the mid-1950s as by that time more road racing events were showing up on the AMA calendar and many of the new facilities were paved which would account for the ribbed racing tires. Apparently the bike was last used in competition at Laconia, which would explain the regular size fuel tank with the left side petcock which would be advantageous at Laconia with its sharp right and left hand turns. As a matter of fact, attached to the handlebars is a small leather strap that is a rider entry tag showing the bike as last being entered at Laconia.



(Fig.7) This right side view of Clem Murdaugh's racing Warrior clearly shows the application of dual Amal 276 carburetors and the Edison-Splitdorf RM model four cylinder type magneto. Notice the simple fabricated appearance of the intake manifold. Also visible in this view is the megaphone exhaust. One can only imagine the sound at 7,000 RPM. Although appearing homemade, this seat arrangement was a nod towards a more modern European style of road racing making it more comfortable for the rider and easier for him to slide back and forth on the seat as the bike was entering or exiting a turn.



(Fig.8) Looking at the Murdaugh Warrior from a left front $\frac{3}{4}$ view you can clearly see the adapter for the Edison-Splitdorf RM magneto. The remote float bowl is in view as well. The use of 19" Boranni rims is an advantage for this bike, which appears to be set up for Laconia with its sharp left and right-hand turns, allowing the motorcycle additional ground clearance. This machine is a treasure in that it allows us an unmolested glimpse into the world of racing motorcycle preparation as it truly appeared in days gone by.

ONE LAST RACE

Dave Henry grew up in southeastern Pennsylvania in the 1950s and 1960s and was a regular attendee at the many drag strips that existed in the Middle Atlantic States at the time. Dave was member of the growing number of fans of the new genre of drag racing called funny cars. In fact, Dave actively participated in drag racing by taking his first car out to the drag strips on the weekends. Dave moved to a fairly upscale neighborhood in one of Southern California's beach communities in Orange County sometime in the 1970s. He brought with him what he had left of the parts inventory from Clem's dealership and also the racing Warrior. Dave's need for speed was still festering and he decided to try his hand at vintage motorcycle road racing. Having just gotten the Warrior engine put back together Dave headed off to America's Mecca of road racing on the west coast, Riverside International Raceway to test his skills at going fast on a motorcycle. Now, going fast down a quarter mile straight with a large run off area to slow down is not the same as burning down a long straightaway on a vintage motorcycle with marginal suspension and even more marginal brakes and having a high speed turn looming on the horizon.

Dave found this out in spades. Coming on to Riverside's back straight; Dave twisted the throttle wide open and took off down the pavement toward infamous Turn 9. At approximately 4,000 RPM Dave felt the Warrior's engine come up on the cam and by the time he reached the end of the straight it was determined that the little racer had been clocked at 105 MPH. Now the fun begins. Dave had to wheel the speeding motorcycle into the high speed Turn 9 and try to keep the bike under control with its front forks bouncing up and down and rear wheel bouncing all over the track. Dave brought the bike back into the pits and once the breath returned to his lungs and his pulse had dropped to a more normal level, he realized then and there that racing a vintage motorcycle on a high speed paved track was definitely not his cup of tea. Dave retired the Murdaugh Warrior for a final time from racing and ultimately ended up selling the bike. From those who are passionately interested in the Indian racing vertical twins, Dave Henry is owed a great deal of gratitude. His brief foray onto a racetrack with a full race Indian vertical twin, harrowing as it was, has provided us with a great gift. From his account and contemporary timing equipment we actually get to know what kind of performance all of the modifications and innovations that Clem applied to the Warrior were capable of producing. It is a real time peak into history.



(Fig.9) Here is the view that Clem Murdaugh and Dave Henry experienced while riding the Warrior at high speed on the racetrack. Notice that the tachometer dial is in an inverted position. This was done so that the redline would be at the 12 o'clock position for easy reference by the rider while involved in the race. The little beige colored strap to the left of the left handlebar riser is the original rider entry tag for the last race this bike was involved in at Laconia. The handlebars, while from the period, represent a nod toward a more modern style of road racing.

A CELEBRITY ENCOUNTER

As Dave was in the process of selling off his inventory of parts and bikes from Clem's dealership he had taken up collecting high performance Chevrolets from the 1950s and 1960s, specifically those with 409 cu.in. engines. Returning home one day he saw that Reggie Jackson, Hall of Fame baseball player formerly with the New York Yankees and more recently the California Angels was standing in his garage talking to his wife. Reggie is known pretty well to be a car collector of American Muscle Cars and he was interested in buying one of Dave's 409 Chevys. But the thing that had caught his eye that day was the little black racing Indian parked in Dave's garage and he wanted to know if it was for sale. Dave told him it was and Reggie wanted to take it for a "test" ride to see if he might want to buy it. Now, Reggie Jackson is no small human being standing 6' tall and weighing about 200 lbs. That being the case the little Warrior must have seemed like a mini-bike to him. But he wanted to ride it and off he went. Most people who know of Reggie know that he is not what you would call the shy retiring type so when he said he wanted to test ride the bike what he really wanted to find out was how fast it would go. That meant opening the throttle all the way and rampaging through the quiet beach community. Dave says he can remember the cacophony of noise blocks away created by the howling megaphone exhaust of the Warrior and recalls that Reggie brought the bike back and they managed to get it into the garage and close the door just before the police helicopter arrived overhead. Reggie didn't buy the bike and Dave ended up selling the bike to a European collector for \$2,800! At the time, Indian vertical singles and twins were thought of as the poor step children of the Indian line and Dave could barely give the bike away. Today, a bike like the Murdaugh racing Warrior is a valuable legitimate piece of Indian racing history and \$2,800 would be considered a bargain.



(Fig.10) The author strikes the pose. This photo, taken back in the 1980s shows the author assuming the racer's pose. Both the author and Reggie Jackson got to realize how small the Warrior really is although Reggie actually got to ride it. Still, even just sitting on it you get an idea of the courage it takes to wheel something like this around a racetrack at high speed.

AN INTERESTING SIDELIGHT

In the midst of trying to create a viable racing vertical twin and also rectifying the problems that plagued the street versions, Indian was capable of coming up with some interesting experimental prototypes. LeRoy Burgess is the owner of this intriguing example of what might be referred to as a Laconia Scout/TT Warrior hybrid. LeRoy has converted his machine into a street legal rider but the Laconia Scout heritage is evident. The bike even carries a hybrid serial number, BDJ-104 that is neither a Laconia Scout number nor a 1950 Warrior number. Thankfully this interesting machine has been preserved as a testimony to the efforts made by the men in the experimental department in trying to create a viable racing vertical twin.



(Fig.11) An interesting hybrid. This machine is owned by collector LeRoy Burgess and appears to be a factory experimental prototype. It displays features found both on Laconia Scouts and TT Warriors. The front and rear fenders are clearly those used on the Laconia Scouts. The front forks and exhaust pipes are of TT Warrior vintage. Notice the length of the lower fork legs and how they extend above the crown of the front fender. LeRoy states that these fork legs are actually $\frac{1}{4}$ " longer than those used on the TT Warrior. The cams on this bike are of a higher duration grind than those found in normal street machines. The pillion seat on the rear fender is an Indian factory accessory. LeRoy has added a headlight and taillight along with a speedometer so he can ride this bike on the street. That must be fun.

THE FAILURE AND THE GLORY

By all accounts and means of measurement the Indian single and vertical twins must ultimately be considered a failure. Certainly history bears this out. The little machines were a decade ahead of their time and woefully unreliable. It could be said that they caused the downfall of the Indian Motorcycle Company. That claim is probably unfair to both the Arrows and Scouts. Had these machines been manufactured at a different time the company may have been able to absorb the monetary losses. As it was, Indian was in a very precarious financial position even before Ralph Rogers purchased the company in order to produce his “gentleman’s motorcycle”. The failure of the Indian verticals probably only hastened the company’s demise. The company was pretty far behind Harley-Davidson on a technical level and didn’t have the capital reserves to catch up. It may have been only a matter of time.

So the question is asked, “How can there be any glory in failure?” In the case of the Indian singles and vertical twins the glory lies not in the end but in the means. It was evident fairly early on that the vertical twin was underdeveloped and under tested. The problems came thick and fast. In spite of the harrowing financial position of the company and its accompanying managerial turmoil, the men in the engineering department were not giving up. Even though they had this unfamiliar outside design foisted upon them they were going to do all they could to bring the motorcycle up to the standards of the company they worked and lived for. As long as this motorcycle had the name “INDIAN” displayed on the gas tank then they were going to put all of their blood, sweat, and tears into making it into a machine that would be worthy of wearing the name.

In the field of competition the vertical twin was no less unsuccessful. But again the men who worked in the experimental department were singularly determined that one initial failure was not going to be the mark by which their efforts were measured. In the competition field Indian had a proud and successful legacy. These men made up their minds that this was not going to change on their watch. Under the most trying of circumstances they worked and toiled to bring the newest member of the Indian racing family up to a level that would bring pride to those who had come before. Glory is not measured here by the success or failure of a machine but by the level of desire and determination in a collective human spirit devoted to a name that they longed to see endure. Did the men at Indian fail in their quest? No, they simply ran out of time.

ACKNOWLEDGEMENT AND APPRECIATION

There are a number of people without whose help this article would not have been possible or at the very least as long winded. So, you the readers may decide for yourselves as to whether or not they deserve your thanks. For myself, my thanks alone are insufficient in comparison to the measure of their assistance. First, I would like to thank Jerry Hatfield for allowing me to tap into his research and put into my own words the remembrances of the late Jack Armstrong. Bob Stark added some important information as to the availability of aftermarket performance parts for the Indian verticals in the 1950s. LeRoy Burgess and the late Richard Brown certainly deserve my thanks for making it known to me the existence of their bikes and allowing me to use photographs of those very special machines. Dennis Leggett of Leggett Cycle in Joaquin, Texas took his personal time to talk to me on the phone and impart some very important information based upon his personal experiences maintaining and vintage

racing two Laconia Scouts. For that I am most grateful. Without the help of the next gentleman this article wouldn't have been worth writing. The view through Dave Henry's precise memory brought this whole story to life and gave it personality without which it would have been nothing but a list of technical statistics. The anecdotes about your own personal experiences with Clem's racing Warrior gave us a feel for what these special machines were truly capable of. Not only that, it was a pleasure to speak with you again after all the years and to catch up. Thank you Dave, thank you. I think it is appropriate at this time to thank Gary Smalz for providing me the opportunity to perhaps shed some light on a forgotten part of Indian racing history. When I finally got around to sending Gary the photos of Clem Murdaugh's racing Warrior he asked me to write a little something about the bike. At first I was hesitant because I am the last person to claim I know near enough about these special machines to warrant writing an article. But, I decided "why not learn" and pass on what you have learned to others. Hopefully, I have accomplished that goal. At the very least you got to see photos of a very special unrestored Indian racing motorcycle that is truly deserving of exposure. I will be the first to say that there are most likely some inaccuracies in the text of this article, technically, historically, or factually. I welcome corrections and critique. I will gladly include them in a revised version of this article or perhaps write an addendum to this one. So, please don't hesitate to provide any information that might shed new light on these well deserving motorcycles. We need to know more about them. Lastly, I would like to thank those of you who have taken the time to read this story. It is for you that I took the time to write it.

Thank you,
Rick Giles