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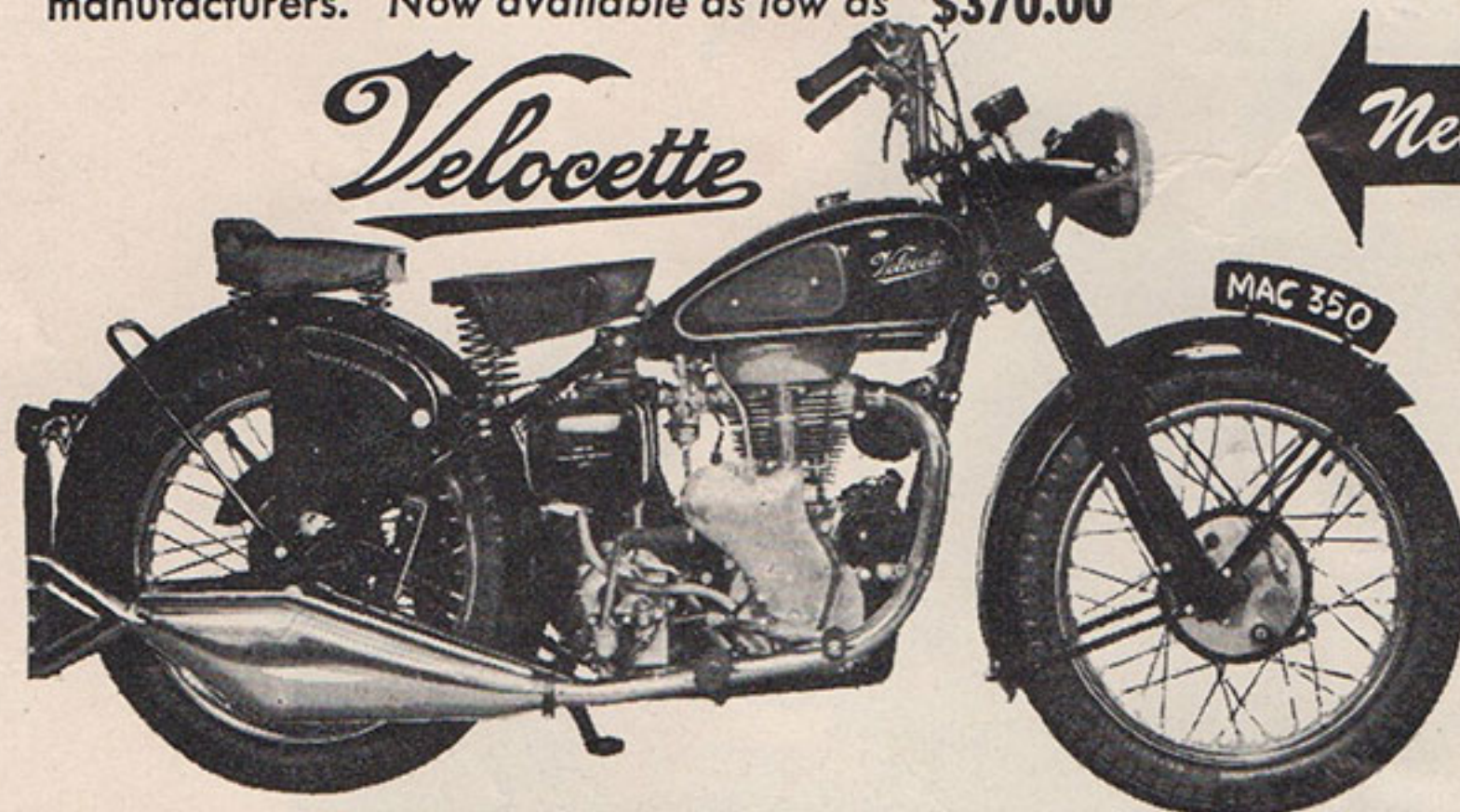
*Velocette*

**MOTO  
GUZZI**



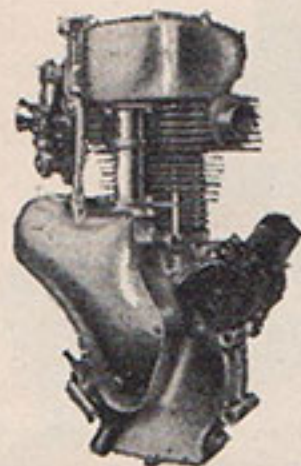
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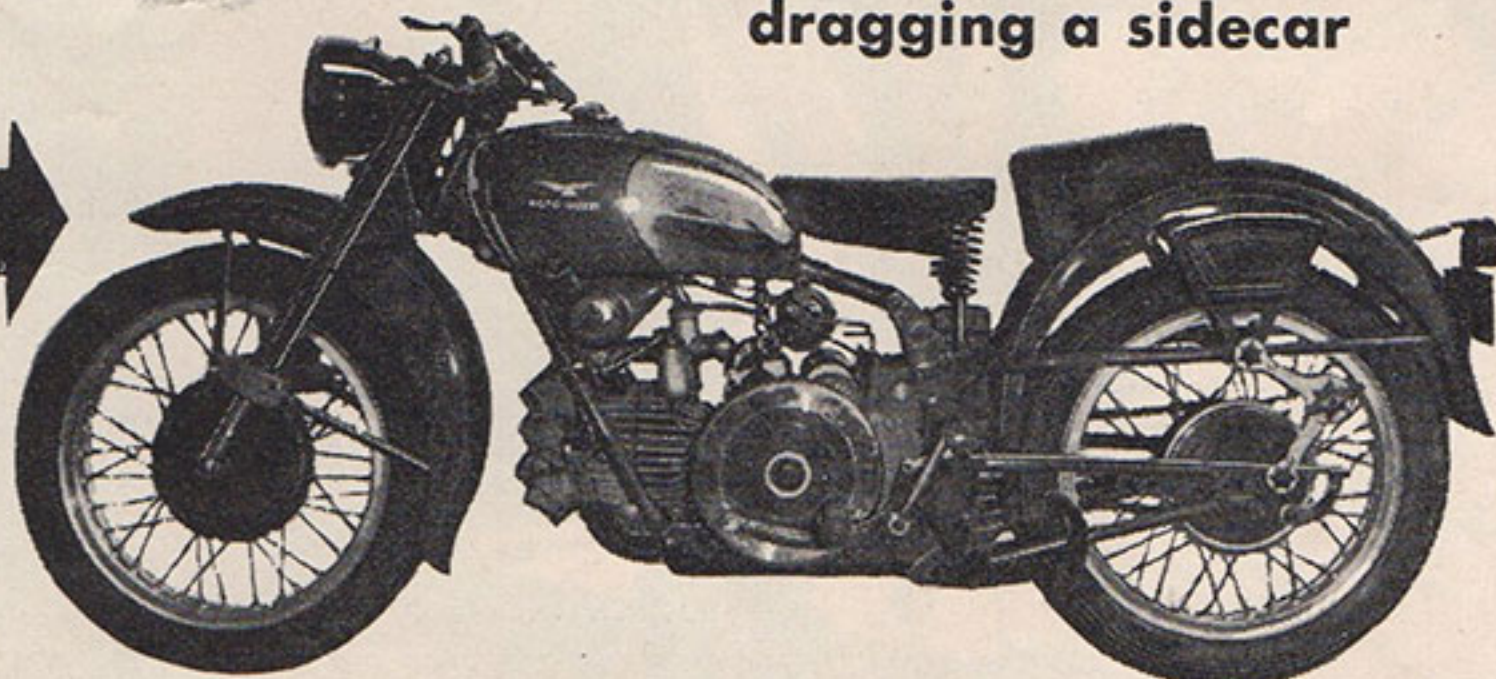


**MOTO GUZZI**

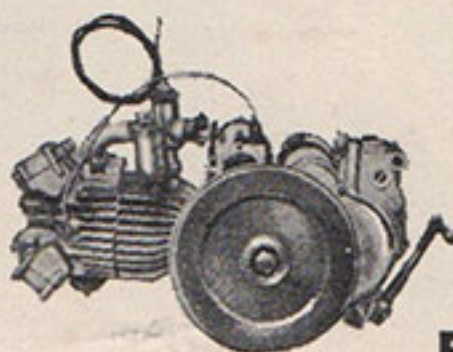
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developed 49 bhp  
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# Speaking Cycle

NOVEMBER 1951

## CYCLE

VOL. 2 Published Monthly No. 11

PUBLISHERS—R. E. Petersen, Robert R. Lindsay

EDITOR—Bob Greene

ART DIRECTOR—Al Isaacs

ADVERTISING MANAGER—Ray Bowles

CIRCULATION MANAGER—Gordon Behn

WRITERS—Gene Jaderquist, Clarence Cysz

"World's Largest Monthly Motorcycle Circulation"

TUCKED IN THE FOLDS of this month's mag, the observing reader will notice a short squib on a couple of British lads who took time off from their daily chores for "a bit of extensive cycling" as they so modestly put it; actually a zig-zagging trip around the world on their bikes. From conversation and appearances, it wasn't difficult to tell that the tour thus far had been a little more than what might ordinarily be termed as fun, and before long it became apparent that I was talking to two fellows who were reaching far beyond the thrills of world-wide adventure to further a cause each of us might do well to help shoulder.

We are all familiar with the highly financed good will tours and exchange student programs of recent years, and none will discount the benefits that the participating countries have received upon such occasions; but here, if you please, are two individuals, each with only nine hundred bucks of his hard earned cash, forging their way over untold obstacles to exchange ideas with thousands upon thousands of their fellow riders and world-wide neighbors.

I not only learned that the average Englishman prefers a short low handlebar on his bike because it turns smartly on their twisting lanes, looks racy and portrays "the Duke," but was also assured that this same sport-loving Briton is pretty high on the Yanks, despite some of our zany antics, and that it would be a mighty cold day in Egypt before he could ever be influenced to square off against us in the event of any future international fisticuffs.

We impressed them as quite extravagant, possibly to the point of being wasteful, but always determined and purposeful. To these boys, even the manner in which we ride through traffic suggested a challenging game of wits, a sort of lethal mechanized tag that would be taboo on their native island. And so the conversation hopped from cricket matches to politics to cycling, always frank, sometimes even blunt, but ever truthful; no punches pulled. Here, but for the pompous ceremony of official recognition are the true ambassadors of goodwill. Without thought of consequences, we swapped ideas freely within the few short hours of their stay and I'm sure that those of you who chance to meet them as they move eastward across the States will find their conversation a refreshing insight on affairs of state and sport.

Although few of us have the incentive or freedom from obligation to tackle such an expansive task, here is ample proof that if the spirit is willing, finances should be a small obstacle. Whether this initiation into the realm of outer travel be a trip to bordering Canada or Mexico, the prospect of Americans touring their neighboring countries seems to offer a most educational and entertaining solution to much of the misunderstanding that so inexcusably exists between countries in this modern era of high speed travel.

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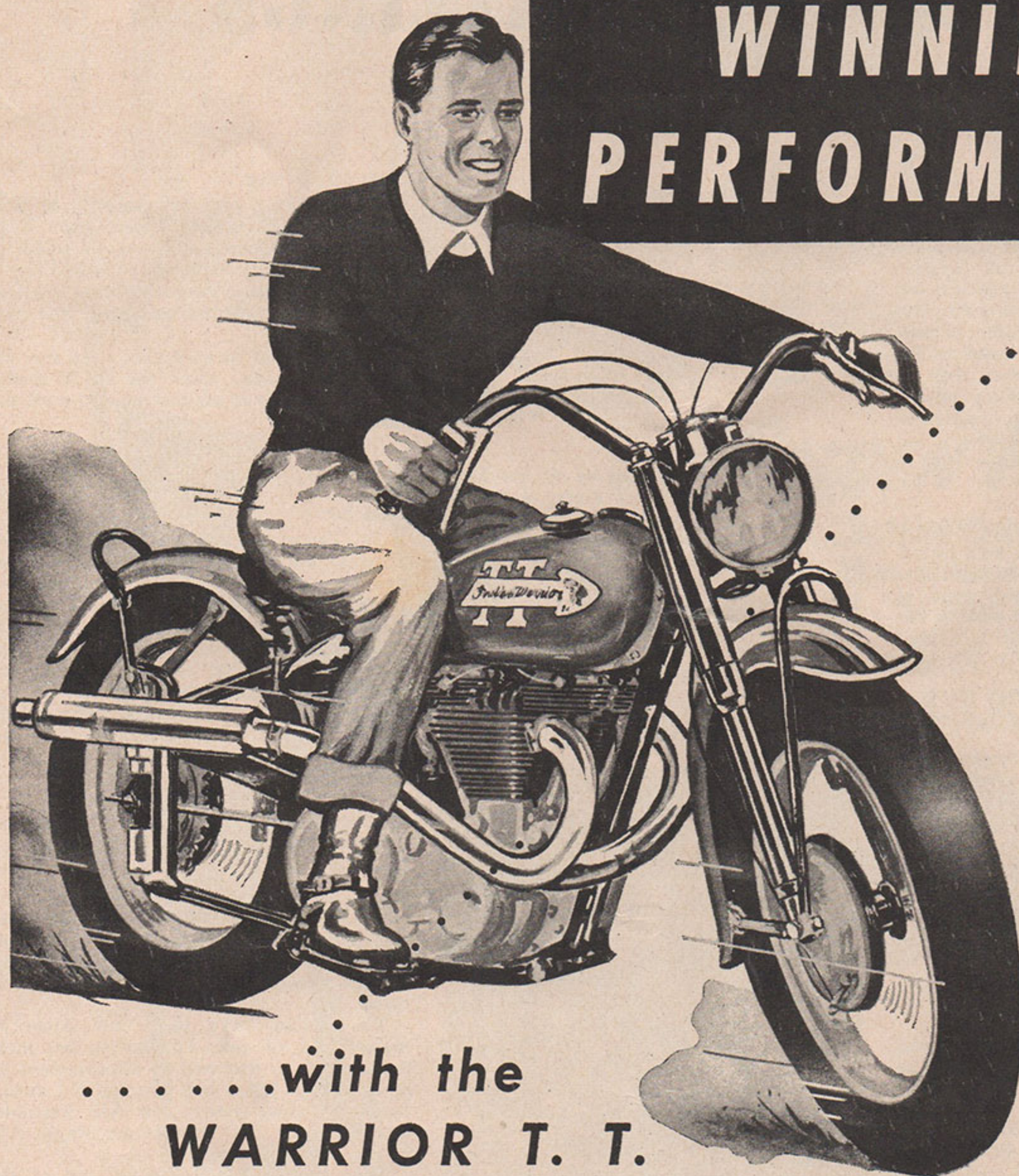
### ON THE COVER

Bob Schumann, CYCLE'S darkroom technician, disguised in goatee, spectacles and down-home garb, filled the bill when we asked for an old-timer to pose with Lamoreaux and Milne's ancient Indian twin. So this is a rim rider?—Photo by Felix Zelenka

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# RIDER WRITINGS

Sirs:

I enjoy your magazine so very much that I have made a special trip 80 miles away just to purchase an issue. All the articles are enjoyable, especially the few on scooters and lightweights. I own a Salsbury scooter, and I follow all coverage you give the lighter models. How about more on scooters in your fine mag? CYCLE is extremely hard to get on the newsstands here, and when they do come, are gone the same day. Keep up the excellent work . . .

Ronald R. Walker  
Hampton, Virginia

Gentlemen:

. . . Could you tell me how the pictures in your article on Motor Dromes were taken? Speed of shutter and if a Strobe light was used or not. I think they are very good, as most of your pictures are. Also what is the price of the Moto Guzzi? Though I couldn't buy it if it was given away, I'm still very interested.

Merrill Rust  
St. Paul 6, Minnesota

(These shots were done with Strobe light. The action was so fast and so close to the camera that no flash synchronization was fast enough. .001 of a second on focal plane would stop the action, but the light was inadequate. Strobe gives equivalent exposure of .0001, freezing all motion. The Falcone 30.50 Guzzi that was tested sells for \$992.44 plus sales tax and license at Los Angeles. Their lowest priced 65 cc model is \$370.34.—ED.)

Dear Sir:

It gives me great pleasure to write and congratulate you on such a fine magazine as CYCLE. Last week a friend of mine gave me two of your recent issues which someone had sent him. I buried my nose in them, and read from cover to cover. I didn't realize that your riders over there took such a tremendous interest in our English machines.

The thing that surprises me most is that, why, with the riders you have, you are not at the Isle of Man every year? I'm sure that your boys, with good mounts under them, would be worth watching. Another thing that puzzles me is your riding position, which most riders in road races adopt. The aim seems to be, in most cases, to ride semi-prone, with handlebars right up in the air. Our greatest headache in road races is how much we can tuck ourselves away; and I'm sure we can't get low enough in some cases. Some of our handlebars measure about 24" in length and are almost straight, and well below the steering head . . .

Could you, through some small space in your magazine, find some correspondents for me. Every fellow who writes me can be assured of an answer. I would like a motorcyclist who rides an English machine, and is also interested in the following: shooting, touring, club activities, and photography.

Frank Heys  
43 East Street  
Feilding, New Zealand

Sir:

. . . My Dad happened to pick up a couple of those Lambretta scooters that are always making a big noise in your foreign newsletter. Although I'm only 14, I've ridden these scooters quite a bit and I honestly think they're unbeatable for a 125 class. In many cases they are more useful than the big bikes.

Skip Hokanson  
Los Angeles 49, Calif.

Dear Sirs:

I am enclosing a picture of my son Larry who is five years old and a real motorcycle fan. He goes riding with us to the races and everywhere. Looks your magazine over and over, and that is where he got the idea of having his picture taken that way. Says he wants to be a motorcycle racer. Picks up CYCLE Magazine to look at before a funny book. Thought you might be interested in knowing you had such a young fan.

Mrs. M. A. Gustafson  
Maywood, California



Dear Sir:

Coming out from Florida last year, I made the trip on a "C.Z."-125. Went into Mexico (Monterey, Torreon, Durango and Chihuahua) in at Laredo and out at El Paso. It's a great land for touring and camping . . . Naturally, I'm very interested in your articles on touring. It was my good fortune to be stationed in Germany and Belgium, with the U.S. Army, in 1947 and 1948. In Belgium it was interesting to live in the lively cycle center of Liege. (Sarolea, F.N. and Gillet "fabriques" are at nearby Herstal). I took in the Grand Prix at Spa, and saw AJS and Norton teams in action; also a nice duel between Bob Foster and the late Dave Whitworth. I well remember Whitworth's dazzling speed on the "Grand Prix" Triumph; and what can beat sidecar racing for thrills and chills? The International Moto-Cross was at Spa in 1948. The Belgians won, but if memory serves me right, Basil Hall put on a real show too.

John T. Coffin  
Los Angeles, California

Dear Mr. Greene:

After reading your September issue from cover to cover I noticed a letter from V. O. Corthron, of Dennison, Texas, in which he inquires about the Vard fork. I would like to let you know that I have taken over the complete line, manufacture and parts, and have quite a supply.

I also noticed in an earlier issue that another reader asked about the DKW motorcycle. I'm happy to say that we also stock this machine.

Jack Milne  
1951 E. Colorado  
Pasadena, Calif.

Dear Sir:

. . . The picture shows two Prairie Wolves (coyote) out of eight, which I caught on my trapline last season. The Parkas worn by yours truly were made from fur I've caught.

This may be surprising to you, but motorcycles are used quite extensively on traplines throughout the country. I might add that they are extremely satisfactory in this line of work. If your trapline is heavy and diversified, then a motorcycle-sidecar combination is unsurpassed in economy and efficiency.

Richard L. Masek  
David City, Nebraska

(Picture would not reproduce, but letter has unusual interest—ED.)

Dear Sir:

. . . As I am leaving for Guam (being in the Navy) your magazine will be about my only contact with motorcycling. I have no gripes or criticism except perhaps a little less on lightweights and more on larger motorcycles.

The Italian 125's make our American makes kind of sick. I'd like to see more articles such as that one on improvement on stock motors (BSA 34) that you did awhile back. Also road tests on the AJS Scrambles and the stock 500 cc springer single AJS . . .

Well, before I 'also' myself out of the office, I'd like to congratulate you on your swell editorials on the domestic picture of motorcycling.

Nigel (Doug) Francis  
Alameda, California

Gentlemen:

Since I was very young, I have always wanted to be a motorcycle racer. I am 16 now and plan to finish high school before I take up racing. I have studied Floyd Clymer's books on motorcycle mechanics for years. Now I am interested in working out a program that I can follow through high school in order that someday I can become a motorcycle racer. I'd like your help in arranging this program and would appreciate any suggestions. Your magazine helps me immensely. I read all the articles, stories, and reports.

Bruce Anderson  
Ellsworth, Kansas

(I suggest you talk it over with your school adviser. Don't slight any of the basic studies such as English and Mathematics, but a course in Physics or Mechanics, in addition to your regular studies, should help—ED.)



# 137 M.P.H.!

on 40 cu. in.

## **BSA**

### **"GOLDEN FLASH"**

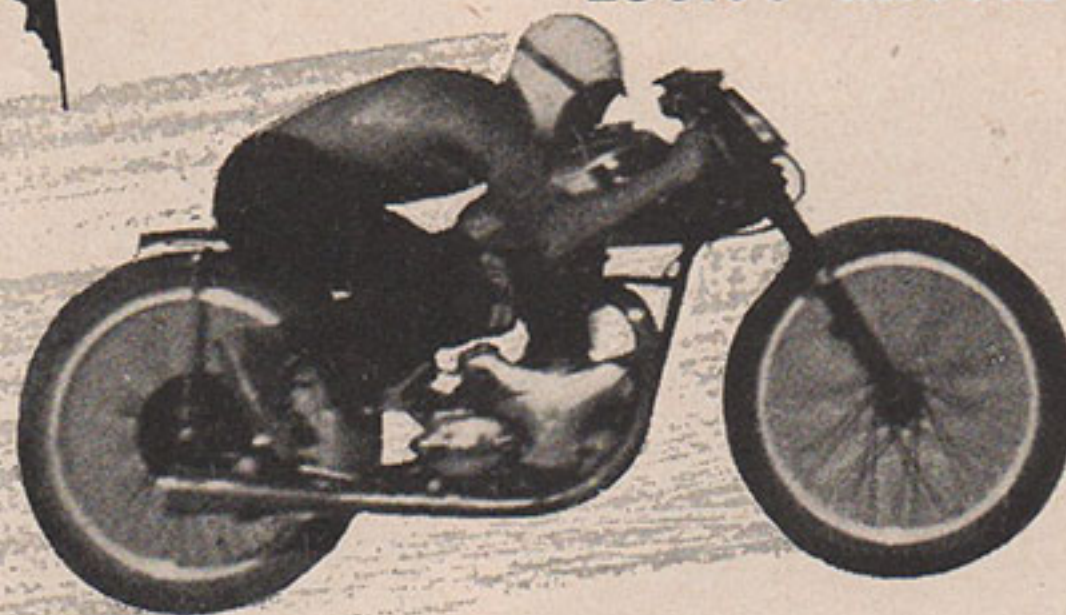
ROSAMOND DRY LAKES, JULY 1951

Gene Thiessen establishes

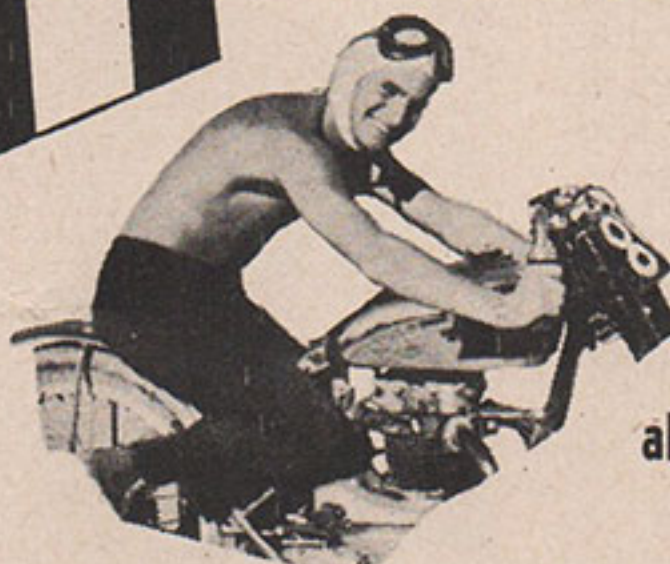
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His 30.50 B.S.A. "Star Twin"  
was clocked at **119.20 M.P.H.!**

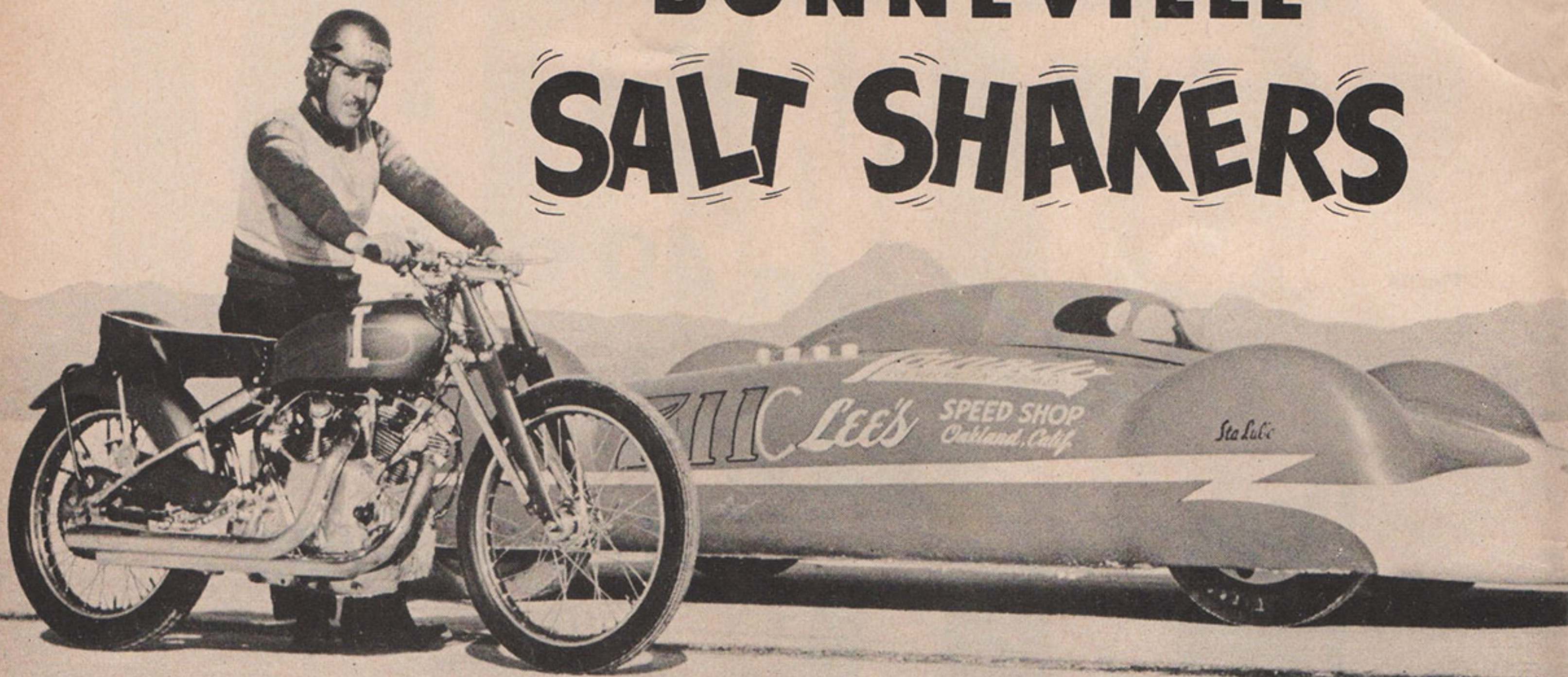
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# BONNEVILLE SALT SHAKERS



ABOVE, Beautiful Streamliner fails to overshadow shimmering powder blue and chrome record maker of meticulous Marty Dickerson

by Ray Bowles

Photos by Tom Medley and Stan Peterson

SO WHITE, SO SMOOTH, so hard and free of dust, that one can hardly believe there is such a race course anywhere in the world but there it is at Bonneville, Utah, mecca of international speed kings; a salt deposit left by the receding waters of ancient Lake Bonneville, covering 150 square miles and extending some 9 miles along U.S. Highway 40 and 50. This crystalline aggregate is porous, hard, and rigid; capable of supporting heavy loads, and presents a most perfect salt surface, varying in depth to four feet.

This year the Southern California Timing Association, with its 200 lightning-fast cars (Kenz Twin Ford turned 221.4795 mph), opened the fold to 10 AMA riders and their motorcycles. With this invitation to their third annual national speed trials, the inevitable happened. Long-standing speed records have been cracked wide open in a 7-day battle by some of America's fastest. As a matter of fact, 6 out of 9 riders present succeeded in popping at least 7 AMA records.

Monday morning, August 27, found Marty

Dickerson with his blue and chrome Vincent HRD first in line to be inspected for mechanical fitness and safety. One look at this bike and you knew it had been put together with loving care; everything, to the last bolt and nut with its proper lock washer or cotter key, leaving the inspector speechless. Marty came to the trials alone, ran his HRD very matter of factly, and went home with the Class C 61 record safely in his pocket.

Throughout the first day, the potent looking bikes lined up with the nation's fastest hot rods for inspection. By 2 P.M. the cycles and cars alike were waiting for starter, Bill Burke, to wave them off for a chance to make a run down the world's fastest straightaway.

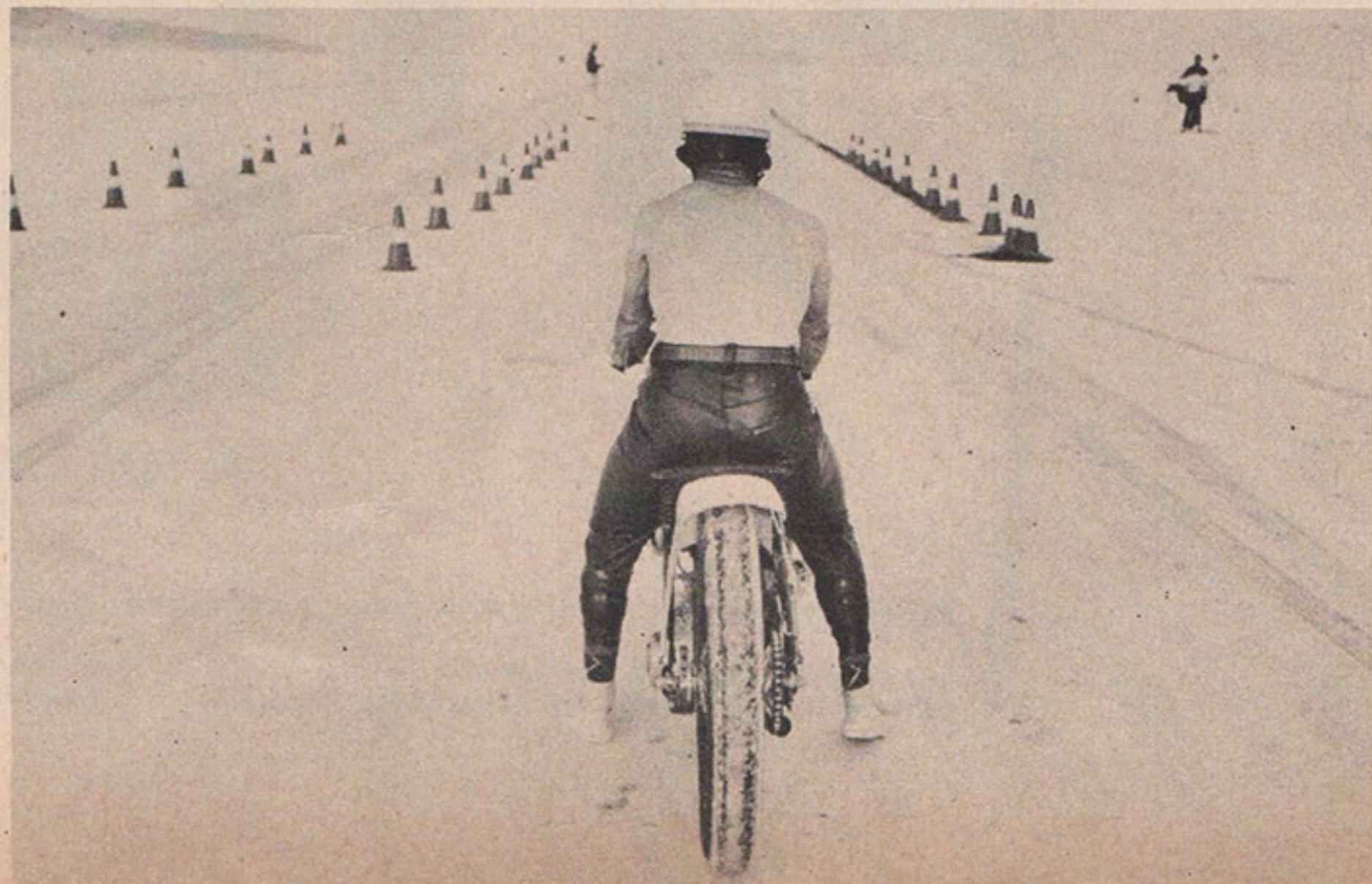
Two orderly rows of rods and bikes lined up, taking their turn as fast as the course was cleared; 30 seconds between riders.

Mingled with the seriousness of the event were the comical gestures made by the hot rodders as they huddled in the cold early morning atmosphere, shivering and watching the cyclists, clad only in crash hat and tight,

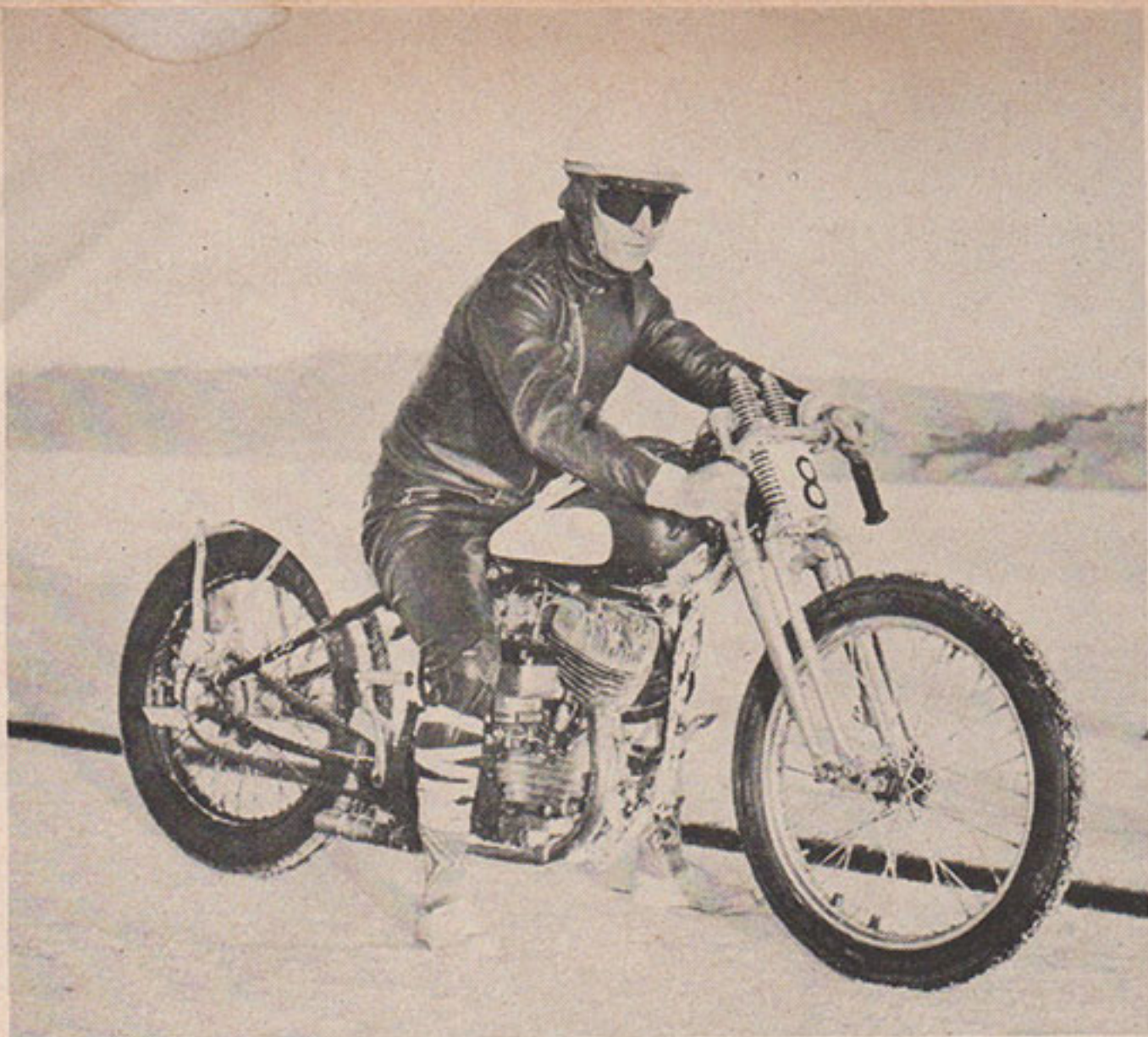


ABOVE, Stan Dishong veers Schaller's big injector job as tow rope snakes free. This was general procedure for all of the hot alky burners. "Bus" finally threw in the towel

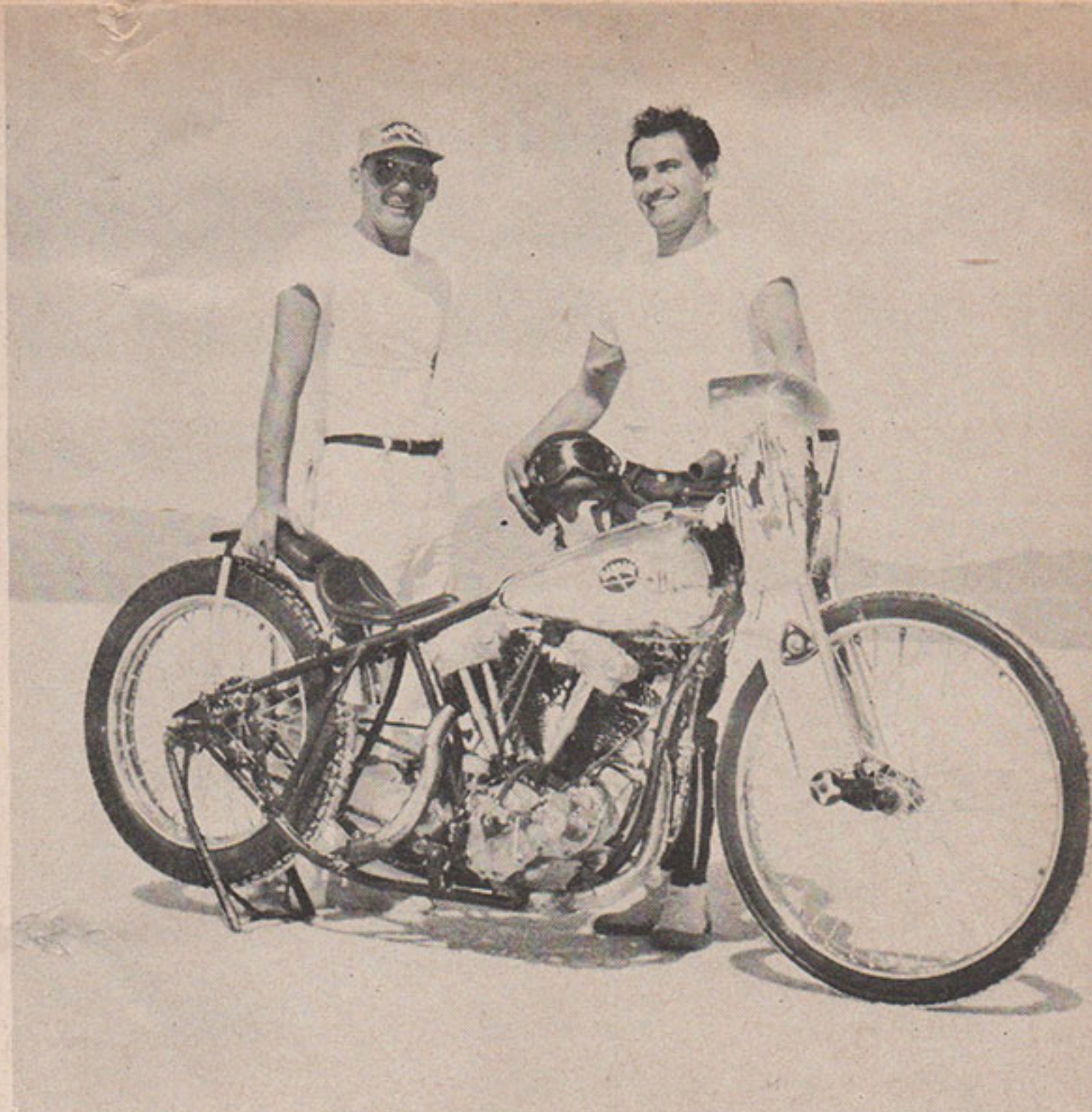
RIGHT, No end in sight for Jack Dale as he recoils for his 126.6713 mph one-shot. What magic does he possess to squeeze 8000 rpm out of a bike with a conceded top of 115 mph







**ABOVE, Jack Dale, most traveled man on Bonneville. Salted away the greatest number of miles to break 13-year record on Harley-Davidson 45**



**RIGHT, Captain "Bus" Schaller, AMA referee for the Bonneville trials, lashes Don Dishong to the helm; runs before the wind at 154 mph**

**BELOW-RIGHT, AMA members note: card holder #10, Gene Rhyne, master tuner, checks Eugene Thiessen's Golden Flash before record attempt**

long underwear, firing down the trap.

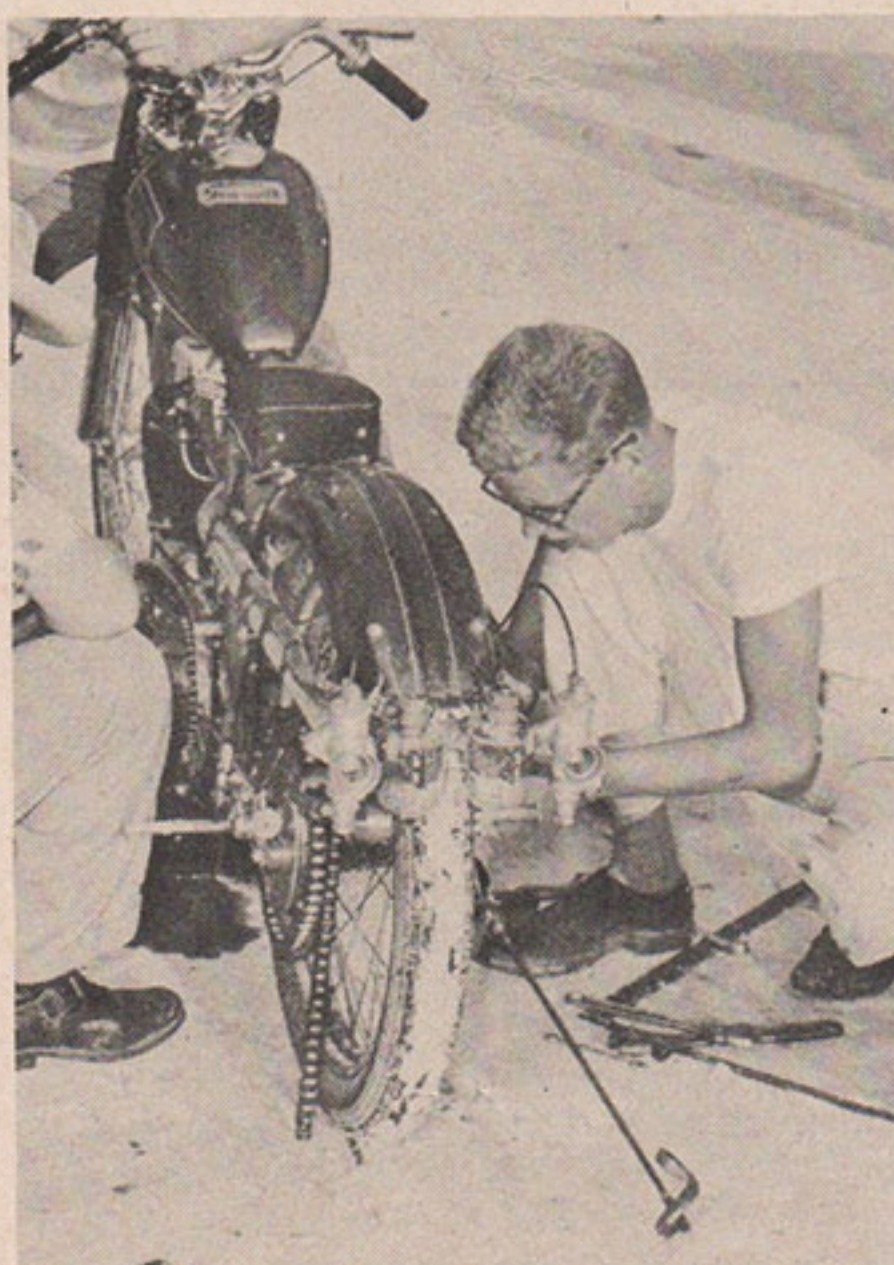
Joe Simpson and his black lightning was first to take a stab at the records, and "go" he did at 145.9262 mph. Later Joe captured fastest time for the bikes at 158.4507 for the 1/4 mile, and 156.3426 for the measured mile.

"Bus" Schaller, sponsored referee for the Bonneville Trials by the AMA, had his hands full and consequently found too little time to run his own sleek Harley-Davidson 80 incher. "Bus" was, however, able to get his little jewel over the salt with 154.1095 mph.

Tuesday was a very windy day so the boys just set sail and made some amazing times. Eugene Thiessen, stuck fast to a 40 inch BSA Golden Flash, came in at 151.2605. Anchors Aweigh! That's really sailing.

Undoubtedly the oddest looking rigs at the meet were Bud Hare's Triumph, with its twin cylinder power plant lying flat on its side, and Bud Parriott's Thunderbird, with the carburetors mounted on the rear fender. Although Parriott's ingenious carburetion technique has long been known, it has seldom been used to such extremities. Bud claims that at times he could have used even a longer induction tube; the effect of the system being almost the same as a supercharger.

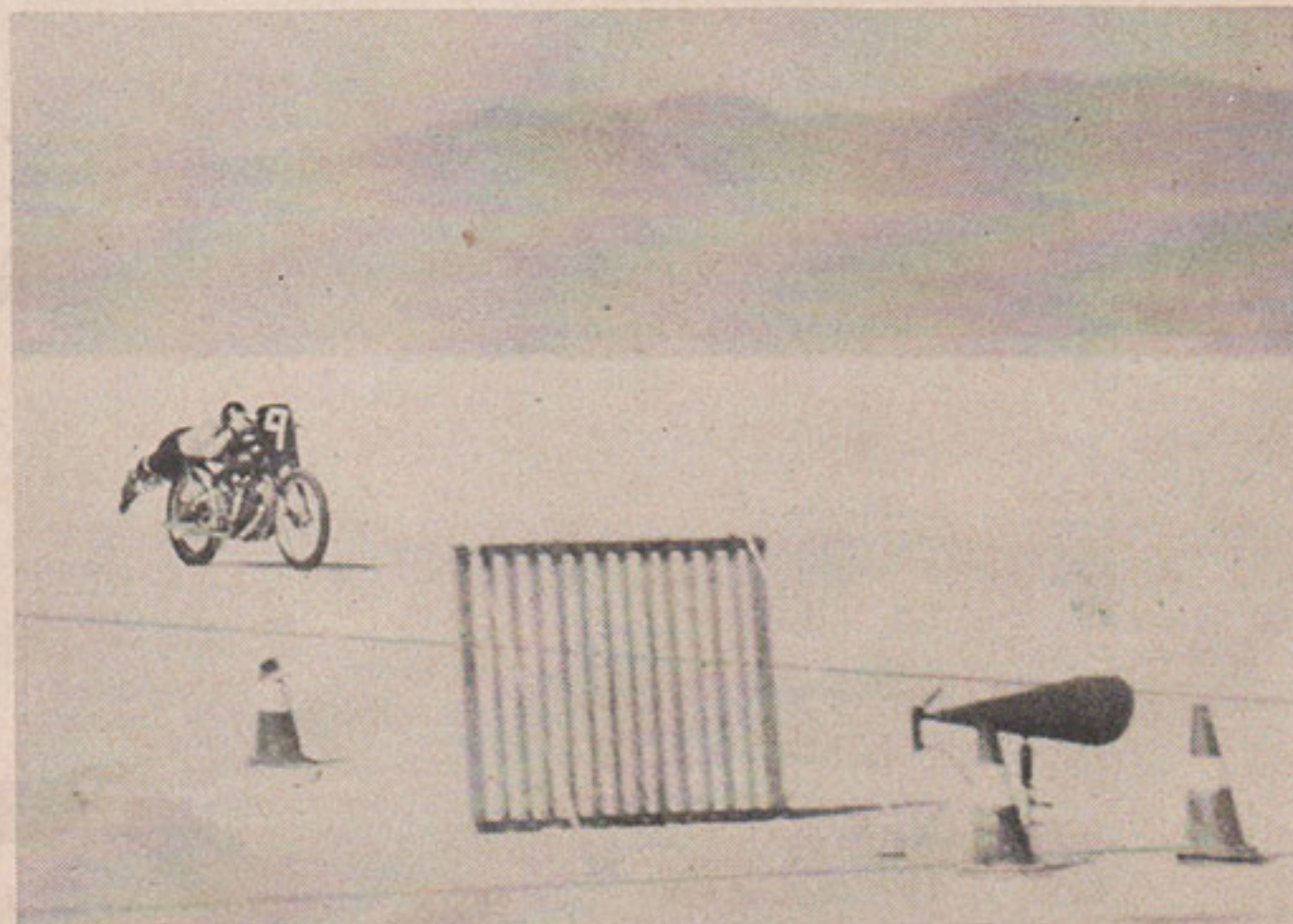
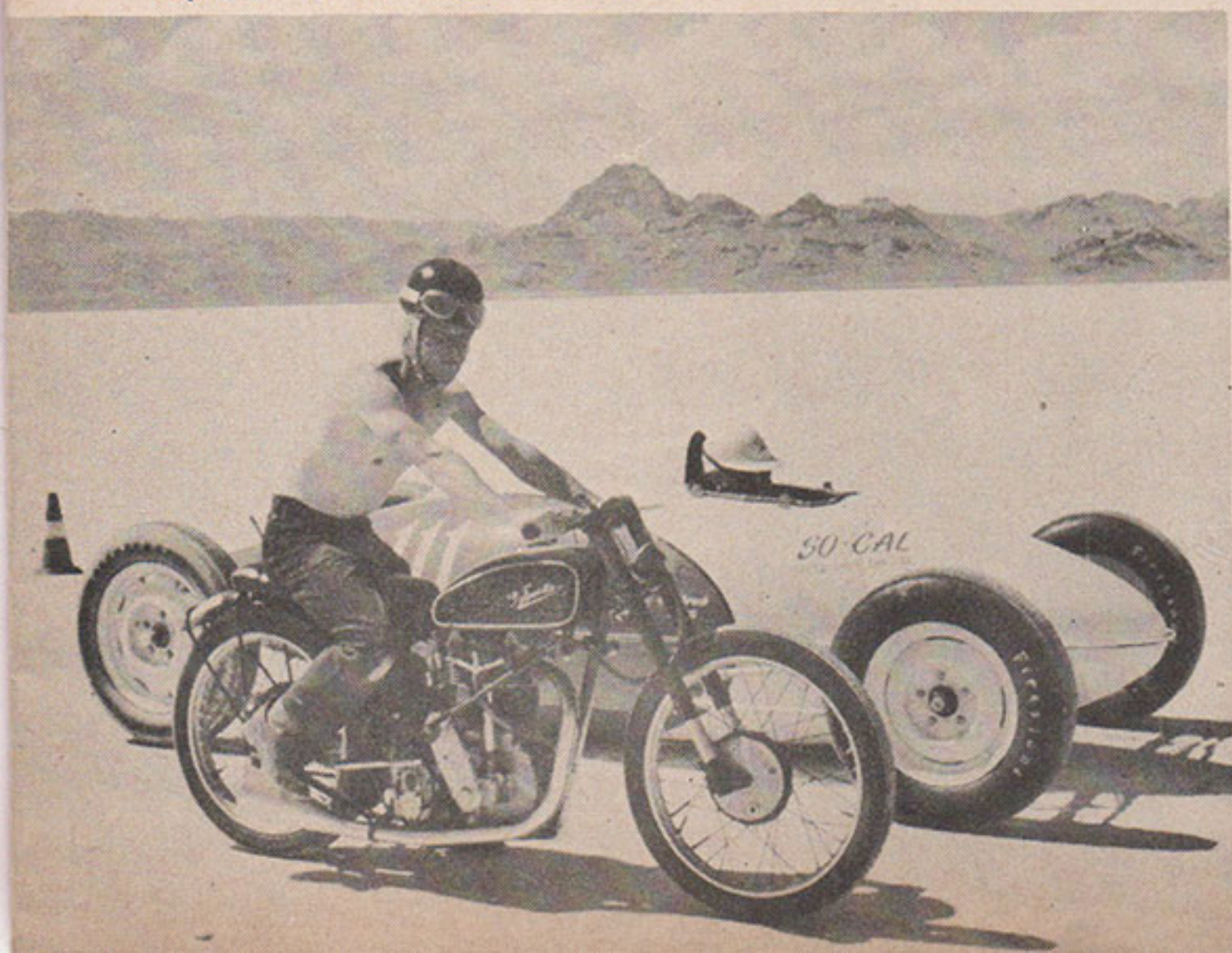
**BELOW, Bulmer's KSS Velo stacked up well against So. Cal tanker when considering power to weight ratio. 296 cu. in. Merc ripped 180 mph. 21 cu. in. lugner thumped out 105 mph**



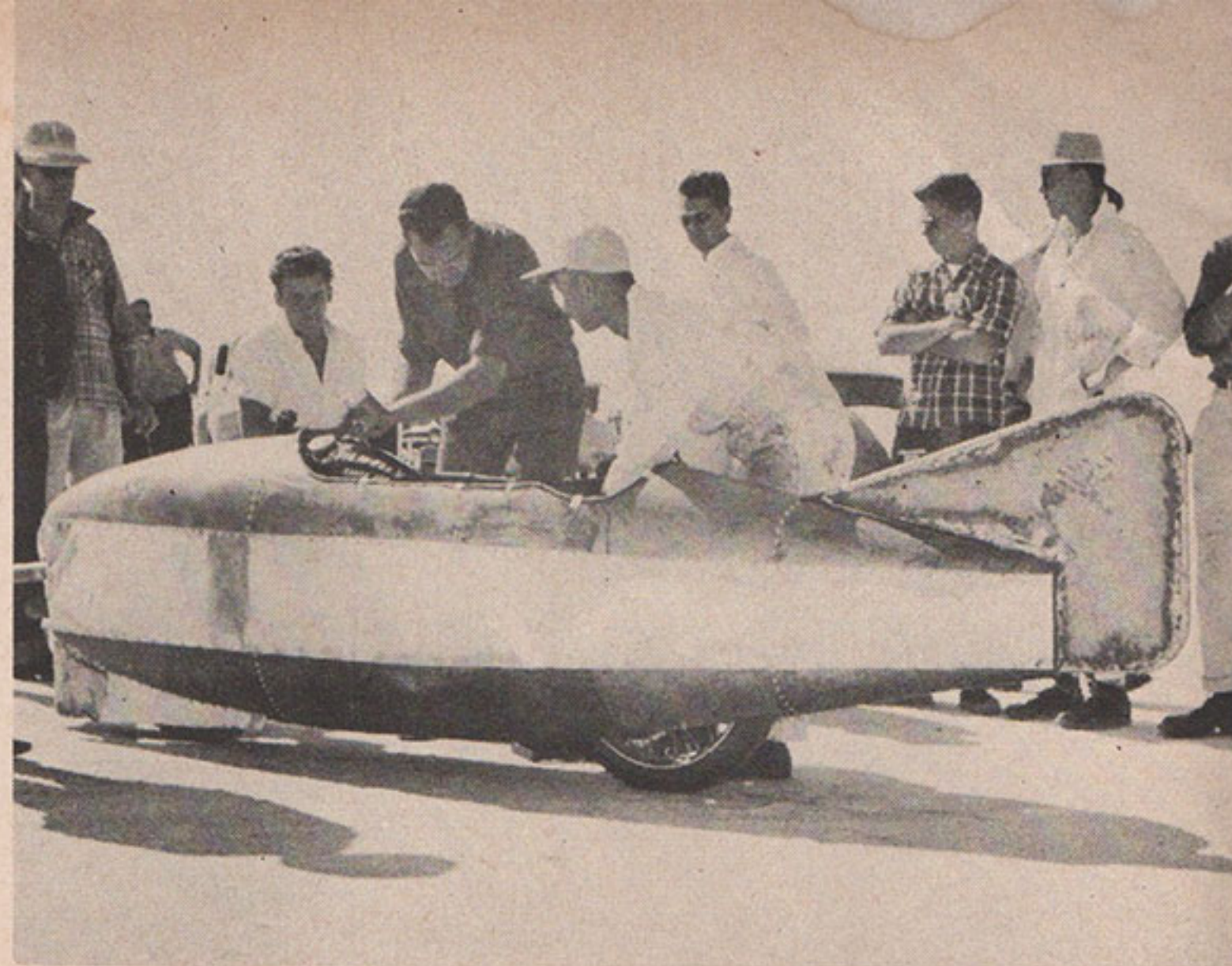
**ABOVE, First with the most. A. J. Lewis built for Buddy Parriott, two-day record holder. Strangely efficient looking 3 foot induction tubes mounted carbs on fender tip—Coming trend?**



**BELOW, Simpson plays Sampson as he executes a full body lever on his Black Lightning, passing Otto Crocker's sensitive quarter mile clocks at the fastest one way trip of the meet—158.4507**



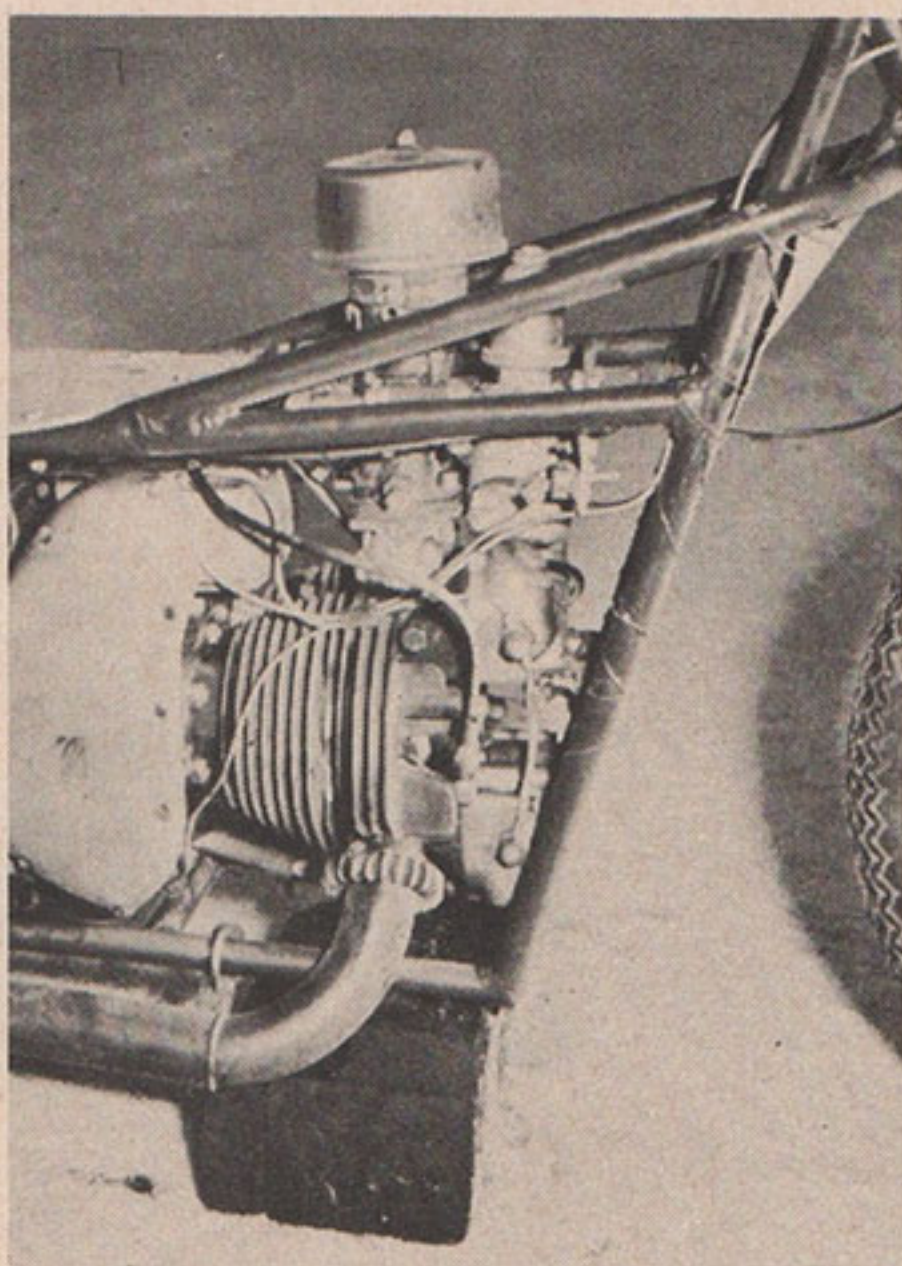




LEFT, Bit of sugar amidst all that salt sweetens task of breaking records. Lloyd Bulmer's tiny 21, more than a match for many 300 cu. in. cars

ABOVE, "The Beast," in sheep's clothing, didn't fool anyone. It was only a \$5.00 aircraft belly tank that hid world's fastest 1/4 mile sprinter

BELOW-RIGHT, Looking very much like a part of the bike, Dale makes himself scarce on a perfect take-off. Jack ran 6.3:1 compression ratio



ABOVE, Bud Hare used Ford 97 carburetor and electric fuel pump on his horizontal Triumph. Bud played with own version of ram jetting two days after securing class A record

Wednesday through Sunday: Broken records and happy hearts tell the story of a successful speed trial.

#### NEW AMA RECORDS

|                 |                    |            |
|-----------------|--------------------|------------|
|                 | 61 inch Class C    |            |
| Marty Dickerson | Vincent HRD        | 129.406    |
|                 | 45 inch class C    |            |
| Jack Dale       | Harley-Davidson    | 123.5211   |
|                 | 40 inch class A    |            |
| Eugene Thiessen | BSA                | 143.5477   |
|                 | 40 inch Class C    |            |
| Eugene Thiessen | BSA                | 128.944505 |
|                 | 30.50 inch class A |            |
| Bud Hare        | Triumph            | 126.6782   |
|                 | 30.50 inch class C |            |
| Eugene Thiessen | BSA                | 123.694    |
|                 | 21 inch class A    |            |
| Lloyd Bulmer    | Velocette          | 105.6866   |

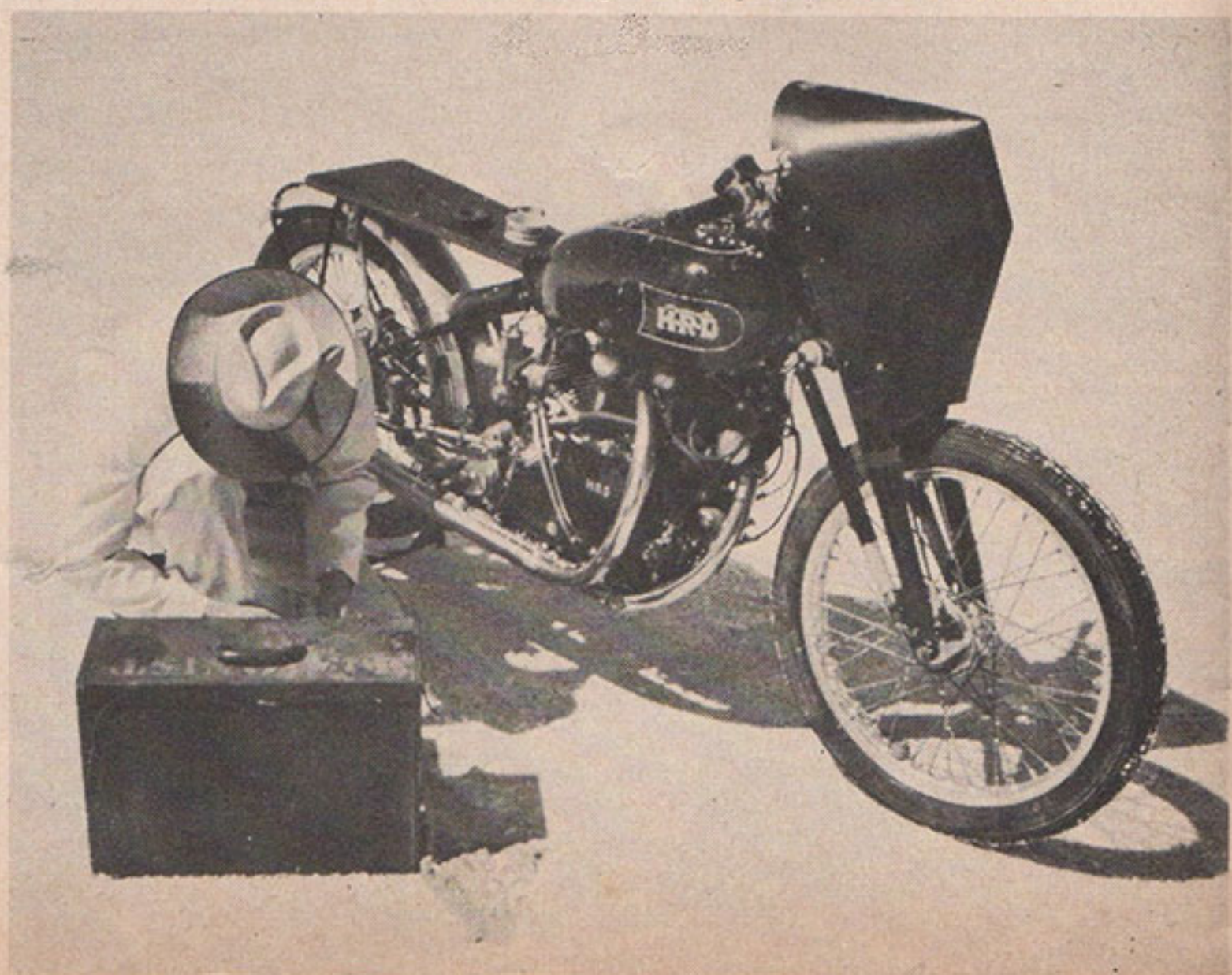
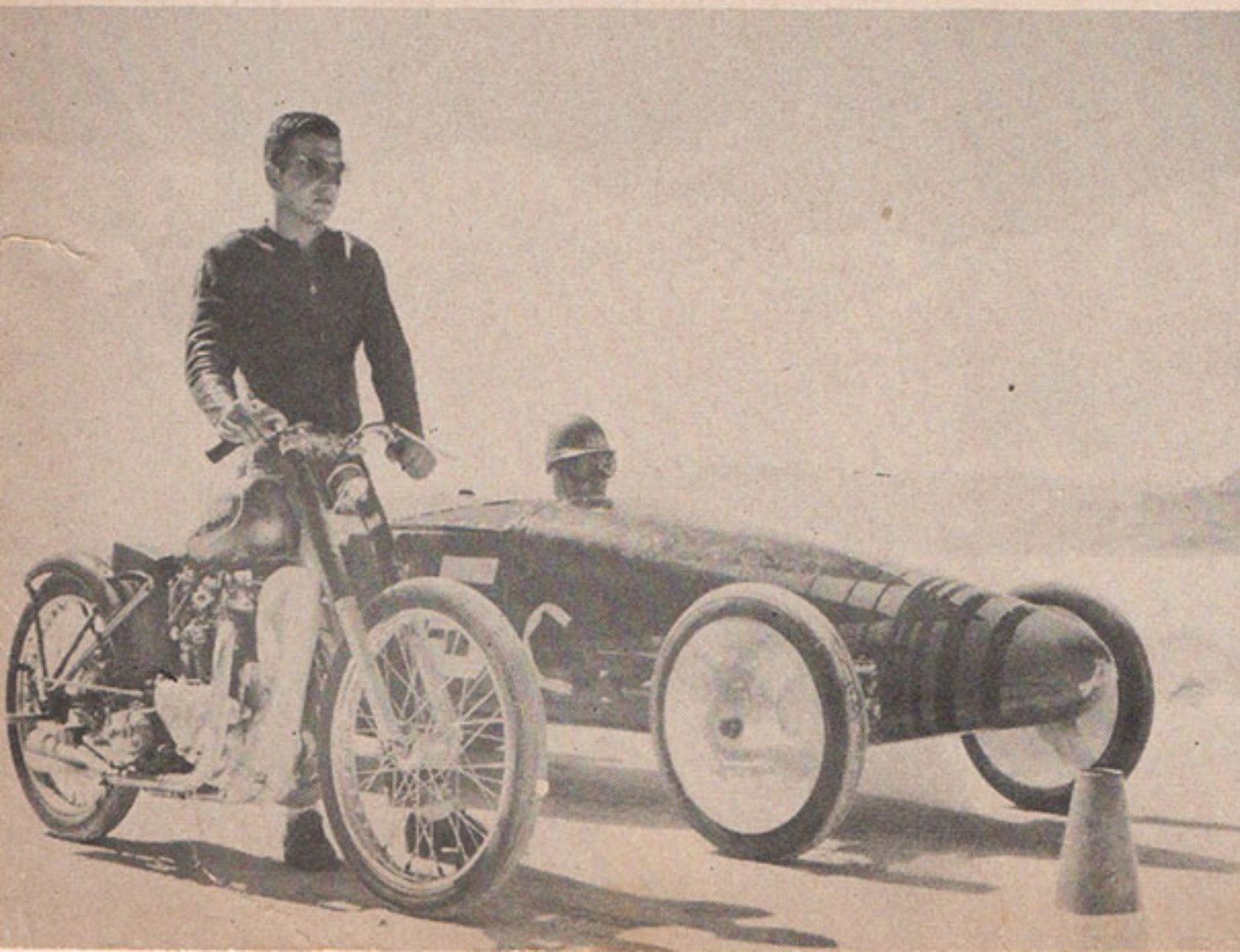
An outstanding contribution to the success of the Bonneville National Speed Trials can be claimed by the efficiency of operation of the new Crocker Timer. Developed over a period of years, during which Mr. Otto J. Crocker has been actively timing both automotive speed events and powerboat races, the

(Continued on page 30)

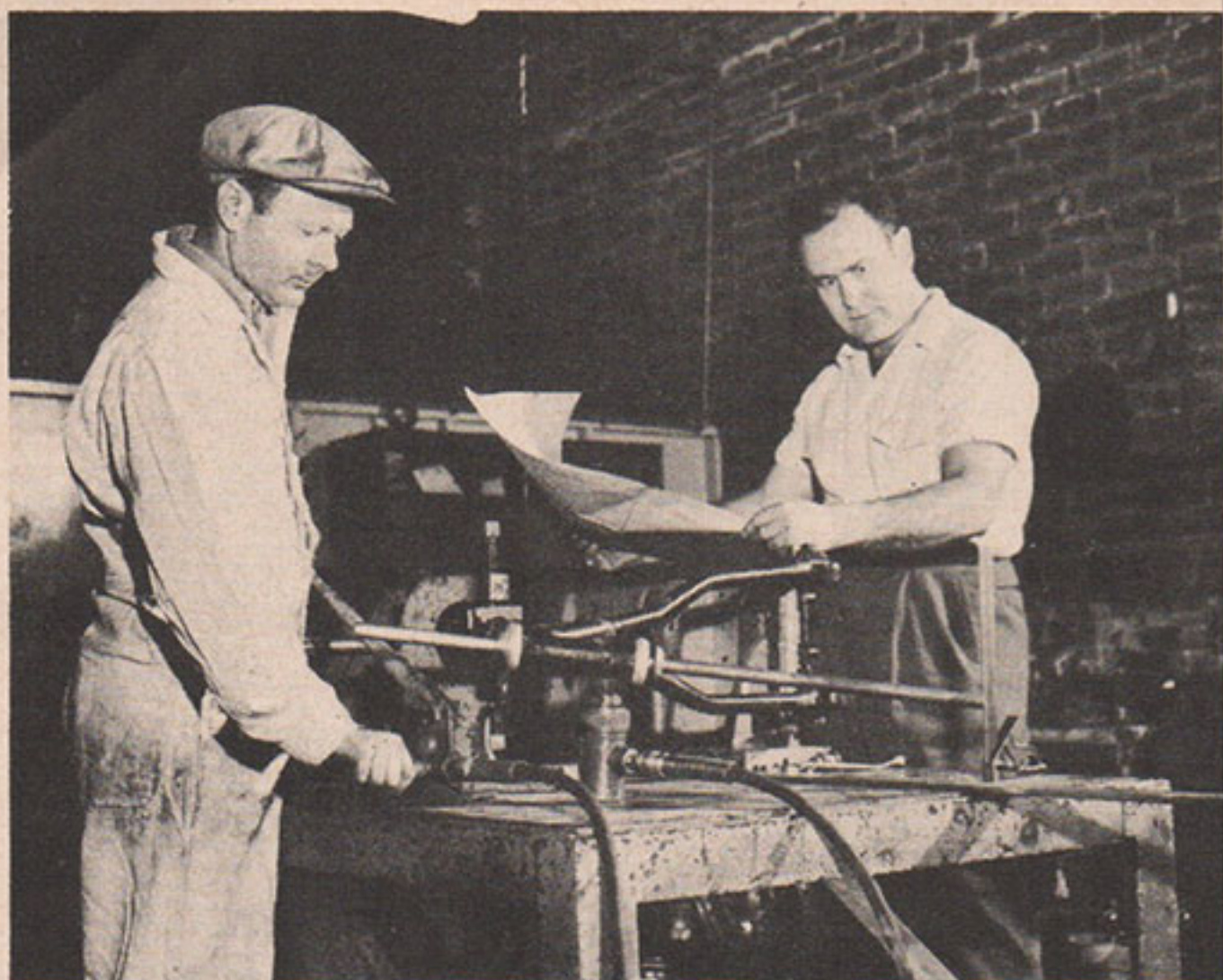


BELOW, Ak Miller's needle nosed modified roadster used motorcycle tires advantageously at speeds above 170 after tread was trimmed down smooth. Shield protects Parriott's engine

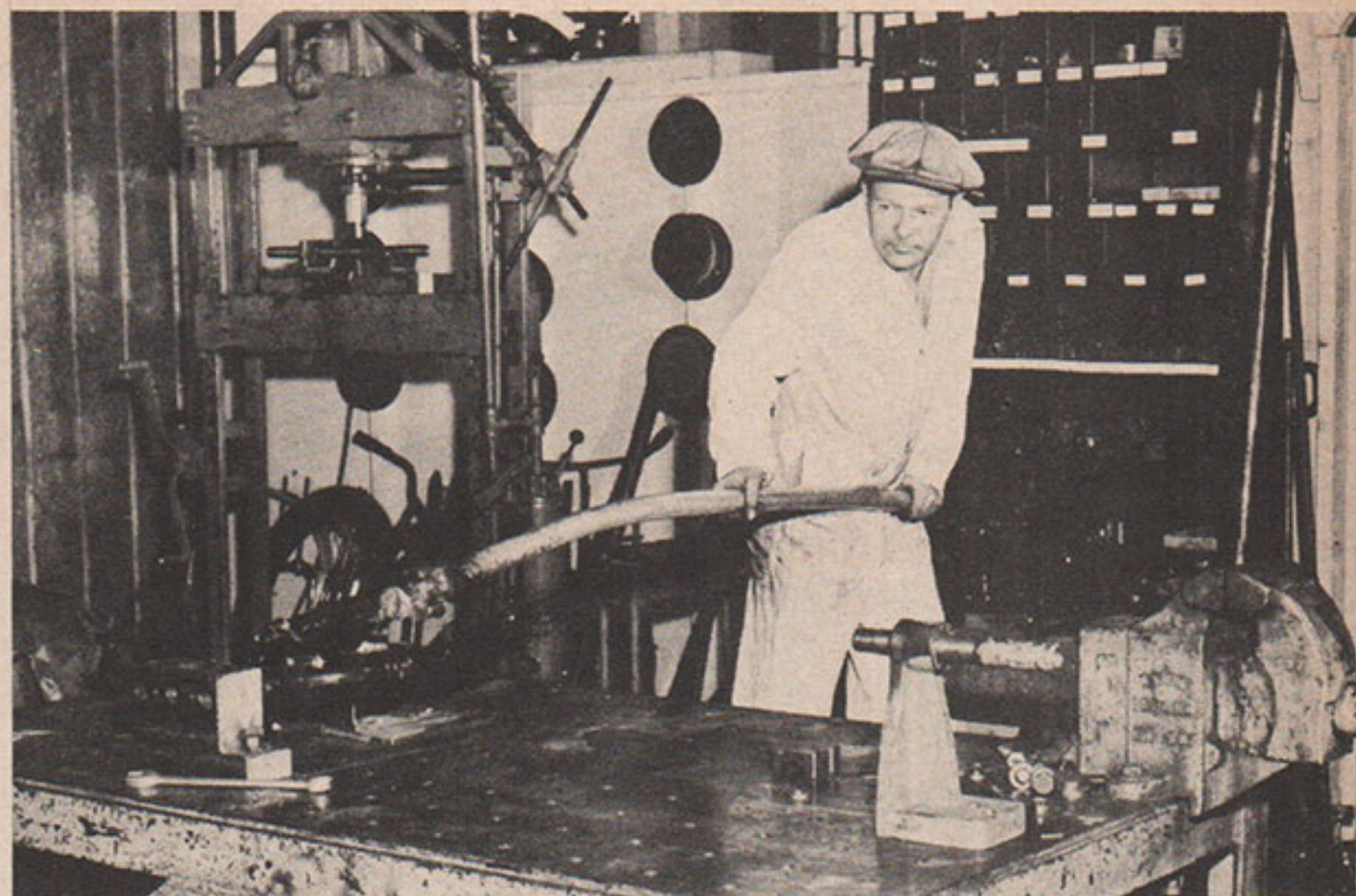
BELOW, Modest Joe Simpson, sheet metal shop owner from Stockton, Calif., ramsacks toolbox for extra horsepower to obtain his life's ambition of riding 150 mph, which he realized







Boss Louie Thomas (right) checks blueprint, gazes in awe at distortion of frame head. Long steel rod should be parallel to table. Frank Christian applies power to hydraulic ram at proper point—last step in process



Forks must be corrected to within .001 in. of factory specifications. Two-man team at end of lever is sometimes required to accomplish job. This is also a good view of the frame table—3200 pounds of tough steel

## Cheap, Strong and True

SAVE THAT FRAME! THE COST OF STRAIGHTENING IS SELDOM MORE THAN HALF THE PRICE OF A NEW ONE

**C**HANCES ARE you'll never see your motorcycle naked. The tempered tubing, often chrome-moly, that forms the frame of the machine is so tough that only a severe accident will twist or buckle it; which is very fortunate, because the labor involved in the removal of every piece of equipment is costly and time-consuming.

If you do make the error of trying to beat a new path through a concrete pier, or pioneer a short cut down the face of a rocky cliff, you'll find to your dismay that frame-repair shops are few and far between. There are several reasons for this. The cost of proper tools is high. Skilled frame mechanics are rare. Only a large establishment can spare the room. There isn't enough work in most localities to keep one man busy full time. So you may have to spend your time locating someone in a distant city to do the work. Los Angeles seems to be one area where frame-

straightening is a local specialty. Dealers from as far afield as Maine and Honolulu, T. H. send work to the southern California city. If you find a shop closer to your home, however, the work will probably be eminently satisfactory. Just be sure you get a guarantee.

Experts in the field would like to correct one common misconception among motorcyclists. They have heard from almost every customer who comes to inquire about prices, the story that a straightened frame has lost its strength. This sounds reasonable. The smashing blow required to do the damage surely must have weakened some of the joints or strained the metal beyond its elastic limit. Bending can't possibly repair that original devastation.

Nothing could be farther from the truth. It takes more of a jolt than is usually encountered to rupture tempered steel. If there are definite signs of excessive strain, the mechanic

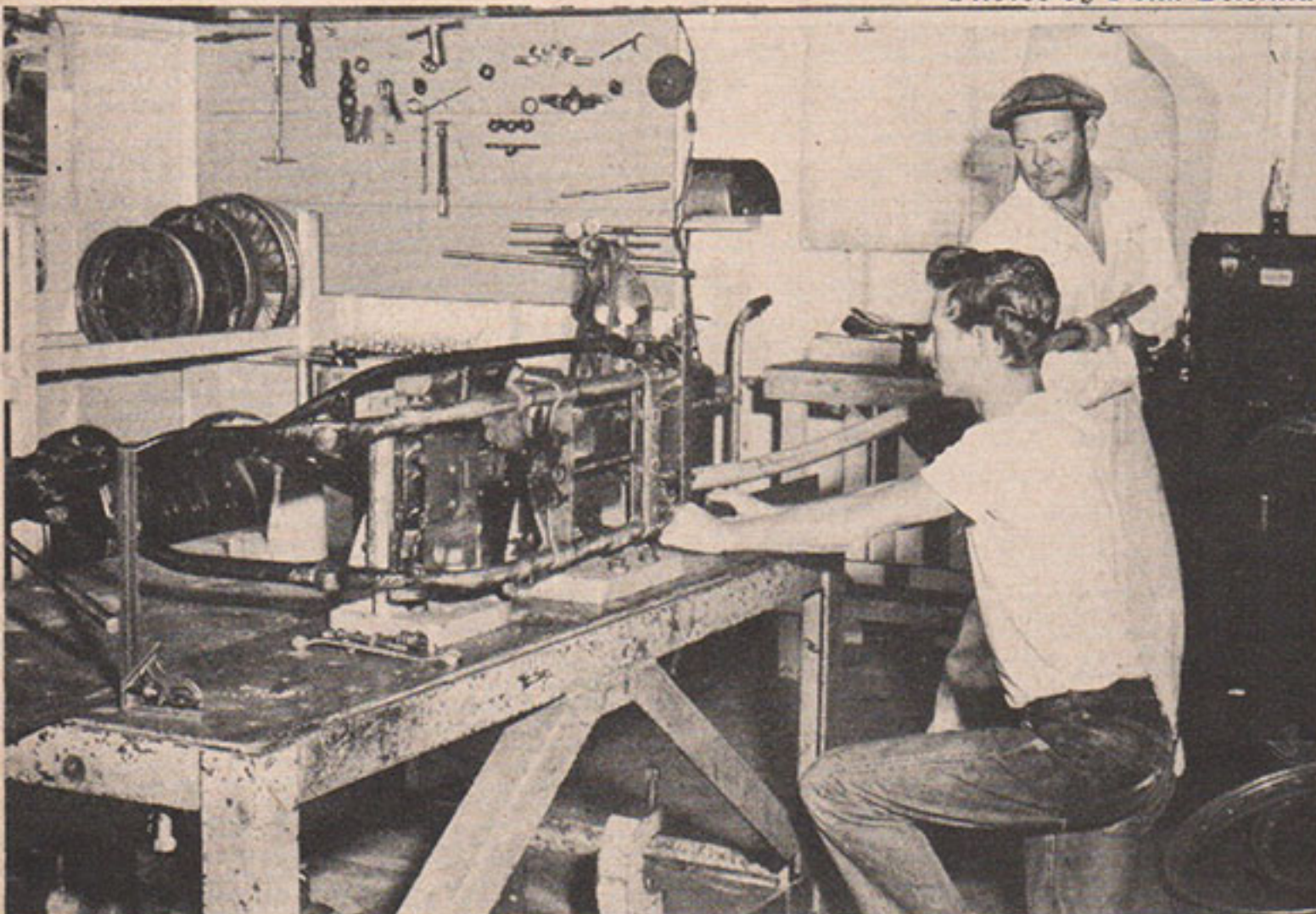
can see them. Weakened members can be removed from the frame and replaced by new tubing. For the most part, the frame may safely be bent back to its original position without affecting its toughness. All straightening is done cold—no heat applied at any time—and thus the temper of the steel is retained.

Another common belief is that frame straightening is expensive. Surely, runs the argument, the time of the craftsman is worth big money and it must take a lot of patient, slow work to bring every member back to factory specifications.

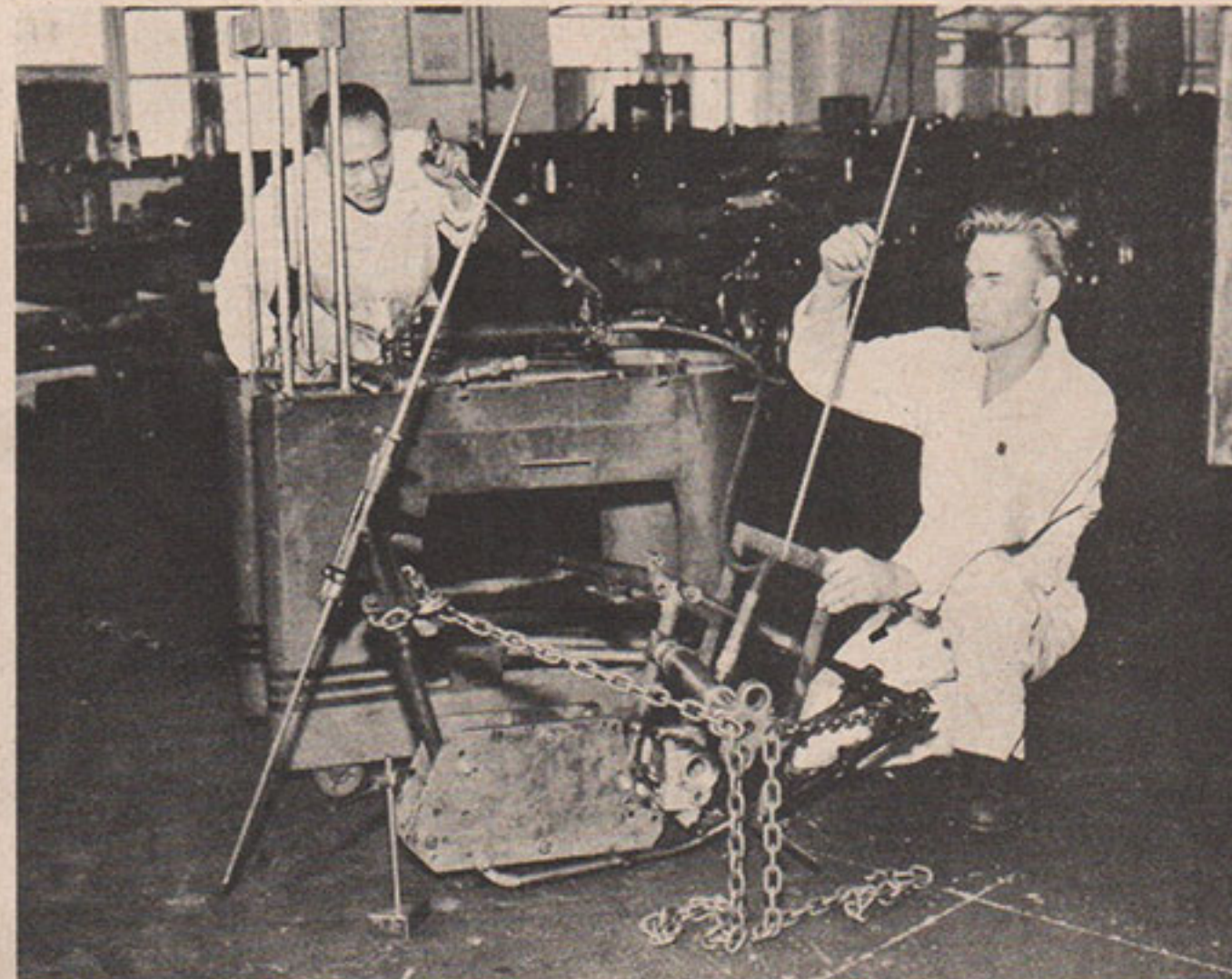
Again—not true. Good frame men do command high wages, but they wouldn't be in the trade for long if they worked slowly. And the special equipment required, though heavy and costly, is built to last forever.

(Continued on Page 31)

Photos by Felix Zelenka



Misshapen bike undergoes major surgery at the hands of Frank Christian. Nine-foot steel lever is prying upward on section of frame near the rear wheel. Jigs bolted to table are to simulate the engine, transmission

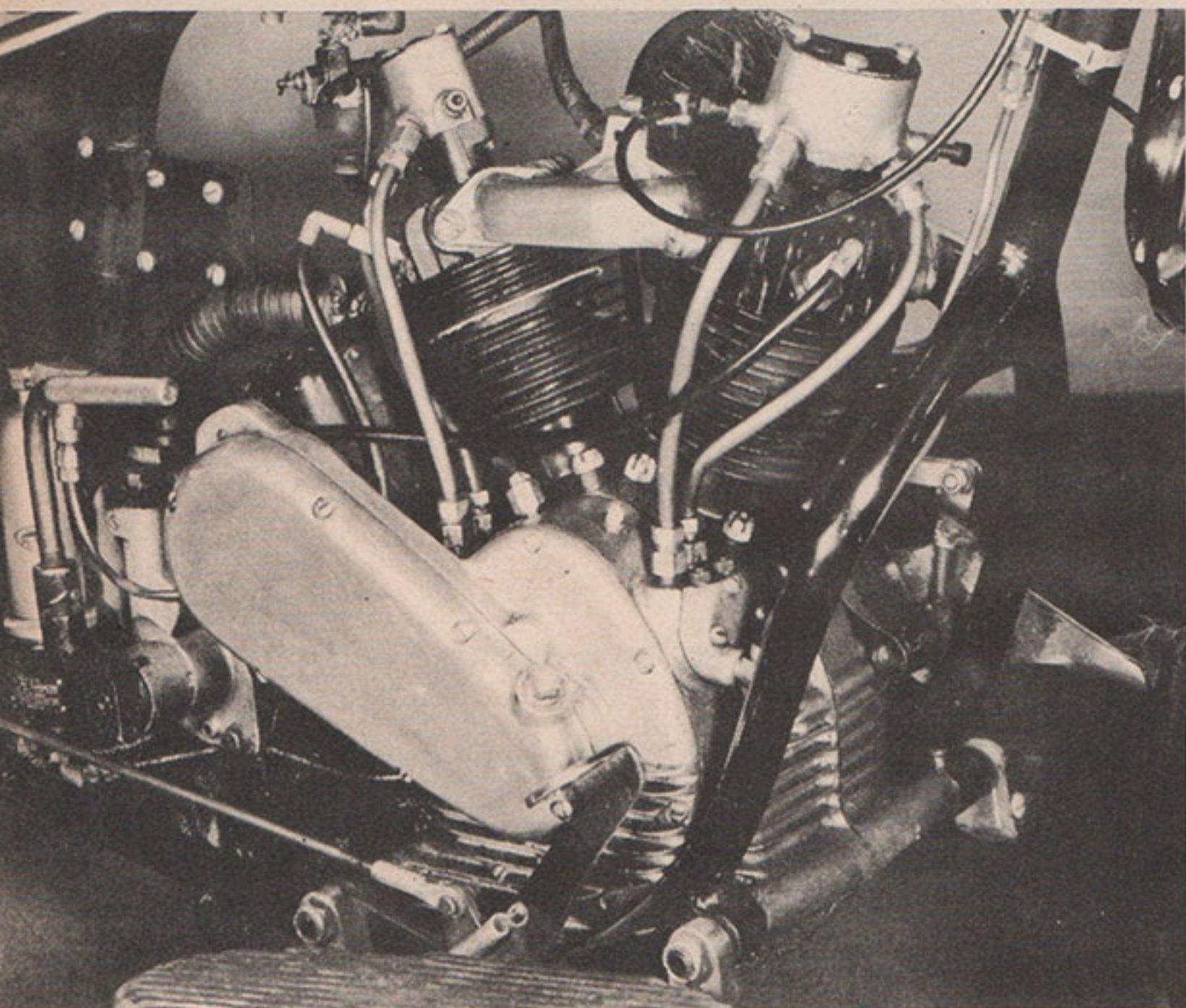


Less-complicated set-up for frame straightening used at Johnson Motors, Pasadena, gets good results with hydraulic ram. Aligning measure (rear) may be used with rear wheel in place for the simple, front-end jobs

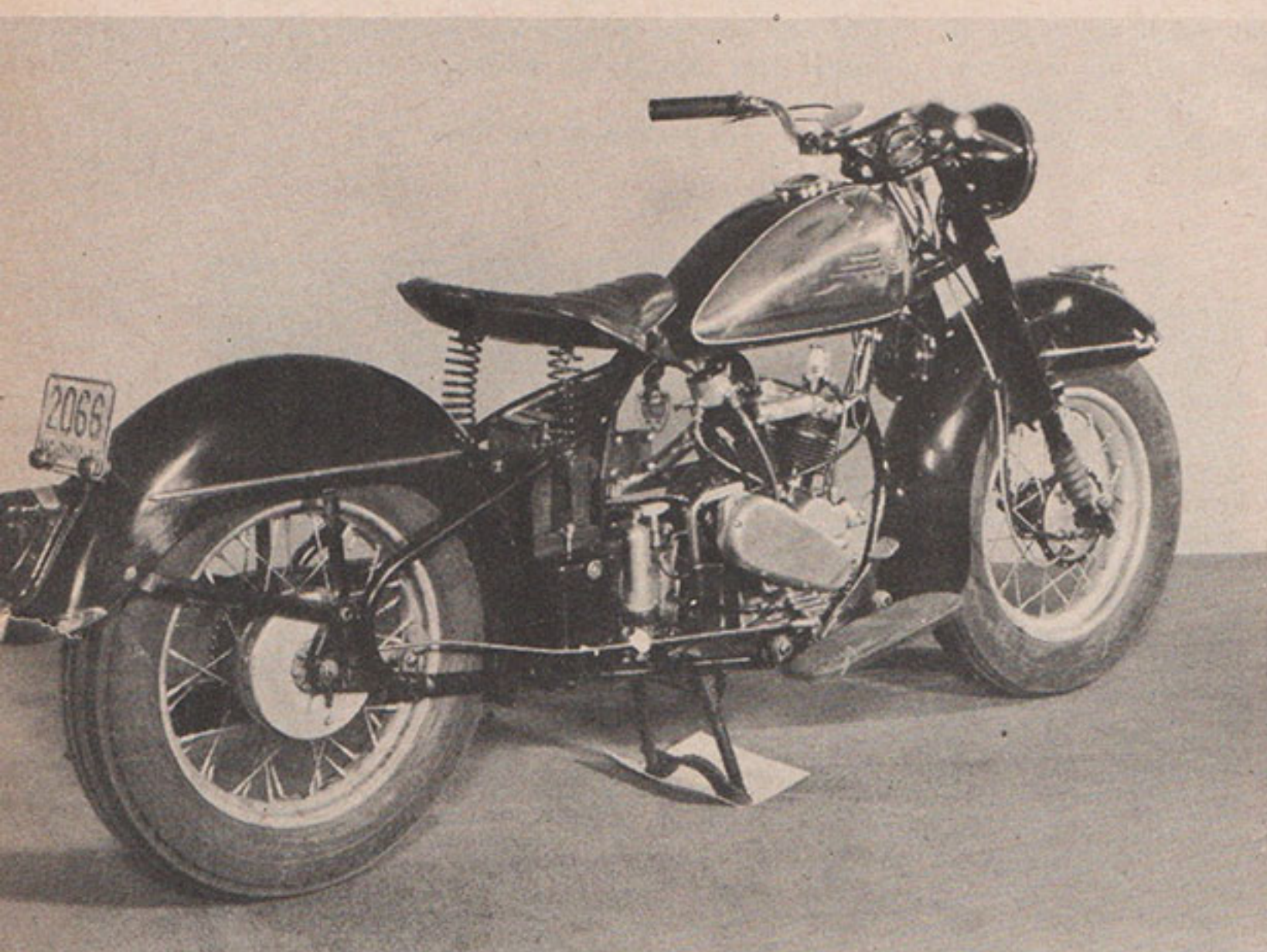


# What: NO PUSHRODS!

EXPERIMENT IN HYDRAULIC VALVE ACTUATION PROVES LATEST THEORY PRACTICAL



ABOVE, Fine workmanship and a thorough knowledge of his subject are attributes of Merritt Zimmerman, originator of this smooth 45° vee twin. This neat 14.9 cu. in. (250 cc) engine develops 10 to 12 horsepower with a compression ratio of 8 to 1, has 2 in. bore, 2.375 in. stroke. Weight of engine and transmission is approximately 65 pounds



Zimmerman's experimental job is equipped with new 3 speed, foot shift gearbox built by Bantam Cycle Company who also supplies multiple disc clutch. Carburetion is by 5/8" bore Marvel Schebler. Chain driven Eiseman mag handles ignition. Oil capacity is 1 3/4 qts.; gear type pump. Note 15 x 4.00 tractor tires. Weight of bike is 250 pounds

*Built by Merritt Zimmerman*

ASSUMING THAT the diagram and accompanying photographs on these pages have you completely puzzled by now, let's find out from the machine's maker just what he had in mind when he first began putting the pieces together.

Reasoning that the novelty alone is hardly incentive enough to inspire the completion of such a design, we were led to believe that its inventor was searching for a quieter, cooler running, and more versatile arrangement; quieter because of the substitution of oil as a medium for actuating the valves; cooler because of an almost unhampered head and cylinder finning; and versatile since the valves can be placed in practically any position, not having to line up with mechanical pushrods.

The quest for an efficient engine design with simple mechanical characteristics was the prime objective of Merritt Zimmerman of Cleveland, Ohio. His curiosity, aroused by the idea of an overhead hydraulic valve actuation, prompted an experiment that took only three months to complete. The engine was assembled as quickly and cheaply as possible, utilizing Lauson Model RSC valves, valve springs, pistons, and pins; his design incorporating only the three necessary gears, cam, crank, and oil pump gears, plus chain drives to the magneto and transmission. Basically the hydraulic system consists of conventional cams and activating tappet plungers against a column of oil (crankcase oil), reaching to the overhead position and moving a smaller piston (through a slightly longer stroke) bearing against the valve stem. The system incorporates an automatic air bleed and an automatic hydraulic pressure regulator, or volume-speed regulator, both of simple construction. The oil pump keeps the hydraulic system filled during the closed period of the poppet valve with 25-30 lb. pressure. When the tappet plunger starts to lift the oil column in the tube, the immediate increase in pressure and reversal of flow is checked in the direction of the oil pump. Hydraulic pressure in this system runs from 200 lbs. at low speed to around 1500 lbs. at 7000 rpm. There is also an air-oil separator included in the inverted Skinner aircraft oil filter behind the kick starter.

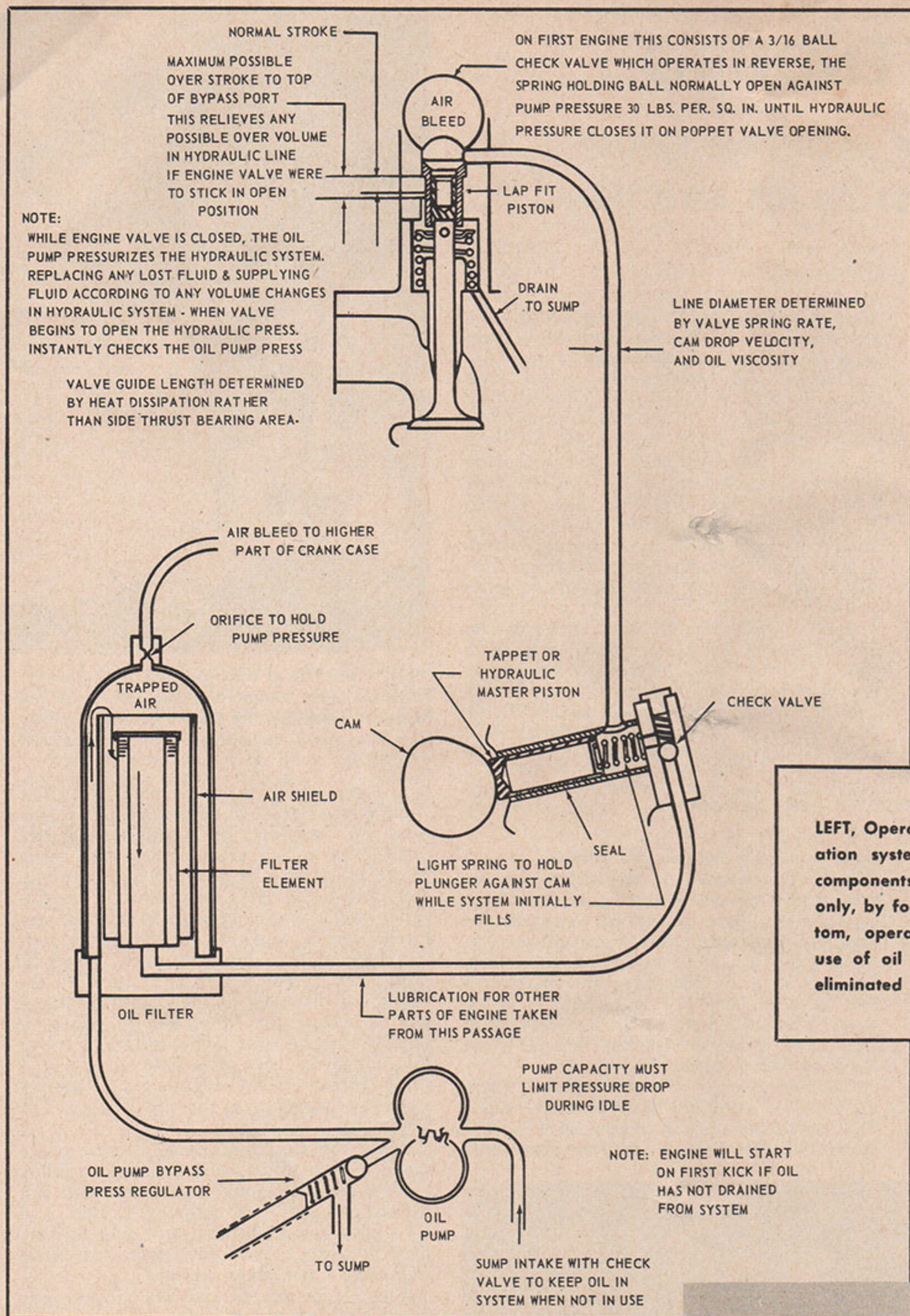
This design parallels a device patented in 1932 by Warren Noble, except for the afore-mentioned volume-speed regulator. On a second engine, recently completed and built with high efficiency heads and cylinders, this volume speed regulator was unwisely omitted for simplification, which limited the maximum rpms to about 4000, although the torque increase in this range was considerable, due to better engine breathing and higher maximum compression pressures.

This engine was worked out in a hurry for the purpose of completing performance reports. Road testing in this case gave all the data wanted. The bike and engine were designed jointly, with versatility of engine design in mind, although the completed product is somewhat prettied up.

Framework is very clean of lugs and fittings when stripped and the battery case is used as a structural member along with the tool compartment. The peculiar "Y" in the frame ahead of the engine was used to facilitate assembling and welding of the steering pin section in true position without the use of a jig. The front fork was built somewhat on Czech lines but has an adjustable trail feature incorporated in the instrument plate by use of slots and set-screws allowing about 3" horizontal wheel axle movement. This cycle handles very well at any trail setting and exceptionally well at high speed over bumps, despite very poor springing. The steering damper was unnecessary.

Front and rear fenders were cut and welded from two old Plymouth tire covers, the rear one pivoting at the top of the battery box after removal of the two fender brace bolts from rear wheel mount lugs. The folding stand balances the bike for easy removal of either wheel. Harley, Indian and Czech components are obvious in the pictures. The engine starts on the first kick and has presented no hydraulic valve trouble whatever. It has had about 50 hours of bench run time, and over 2500 miles on the road.





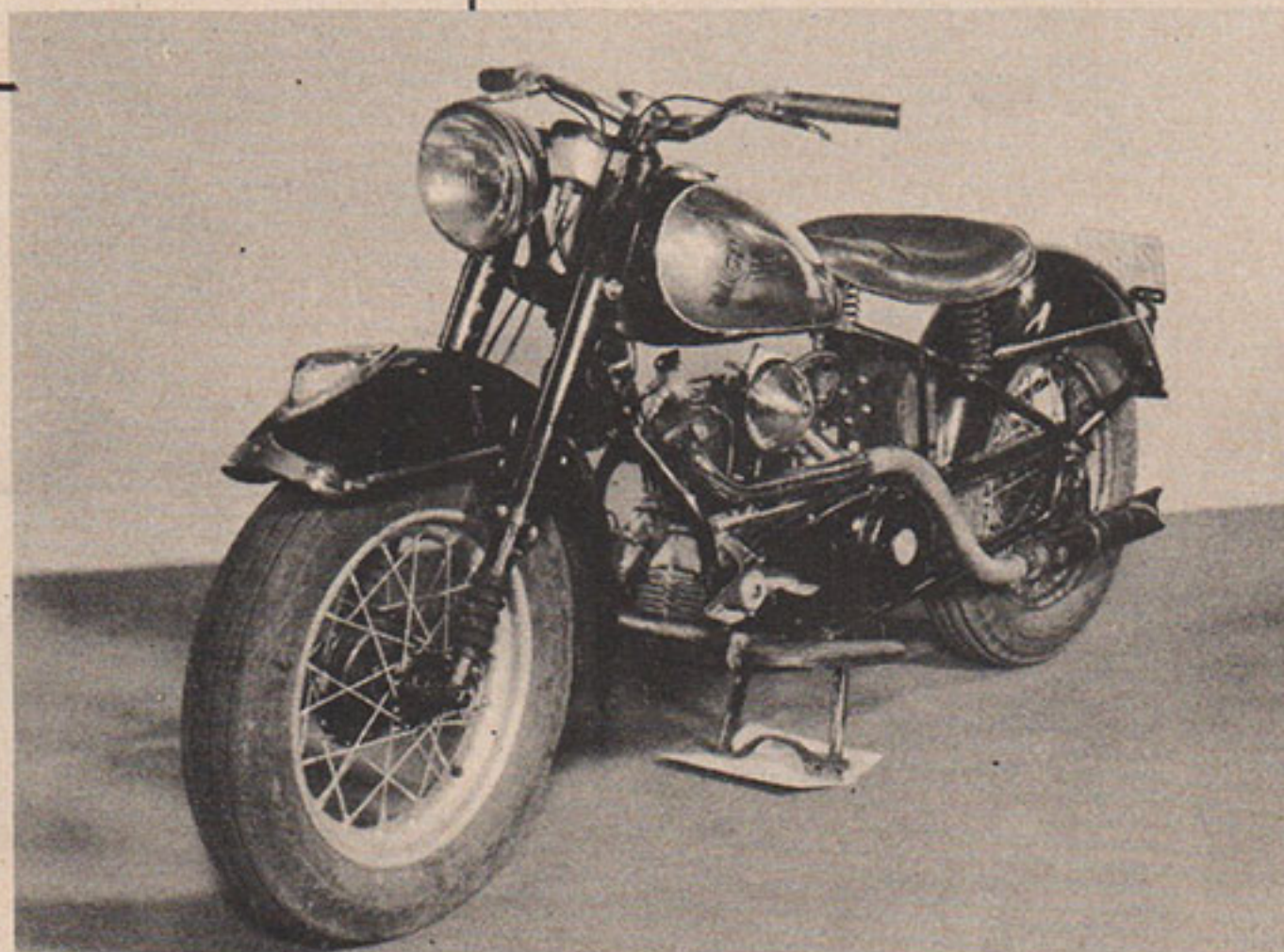
**LEFT,** Operating principle of the hydraulic valve actuation system. Although the design of the various components of this sketch are for basic illustration only, by following the line from the oil pump at bottom, operation can clearly be seen. Through the use of oil control valves the ingenious builder has eliminated noisy pushrod and rocker arm assembly

Although many advantages are apparent, the complete control of poppet valves at high speed in such a design entails complicating the system to a degree not satisfactory for production and maintenance. With high engine efficiency still in mind, Zimmerman is turning his present equipment to rotary valves and their consequent problems.

Merritt Zimmerman's experiments, outriding the present calm in domestic design, come as a refreshing reminder that individual inventive genius has not been asleep, but only laboring in deep concentration, and may once more point the way to better motor-cycling.

#### ACCELERATION FIGURES

| GEARING  | (engine to wheel) | SPEED | ENGINE RPM. |
|--|-------------------|-------|-------------|
| Low  | 16:1              | 30    | 7050        |
| Second   | 8.5:1             | 45    | 5648        |
| High   | 5.35:1            | 70    | 5100        |
| 1/4 Mile. Stand Start.....20 Seconds (Three way average) |                   |       |             |
| Flying 1/4 Mile .....*13 Seconds (Only one Trial)        |                   |       |             |
| *(This is a little under 70 mph)                         |                   |       |             |



As neat as any factory job—even fenders were revamped auto tire covers. Cylinder head is aluminum with bronze valve seat inserts and guides. Cylinders are nickel-iron and crankcase is aluminum, built along popular trend except for air-cooled wet sump. Flywheels are of nickel-iron. The rods were milled from high tensile "M" bar steel



# ENDEARING ENDURO

EARL FLANDERS, FORMER JACK PINE CHAMP,  
TELLS ABOUT THE OBJECT OF HIS AFFECTION

## MEET EARL FLANDERS . . .

Manufacturer, mechanic, machinist, short-track and enduro ace. Since the war, Earl has devoted his spare time to endurance riding, finally capturing the national championship by winning the 1948 Jack Pines at Lansing, Michigan. His score that year was 946 out of a possible 1000—just one point over riding partner Aub LeBard. In the same year, he earned a solid second place in the Cactus Derby at Riverside, California.

Other riders who have watched Earl bulldog his way through 500 miles of rocks, desert and forest are always surprised to learn that he began competition on the short-track circuit. There just doesn't seem to be any link between enduros and the special skill required to spin a whining JAP around the short courses. But Earl spent nine very successful years competing against the famous Milne brothers, Cordy and Jack, and others. Before

he quit, he had worked his way up to a 60-yard handicap, occasionally rising to 70, very close to the 80-yard maximum.

Flanders the business-man started from scratch in 1933 as a mechanic. He worked his way up to tool-maker, then spent a four-year session pushing a Los Angeles bus. In 1945, he bought a piece of a plant that was finishing out a few war contracts and parlayed that stake into the present Flanders Manufacturing Company in Pasadena. There, Flanders the inventor, makes handlebars of his own design as well as control cables, grips, batteries, bearings, side stands and other motorcycle accessories.

Earl is especially qualified to write this article because he knows racing from both sides. For three years he was steward at Lincoln Park and Santa Monica short tracks. He was on the committee that laid out the Greenhorn enduro in 1948 and 1949, then in 1950 acted as chairman of the event.

BY EARL FLANDERS—AS TOLD TO GENE JADERQUIST

IF YOU ride for fun, try an enduro. Competition is keen, but not bloodthirsty. Why should it be? The winner takes home no money, receives little publicity. There is no bonus for top speed or daring cornering or skillful passing or any of the other difficult phases of track racing. Crowds don't applaud and scream with excitement at the antics of adept grandstanders. In an enduro, each rider is riding against himself and time, disregarding the rest of the pack. You're out there with your machine, your timepiece and the brains God gave you. Your position at the day's end depends on how you use all three.

I'll assume, to begin with, that you have

done some cow-trailing and perhaps entered a couple of hare-and-hounds events. If you can handle yourself smoothly in the rough country, you have plenty of technique for enduros. The only other personal requirement is that you be in moderately good physical condition. By definition, an enduro is a run of more than 250 miles, usually across every imaginable kind of terrain available to the course planners. Unused muscles don't stand up well under a grind like that.

You can ride any kind of machine. There are no size limitations, but you don't need a big-displacement engine to keep up with your schedule. I used an AJS single the year I won

Jack Pines, and I've piloted both BSA, Triumph and a Harley on other runs. When you select your machine, get something you feel comfortable on and be sure it's in good shape before you start. The standard 6:1 scrambles gear ratio is the one I use and it fits my machine well, but you probably won't need any special gear if yours is different. Leave your compression ratio absolutely stock. You'll be riding steadily and a high ratio can burn the engine out. The only engine adjustment necessary is setting the carburetor to deliver a slightly rich mixture. The one time I forgot this, I had my bike drop dead on me. Not till I dismantled the engine did I discover what had happened to my compression. The piston had a hole in it.

Make the seat comfortable because you'll spend a lot of time there. On English bikes, I put a piece of sponge rubber between seat springs and saddle to cushion the ride. And it's a good idea to install a high exhaust pipe, since you can be sure the layout committee scheduled a few rocky sections.

The rough course can also shake your chain right off the sprocket. Occasionally a few grains of sand work their way into the master link. To lock the chain, slip a piece of tin through the feather on the master link and you'll be safe.

You can't loaf through any enduro, even though the average speeds required between check points may sound low. The layout committee plans the course and sets the averages to keep the field riding hard all the way. Secret checks are installed at irregular intervals so you can't use the hurry-up-and-wait system between known checks. If the schedule says 28 mph, stay right around there all the way unless you get slowed down too much by a bad stretch. I try to ride 30 seconds fast between known checks, thus giving myself 30 seconds to kill if I stumble over a secret check and allowing a minute and a half grace in case I have to stop for repairs.

"Comin' through!" The shout of a determined rider when traffic becomes thick in bad country. It's surprising, the room that can be made when this cry is heard. Smart riders always oblige



"How'd you like to take that one back home?" Oscar Lenz had remarked, letting Earl fondle the National Championship Trophy the night before Jack Pine. Two days later Earl Flanders did!





Half the work during the entire event is keeping track of your time. Each rider has his own method, but all (except a few experimenters) agree that an accurate odometer and at least two dependable timepieces are essential. Before you start, make sure your odometer is calibrated correctly for the size of your rear tire. Carry one *accurate, expensive* watch in a safe place—I use a pocket watch of the railroad type—and one watch or clock in a place where it can be easily read.

I've had bad luck with clocks mounted on the machine. There is a regular rhythm to the beat of a clock which is susceptible to the vibration of the engine. When the engine hits a certain speed it synchronizes with the rhythm of the clock and either slows down, or speeds up, the mechanism. On one of my early runs, I depended on a clock for accuracy and popped into the next check seven minutes hot. This cost me the race. Later I experimented with the set-up I used and found that clock and engine got together at about 50 mph. Between forty-five and fifty mph, the clock would run slow between fifty and fifty-five the clock would speed up. Since that time I have substituted two pocket-watches for the clock. I strap one to my wrist and hang the other around my neck. The railroad watch I keep in my pocket.

On night runs, however, a clock is necessary. There is no possible way to hold a flashlight and read your wrist watch at the same time. Just check the clock against your expensive watch regularly.

With a reliable pair of instruments to record time and distance, the rest is up to you. You'll be told the distance between known checks and the average speed. Say the distance is 30 miles (known checks cannot be more than 40 miles apart) and the average speed should be 24 mph. Your time will be 1 hour and 15 minutes. If you use a table, you can tell at a glance how many miles the odometer should show at the end of, say, five minutes—two miles. By reading the other way you can know the number of minutes that should have elapsed after 25 miles—62.5 minutes. Check your progress this way as often as you can to save yourself the embarrassment of tripping over a secret check several minutes hot.

I have one big advantage over most enduro riders, thanks to the four years I spent herding the Wilshire bus through the streets of Los Angeles. Bus drivers were forced to lay off one day for every minute hot. We had check points at a few of the important intersections where we could expect to find inspectors waiting with a watch and a time table. There was no penalty for arriving a little late, but I didn't like to do that. The run was an hour and ten minutes each way and if I was late I didn't get a break at the end. Gradually I built up a good sense of time—I could usually call my schedule to within 30 seconds without looking at my watch. When I started riding enduros I found that I still had the ability to estimate my schedule accurately.

All your best calculations can be upset if the layout committee sets the course with a bike carrying a rear tire of different size than yours and a speedometer calibrated like yours. This sets the mileage figures off by a slight percentage—just enough to ruin you. You are given a chance to discover this, however, at the mileage check—always the first check and usually within the first ten miles. At Jack Pines in 1948 the mileage check was at the ten-mile point. My speedometer read 11.8. For the rest of the distance, I made the corrections in my head. This is quite simple once you're accustomed to the operation, and far safer than using a clipboard. Clipboards never stay on my machine.

It is also a good idea to learn what the

**Busting the never ending Michigan brush was new to the west coast boys. Actually Earl had seen tougher sections at home but never anything so consistent. There was no let-up here**

layout team was riding. If they used a side-car rig, there must have been extra slippage on sand and wet spots giving them a higher mileage than you will have. This will bring you in to the next check ahead of time.

Undoubtedly you will hit a few secret checks when you're riding hot. Unless you're pretty close to schedule there's nothing you can do about it, but if you are almost right, slow down. You aren't allowed to stop to kill time but you can ride as slowly as you wish. I've seen guys deliberately throw down, preferring to risk a spill than come in early.

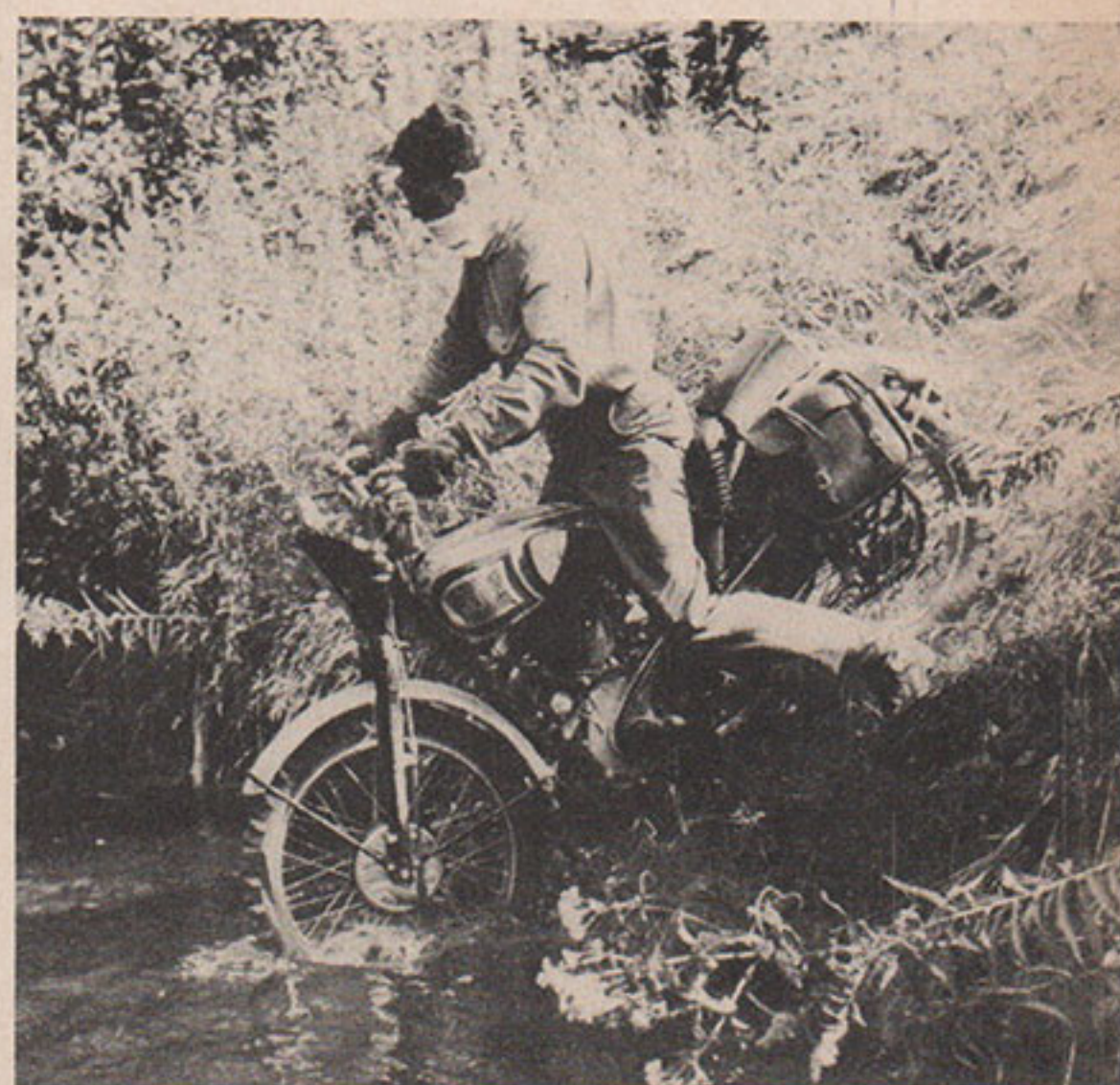
There isn't much I can tell you about riding technique. As I mentioned earlier, no special skills are required. One thing I learned the hard way, however, is the folly of trying to make up too much lost time. At the last Jack Pines I stopped to fix my compression-release wire and fell 26 minutes behind. If you fall behind like that, the error follows you all the way until you get back on schedule, so I started to ride way over my head. It happened, of course. I caught my front wheel in one rut and my rear wheel in another and skidded across the hard earth. For a few moments I lost consciousness and when I woke up nobody was in sight. I hopped back on the machine and took off. The first thing I saw after a couple of minutes of riding was another rider coming toward me. I was riding the wrong way.

I finished that run finally, placing 42nd out of a field of 43 finishers. Today, I would not try to make up that much time. A good schedule is too tight to permit a 26-minute delay. By the time I hit the last check at that Jack Pines I was too sore to walk. After the first nasty spill, I fell so many times I lost count. That's no fun and these days I'm riding enduros for joy first and glory second.

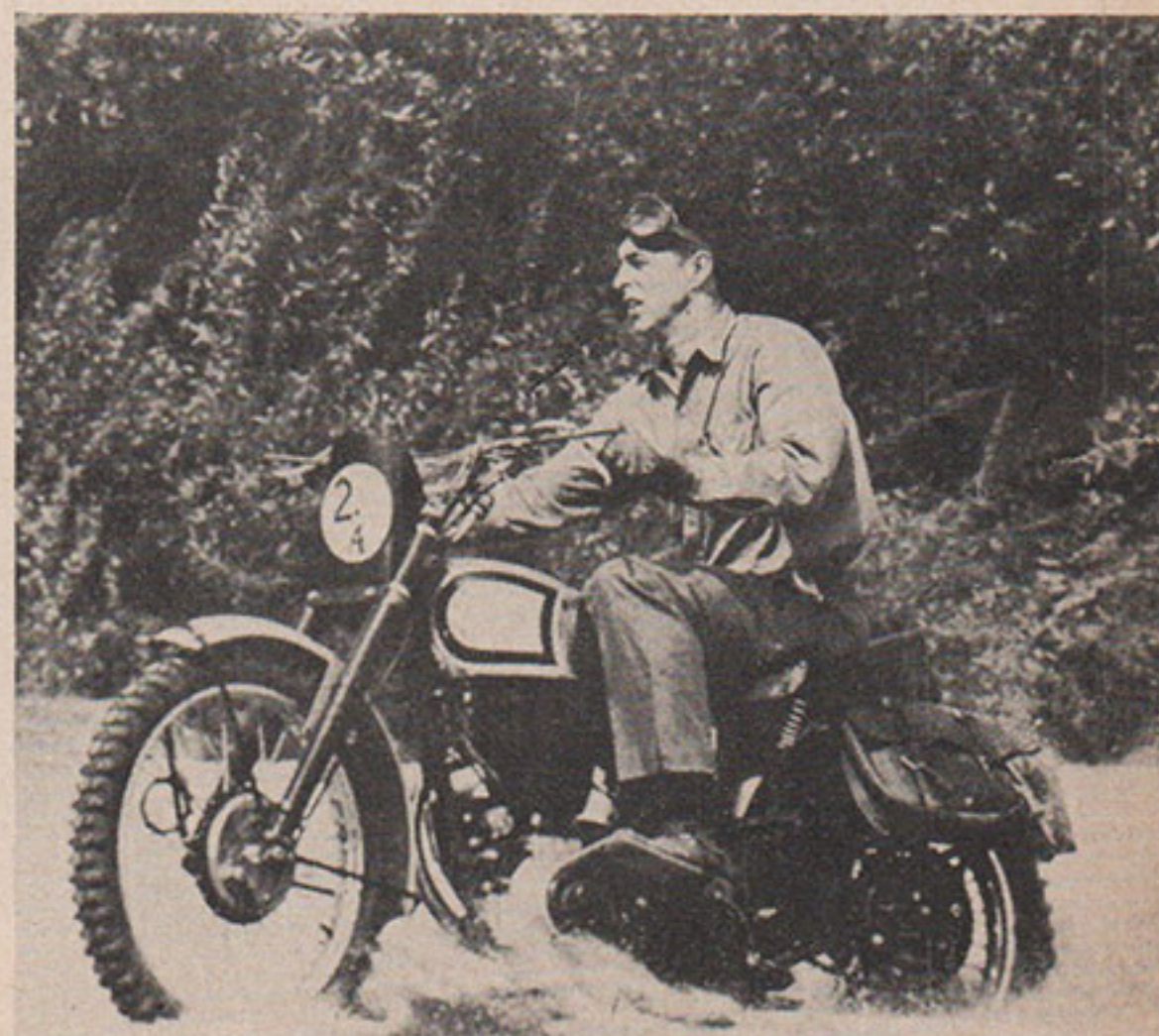
You'll need a few tools and spare parts on the trail with you. It's an old saying among motorcyclists that you always carry everything but the part you need, which is partly true, but you can save yourself occasional trouble by packing one hotter and one colder spark plug, a couple of links for the chain, crescent wrench, plug wrench and pliers. The plug wrench can be taped to the chain guard or any other likely spot. Crescent wrench and pliers should be carried in your pocket so you won't waste time breaking into your tool box in an emergency. The hotter plug will come in very handy if your original plug gets fouled with oil. If you do need to change plugs, you'll encounter a little problem for which there seems to be no simple solution—disposal of the removed plug. Rarely is there any time to stow it in the tool box. You'll just have to carry it with you and suffer as it burns holes in your pocket. Those little things can get hot. I've spent agonizing minutes shifting the plug from pocket to pocket until it cooled to bearable heat.

Relax. Have a good time. Don't key yourself up with benzedrine. That stuff sneaks back and flattens you when the bun wears off. The best medicine you can take is a good, long sleep the night before starting time. If the start is scheduled for midnight, try to go to bed the noon before and catch eight hours. You'll be a sorry, groggy sight at the last few checks if you don't.

Flanders felt at home in sand but found little relaxation, for the stuff was exceptionally soft and deep. Plenty forward momentum was the only answer, and to stop meant certain trouble



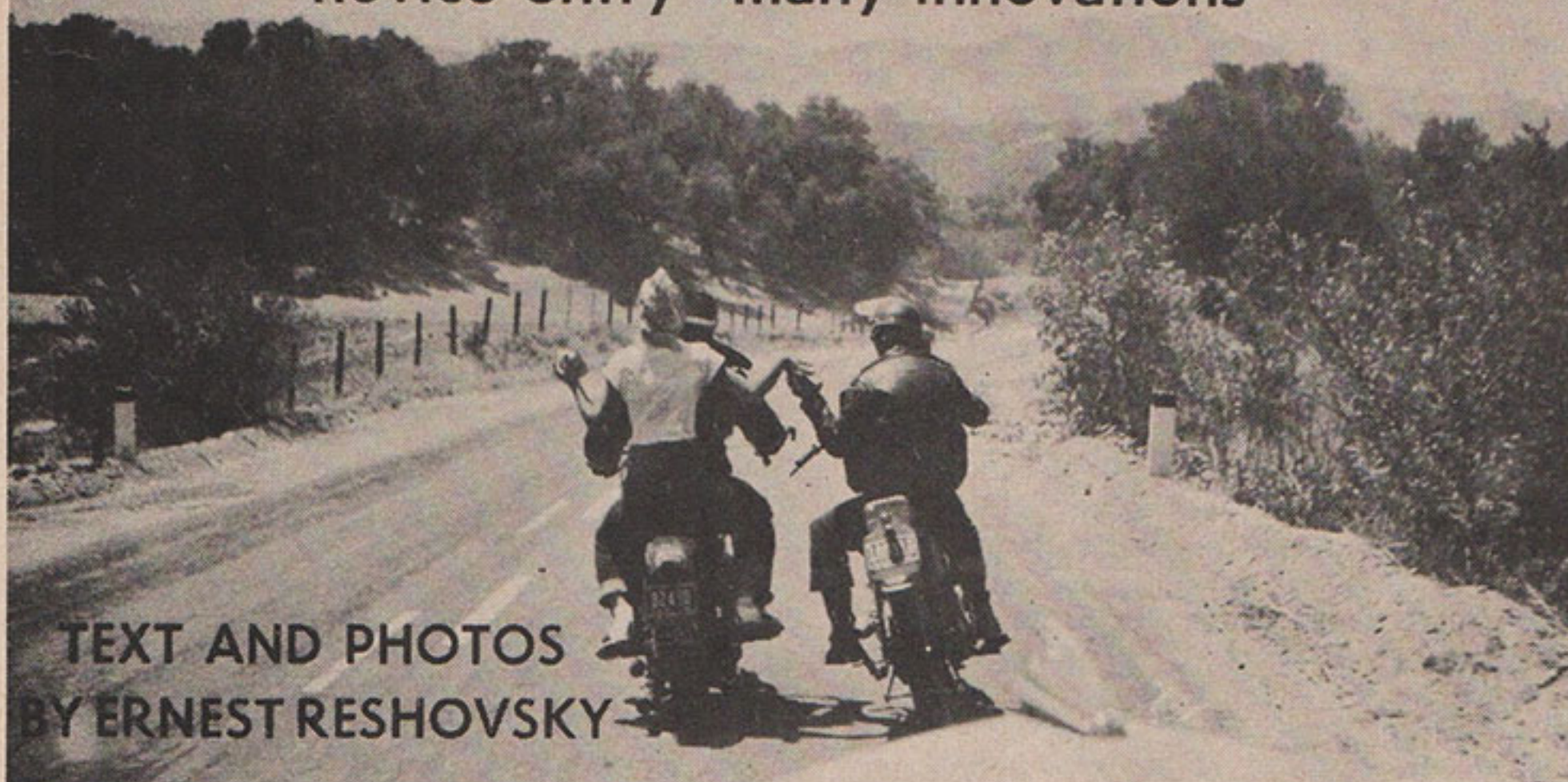
Authentic Jack Pine shot gives idea of the treacherous water crossings that typify this national enduro. A good tip for visiting competitors: wait for and follow a native across





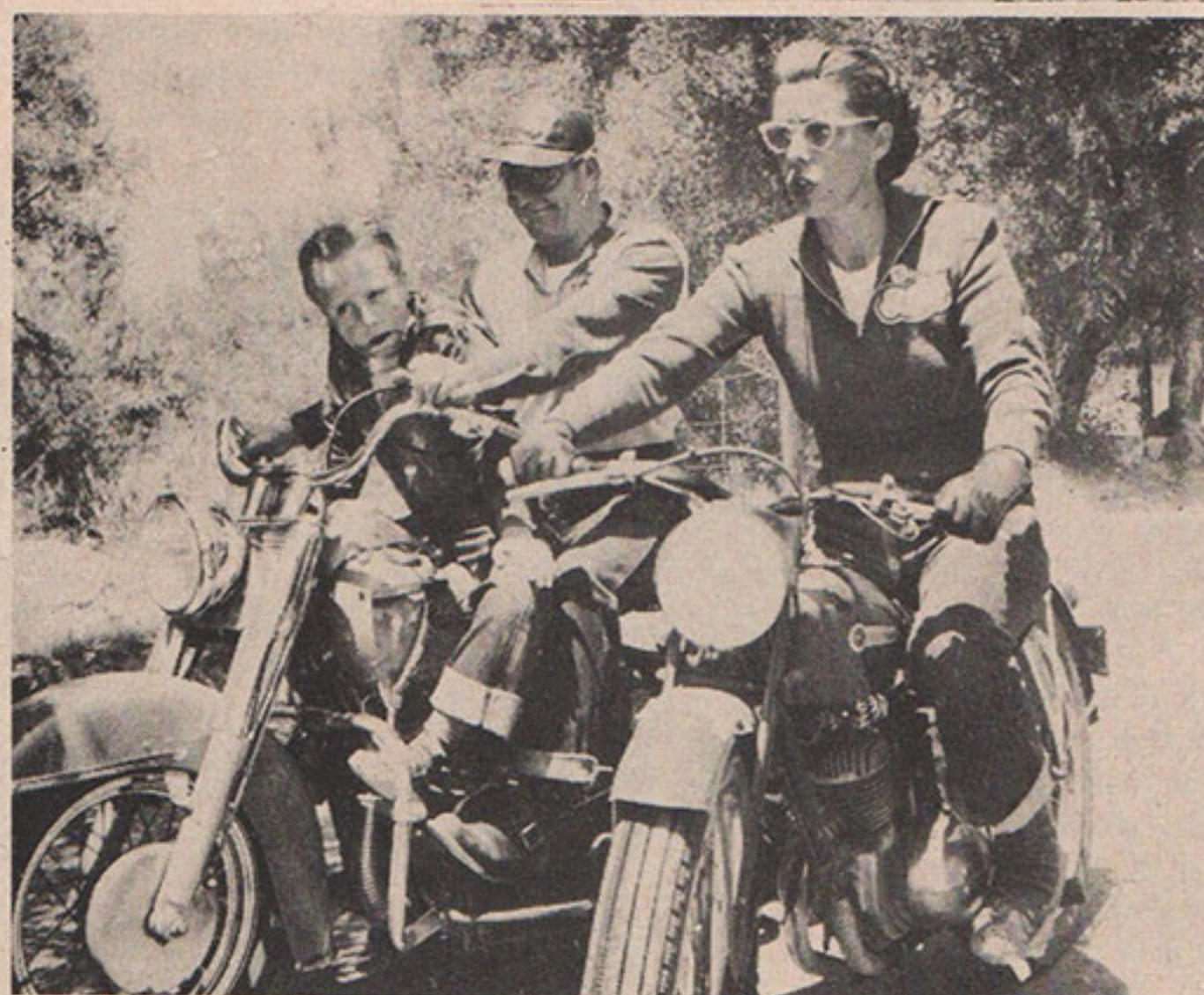
# LA GRAN CORRIDA DEL VENADA

rams pavement enduro pulls big novice entry—many innovations

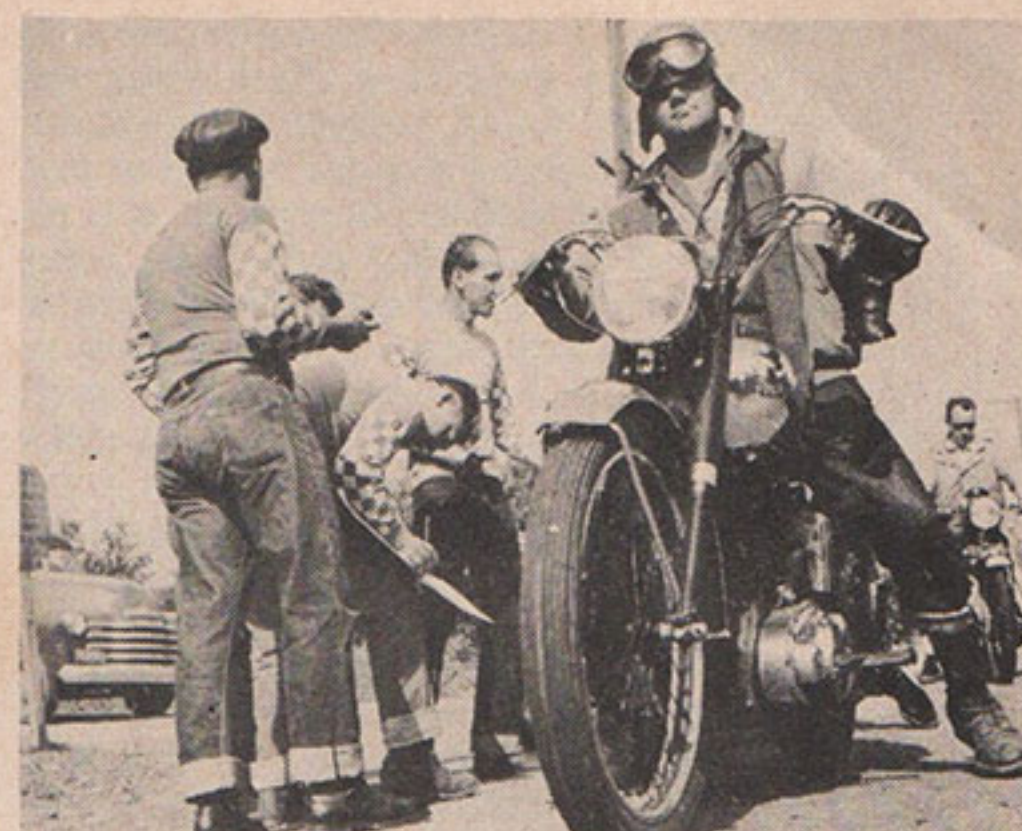


TEXT AND PHOTOS  
BY ERNEST RESHOVSKY

ABOVE, Pass the fruit please! This trio had a close call when, in the process of passing a peeled orange, they jostled together. Luckily, a quick recovery saved the day for them



Billie Cundiff warns her brood, "time's a wastin'—let's go!" Son Rocky needed little coaxing but papa Dick had the clock and, from his expression, knew what time it was. Billie had many frustrated moments on hills



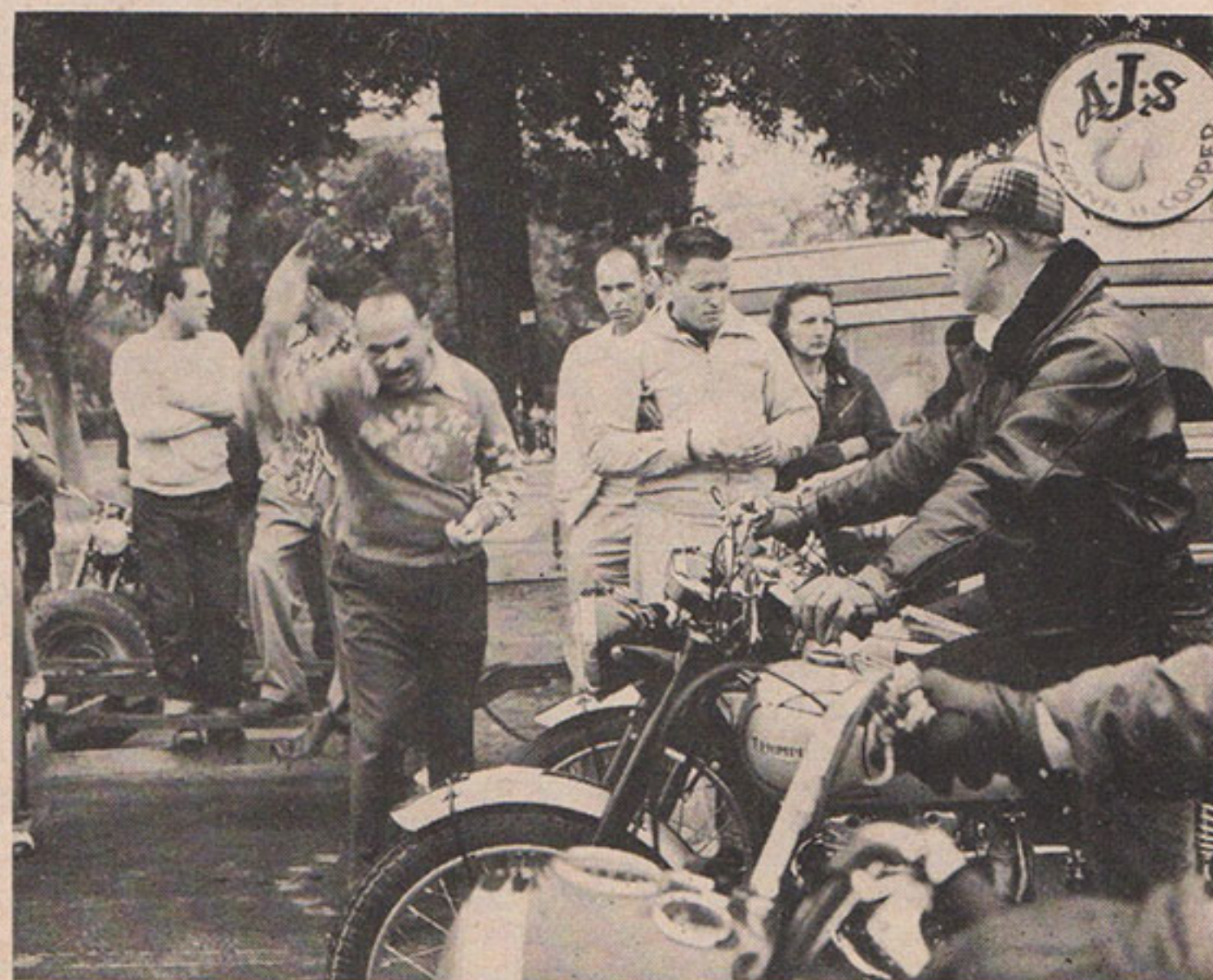
Who said these pavement runs are a pushover? This fellow, possibly a bit skeptical, came ready for any eventuality. Pavement's hard stuff

BEING A HOT SHOE rider is no longer necessary for winning an enduro. At least not in this newest type of enduro, which is rapidly gaining in popularity by putting the novices on equal footing with the experts. Proof positive came with the recent running of La Gran Corrida del Venada (Grand Tour of the Rams) when the first place winners, in both women's and men's solo events, turned out to be riders who had never before participated in competition. In doing away with the conventional type enduro contest, many members of the Rams M/C of Los Angeles had spent five weekends dreaming up a unique route from Los Angeles to the town of Laguna Beach. Since the run was held on a Sunday, when traffic was at its worst, as many towns and main arteries as possible were skirted.

The "Corrida," in which 275 contestants on 189 cycles participated, was routed over 130 miles of good secondary roads to keep novices and experts on equal terms; for approximately half of the entrants were not competition riders.

About twenty girls rode solo, while for many this was even a family affair, and the

LEFT, One of the sportin'est gals in So. Cal., Lucille Meeker, did dandy job riding a "Flash" but withheld her charms from beauty contest



Ram member Guy Louis, a fervent enduro rider himself, puts equal amount of zest in starting a formation of Triumph pilots on their way



**RIGHT,** It's time you learned how, son! This sincere youngster actually took over the route card-schedule. For several hours his word was law



**ABOVE,** There was no doubt about this lad's riding ability—you just don't drop things like that. The "piece de elegance" eventually came to a stop for want of gas but was soon under way with aid of passing cyclist. Easterner's cornering technique, at speed with an empty gas can dangling from one hand, was sight to see

**RIGHT,** Dipping into soda pop and surf, expert and novice enthusiastically bench raced together after racking up against the steep palisades. Beach was semi-private, rented for the occasion

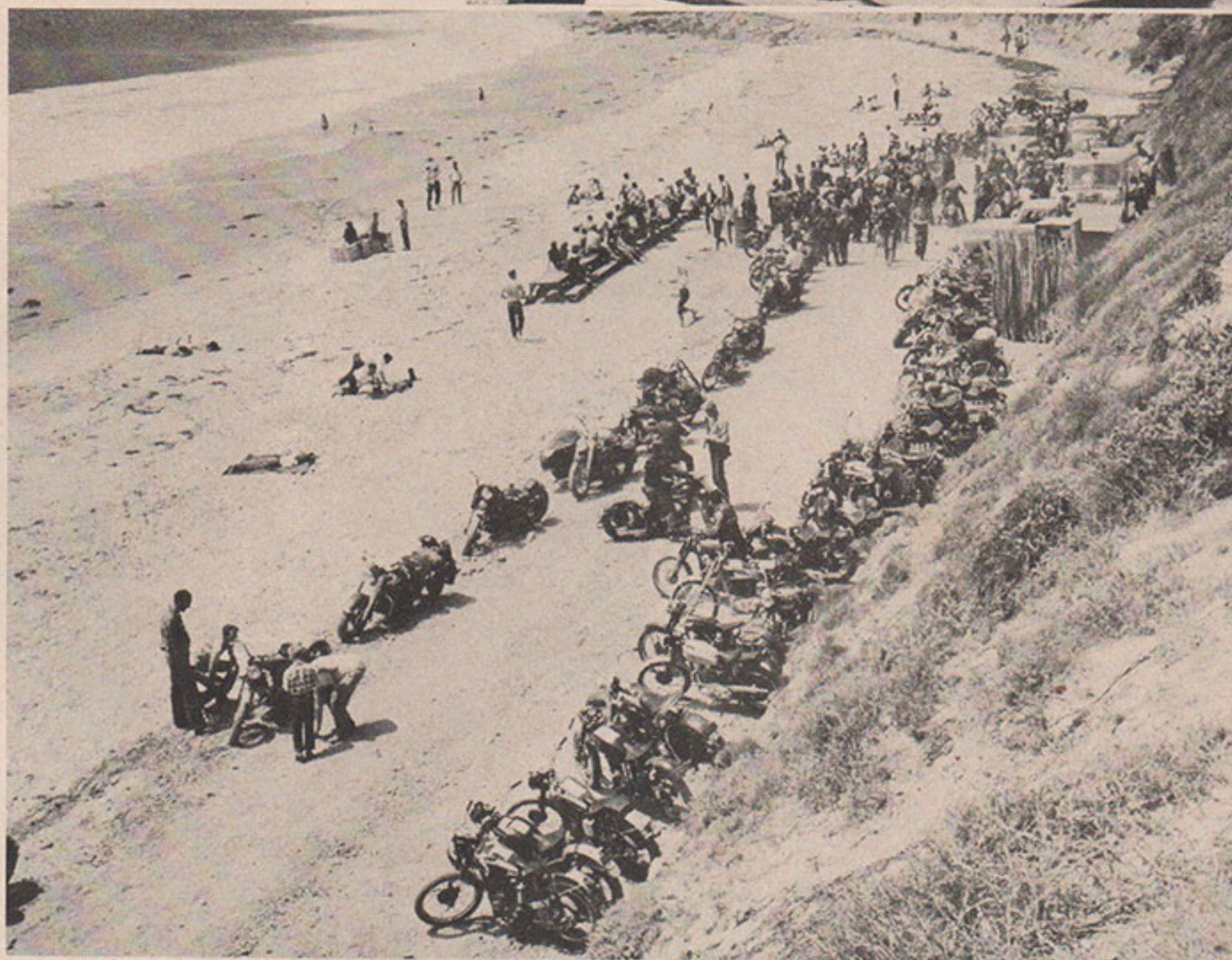
larger combos seemed to be having the most fun of all. Since this was primarily a pavement run it gave many families of riders a chance to participate en masse. In several instances a whole family rode on one cycle, usually with the husband piloting, his wife riding on the back saddle, and their small model straddling the gas tank. In another case, Pop toted his 8-year-old son on the big bike while Mama revved her 125 to the skies in an attempt to stay alongside. In all but the solo events, the co-pilots acted as navigators, keeping their drivers on the trail at what they thought was just the right speed by co-ordinating their cards and watches. One carefree father shrugged his shoulders, turned the whole navigation problem over to his 10-year-old son, and refused to do anything but pilot their hack-rig.

From their orderly curb-side lineup near the Coliseum, four riders per minute shoved off in an early morning haze, for destination unknown. Skirting the city in a round-about way, the run speeded up towards the first of five secret check-points.

Enduro riding in town is not the cinch that it might seem. Stop signals and traffic play havoc with time schedules. In addition to having all the checks secret, the sponsoring Rams had pulled another razzle-dazzle play. By shuffling the speed schedules rapidly and at random, sometimes as often as three times between checks, with no indication other than the mileage shown on the schedule cards, many were taken off guard. This made the usually prepared speed charts and special clock-board set-ups very nearly useless. Riders had to rely on their own judgment of speed; not knowing what time they were due in at the next check.

During the whole run, lime or other special markings were shunned, so that the destination cards, with their lightning-change schedules and quaint course descriptions, were the riders' only guide. The cards described the route to be followed easily and accurately by means of notations on visible landmarks. For instance, one of the cards read at one

(Continued on Page 34)



**RIGHT,** Part of the scenic back route closely resembling a Continental road race. Actually pavement riding is trickiest of all to master

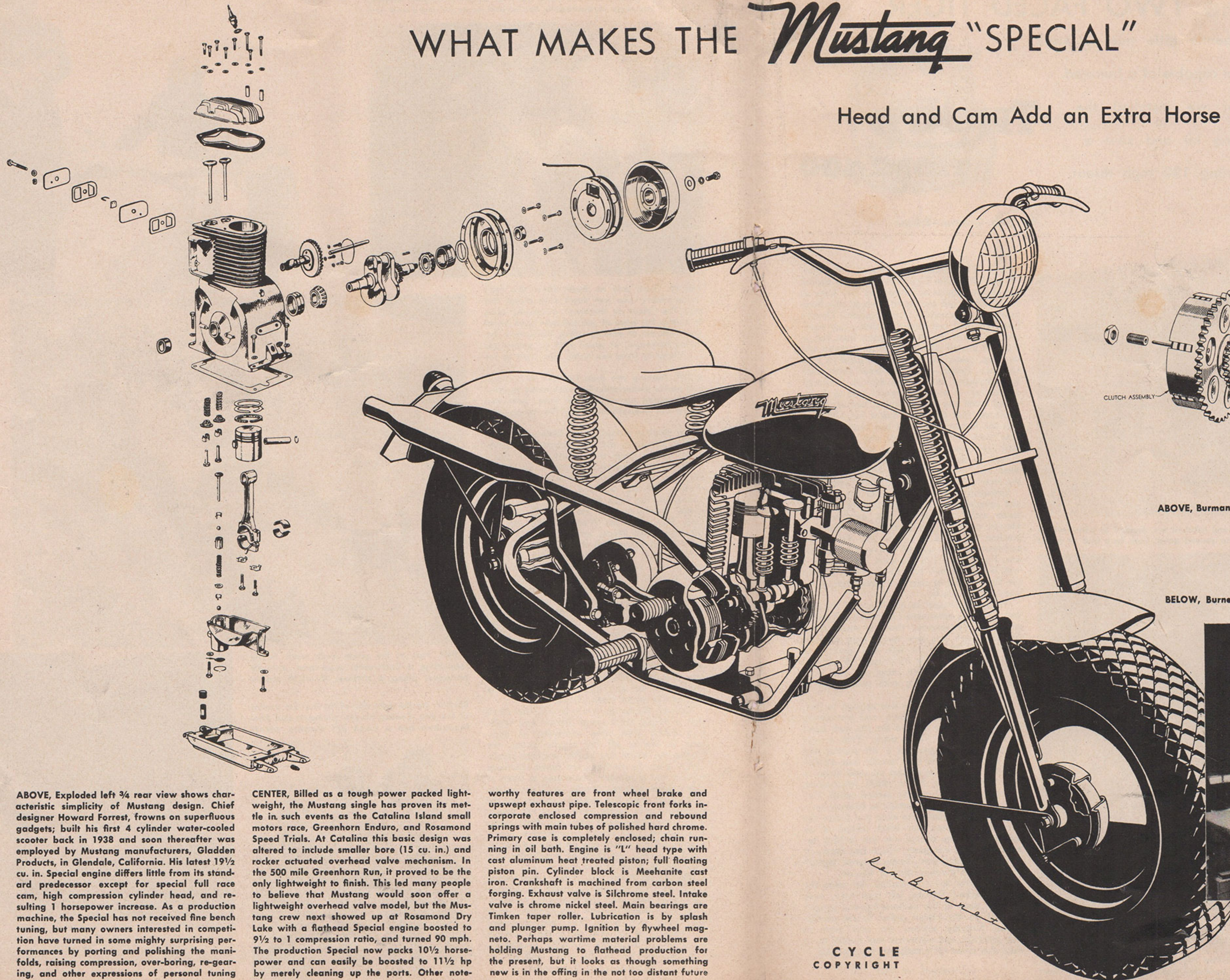
**BELOW,** On the right side of the law are queens of the day. Contest judges, pressmen and photographers had a tough job choosing winner





# WHAT MAKES THE *Mustang* "SPECIAL"

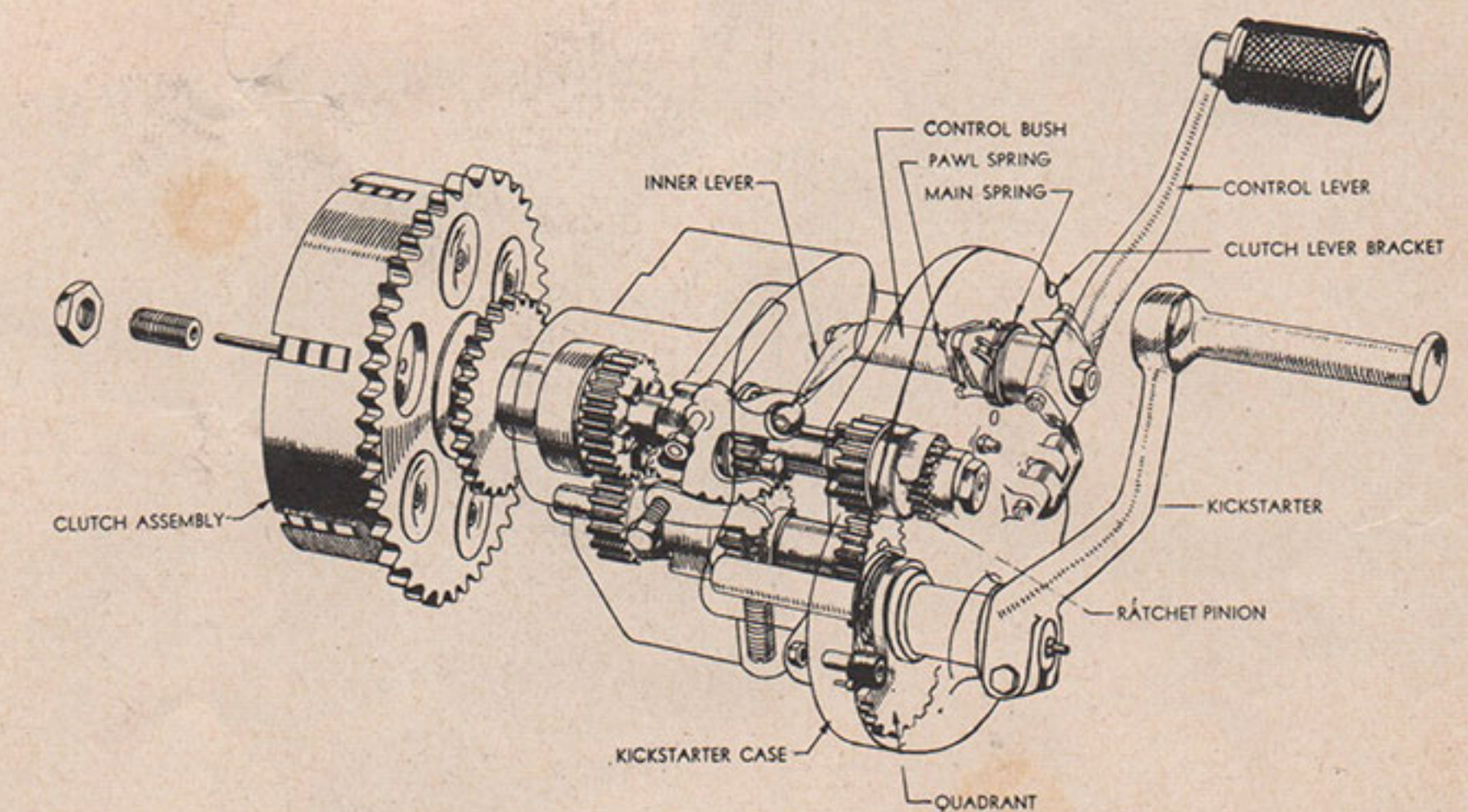
## Head and Cam Add an Extra Horse to the Mustang Stable



ABOVE, Exploded left 3/4 rear view shows characteristic simplicity of Mustang design. Chief designer Howard Forrest, frowns on superfluous gadgets; built his first 4 cylinder water-cooled scooter back in 1938 and soon thereafter was employed by Mustang manufacturers, Gladden Products, in Glendale, California. His latest 19 1/2 cu. in. Special engine differs little from its standard predecessor except for special full race cam, high compression cylinder head, and resulting 1 horsepower increase. As a production machine, the Special has not received fine bench tuning, but many owners interested in competition have turned in some mighty surprising performances by porting and polishing the manifolds, raising compression, over-boring, re-gearing, and other expressions of personal tuning

CENTER, Billed as a tough power packed lightweight, the Mustang single has proven its mettle in such events as the Catalina Island small motors race, Greenhorn Enduro, and Rosamond Speed Trials. At Catalina this basic design was altered to include smaller bore (15 cu. in.) and rocker actuated overhead valve mechanism. In the 500 mile Greenhorn Run, it proved to be the only lightweight to finish. This led many people to believe that Mustang would soon offer a lightweight overhead valve model, but the Mustang crew next showed up at Rosamond Dry Lake with a flathead Special engine boosted to 9 1/2 to 1 compression ratio, and turned 90 mph. The production Special now packs 10 1/2 horsepower and can easily be boosted to 11 1/2 hp by merely cleaning up the ports. Other note-

worthy features are front wheel brake and upswept exhaust pipe. Telescopic front forks incorporate enclosed compression and rebound springs with main tubes of polished hard chrome. Primary case is completely enclosed; chain running in oil bath. Engine is "L" head type with cast aluminum heat treated piston; full floating piston pin. Cylinder block is Meehanite cast iron. Crankshaft is machined from carbon steel forging. Exhaust valve is Silchrome steel. Intake valve is chrome nickel steel. Main bearings are Timken taper roller. Lubrication is by splash and plunger pump. Ignition by flywheel magneto. Perhaps wartime material problems are holding Mustang to flathead production for the present, but it looks as though something new is in the offing in the not too distant future



ABOVE, Burman 3-speed box made for Mustang

BELOW, Burnett, left, quizzes mgr., Fred Wohl



Photo by Felix Zelenka

CYCLE  
COPYRIGHT



# The TWO FACED TIGER

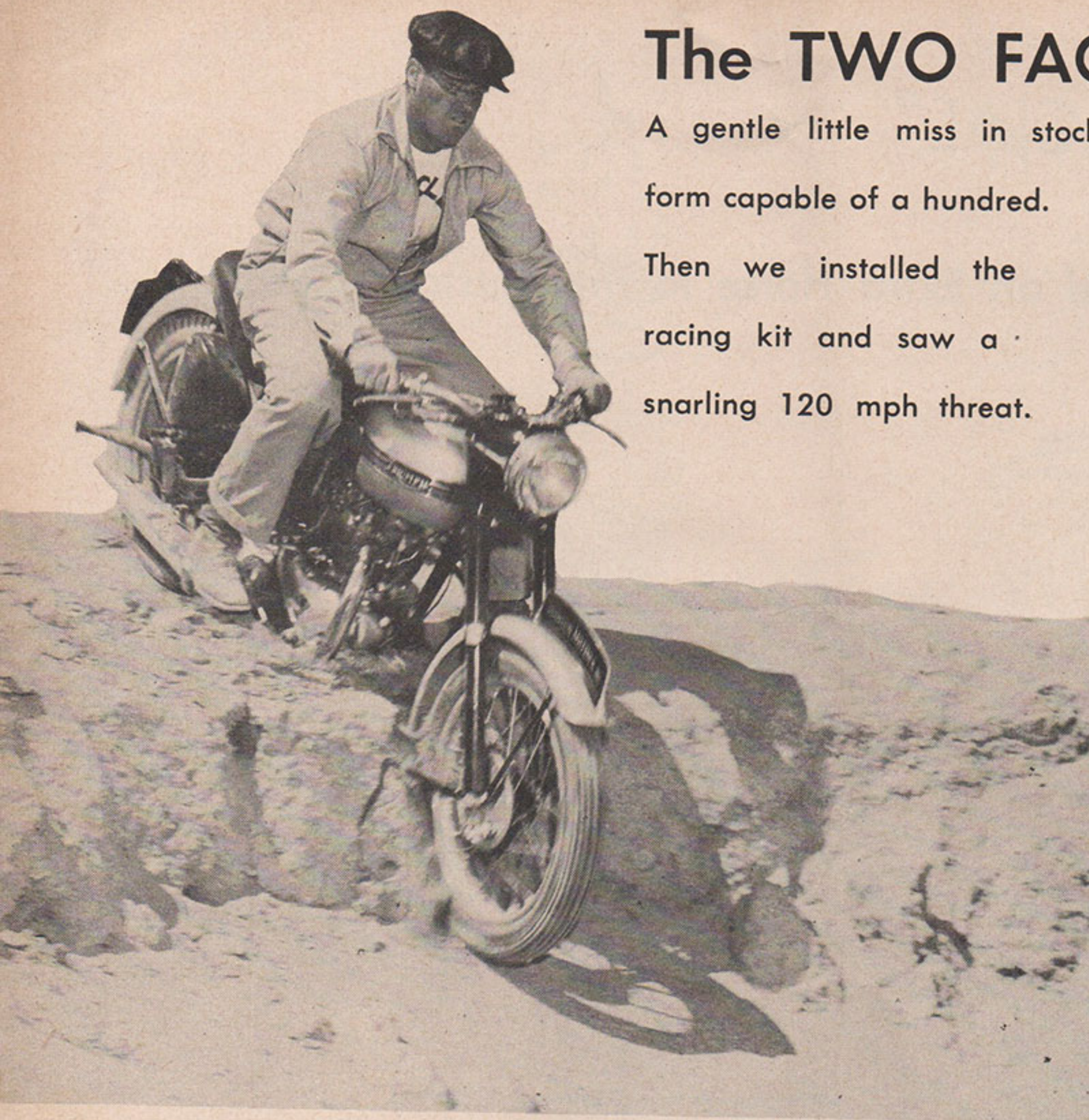
A gentle little miss in stock

form capable of a hundred.

Then we installed the racing kit and saw a snarling 120 mph threat.



by Bob Greene—Editor



ABOVE, Deviating from the monotonously smooth Rosamond lakebed we decided to give forks a chance to react with a few vertical stepdowns. Fork action proved good, both here and at speed



The start of an intensive four day test. Broken ground riding indicated rear spring hub needed beefing up to properly absorb 200 lb. rider when pushed hard and fast. Engine stayed very clean

THE STRANGE intermittent "blat-blat-blat" from the Tiger's twin funnels rocked the absolute quiet of Rosamond Dry Lake as we huddled cold and hopeful about this businesslike but beautiful little speedster. Dawn's first light had just begun to throw our shadows far across the smooth desert lake bed as the bike moved off for an initial warmup and test hop, under the experienced hand of Pete Coleman, former world renowned short track star employed by Johnson Motors, Triumph distributor. It was our second trip to Rosamond with the Tiger, and I had wishfully predicted that the twin might hit 118 now that the factory racing kit had been installed. The week previous, before the stock Tiger mill had been altered, this same bike had turned a startling 101.4 mph and now we were back to see just how much extra urge the factory offered in their \$154.00 speed kit.

Coleman soon returned from the warmup and several test rides were made through the tenth mile trap before the machine was handed over for my first attempt. She had reached 113 mph with No. 190 jets in the carburetors, then topped 116 using No. 180 jets. Finally No. 170 jets were inserted and I was heading down toward the other end of the flat expanse to take full advantage of the one-mile approach.

Wheeling around on the fringe of the lake bed, I quickly recounted Coleman's last words of advice. "Remember that she shifts down for high with this new racing type reversed shift pedal. Watch the tach and don't make your shift till you hit 6500 rpm. When you drop into high, flatten clear out and grab the left front fork leg with your hand to reduce drag."

The instant the power was applied in low, I felt the front end lighten, and fortunately looked up just in time to see the tach hand moving past the 7000 mark. That terrific surge came on again as I hit second cog and once more the tach needle rose swiftly past 6000 rpm. The special kit cams came in like a bomb just below 4000 revolutions, giving the bike a terrific second wind. The feeling might be comparable to turning on a ram jet at just about the time you figure the fireworks are over. The black ribbon of tar that marked the course was just a blur beneath, and the test party, which had been out of sight up until now, began to grow rapidly in size, as if given a shot of Vigoro.

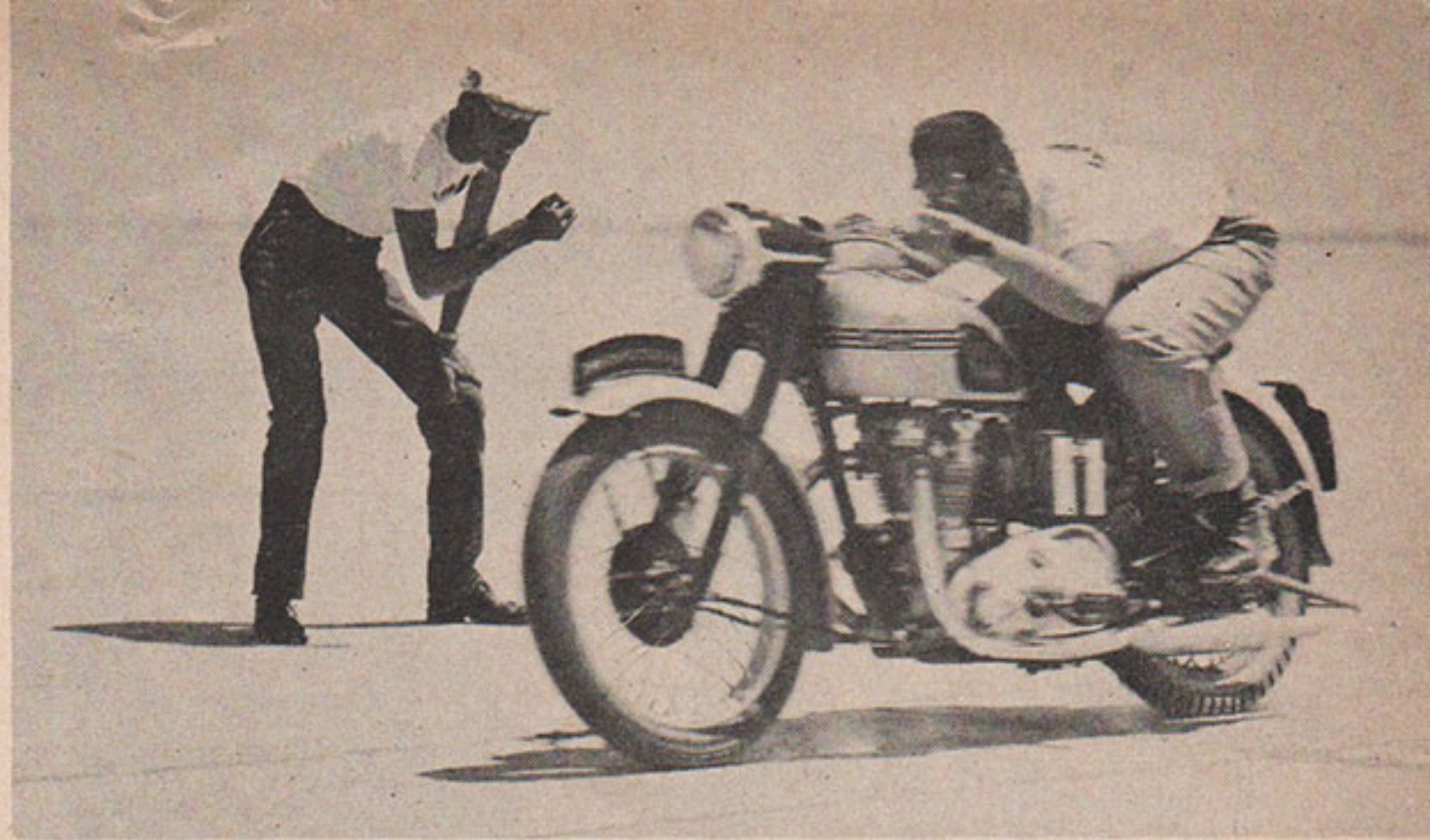
Two shifts later, I mashed flat onto the tanks, reached for the left fork tube, took one last peek at the tachometer, and guided straight on the rubber pylon course marker ahead. Steering seemed too easy even in this position, and vibration was hardly more than that of an old treadle sewing machine.

(Continued on Page 32)

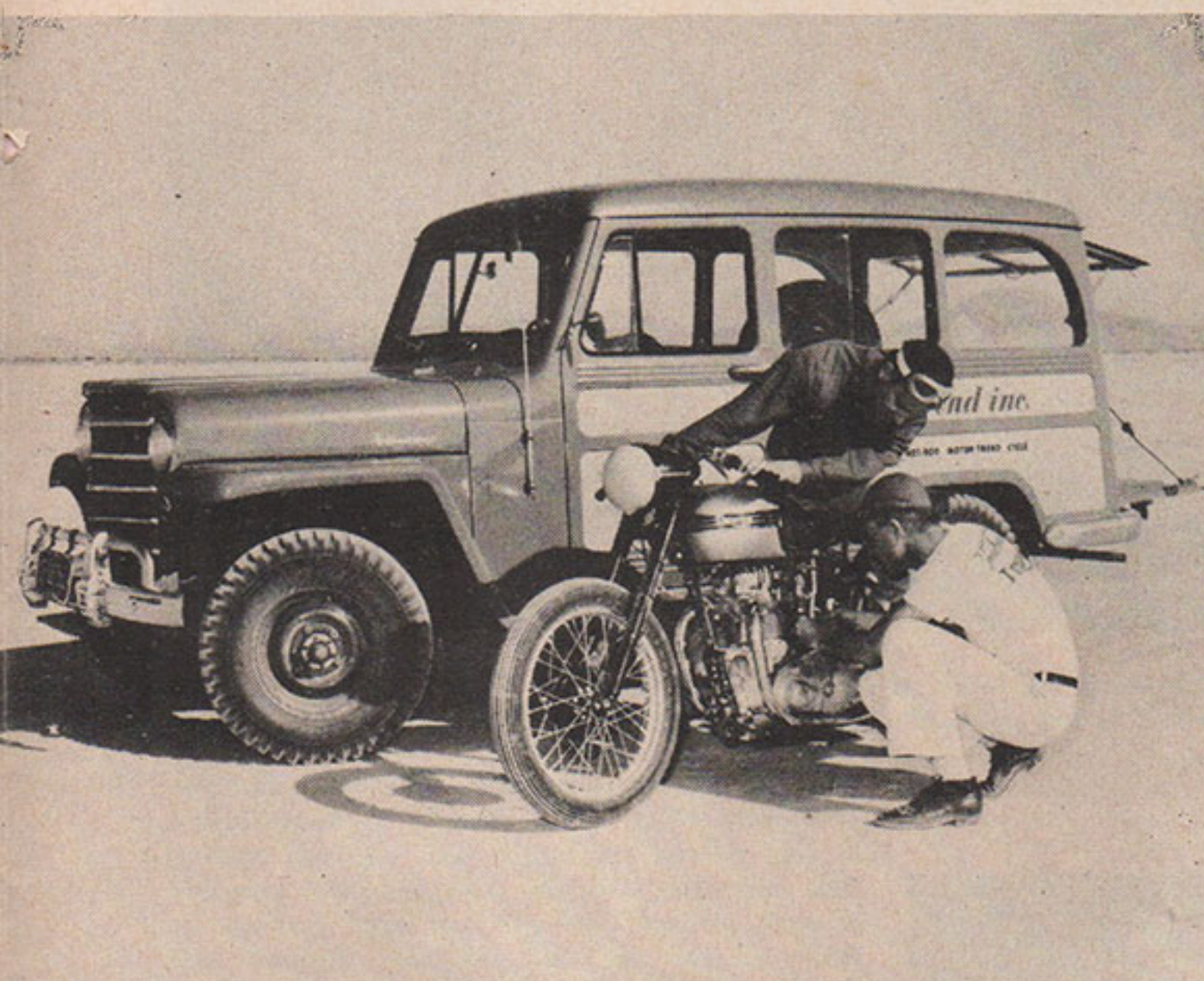




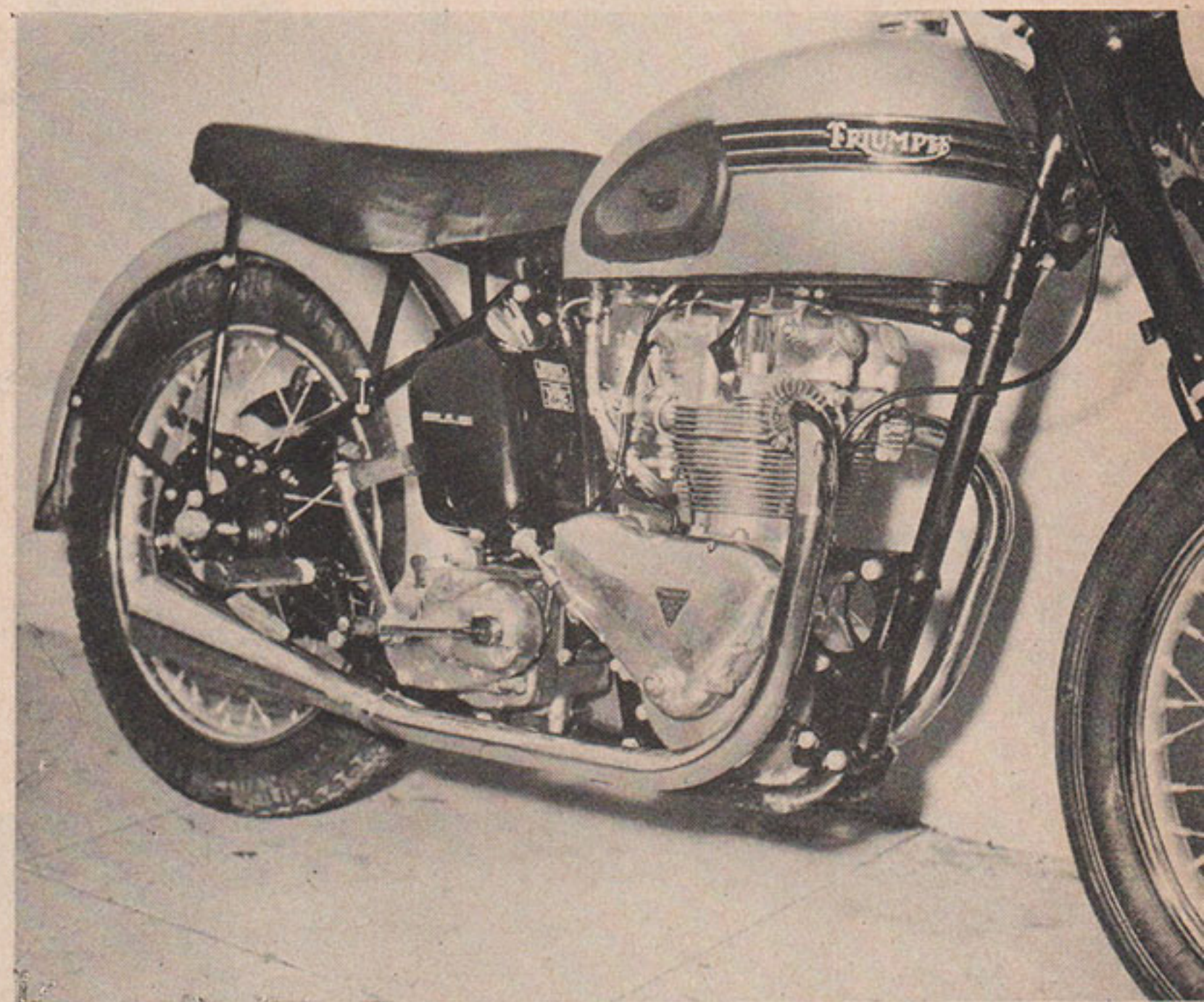
Whoa, Nellie! A soft, steep sand hill almost separated us. In this instance the air cleaner came in for its own generous test. Triumph's wire mesh filter is cleverly tucked clear out of the way behind the oil tank



Clock watcher, Ray Bowles, puts down on the Tiger as she whisks through an acceleration trial. Substantiating the big 120 mph run was fact that three individually operated watches read identically the same



Only alteration that was made at lakes was changing of carburetor jets by Pete Colman. Front fender had been removed previously to simulate racing trim. Motor was exceptionally well mannered despite hot cams



Alloy barrels with close pitch finning telegraph sound little more than iron cylinders but allow more efficient cooling, are lighter, create better appearance. This engine never overheated

## General Specifications

**ENGINE.** 30.397 cu. in. (498 cc) vertical twin OHV design; 2.48 in. bore x 3.15 stroke (63 mm x 80 mm); compression ratio 7.6 to 1. Engine develops 32 bhp at 6500 rpm. Totally enclosed valve gear with positive lubrication, twin gear driven camshafts. Rigid crankcase of high tensile aluminum. "H" section connecting rods with plain big-ends; crankshaft mounted on massive ball and roller bearings with center flywheel. Pressure indicator on timing cover. Gear driven magneto and separate generator. Cylinder head and barrel are all alloy, die cast and with smooth, close pitch finning. High compression pistons are fitted, and all moving internal parts are highly polished. 22 tooth engine sprocket.

**CLUTCH.** Heavy duty five-plate, running in oil bath.

**DRIVE.** 1/2 in. x .305 in. front in oil bath. 5/8 in. x 3/8 in. rear. Positively lubricated and protected on both runs.

**TRANSMISSION.** Four speed foot control box shifts down for low. Gear ratios: low—12.20, second—8.45, 3rd—5.95, high—5.00. Large di-

ameter shafts and gears of hardened nickel and nickel-chrome steel. Special dogs and easy changing.

**LUBRICATION.** Dry sump type with high capacity plunger pumps giving positive feed to big ends and valve gear.

**IGNITION.** High efficiency B.T.H. magneto.

**ELECTRICAL.** Lucas 6 volt, 60 watt generator with full ball-bearing armature. Powerful built-in head lamp. Electric horn.

**FRAME.** Brazed full cradle type with large diameter front down tube.

**EXHAUST.** Twin headers and mufflers, low sweep standard. High quality plating.

**FORK.** Telescopic type with 6 inches of hydraulic dampened movement.

**HANDLEBARS.** Low type moderate bend. Quick action twist grip throttle with finger adjustment friction control. Left bar has clutch and spark. Right bar has front brake lever and dimmer switch.

**TANKS.** Fuel capacity 4 gallons, oil tank capacity 6 pints.

**FENDERS.** Wide "D" section with streamlined

stays. The rear mud guard detaches completely. **SADDLE.** Special twin seat of Triumph design provides attractive alternative to the normal saddle and pillion combination. Saddle contains no springs but has deep latex foam cushioning covered with black Vynide resembling leather. **BRAKES.** Cast iron drum in front, and finest quality linings. Finger adjustments back and front. Polished front brake anchor plate.

**WHEELS & TIRES.** Triumph design wheels with heavy duty cad plated spokes. Dunlop tires are 3.25 x 19 front, and 3.50 x 19 rear.

**STARTER.** Non-folding kick pedal on right side.

**EQUIPMENT.** Generous triangular tool box on right side with adequate tools. Center and side stands. Chronometric speedometer with rpm scale for each gear. Tire pump, air cleaner, luggage carrier on tank, front license plate.

**WEIGHT.** 355 lbs. dry.

**WHEELBASE.** 55 inches.

**OVERALL LENGTH.** 84 inches.

**OVERALL WIDTH.** 28 1/2 inches.

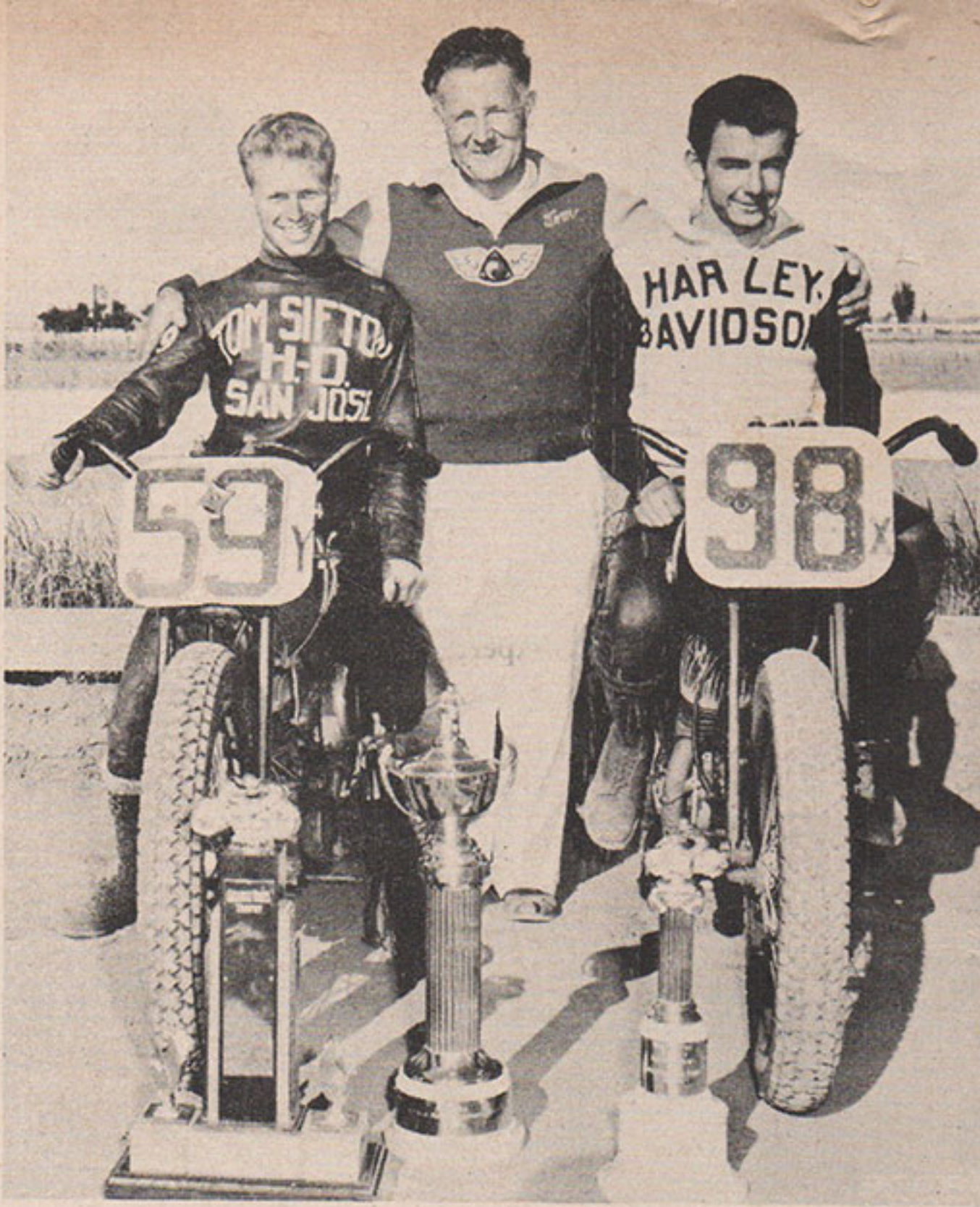
**GROUND CLEARANCE.** 6 inches.

**SADDLE HEIGHT.** 31 inches.



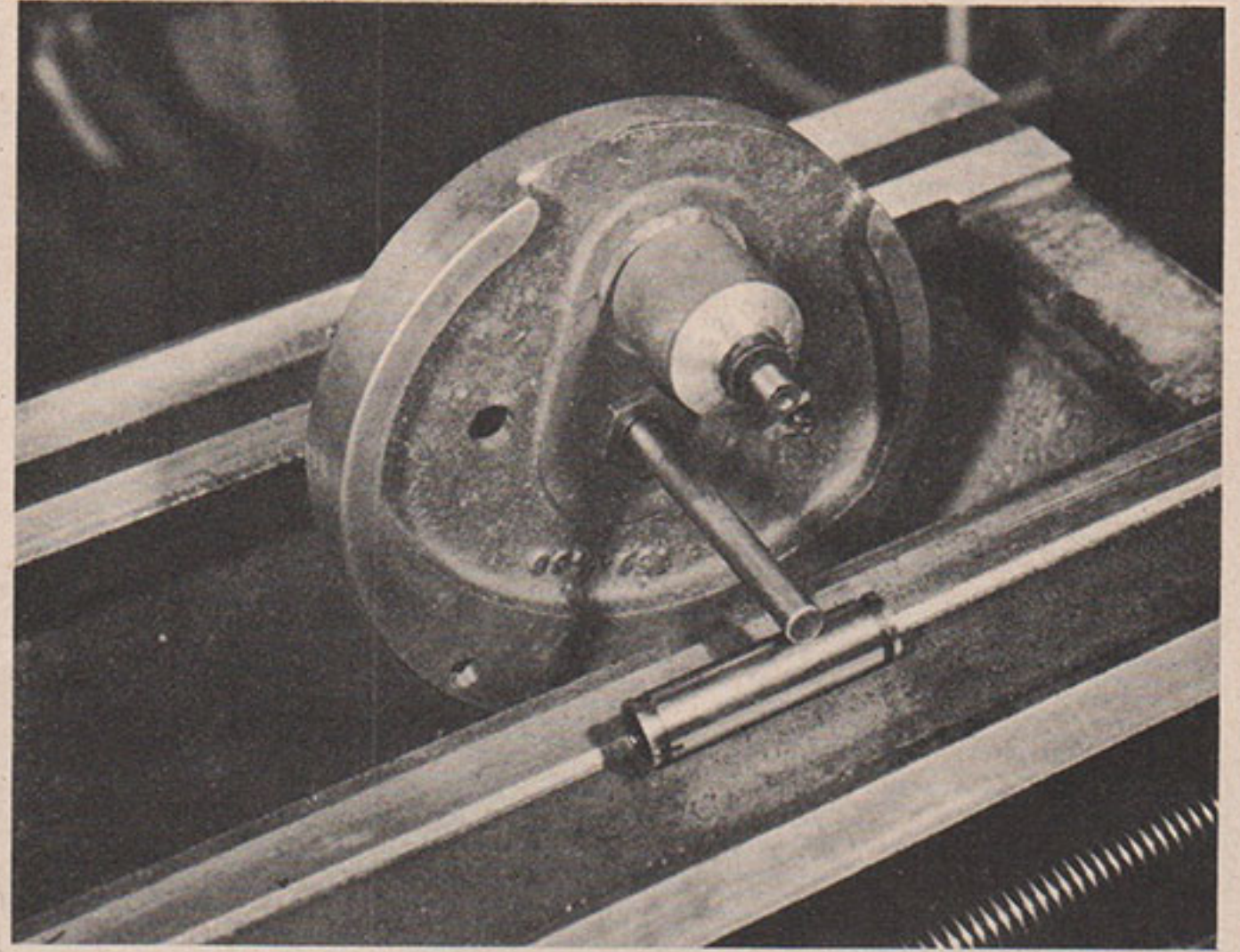
# MASTER of the MILE

by Tom Sifton as told to Bob Behme



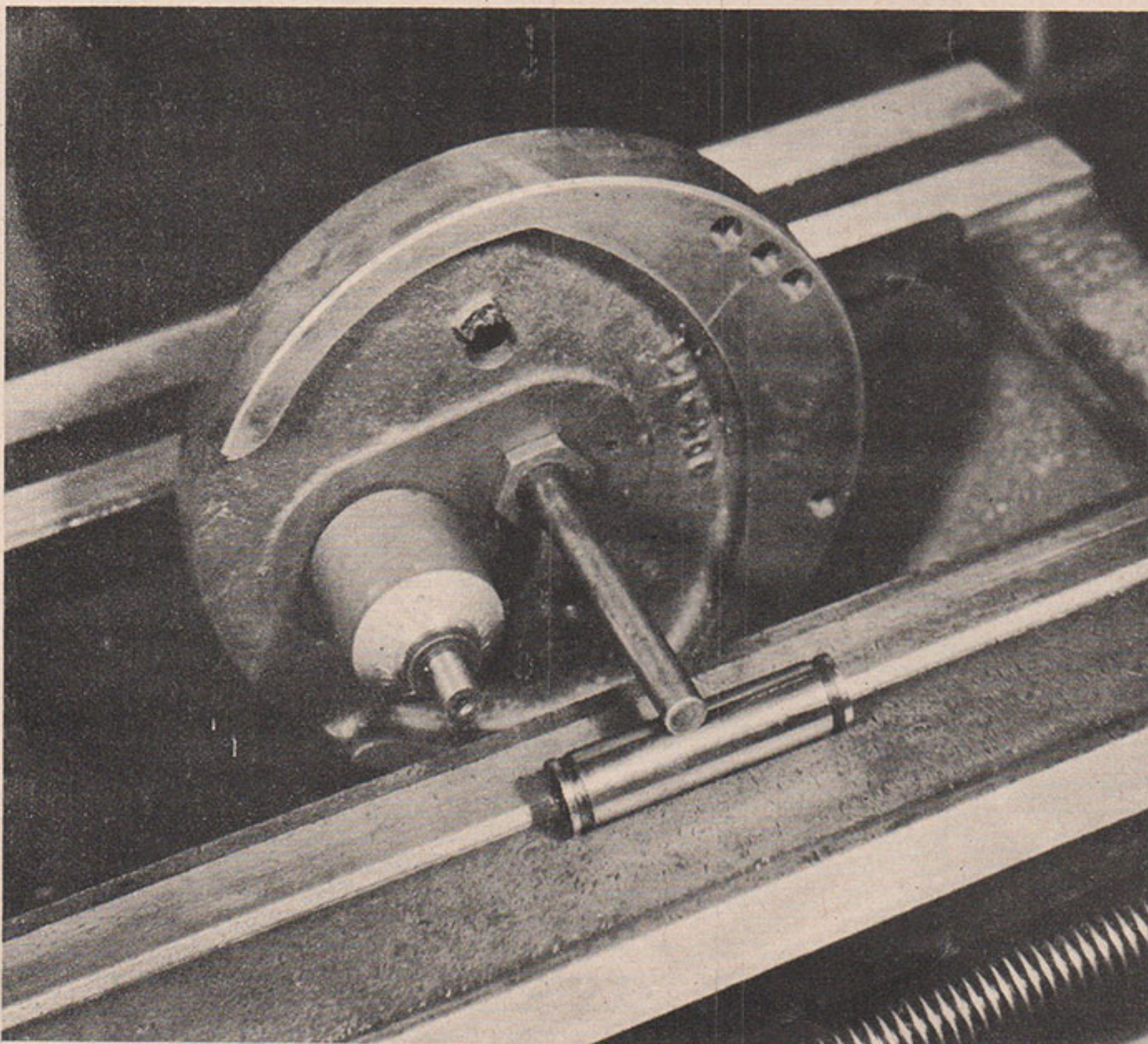
Besides understanding the fine inner workings of the reciprocating engine, Tom has a way with his two proteges Kenny Eggers and Joe Leonard

**WHY DO TOM SIFTON'S BIKES GO?  
MAYBE THIS IS THE ANSWER . . .**



Balancing the flywheel is conveniently done on the bed of a lathe. This wheel is out of balance, heavy counterbalance side must be lightened

(Tom Sifton, San Jose, California, Harley-Davidson sales representative, is best known as one of the country's most capable tuners. His impressive record includes such winners as Sam Arena, Gus Hunter, Jim Young, Al Rudy, Larry Hedricks, Kenny Eggers and Joe Leonard. Sifton was asked, "How do you tune a bike for a mile race?" His answer is printed below—ED.)



Note holes drilled in flywheel counterweight to complete balance after correct weight is added to crankpin side. A standard crankpin and nut with sufficient concentric washers make good weight

ONCE YOU'VE started racing the mile, you'll never have as much fun in any other contest. In the mile, it's not the top speed that counts as much as how fast you can get around the track. It means having a bike that is tuned for the track, atmosphere and distance. It involves taking a good bike and making the manufacturer's tolerances tighter. It means matching bike and rider to track.

The winning rider has a bike that is the best he can build. He knows that even a stock racer is not good enough.

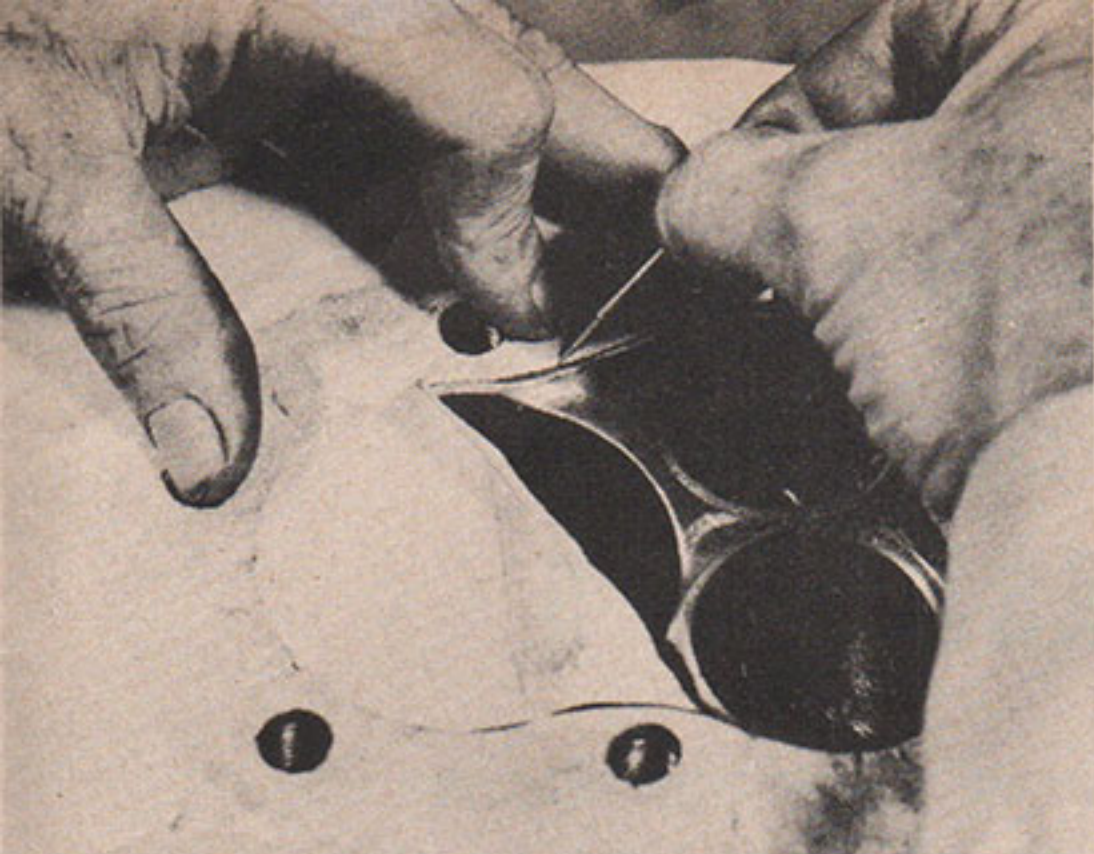
Whether the rider is an amateur, novice or expert, the competition is tough. Over 4000 riders are eligible and registered for competition events every year and only the best riders on the best bikes have a chance.

There is a big difference between road bikes and their racing counterparts. In the Harley, the road bikes weigh 460 pounds, while the racing rigs now check in at about 340 pounds. Main bearings on all racing models are ball bearings instead of roller bearings. Rod bearings, however, are roller.

The first thing to do to a racing bike is to start shedding weight. On most models footpegs have been substituted for foot boards. If not change them fast. Use the smallest fenders and guards permitted under AMA rules. Once the weight is down to minimum, start checking the machine.

The first move is to correct wheel alignment. Wheels must be true and turn free and easily without sway or binding. Line up





Sifton matches the combustion chamber alignment of head and cylinder by use of a template and scribe. The excess metal is then removed

the rear wheel and the chain accurately, constantly adjusting until there is no whip in the chain action. The best lubricant for wheels is petroleum jelly or a thin wheel grease of the same consistency.

Next go to work on the motor. I do not believe in changes which deviate far from the factory recommendations, but prefer to confine the factory tolerances to even greater accuracy instead.

Remove the head and check it to see that the relief on the top of the head matches the valves perfectly. To do this, make a template of the block pattern by setting a piece of paper over the top of the block, pressing gently along the lip with your fingers. Then cut out along the line and place the template over the inside of the head.

At any spot along the head where the relief does not match, scribe a line and machine out the head to the line, otherwise, the lip, projecting where the two do not match, will have a tendency to hinder the free flow of gases, thereby reducing the full effect of the combustion chamber.

For a while I played with different head designs trying for higher compression, the main idea being to get the maximum compression without restricting the flow of gases from valve chamber to cylinder and vice versa. The factory has been concentrating on head design and constantly experimenting, with the result that the 1951 heads are as good or better than any we have developed.

American side valve motors are permitted to carry an 8 to 1 compression ratio, the same as British machines, but in practice we have found it impossible to design a combustion chamber of that compression that is efficient. Our present jobs run about  $6\frac{1}{4}$  to 1 when we have achieved proper head contour.

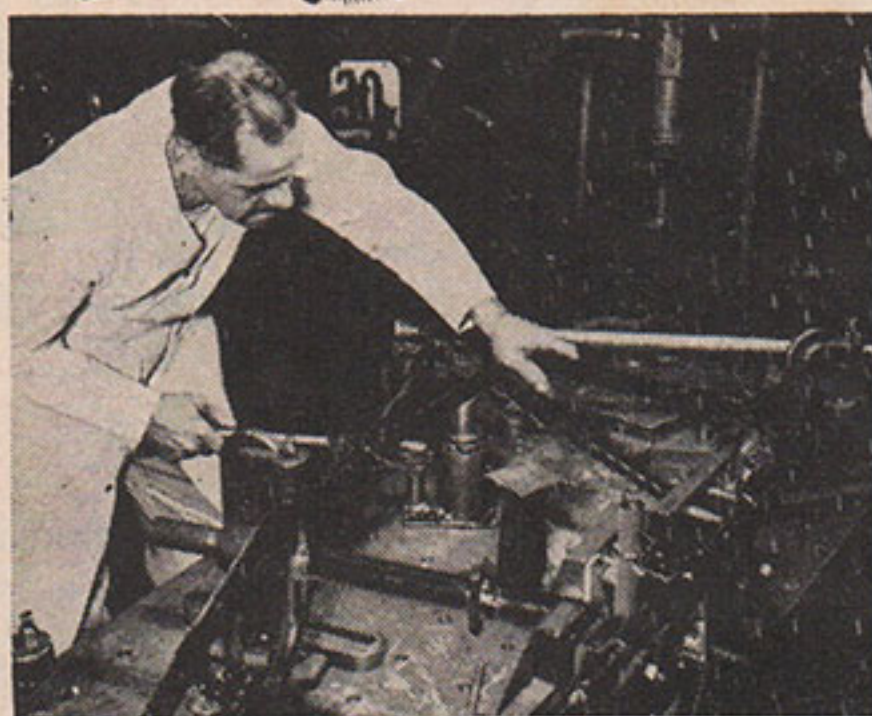
Wrist pin bushing clearances are vitally important. The holes must be round and parallel to the crank pin. Piston pin clearance should be  $\frac{1}{1000}$ ", since piston alignment is totally dependent upon the piston pin fit.

Valve spring pressure should be measured on a gauge tester and religiously checked in at not less than 160 pounds for Harley factory specifications. Tension should be checked carefully. Measure the valve spring pressure at  $\frac{1}{32}$ " before the collapsed length as it is used in the engine—not at the full collapsed length.

Many novices seem to feel that the more hacking they do to their engines, the faster they will go. This is not always so. You shouldn't so much as change a gasket until you have a definite, well-grounded idea.

In our shop we get new ideas every week. If one idea out of every 10 we fabricate proves usable, we've struck it rich. A good example of this is an incident that happened to me. A friend of mine is an aerodynamics engineer, well versed in the mechanical equipment on power packed motors where speed and

(Continued on Page 33)



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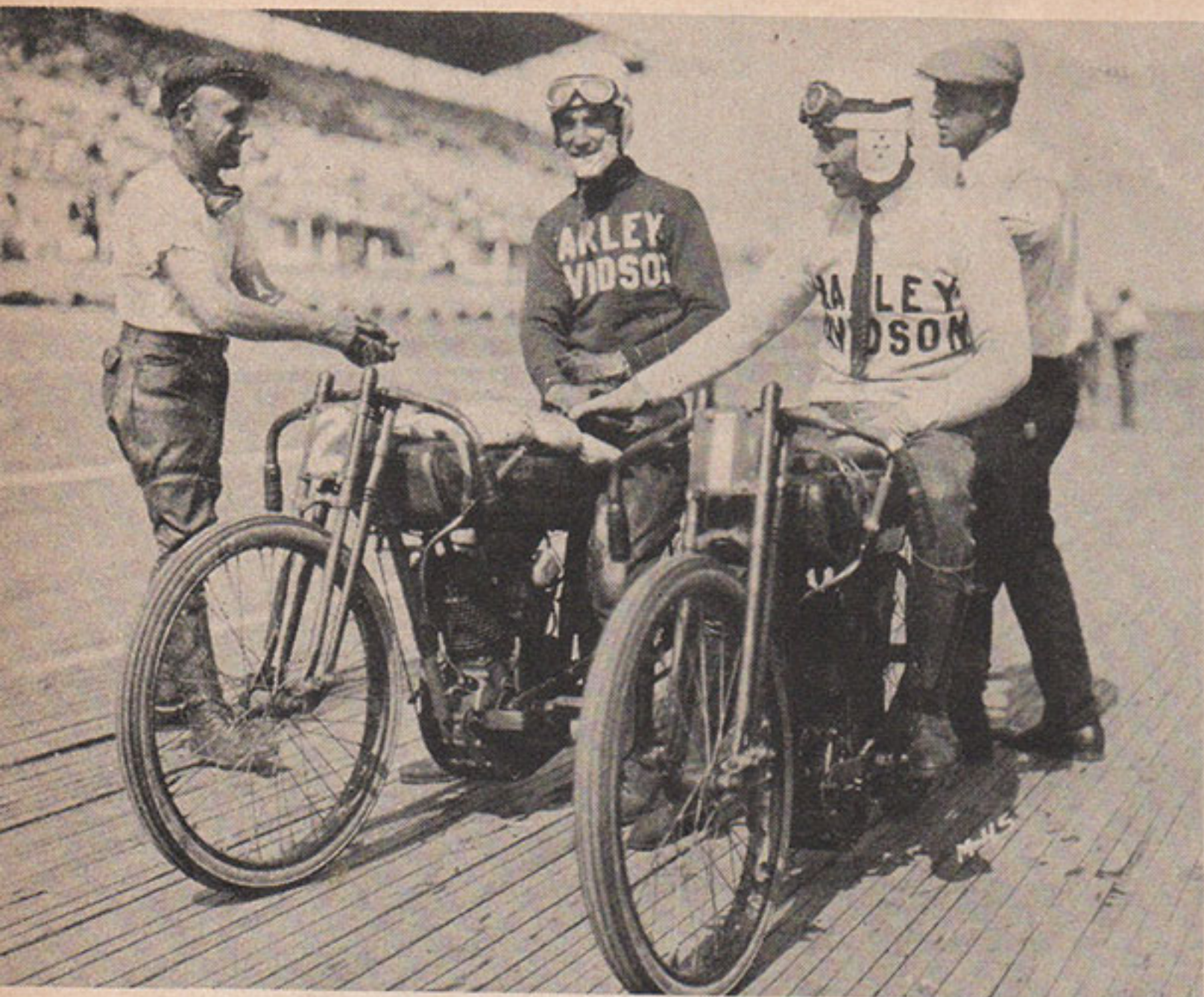
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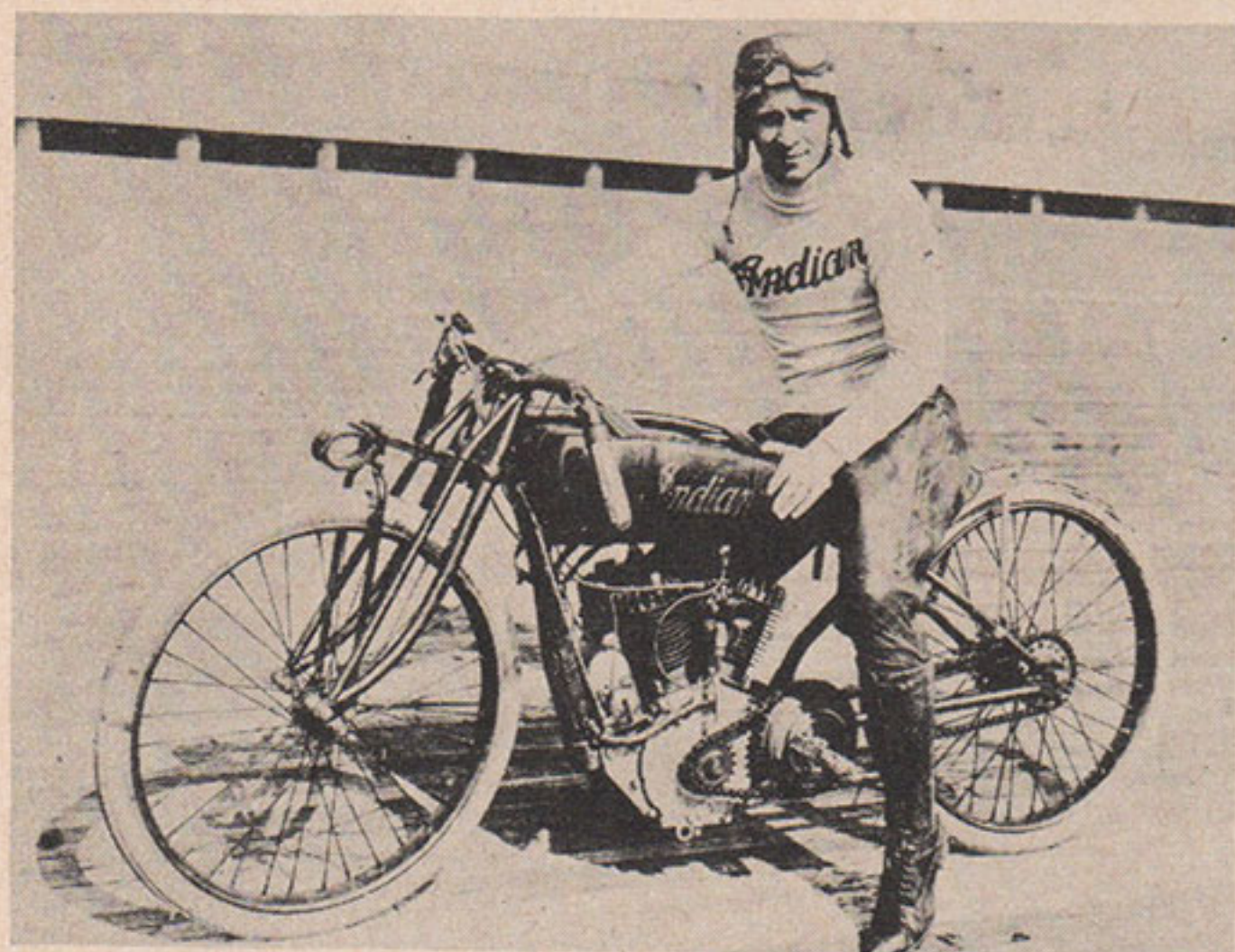
# RIM RIDERS of the ROARING 20'S

They Thundered Over the Planks at  
120 in the Golden Age of Racing

by J. L. Beardsley



ABOVE, Jim Davis and Ralph Hepburn with Bill Ottoway, Har-Dav. engineer, at Kansas City. Rider at left not identified. Note padded tanks



ON THE FIRST BIG board track ever built (the old Playa del Rey near Los Angeles), Lee Humiston cut loose on his Excelsior back in December, 1912, and did a mile in 36 seconds, the first to reach 100 miles an hour on two wheels—and a new speed era had dawned.

Motordromes, dirt tracks, and road races had spread the thrill of a cycle contest to the whole country by 1915; with the 2 mile Maywood Speedway at Chicago, the Sheepshead Bay saucer of equal size on Long Island, and another just completed at Tacoma. The thunder-bikes took to these high-banked board auto tracks, and pro throttle-twisters soon were challenging for top honors in a world of speed.

Class A professional racing was a big-time sport in 1915, when Harley-Davidson brought out their 8 valve racing jobs, and a salaried team of brilliant stars such as: Otto Walker, his brother Gene, Ralph Hepburn, Red Parkhurst, "Shrimp" Burns, Ray Weishaar, Joe Wolter, Bill Brier, Harry Crandall, and Ralph Cooper.

Under the Indian bonnet was: Morty Graves, Curly Fredericks, Earle Armstrong, Speck Warner, Glen "Slivers" Boyd, Eddie Hasha, Ray Seymour, and Don Johns.

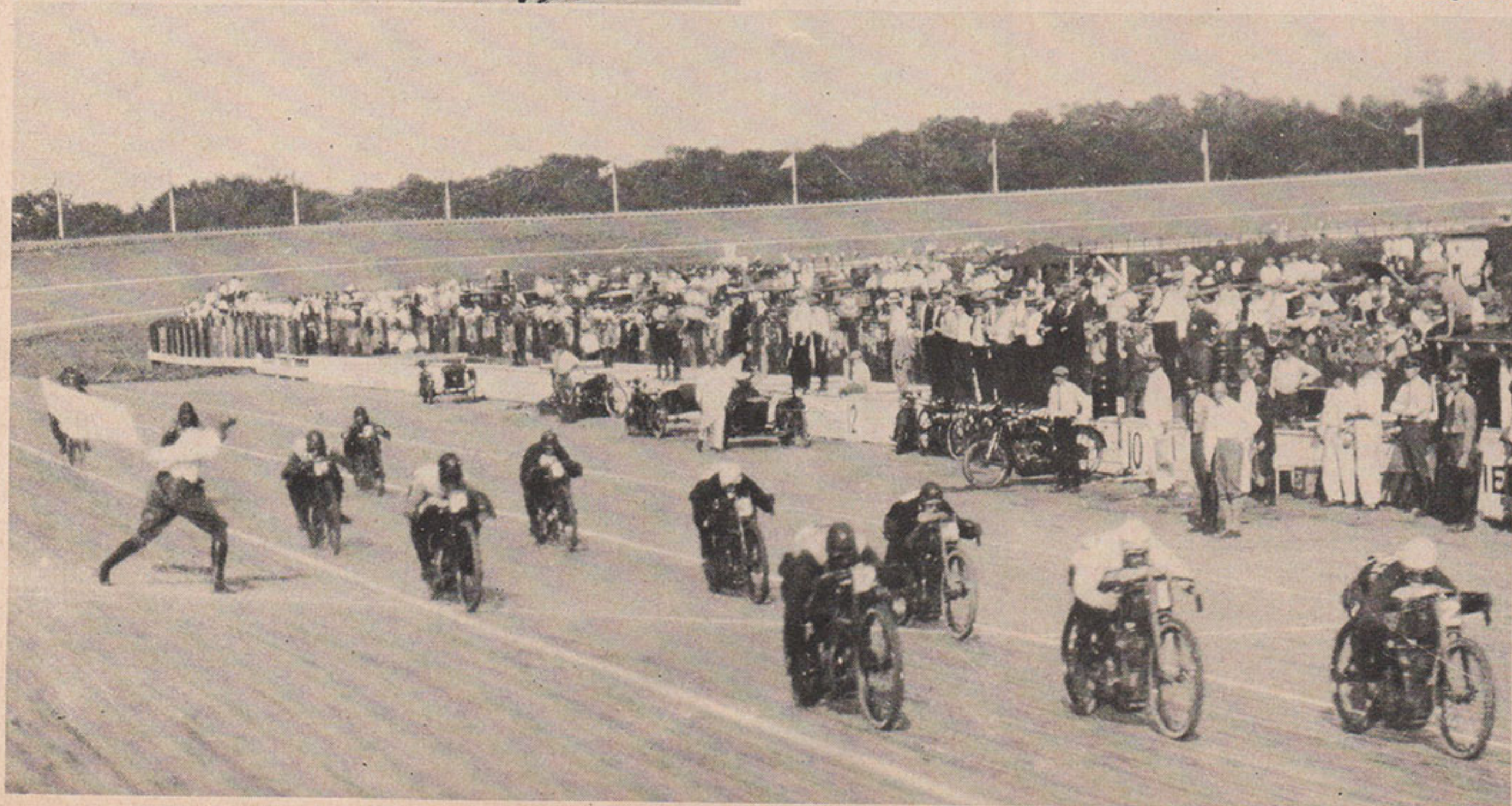
The Chicago-built Excelsiors had a hard-riding crew: Carl Goudy, Lee Humiston, Ray Creviston, Bob Perry, Wells Bennett, Al Hilliard, Fred Luther, Harry Schwartz, and Larry Fleckenstein.

Other popular brands such as: Thor, Merkel and Cyclone were well represented, too.

Both the Chicago and Tacoma fans witnessed a criterion in racing

LEFT, One of the truly great racers of history, Ralph Hepburn, at the peak of his career as a colorful board track racer of the twenties

BELOW, Class A all-star field roars away in the feature event at Kansas City Speedway in 1923. Note the high bank on curve in background





when these tracks staged 300 mile races that year; the biggest and longest ever seen on the boards. On September 12, 1915, Carl Goudy outrode the all-stars at Chicago to capture the 300-mile Maywood Speedway Classic on a "big valve" Excelsior, in world record time of 3:29:51, averaging 85.71 mph. In that same race Otto Walker, the Harley ace, set a world 100-mile mark of 1:07:43. Out at Tacoma, Earl Armstrong was top man on an Indian in the second 300-mile marathon.

Famous old Sheepshead Bay got into the picture in 1916, where Red Parkhurst zoomed his Milwaukee missile high and hard on the 2 mile plank saucer to grab the 100 mile National Championship; while Ray Creviston annexed 5 and 10 mile titles for Indian.

Following World War I, Sheepshead Bay again staged the biggest board track meet of the year on October 11, 1919, which turned out to be a field day for the veteran Harley-Davidson team. The one lap, or 2 mile dash, fell to Otto Walker at 96.5 mph, a new competition record. Ray Weishaar collected the 50 mile national plum in 32:57.4, a world record; while "Shrimp" Burns lowered the 100 mile mark to 1:07.

With the board track boom of the twenties, speedways were built in many cities from coast to coast. Class A all-star race teams, on mechanically improved machines, began to make new history in two-wheeled speed.

Thunderbike jockeys kept the crowd's nerves at the breaking point as they skimmed the rims of these huge saucers; their 2½ inch tires of 100 pounds pressure squeezed almost flat against the planks on the curves; in all-out duels of speed reaching 117 mph in competition—and how the fans loved it!

It took the skill of years of experience to hold a bike on the boards at well over a hundred miles an hour. For their peak performances some of the pro-factory riders are said to have made \$20,000 a year as their share of what was truly the "Golden Age."

Record wrecking first began on the west coast, when the great Harley star, Otto Walker, turned the boards at Fresno, California at 107.78 mph in February 1921. He won the 10 and 15 mile sprints, and his time of 29:34:6 for the 50 mile feature was never beaten by motorcycles. At famous Beverly Hills, Los Angeles, he set a world mark for 25 miles of 104.43 mph; but "Shrimp" Burns rode an Indian to two wins that day at 102 and 104 averages. Later in 1921, Walker cleaned house at Beverly Hills, breaking his mile record with 109.29 mph, and set five other world records at 100 miles.

Again at Beverly, in 1922, the speed barometer soared when Jim Davis rocketed his Indian a mile in 32.53 seconds; better than 110 mph. Then it was Otto Walker who blasted out a sensational 100 mile victory on the Cotati, California track at 117 mph, actually two miles an hour faster than the auto record for that distance on this track.

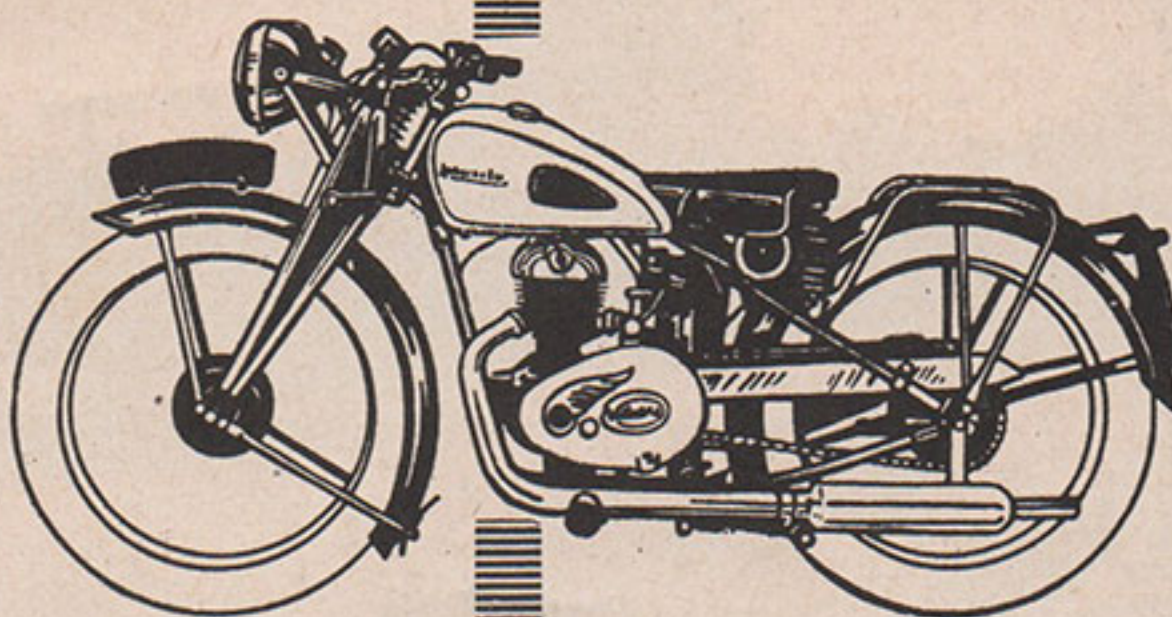
Ralph Hepburn won the National 100 mile Championship on the San Carlos, California oval in 1922, but in practice here, Joe Petralli was credited with hitting 120 mph.

The Kansas City, Missouri speedway featured the bikes in sprint events in 1923, where Jim Davis was tops with 111 mph.

In the east, Curley Fredericks and his Indian was the hottest combination on two wheels. He turned the Altoona, Pennsylvania track at 114 mph and thundered over the 1¼ mile Rockingham saucer at Salem, New Hampshire for a smashing 120.3 average.

The board tracks were waning in 1925 when Joe Petralli, the Harley star, swept the whole card of 10-25 and 50 mile events at Laurel, Maryland, and later won the 100 mile national at Altoona, to join the all-time professional greats—those test pilots of yesteryear, whose feats did so much to improve American motorcycles.

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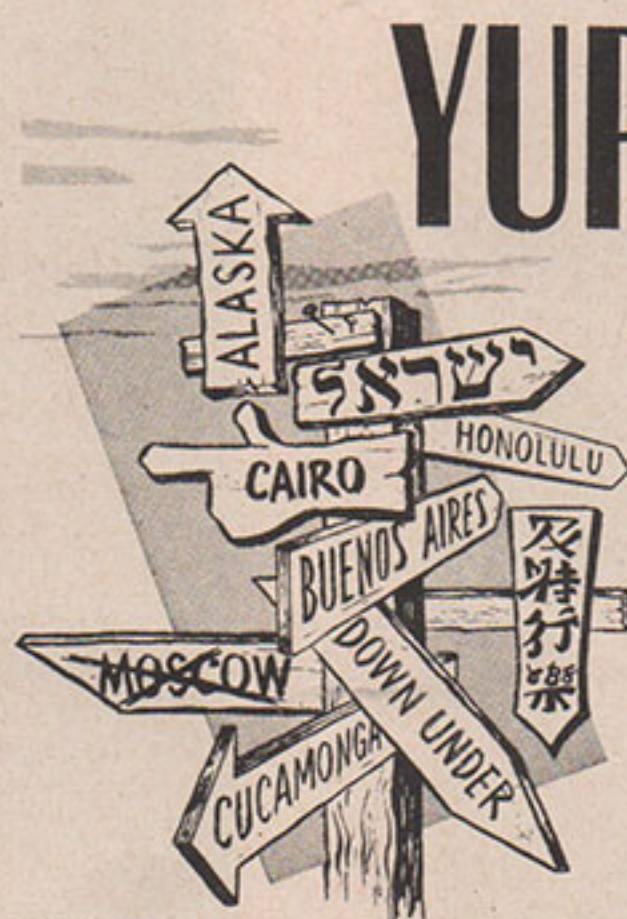
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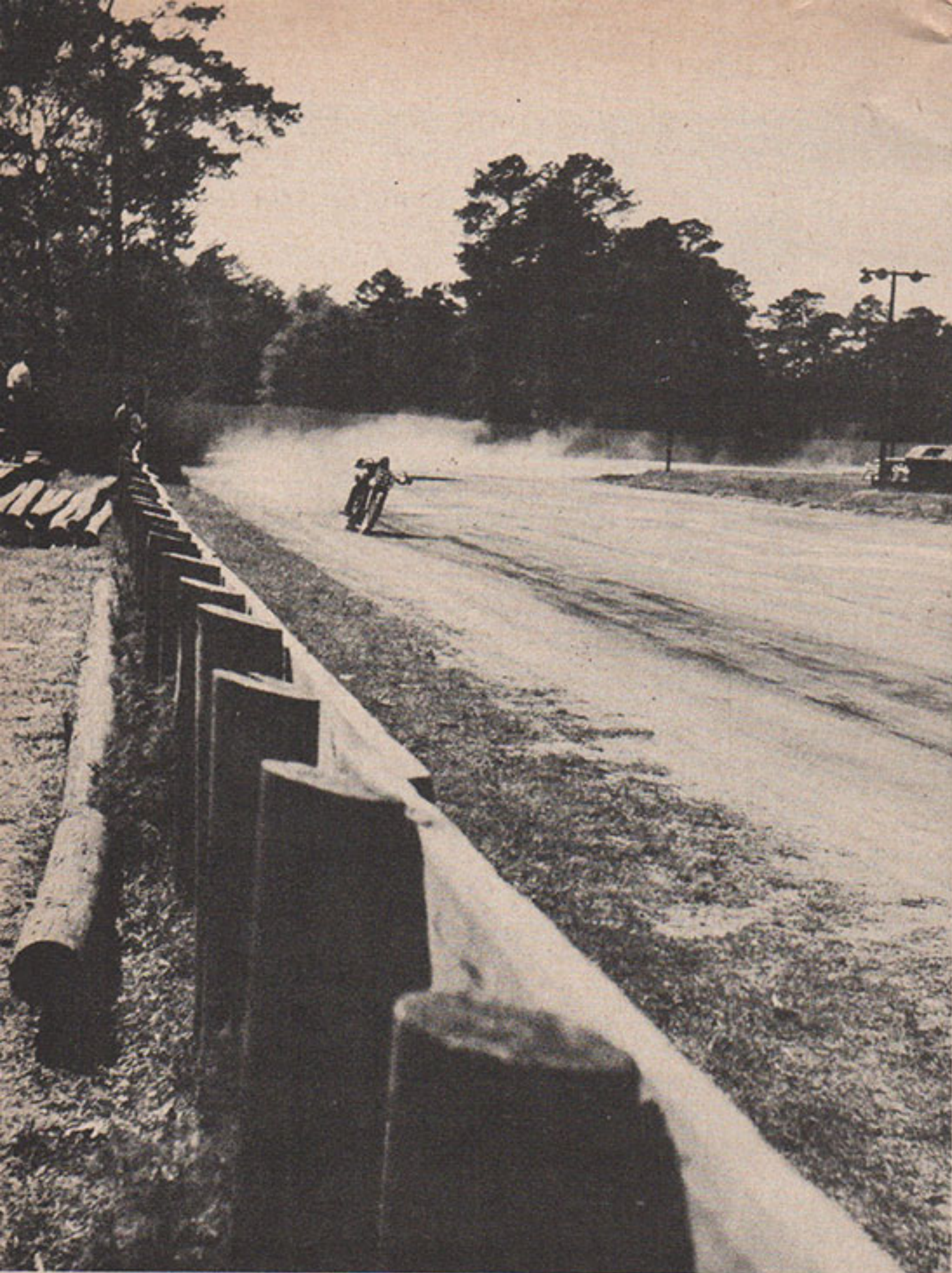
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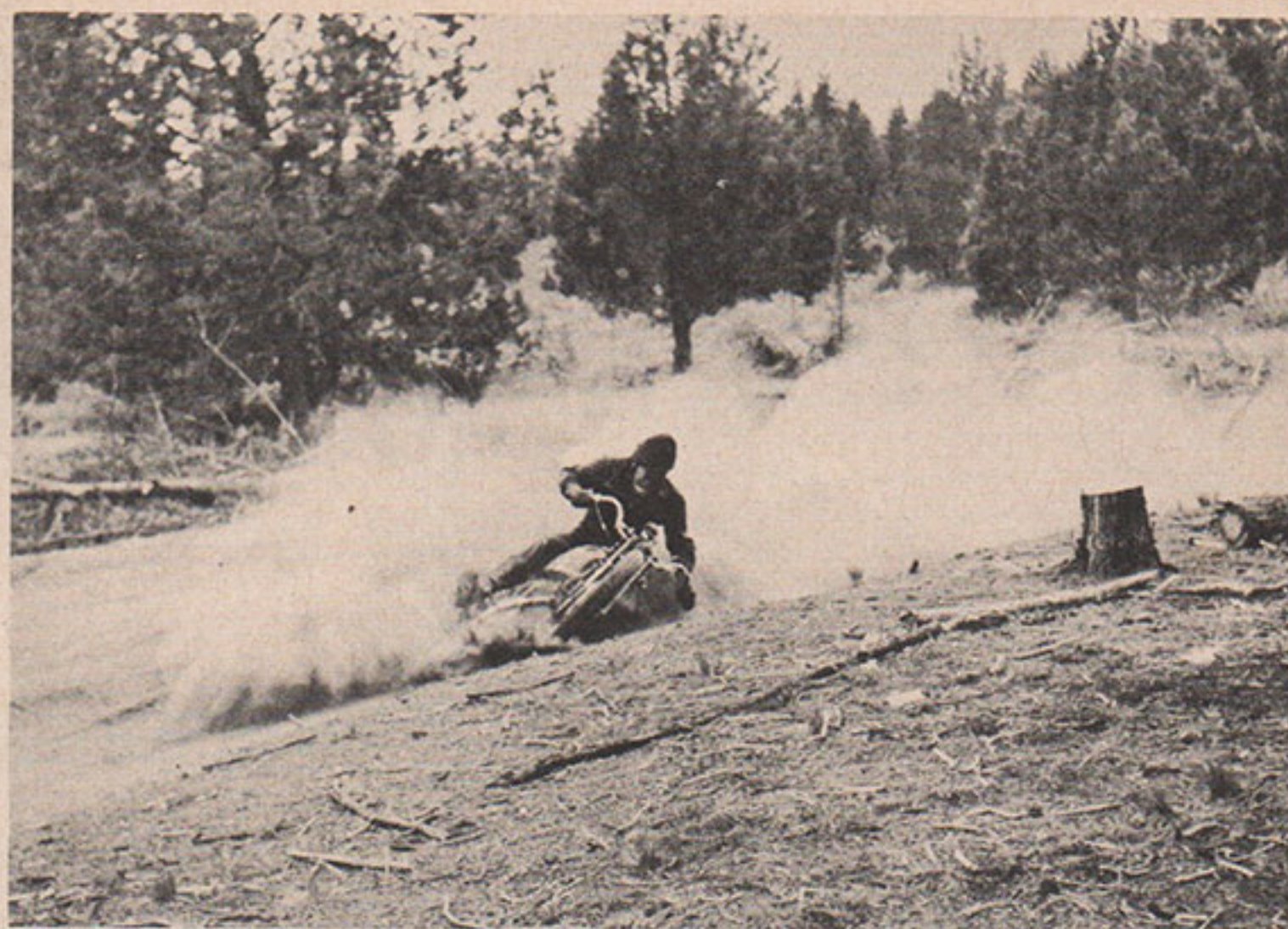
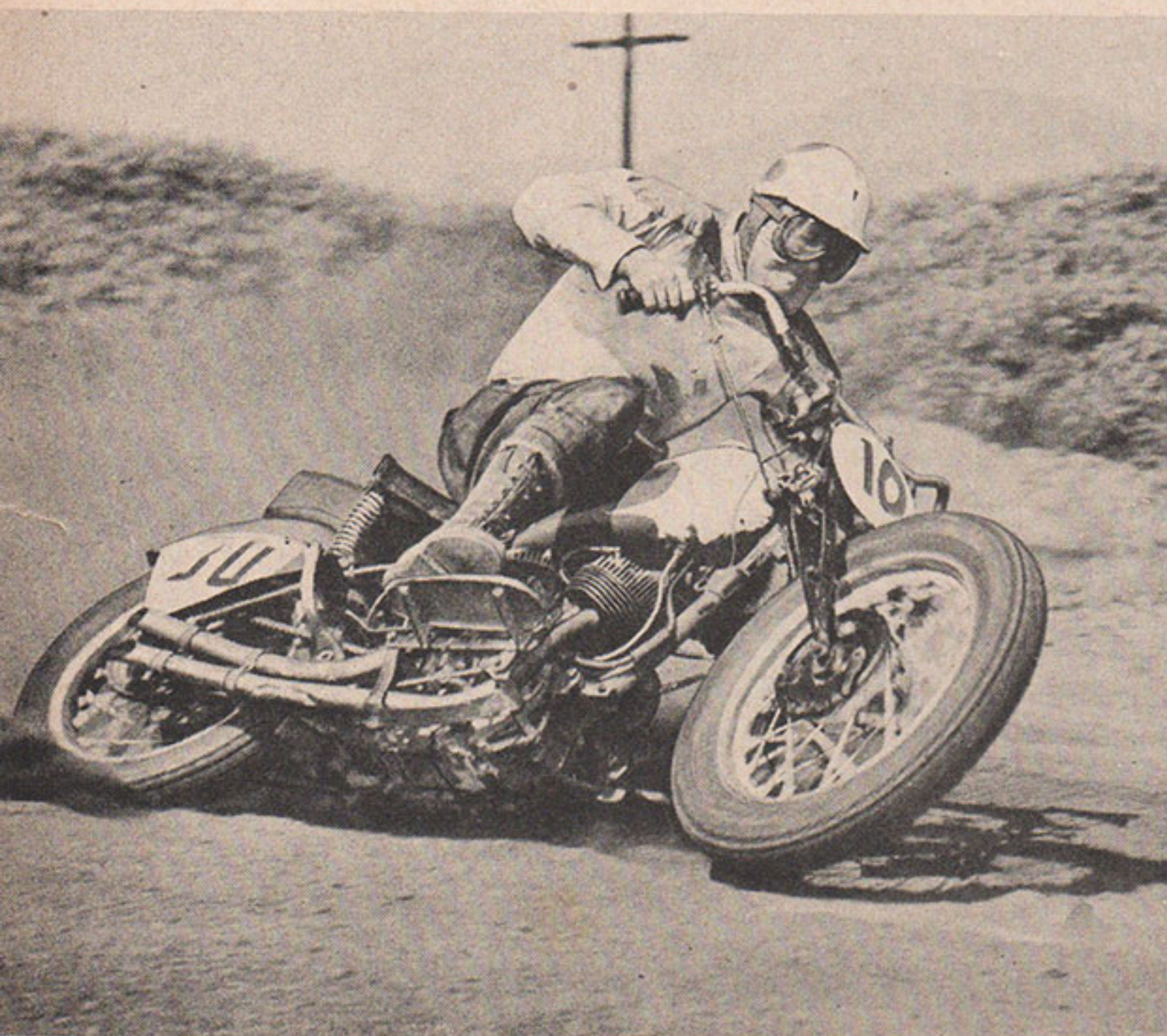
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**1ST PRIZE PROFESSIONAL.** Shooting from the rail, Gus Phillips uses perspective and contrasting detail for "Warm Up Time" at Augusta, Georgia. Camera was a Rolleiflex; Tessar lens, F 3.5 stop, 1/100 sec., with medium yellow filter

**HONORABLE MENTION—BELOW.** On the way down at a Ventura field meet is Glen Mullaney. Glen lost the lead but finished third. By Fergus Peters of Santa Barbara, Calif., with a 4x5 Speed Graphic, Super XX film, 1/400 at F 8



**1ST PRIZE AMATEUR.** 350 cc Grand Prix Velo, similar to those used in Isle of Man, hits the dirt in practice session at TT track in Bend, Oregon. Shot with a Rolleiflex at 1/300, using F 5.6 stop on Plus X film. By Bob Hegge, Portland, Oregon

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**HONORABLE MENTION—ABOVE.** "It's all in fun," says Jimmie Hall of St. Louis, Missouri, using 120 Agfa, Super XX film, 1/100 sec. at F 8





## British Lads on 'Round The World Tour

JOHN LENNOX COOKE, 27-year-old writer and traveler, in need of background experience for his future work, decided that traveling was his most practical source. He advertised in the London *Times* for a companion with whom to tour the world on motorcycles. After many inquiries, Cooke buddied up with a young red-headed farmer named Hamilton Fletcher, age 25.

After two months of putting things in order, purchasing identical Norton Dominators and passing their driving tests, the boys left London on February 12th, loaded with enthusiasm and \$900.00 apiece.

In France, first stop, the lads met their first challenge. Traffic here was all backwards, everyone traveling on the righthand side of the street; as they later found to be the case in many European countries.

Their most serious problem has been one of clothing. "When it's terrifically hot in one country," says John, "it's just that cold in another. Packing enough duds was a mighty tough problem, especially in view of the fact that gallons of extra fuel and many duplicate motorcycle parts had to be taken along over some of the vast, more barren, stretches."

Upon reaching Afghanistan, the flood season was at its worst and swollen rivers were impassable for lack of bridges. Several times they were forced to load their bikes on the backs of camels to make their way across. Fortunately, the beasts were capable of toting up to 600 lbs. Often over a distance of 900 miles, the boys would pass only three or four other vehicles.

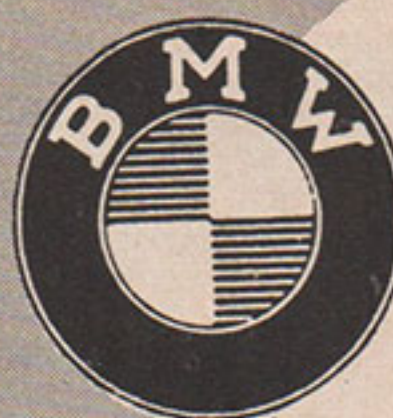
Further in this strange land, they came across a peculiar Afghanistan sheep dog, usually wearing a spiked collar. Each of them seemed to have a special bone to pick with the cyclists, and on one occasion, Fletcher collided with and killed one of the vicious dogs. Its owner, one of the tribe of sheepmen, was furious and the boys thought their time had come, as the gang of natives grouped menacingly around them. Fortunately their chief, with a rifle over his back, rode up just in time, smiled, reached down and shook hands, and bid them safely on their way.

Cooke and Fletcher are completely financing their own trip, and thanks to numerous invitations to stay in private homes, lodging costs have been kept to a minimum; their greatest expenses being food, fuel, and sea travel.

They tell us they'd like to be home for Christmas. Both travelers say they will remember this trip for the rest of their days, and if they travel no more, will be content to look back upon this fabulous "once in a lifetime" journey.

Their itinerary included France, Afghanistan, Persia, Italy, Greece, Turkey, Syria, Lebanon, Jordan, Iraq, Pakistan, India, New Zealand, Canada and the United States.

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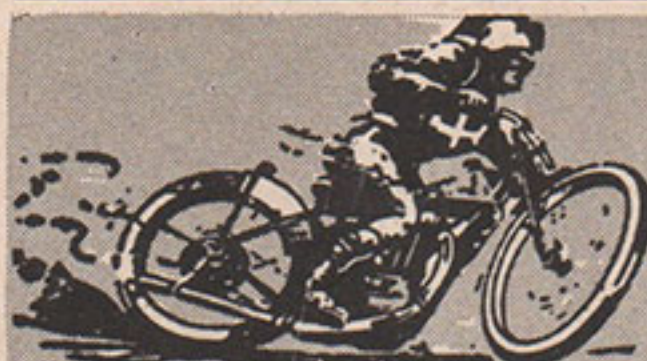


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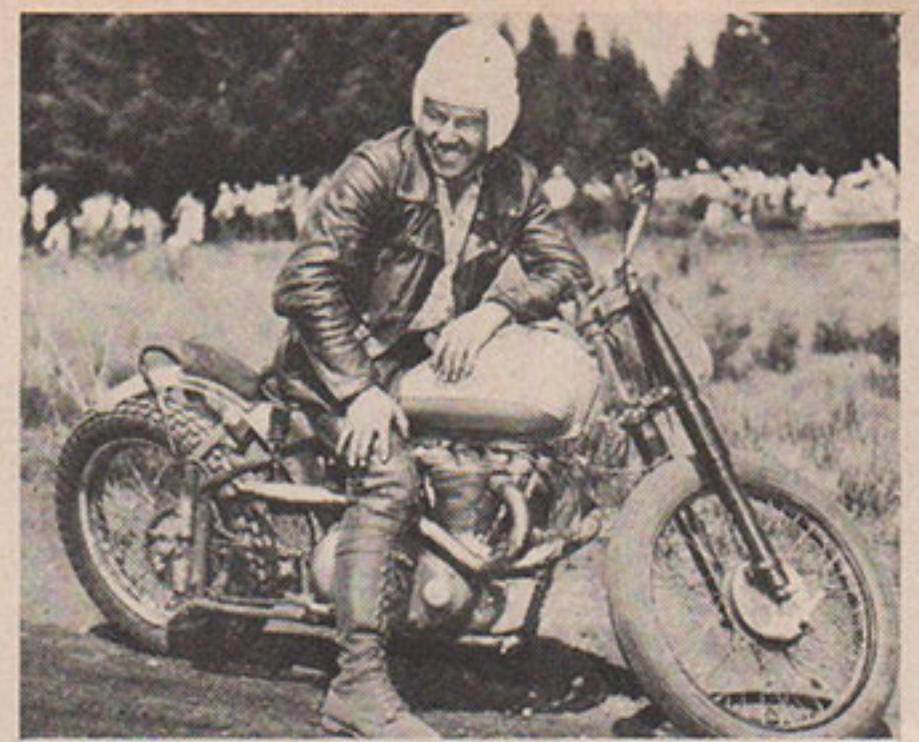
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## SPORT SCENE DEATH HEAD DERBY . . .



A GRINNING HUMAN SKULL was the strange reward of B. W. Rice, expert Triumph mounted TT rider, after he nudged out Hub Day in the main event of one of the northwest's most spectacular events.

This 1/2-mile TT course creates more than an average share of excitement because of its over and under cross-over, most of the riders having little use for the last half of the



ABOVE, Still happy after a break like this. Evidence of the destructive under and overpass

LEFT, A dirty face, a skull and a charming miss—Red Rice's reward for winning Death Head Derby

bridge, some landing well past the edge of the descent. As in the past, the run was divided into novice, amateur, and expert heats. The novice event which was held first saw many a racer dropping out from broken wheels and twisted forks, with Bob Kearns and Kenny Sheard, both on BSAs, finishing in that order. Cliff Majhar and his Matchless nosed out Vern Winter's BSA in a mad scramble for the amateur event.

### NIGHT HILLCLIMB

FLOODLIGHTS LIGHTED the 120-foot hill that the Buckeye M/C had prepared four miles east of Westerville, Ohio. It was the first known successful night climb, and many of the country's sharpest slope shooters were on deck to challenge the national champs in a three-hour, four-event, Class A climb.

Several of the lads were unhorsed on the way up and Paul Allen was the only artist to stand on the side lines and throw his bike over the top by a right handlebar.

In the class B 45 event, Jackie Nealon of Beaverdale, Pa., was high man with a time of 2:09, while class A 74 contest was won by Willard "Red" Bryan of Columbus, Ohio, in 2:06. Sam Kakabar took class A Final.

### SANTA CLARA RACES

FOR THE FIRST TIME in the history of the local fairgrounds, the motorized "nags" put on a speed show before an enthusiastic crowd of 4200, and although the local riders garnered five firsts in the eleven feature program, it remained for Gene Thiessen, the only out-of-state entrant, to ram his hot BSA across the finish line first in the Expert main event. Gene was battled all the way by Charlie West of San Jose, but Charlie's Harley couldn't quite catch the British buzzer and was behind ten lengths at the finish.

Kenny Eggers dismayed the fans, who had hoped for a three way duel in the main (Thiessen, West and Eggers) when, after roaring from seventh place to second in three laps, crashed into the east turn fence and

was out of the race. However, in the preceding events, Kenny had better luck, winning the expert heat race with the fastest five lap time of the program: 3:55.22, and first in trophy dash, three laps in 2:23.17.

San Jose's Joe Leonard, big protege of little Larry Headrick, and John Cross of Vallejo, put on a wild five-mile chase in the 12 lap amateur main, ending when Cross spilled into the north turn fence and Joe turned in a first place with 9:28.21 for the 12 laps. The 18-year-old flash also turned in the fastest qualifying time of 44.66 for the mile course. One fatal accident marred the afternoon program when Gil Ramirez of Stockton, and Bob Smith of Castro Valley, tangled in a skid and went through the east fence. Smith was unhurt, but Ramirez died of his injuries in a local hospital the next day.

### WILLIAMS GROVE TOUR

ATTRACTING APPROXIMATELY 5500 motorcycle enthusiasts from throughout the eastern United States, the Twelfth Annual Gypsy Tour, sponsored by the Middle Atlantic Dealers Association, on the famous half-mile Williams Grove Speedway at Williams Grove, Pa., was the largest and most successful of the annual affairs, first held in 1939.

Highlights of the two-day affair was a bathing beauty contest for the selection of a "Miss Gypsy Tour of 1951," a program of racing competition for novice riders, contests for the cyclists assembling, and climaxed by the 8-mile National Championship Motorcycle Race. Ideal, if somewhat brisk autumn-like weather prevailed throughout the two days.

Cyclists began pouring in the evening before, with hundreds on hand when regis-

tration opened the following morning. In the evenings, bonfires dotted the hills surrounding the speedway and the parking area behind the grandstand.

Ernie Beckman of Battle Creek, Michigan, won the spirited battle for the 8-mile National Championship Race. An estimated 10,000 persons saw Beckman ride to his victory on an Indian in 8 minutes, 11.96 seconds. Beckman won his title and a trophy only after a terrific battle; in a race which saw the lead change four times.

Billy Huber of Reading, Pa., on a Harley-Davidson, finished second, only a half cycle length behind Beckman. Paul Goldsmith of St. Clair Shores, Mich., on a Harley-Davidson, was third; Bill Miller, of Mountville, Pa., on a Harley-Davidson, fourth; Alan Davis of Howell, Mich., on an Indian, fifth; and Bobby Hill of Columbus, Ohio, on an Indian, sixth.



## CANADIAN CLOSED TRIAL



ABOVE, Ron Jackson, team captain, did some fancy capers at Oakville Creek and was one of the day's high score men in the backwoods Closed Trial of Canadian British Empire M/C



ABOVE, A Comet shoots up the garden path under the capable guidance of Ron White. Closed club trials are easy to lay out and offer an instructive and enjoyable weekend for all

## LIGHTWEIGHT SCRAMBLES



Warren Richter III takes a spectacular toss. Undaunted, he continued and finished second

**L**IGHTWEIGHT 125 cc scrambles and trials are more fun than a barrel of monkeys, according to the Cross Island M/C of Belrose, New York. At least 33 competition hounds from the metropolitan area will back them up at the drop of a starter's flag; for it's doubtful if any of them ever had a better time than at the Cross Islanders Scrambles-Trials.

An appropriately chosen site for this jostling jaunt was an area in the process of being converted into a park, replete with mounds of dirt, gulleys, mud holes, and hills.

A 15 lap go over this torturous proving ground was set as the goal, and the boys were started reliability trial fashion—one minute apart. The affair immediately became an out and out race, with the lightweight



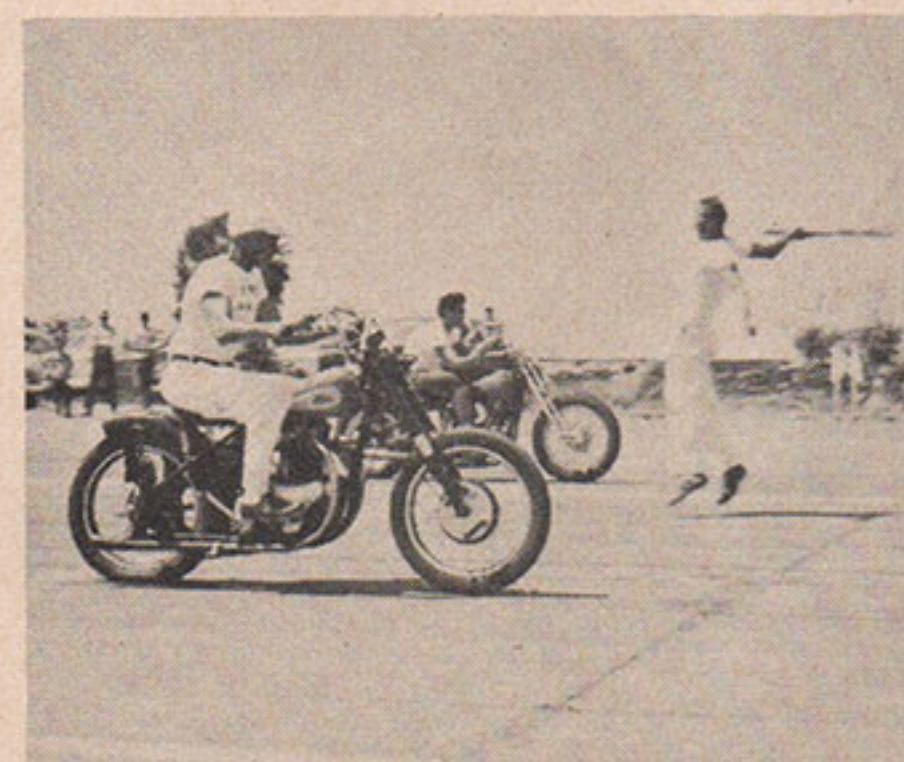
Don Pink trying to qualify for flight chief's papers in Cross Island M/C 125 cc Scrambles

jockeys displaying all sorts of hidden talent.

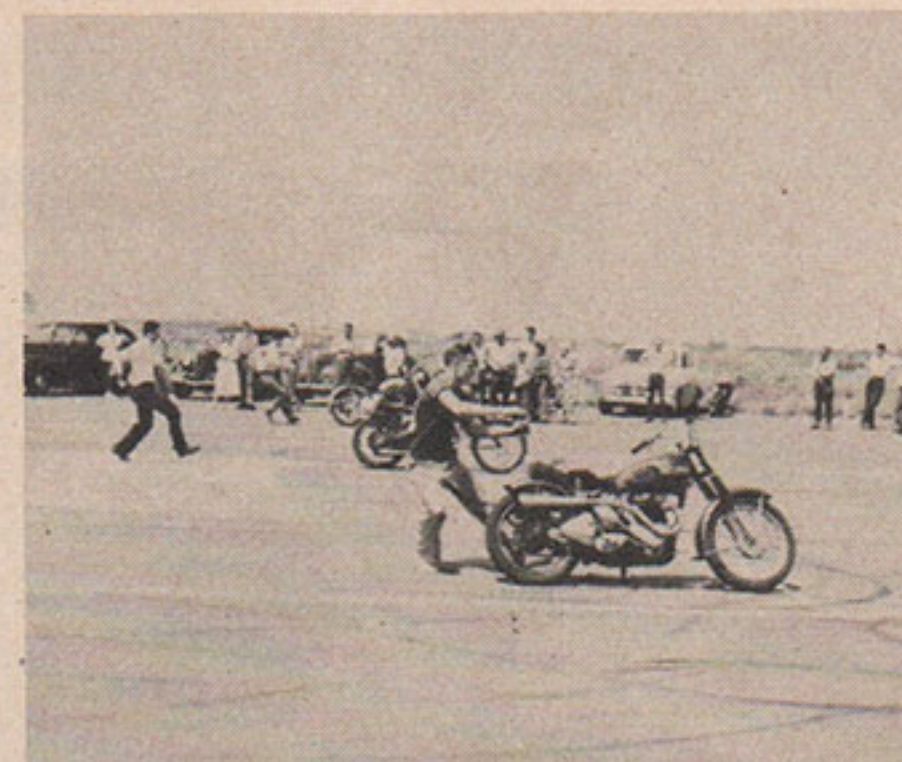
Don Pink, Har-Dav., won the event in 16 min. 37 sec., with Warner Richter III, a fifteen-year-old newcomer from Belleair, Maryland, Puch mounted, less than a minute behind him in spite of a spectacular toss caused by his too energetic piloting, which resulted in his riding over several sizeable mounds of dirt and consequent semi-disaster. Milt Usherwood, Puch, was third with a steady, consistent ride, followed by Gene Baron, Har-Dav., fourth, and John McLoughlin, Har-Dav., fifth. Six of the eleven starters finished.

After the bountiful repast provided by the sponsoring club, the balance of the day was occupied by the English Trials which made the very best use of the difficulties provided by the terrain.

## FRESNO DRAGS



Ed Sumner, left, 40 inch BSA, runs final for open class against Vedo Demerini, H. D. 80 at Hammer Field Drags. Sumner won at 93.72 mph



Bob (Tod) Emler, Triumph, outruns brother Richard, BSA (farthest from camera) and Dee Kashadoorian, Triumph, in hot Run and Ride

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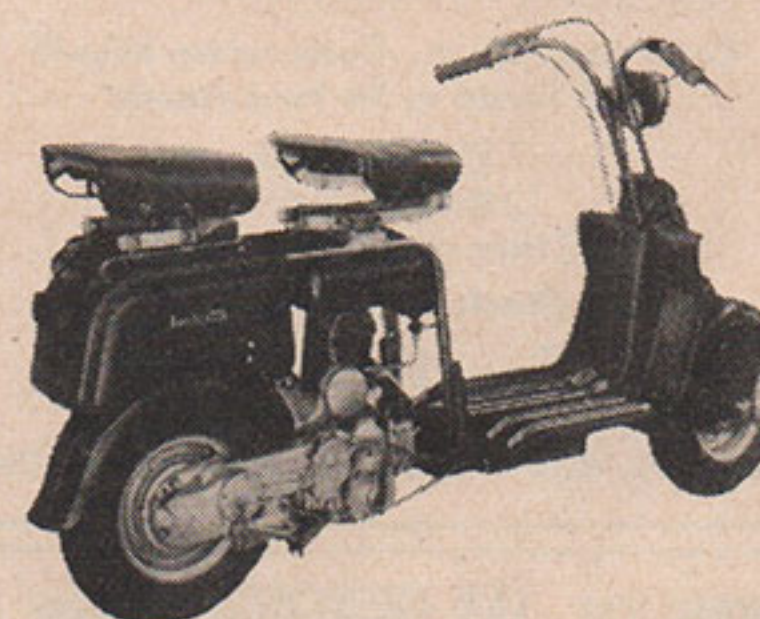
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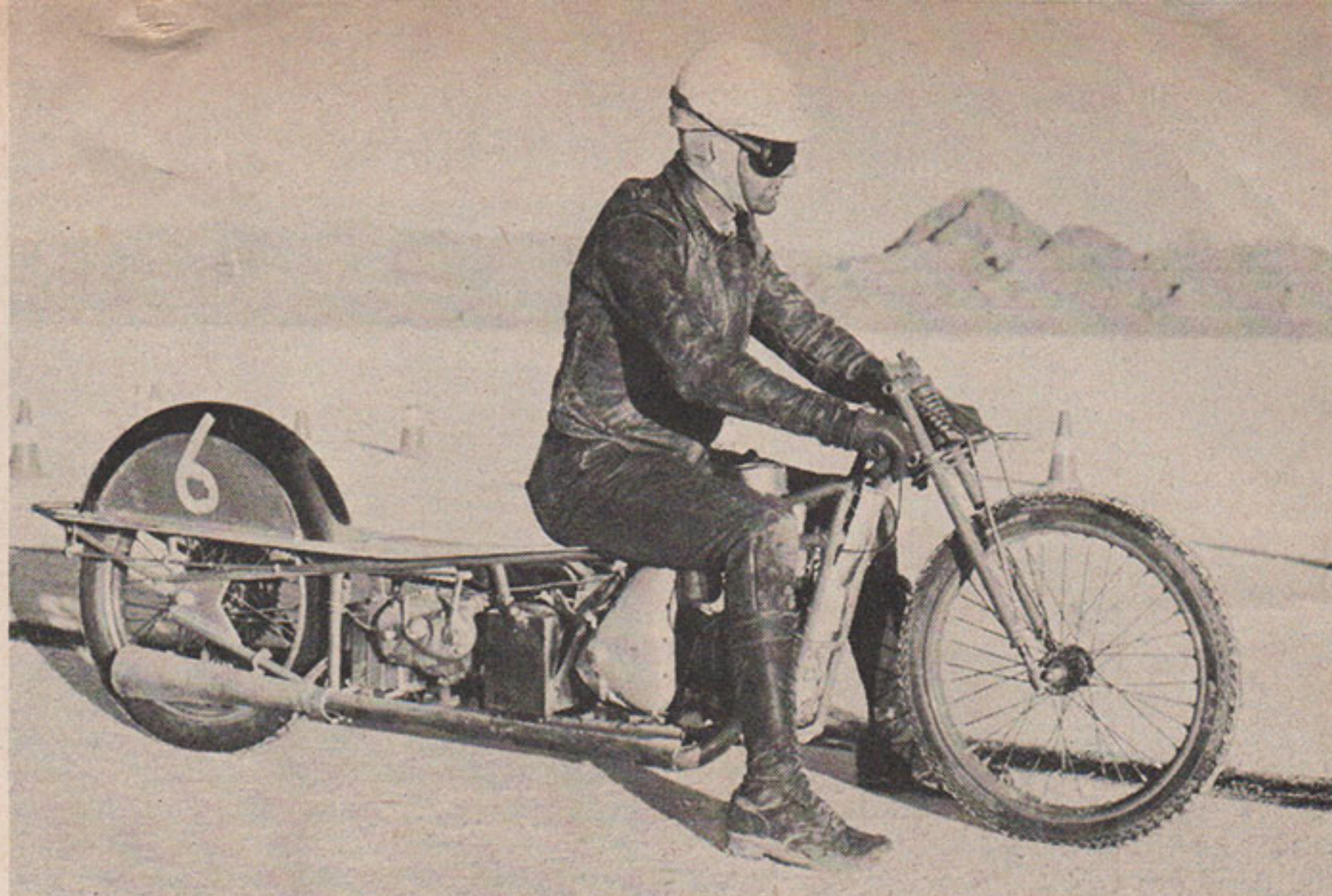
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**Ray Venettozzi**

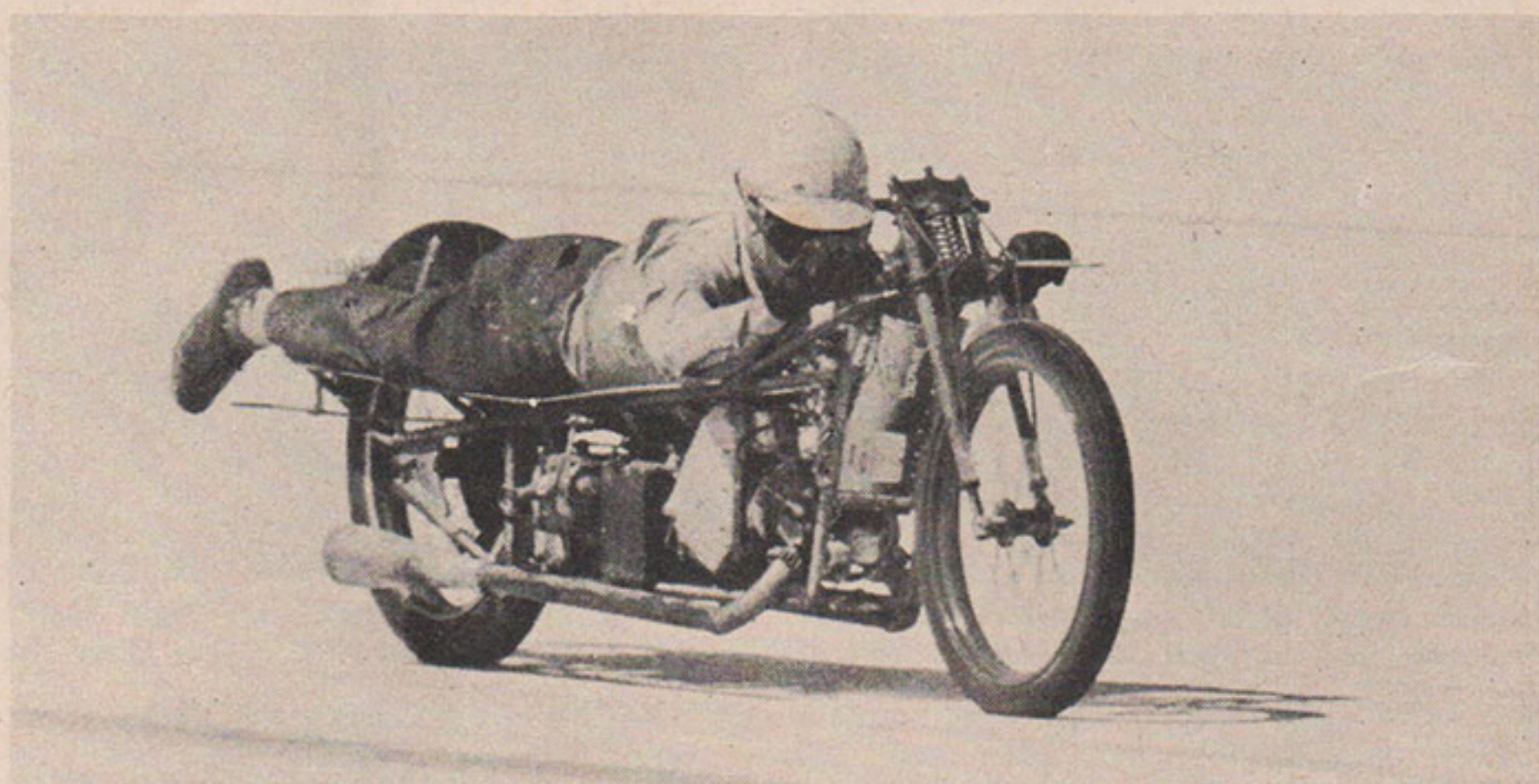
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ABOVE, Bud Hare "kiddie-kars" up to line before laying down on the job. Hare, inspired by SCTA invitation has hopes of being allowed to compete in Association's Bonneville in '52



ABOVE, Seventy-two inch wheelbase and nineteen inch high platform allows pilot to lay at axle height, parallel to ground, overcoming motorcycle's biggest restraint—frontal area

## BONNEVILLE SALT SHAKERS

(Continued from Page 10)

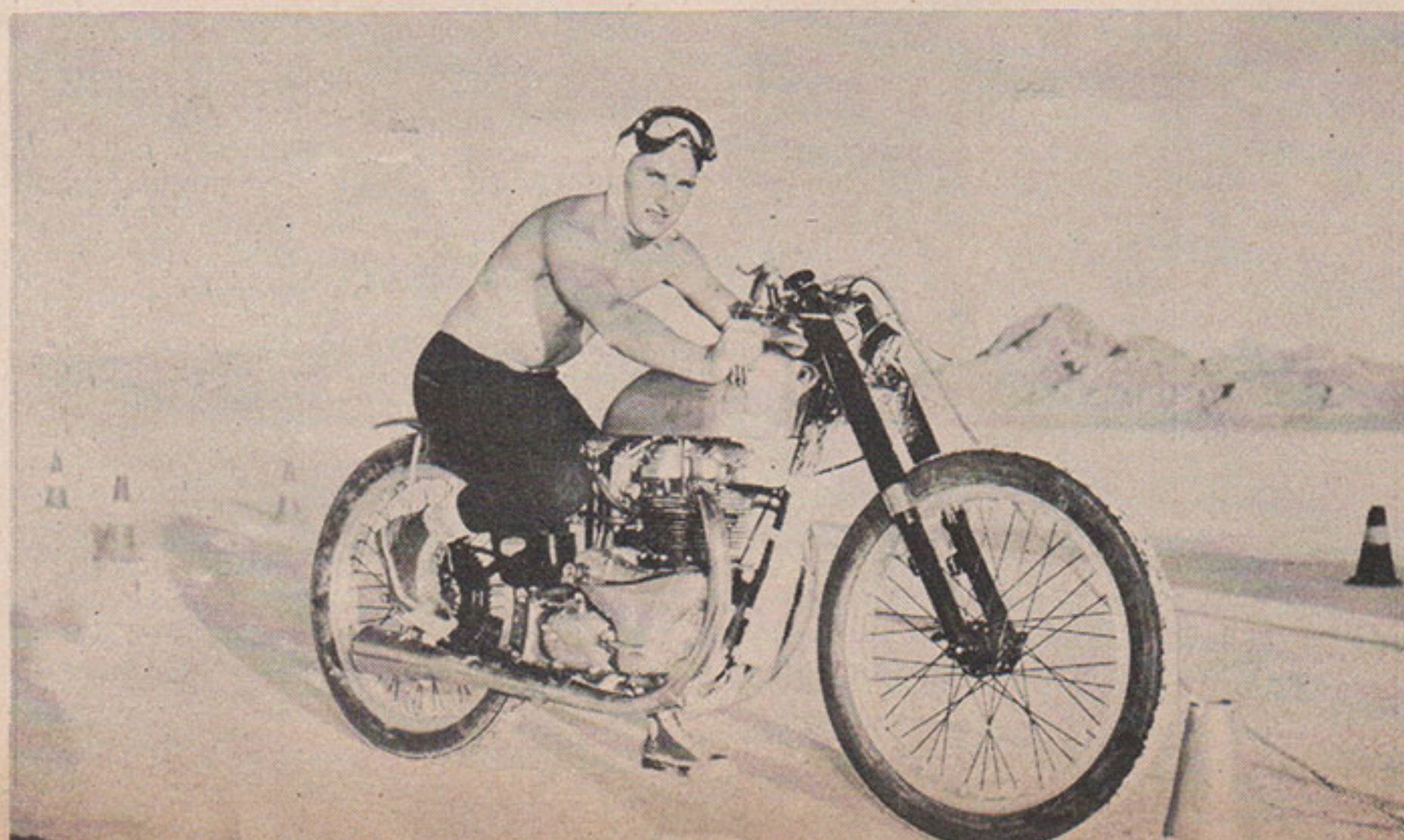
revolutionary new three clock unit was put to its first official use at the Bonneville Trials and proved its superiority by providing faultless timing accuracy throughout the entire running of the meet.

Every SCTA man and AMA official present highly praised the representative cyclists and the meet went off without a hitch. These are

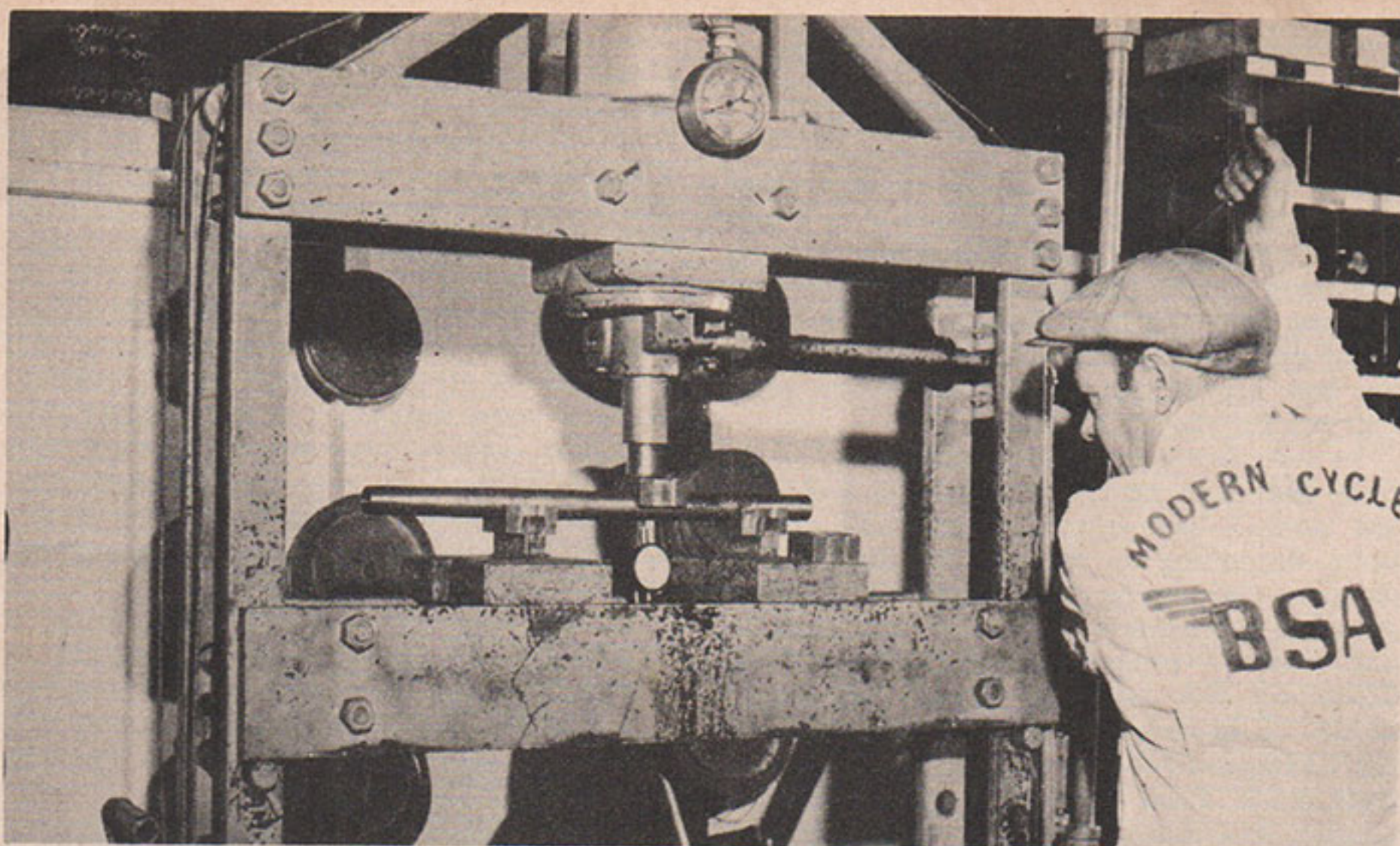
the things that we had all hoped for. Every rider present sincerely appreciated the wonderful opportunity offered by the SCTA. They are all hoping to be invited back next year.

FLASH . . . December CYCLE will carry story and pictures on the 50 Mile AMA record just established by Eugene Thiessen on a BSA class C 40-inch Golden Flash. Time—25 min., 25.51 sec.

BELOW, Eugene Thiessen's victory trail carried over an extra day when Hap Alzina retained services of Crocker timer on his own, and salted down 2 new records—40" class A and C







Fork tube is handled gently in husky precision press. Meter reads to .001 in. Tube is cradled in hand-honed radius blocks to retain circular cross-section under pressure. 70-ton capacity is never used

## CHEAP, STRONG, TRUE

(Continued from Page 11)

With this equipment, an experienced man can do the most difficult job in one day. Most of the work requires much less time. Five in one day is not unusual.

Here's how they do it. Each frame has certain precisely located bolt holes, drilled by the factory, to support the component parts of the motorcycle. The location of these holes is included in factory specifications and blueprints, available to the trade. Some of the holes are used to mount the engine. Others take care of transmission, wheels, seat, handlebars, etc.

Part of the straightening equipment consists of a set of heavy, steel blocks, called jigs or fixtures, which are bored to match bolt-holes in the frame. The frame table is dotted with threaded bolt-holes and the jigs are secured to the table at the proper place by  $\frac{5}{8}$ -in. tempered steel bolts. Usually the jig representing the engine is used first. The frame is fitted to the jig and bolted in place so that the center-line is eight inches off the table surface. Then the transmission jig is bolted to the table. If the lower part of the frame is straight, its bolt-holes will match those on the jig. If they don't, the first operation in the straightening process is to bring that part of the frame into line. It is then bolted to the transmission jig, and the next jig, representing the rear wheel, is placed on the table and the rear of the frame squared with it. And so on, until each member of the frame has been twisted or bent or pulled or pushed to fit the accurate jigs. Last part to be worked is the head casting.

The brute strength required to persuade steel tubing to go back where it came from is supplied either by a simple lever or a hydraulic ram. The ram is fitted with attachments that permit power to be applied upwards, downwards, inside-out, outside-in—whichever way the frame needs attention. Total power available depends on the size of the ram, but a 20-ton set-up is the largest in common use and more than 10 tons is rarely used.

Sometimes a section of the tubular frame will be smashed so that the original circular cross-section is egg-shaped. This is brought back to perfect round by placing the tube inside radius blocks, previously hand-honed to exact diameter of the tube, and squeezing with the clamp attachment of the hydraulic

ram. Under this treatment, hard steel responds like a piece of overdone macaroni.

Tolerances for this work lie between  $\frac{1}{32}$  in. and .001 in. When a good frame shop finishes with your machine, odds are that it will be slightly better than when you rode it before the accident. The shop guarantees its job for strength and alignment.

When a frame is so badly bent that it must be stretched out on that long, cold table, it is almost certain that forks and fork tubes need attention, too. Forks are straightened on the same table, using a special jig, in the same general method used on the frame. Accuracy is of paramount importance. Crooked forks just don't go, and the shop can't afford to have guaranteed work rebound. Fork tubes are treated with the same careful attention to accuracy, but they are reshaped in the hydraulic press. A gauge feels the surface of the fork tube as it rotates, and where it quivers, pressure is applied delicately.

How bad can a frame be and still be revived? Very bad. There was the Los Angeles rider who is no longer with us because he blasted his way through the rear door of a Buick. The machine landed in the back seat and the unfortunate rider left this world for good when he continued on through the opposite window. When the machine was brought to the shop, it looked like so much scrap metal. The head casting was 30 degrees off line, the rear wheel didn't track anything. Every section was twisted or bent or flattened or both or all three. One day on the slab will bring it back to action.

There is also the tale, perhaps apocryphal, of the American visitor to England who decided to bring his motorcycle back in a suitcase. He sawed the frame into sections small enough to fit in his suitcase. When he arrived in this country, he took the parts to a frame shop and ordered them put back together. He's probably riding the world's most welded bike, but there have been no signs of frame failure yet.

There is a short-cut method that may be used when the damage is restricted to the front sections of the bike. Front wheel, forks and gas tank are removed, the engine is left in place, and the hydraulic power is applied to the strained tubing. This saves the owner the considerable expense of stripping the rest of the gear from the skeleton.

So if you've got a bent-up iron in the back yard somewhere, or if you sprain your frame at the next enduro or hare-and-hound, don't throw anything away until you see an expert. It's a good bet that you'll be back on the road for less money than you thought.

*Ken Kay says . . .*

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## THE TWO FACED TIGER

(Continued from Page 20)

Several yards beyond the last pylon, I eased the throttle back, rolled the Tiger over into a gentle, sweeping arc, and came down through the gears before hitting the kill button and coasting into the pits. The stop watch hand stood directly at three seconds flat; the time we had strived for, which meant an even 120 per for the 10th mile.

In these few brief hours several worthwhile facts had been recorded. The 170 and 180 jets worked best at these barometric conditions, depending on the time of day. A 160 jet size (jet figure determined by number of cubic centimeters of fuel it will pass in one minute) proved too lean. Long reach Champion NA 14 plugs (same heat range as NA 11 in standard Champs) had replaced the Champion NA 10s that were fitted in the same stock Tiger before its speed kit conversion, and didn't drop a beat. The factory timing recommendations on mag and cams, as stated in their special tuning booklet accompanying each kit, were on the money.

Engine temperature remained quite low despite the terrific shellacking we had given the bike in every gear. From the cylinder base up, there were no signs of oil seepage, and the lower portions showed only an occasional small smudge.

Our only mishaps had been the fracture of a top motor mount stud and the loss of the top off the remote float chamber. A search over the vast lake bed for the missing float chamber lid was eventually rewarded, believe it or not, but only after finding enough spare parts to practically build a complete bike.

Tappets were adjusted once, since they had been set up loosely at the shop when the kit was installed, and this was the engine's first run-in. The little twin had been "on the mags" all morning and would still hit high "C" as easily as when first bounced off the station wagon earlier that day.

Now let's go back to the almost identical test made on the same bike before its racing conversion the week previous. At this time foot-pegs, rear brake pedal and gear shift lever, were in the conventional road riding position. Stock handlebars were fitted, permitting the Tiger to be ridden over some of the open country adjacent to Rosamond Dry Lake. Dirt or sand riding was difficult with the stock gearing that was used. This high gear also showed up to a disadvantage in later acceleration tests. Just like the special long foam rubber double seat, it was quite adequate for highway pounding, but just not the thing for the more adventurous soul who might be tempted to make a sage brush short cut now and then. These matters of personal taste can easily be changed, however, and are therefore of rather minor consequence.

Triumph's sprung rear hub may be a little more difficult to remedy, at least for those in the 200-lb. group, such as myself. Again I found that their sprung hub rode beautifully on the highway, gave no sensation of floating or weaving in pavement corners, and was very secure over moderately-dipped dirt trails. Nevertheless, the hub did bottom rapidly and loudly over many series of sharp bumps with such frequency that it was difficult to tell whether it was from recoil, counter-recoil, or both.

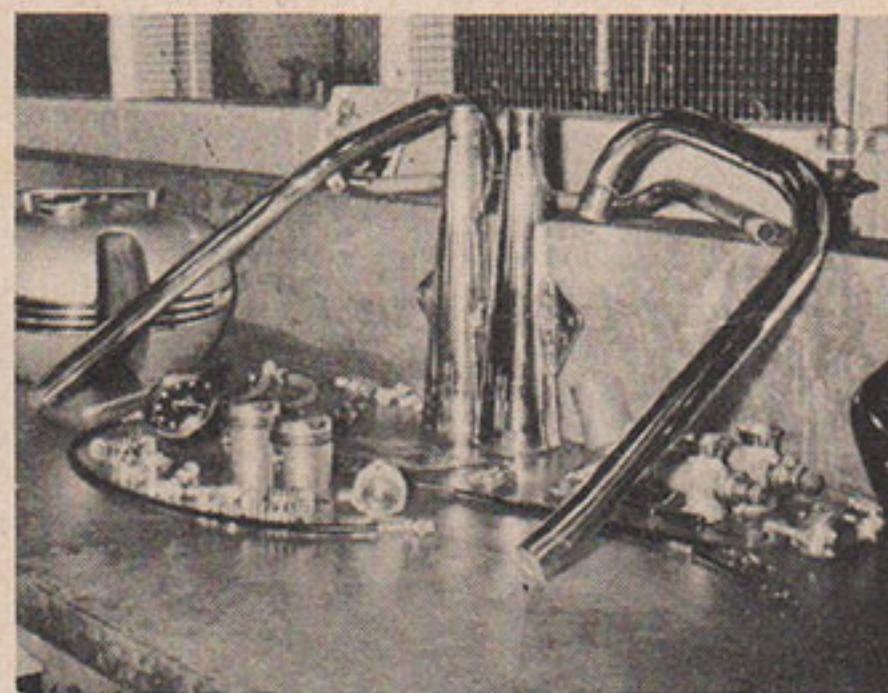
In discussing the matter with Johnson Motors, I was told that in some cases it's necessary to add an extra counter-recoil spring to overcome this failure, and that the Triumph Corporation is currently concentrating on this particular snag.

One of the most convenient, smooth operating features of the bike is its transmission, that shifts down for lower gears. I've always found this to be a definite advantage, for

lower gears are often so much more desperately needed than high ones; as in rapid de-acceleration, and it's so much easier to stomp the lever than to pull it up in case of a four-alarm stop. There's one point though that seems common with so many footshifts; difficulty in finding neutral position. Otherwise shifting throughout the range was absolutely positive; this being the only exception. Positive and progressive braking was consistent at all speeds and showed no tendency to fade, indicating that the brake shoe area was ample. The same operating ease applied as well to the clutch mechanism. A neat elongated headlight nacelle houses all instruments and switches, making for easy reading and accessibility.

In the case of our top speed runs, a tachometer was simply fitted in place of the speedometer. The dial being turned so that the 7000 rpm mark (approximately 120 mph high gear equivalent) could be seen when lying almost flat out.

In the final shakedown, I'd feel mighty happy if a bike of my own had withstood the constant pressures that this one had been subjected to and still run as sweetly at the end of the trail. If you're thinking of investing \$809.58, the Tiger is a bargain in beauty and performance.



Triumph factory racing kit before installation

### PERFORMANCE SUMMARY

#### STOCK TIGER 100

##### Speed

Maximum in low, 50.0 mph  
Maximum in second, 65.4 mph  
Maximum in third, 85.6 mph  
Maximum in high, 101.4 mph

##### Braking

From 25 to stopped, rear brake only, 32'6"  
From 25 to stopped, front brake only, 25'10"  
From 25 to stopped, both brakes, 17'

##### Acceleration

\*1/10 Mi. Drag (9.7 sec.) 37.1 mph avg.  
\*\*1/4 Mi. Drag (15.45 sec.) 58.2 mph avg.  
\* Low and Second \*\* Low, Second, Third

##### Slow Running

High gear without snatch 17 mph

##### Turning Circle

Minimum Diameter 13'

##### Mileage

Per gallon of gas, 38 mpg including brake test

### PERFORMANCE SUMMARY

#### SAME TIGER 100

#### (RACING KIT INSTALLED)

##### Speed

Maximum in second, 71.7 mph  
Maximum in third, 100 mph  
Maximum in high, 120 mph

##### Acceleration

\*1/10 Mi. Drag (8.00 sec.) 45.00 mph avg.  
\*\*1/4 Mi. Drag (13.60 sec.) 66.17 mph avg.  
\* Low and Second \*\* Low, Second, Third

##### Slow Running

High gear without snatch 19 mph

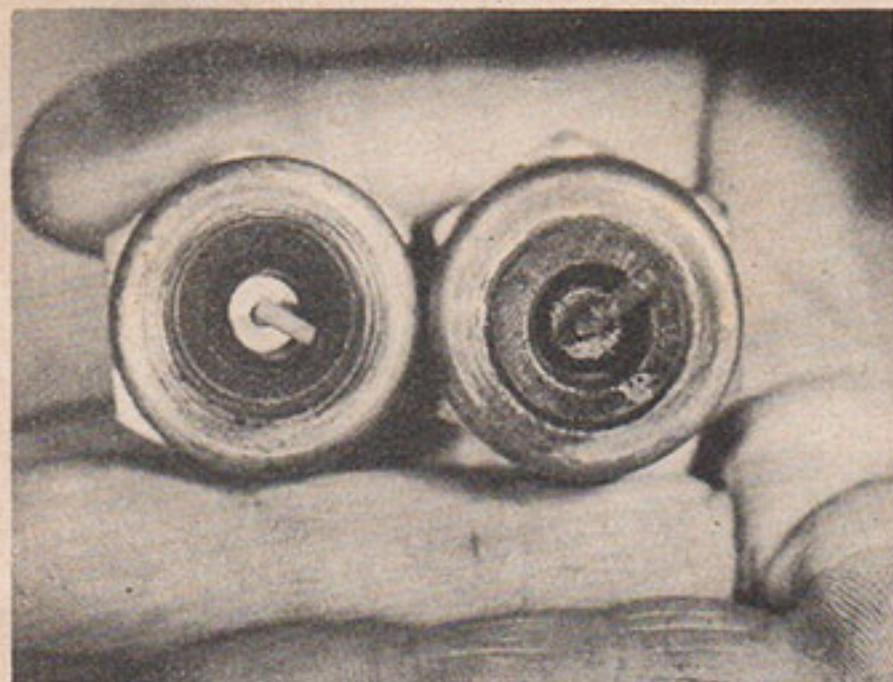
##### Mileage

Per gallon of gas, 25 mpg (racing conditions)



## MASTER OF THE MILE

(Continued from Page 23)



The proper plug with correct gap adjustment will burn clean and white around electrode

weight are important. He told me of a new design which might work well on an exhaust pipe. I spent four days in the shop building the pipe according to the design we had worked out on the drawing board. When it was completed, I raced out to see how much speed we had added. Once around the track was proof enough that the pipe had actually cut three miles off my top! Experiments should be tested long before an important race.

Now let us consider balancing the flywheel. To do this, weigh the crank pin with nuts and locks, rollers, retainers, and the lower (big) end of both connecting rods. This is the rotating weight of the engine. Next, weigh the pistons, rings, piston rings, lock rings, and upper (small) end of both connecting rods. This is the reciprocating weight. We use the factory formula for balance, take  $\frac{1}{2}$  the reciprocating weight plus the total rotating weight and balance each flywheel to  $\frac{1}{2}$  that figure. Balance each wheel separate.

For example, if the rotating weight of Harley parts was 38.35 ounces and the reciprocating weight was 32.15 ounces, then take  $\frac{1}{2}$  of the reciprocating weight, or 16.07 ounces, and add that to the 38.35 ounces. This gives you a figure of 54.42, which would be the over-all weight to balance flywheels. But inasmuch as you are balancing each wheel separately, balance each wheel to 27.21 ounces.

To balance the flywheel, once the correct figure has been obtained, make up a small weight using a crank pin and nut as a part. In this case the weight should be 27.21 ounces. The best method of achieving the proper weight is by adding sufficient concentric washers to a standard crank pin. Assemble the crank pin in place. This unit must then be mounted on a perfectly true mandril through the center of the flywheel, which in turn will rest upon straight edge balance ways. The bed of a level lathe works perfectly. If the counterweight side of the flywheel follows gravity and rotates toward the floor, you know that the balance is incorrect and that the counterweight side is heavy. Drill holes in the counterweight side until the flywheel, with the added weight, will balance at any spot.

Racing demands the utmost from machines. The mounts are being ridden at top limits in most events and all adjustments must be as nearly perfect as possible. Spark plug and carburetion settings must be watched closely.

Spark plugs are adjusted to the machine during short 3-mile test runs; testing settings by sight and feel. I read the plugs in operation under actual running conditions. To check plugs correctly, the rider should run three laps at open throttle, button his motor dead, disengage gears and coast into the pits. If he idles in, it throws readings off. A plug which actually runs hot may read right on if it has been idled into the pits. A plug that

has been set correctly, and burning at the right temperature, will be clean and white on the inside porcelain nipple. The base of the plug will have a slightly oily carbon deposit which will rub off onto the hand. If a plug does this, it is very close to being right. In a short run, if the plug is white and the base is relatively free of carbon, it is a safe bet that the mixture is too lean. An extremely lean mixture will leave bright shiny spots on the plug base and the core of the plug will look like peanut brittle, or baked shellac. If the black smudge is very heavy and the core is damp with oil, the mixture is too rich. In extremely rich mixtures, the plug may actually have oil on it.

Combustion temperature in the head is adjusted by both the amount of oil passed by the rings and the carburetor mixture. Even a correct carb mixture will overheat from a dry top end due to insufficient oil.

Plugs must be matched to the bike. A condition which might indicate a lean mixture could come from using a plug that is too hot for the bike. Changing oil rings at the track is impractical due to the time element. If we are over or under-oiling, we first alter oil pump pressure and if this does not correct it, we change to an oil of different viscosity. Heavier oil lessens the tendency to over-oil, and lighter oil increases it. The three variables here are: oiling, carburetion, and plug heat. Each of the three affect one another and must be perfectly balanced. You should know within three heat ranges the correct plug for your machine. On the Harleys, I use either no. 4, 5, or R11, and one of these three will work on any Harley I tune. Often, you will run with plugs of a different heat range in each of the cylinders.

Gearing, like final plug adjustment, should be done at the track, according to hourly conditions of the track.

At Bay Meadows and Portland Meadows, where the corners are short and the straightaway is long, a bike should carry a higher gear ratio to take advantage of the straights. On these tracks, start with a 5.17 to 1 ratio and adjust from there to fit daily track conditions. On tracks such as San Jose and Milwaukee, where the straightaway is short and the corners longer, there is not as much need for a high ratio and you should switch to 5.35 to 1 gear ratio. On a mile track the rider comes off the corner at about 70 mph and quickly accelerates to 105 mph before hitting the next turn, and your bike should be geared so that your maximum power range comes within this bracket.

Tires are carefully chosen for the mile events and 18 or 19 inch rims are most suitable. For the 18 inch rim, use 18 x 3.50 or 18 x 4.00 size. 18 x 4.00 seems to work best on my bike. With the 19 inch rims, use 19 x 3.00, 19 x 3.25, 19 x 3.50, or 19 x 4.00. In this case, the 19 x 3.25 and 19 x 3.50 sizes are preferred. Selecting tires for the mile race depends greatly on the track conditions. If the track is hard and smooth, and the groove is likely to become rubber plated, try 19 x 3.25 with a star or block tread, such as a Firestone ANS. Many racers use a rib tire on front with excellent results, but I stick with the ANS. When a track is cut and rough, I've found a larger size such as 18 x 4.00 or 19 x 4.00 best.

The rider who wins the mile is usually the rider who used the best common sense, and had the bike tuned to the closest tolerances, that's true. But you can only go so far with any bike. Once you reach a certain place, all the bikes are tuned to the same high pitch. It gets back to the same variable, the same one element you can't check by weighing rotating weight or switching to a hotter plug. In the end, it gets back to the guy who is riding the mount. Most of winning the mile is up to him.

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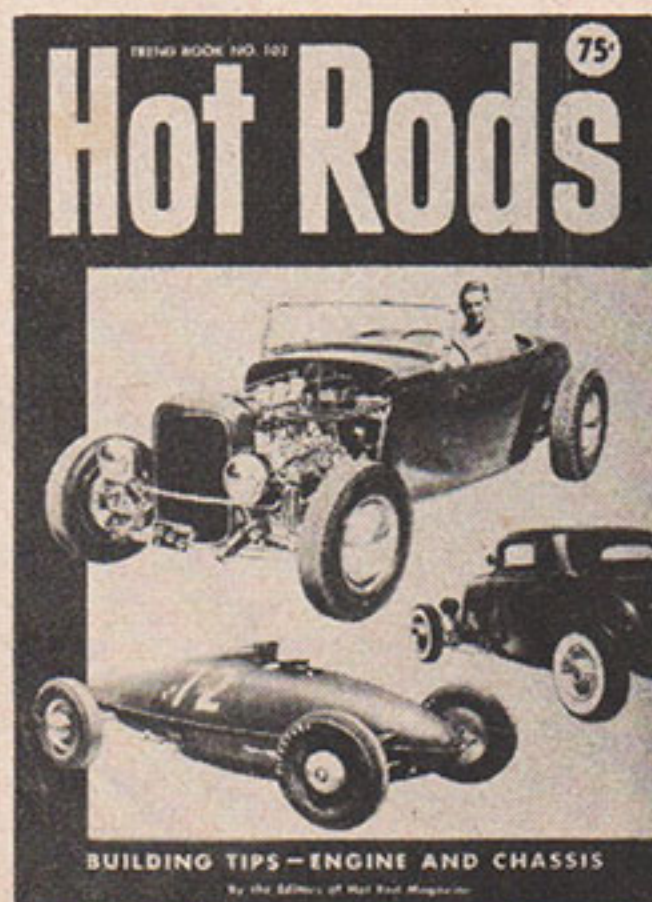
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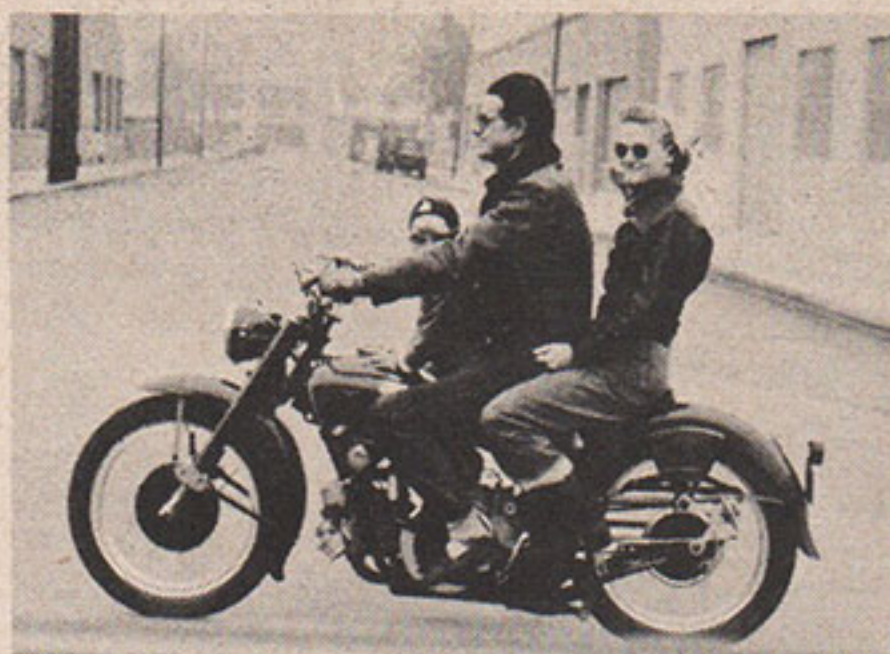
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(Continued from Page 17)



point: "Right, just before you get to three big barns. There are several small Union Oil signs here—Proceed South and cross railroad tracks." Or "At bottom of the valley turn right on the first paved road. (There are two mailboxes on right corner.) . . ."

Two voluntary layovers were incorporated in the schedule. One, a ten-minute scenic stop in the mountains, allowed time for refreshments and gabbing, but purposely had no checkers; riders could stay their full time or leave immediately after arrival, depending upon what doubtful calculations they had made up to that point. Several were fidgety, suspecting they might be late and debating whether or not to take the full 10 or shove off earlier; realizing that they might be on time, and possibly penalized by doing so.

The route was laid out in such a way as to provide as much variety as possible, both in regard to scenery as well as to speed changes. It covered desert area around the Gavelin Mountains, the citrus groves near San Juan Capistrano, and after passing Lake Elsinore, sharply climbed from sea level to an altitude of about 3,000 feet over a stretch of five miles. Speeds ranged from a three mile stretch at 19 mph to 8 miles at 50.

Something new was added to the scoring system besides the conventional "one-point per minute" at each check. At one check point all riders were asked five questions dealing with motorcycles. If they failed to answer any of them correctly, it cost them 1/6 of a point per question. Questions were:

- Who is the AMA District 37 referee?
- Who won the Daytona Expert event?
- Who won the Isle of Man race?
- Who won the Catalina Grand National?
- Who won the Greenhorn Enduro?

Another new aspect was the awarding of prize-cups to the winning navigators, so that the winning teams of the doubles event were actually awarded two cups per team.

The finish line was at a private beach (rented for the occasion) in the town of Laguna Beach, California. There the participants relaxed in the sand, while some of the girls shed leathers and levis for a chance in the bathing beauty contest.

Due to the great success of this type enduro, which gave even the inexperienced novices an equal chance to compete with the experts, other clubs have been encouraged to schedule pavement enduro runs. Because it appeals so much to all-around cyclists, it can be expected that more events of this type will be held all over the U.S.A.

**WINNERS****Men's Solo Event**

- 1st Victor Sirna—4 points (His first run)
- 2nd Floyd Burke—6 points

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- 1st Alice Wombsley (First competition run)
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- 1st Dick and Betty Murray
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These exhibits are aimed at giving the public a better understanding of the sport of motorcycling and acquainting new riders with club activities. *MOTORAMA* will be held in the famous Pan Pacific Auditorium. Show hours will be from 11 a.m. to 11 p.m. daily.

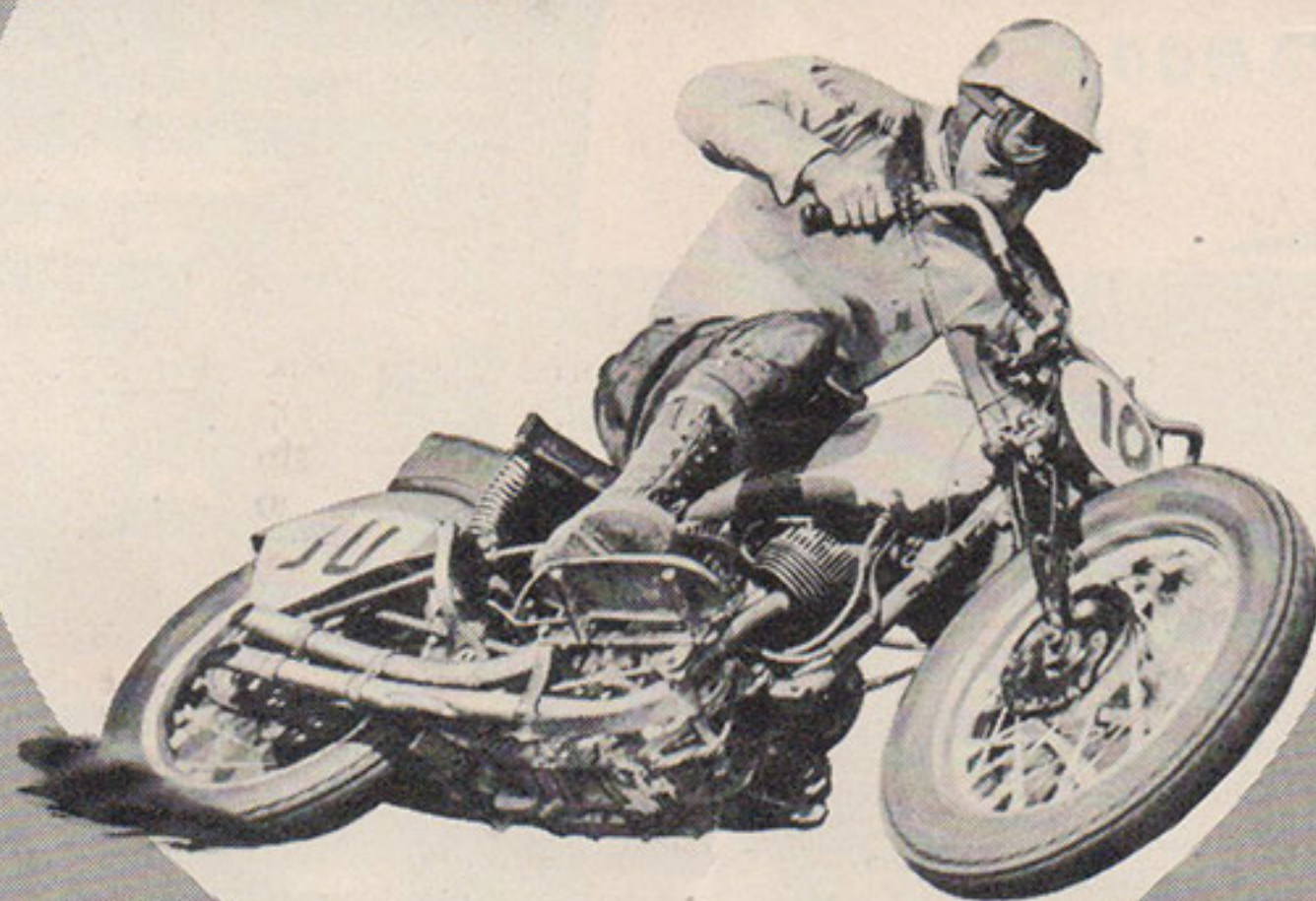
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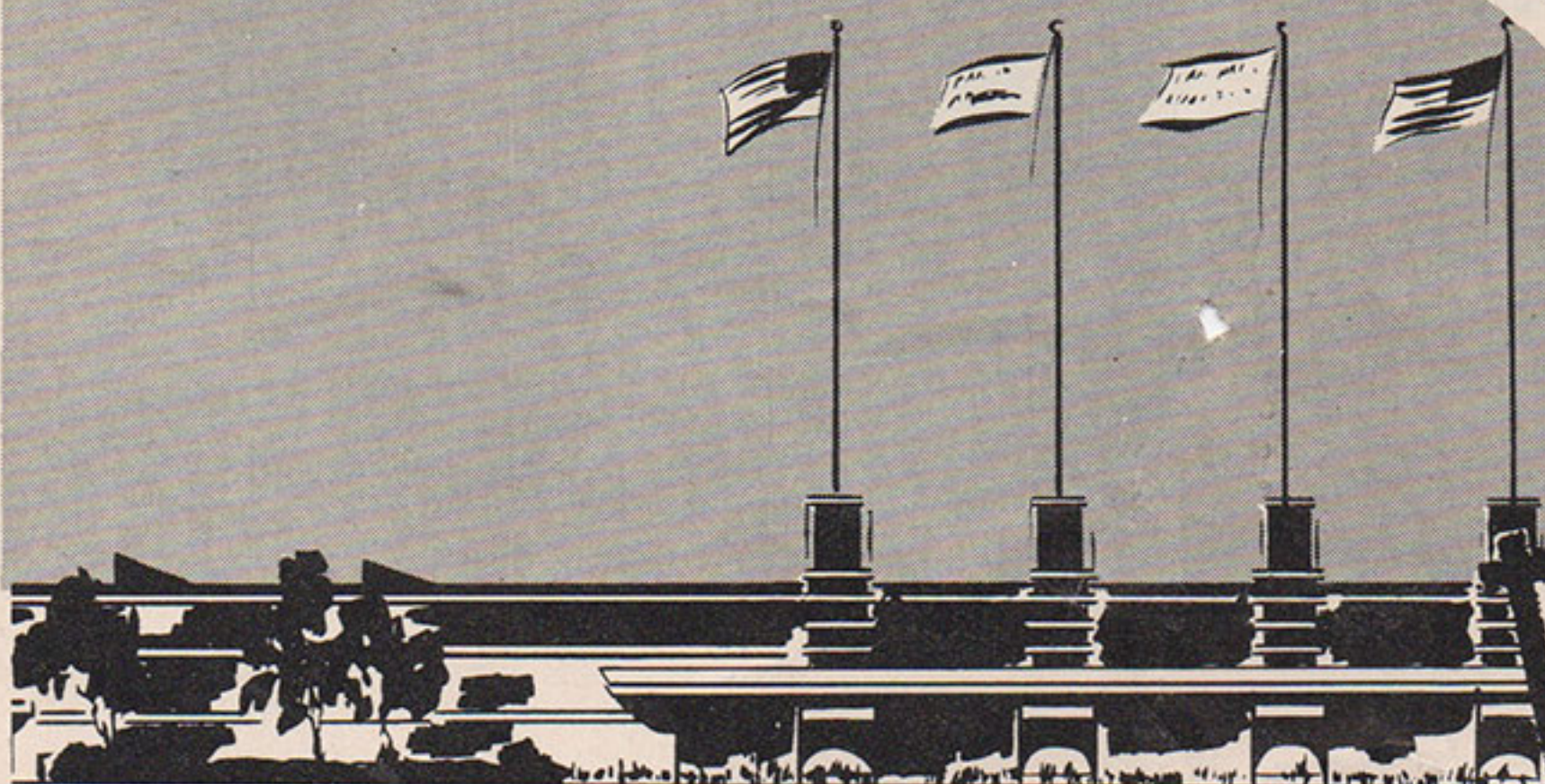
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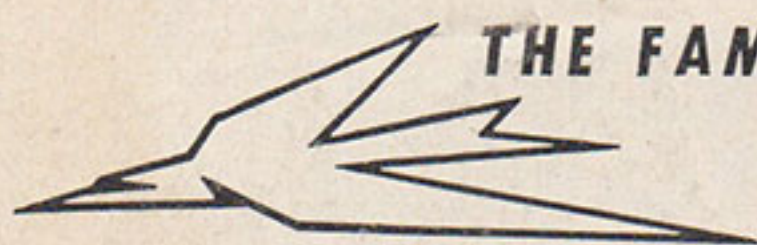
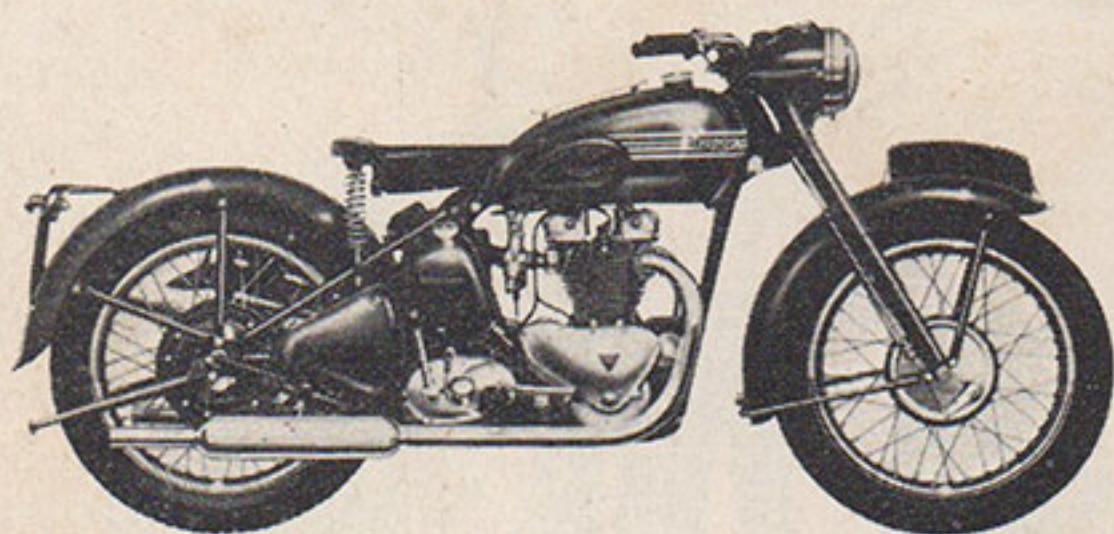


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