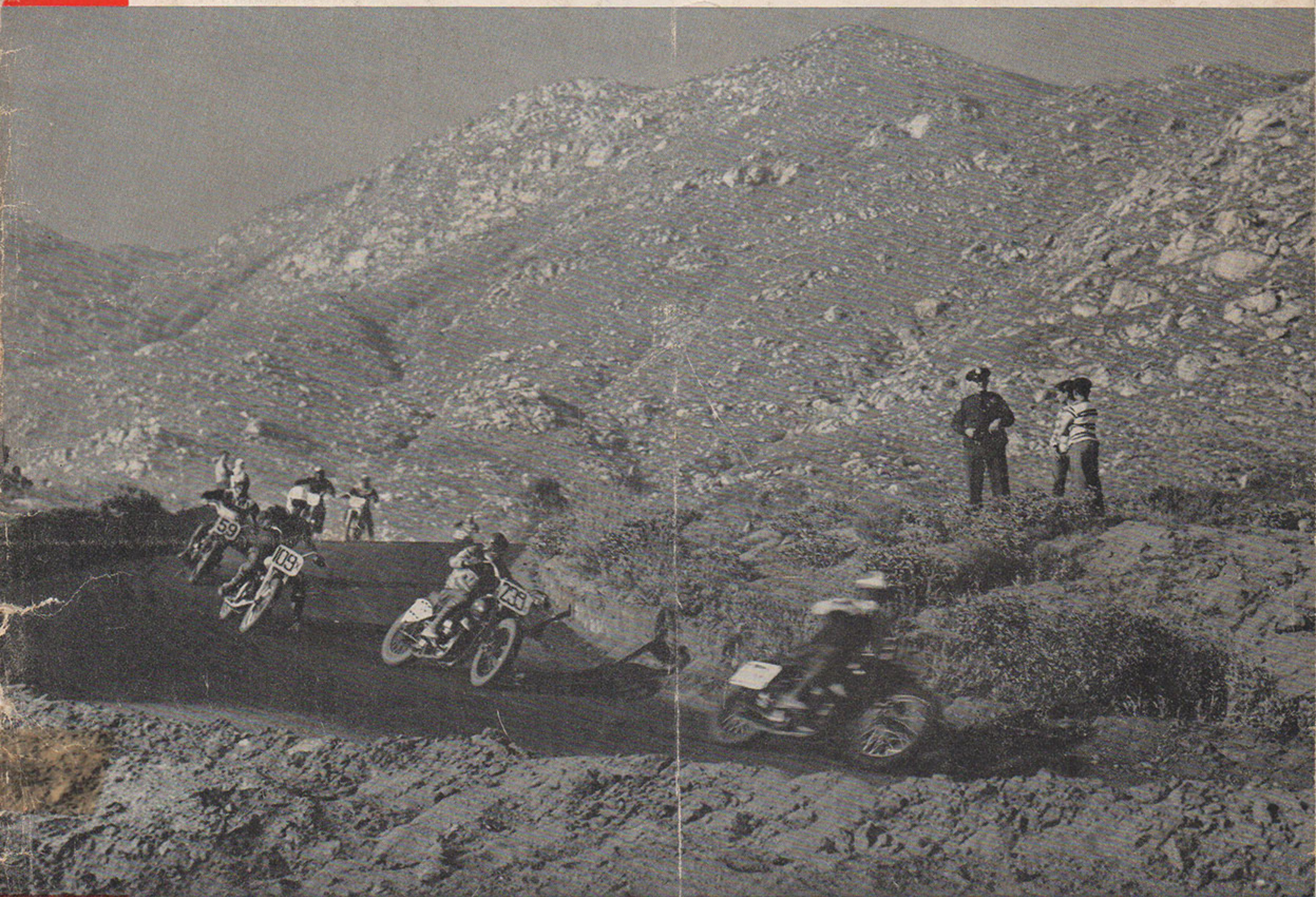


# CYCLE

**JUNE 1950**  
TWENTY-FIVE CENTS

*In This Issue:*

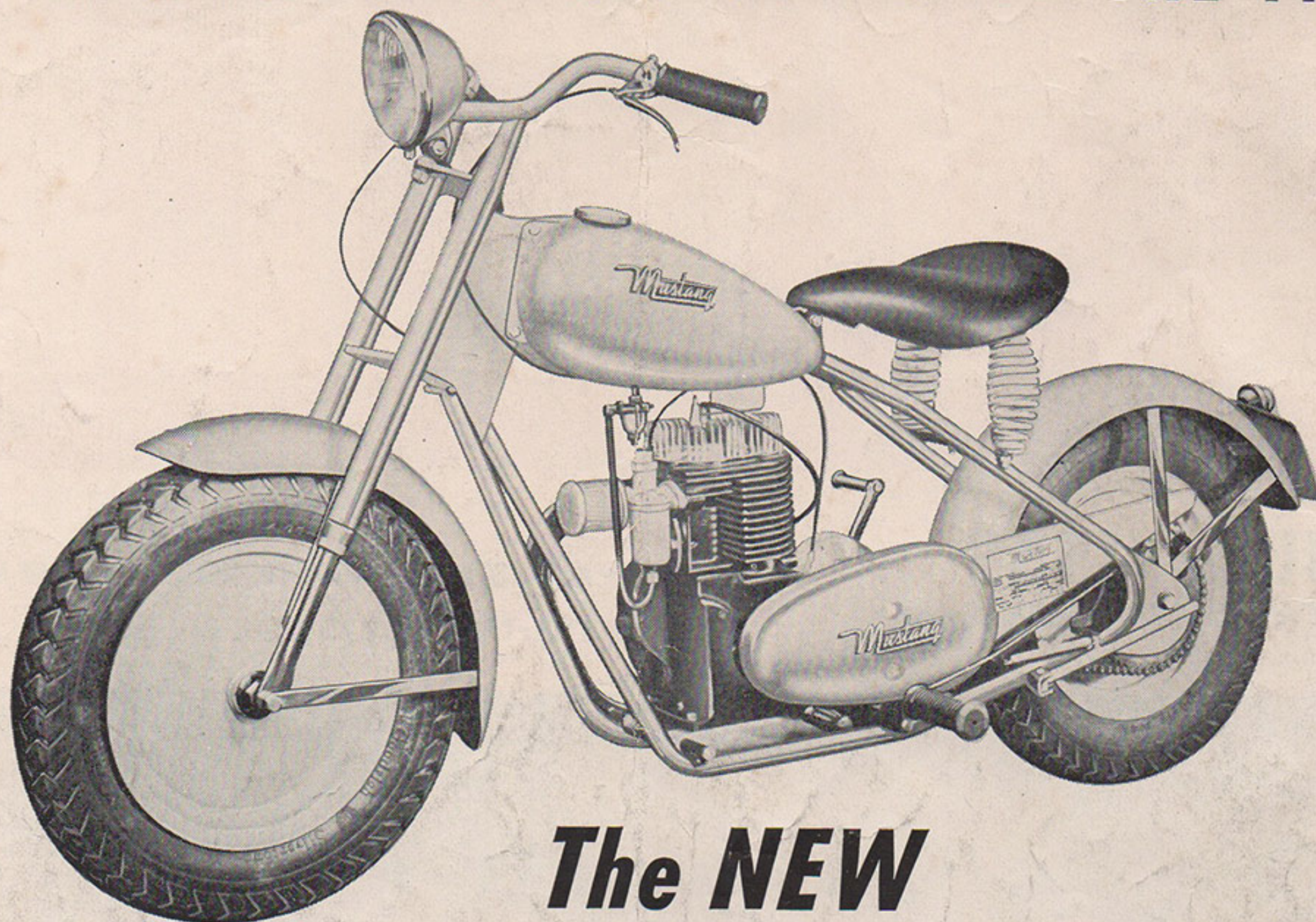
- MONSTER PLYMOUTH ROCK(ED) THE RECORD
- THE 1950 INAUGURAL RIVERSIDE T. T. RACE



Riders in action on famous Box Springs T. T. course. View shows lightning-fast portion of west turn

**"A WORLD OF MOTORCYCLE INFORMATION"**

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## LIGHTWEIGHT Model "4"

The original American high performance lightweight now offers further improvements which pay you even greater returns for your motorcycling dollars.

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Now only \$346.30 federal tax included at our factory, Glendale, California.

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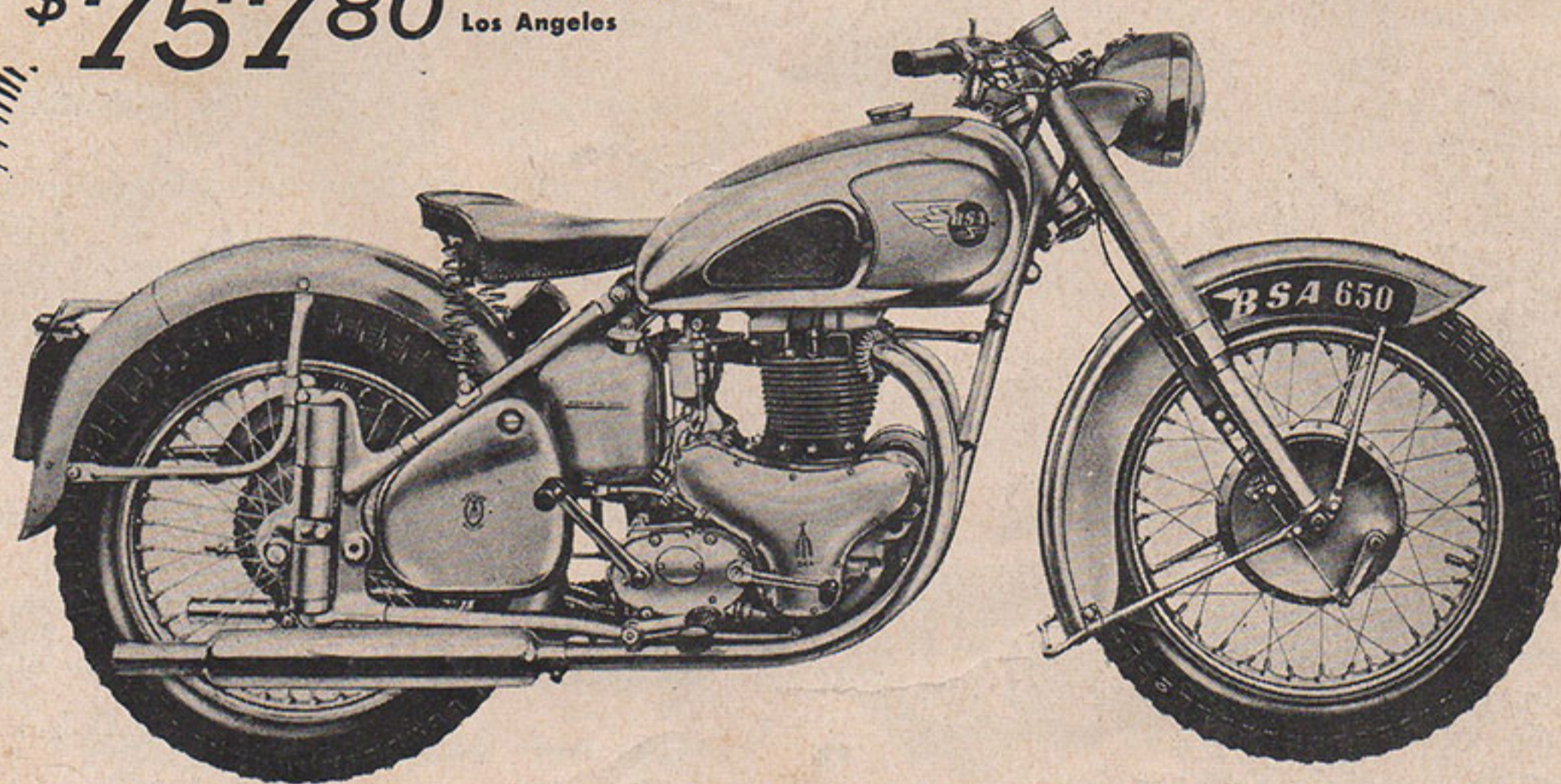
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for 1950

# Editor's Viewpoint

JUNE 1950

## CYCLE

"A World of Motorcycle Information"

VOL. 1 Published Monthly No. 3

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WHY ARE motorcycles in general, motorcycle riders in particular, and that grand sport of motorcycling, commonly frowned on by John Q. Public in this country? Two of the basic reasons are easy to SEE and HEAR.

The "SEE" reason is this. Motorcycle riders have, of necessity, to dress in clothing suitable for outdoor conditions. Two styles of dress have evolved, both having their pros and cons. One is the "Gestapo Garb," complete with many chrome spots and fancy lacings, featured by the great majority of motorcycle riders in the Eastern and Midwest sections of the country. The other is the "Jackets and Levis Get-up," worn by most West Coast riders.

Regarding the matter of clothing, it has been suggested that acceptability become the keynote. The "Gestapo Garb" attracts attention because of its departure from accepted dress standards. A policeman is outfitted in a uniform purposely to attract attention and thus psychologically proclaim that he represents law and order. Police uniforms are simple, neat and pleasing to everyone—except a traffic offender! Surely the wearers of "Gestapo Garb" neither intend to emulate policemen nor to try to psychologically affect the habits of Mr. Average Citizen. Could it be that they are trying to be outstanding individualists in their attire?

"Jackets and Levis" are often just as offensive. A leather jacket worn above a pair of clean and freshly pressed and cuffed levis presents a trim picture, BUT only when the jacket is clean and unfrayed and the levis do not display patches, torn pockets, ragged cuffs, and a sickly over-all color of whitish-blue.

We favor neither outfit, but we do believe that long trousers are accepted today as being the standard attire for men as contrasted to riding pants which belong on a police officer or a horseman.

The "HEAR" reason is this. The natural firing sequences of V twin and single cylinder engines make them very difficult to muffle adequately. An ample-sized muffler is often too cumbersome. An inadequate muffler creates too much staccato barking, which has proved very offensive to the average citizen. Open pipes are just plain "stinkin"! What to do about it has long been a problem which has confronted motorcycle engineers.

Write us your views on these matters. We will poll the replies in a later issue.

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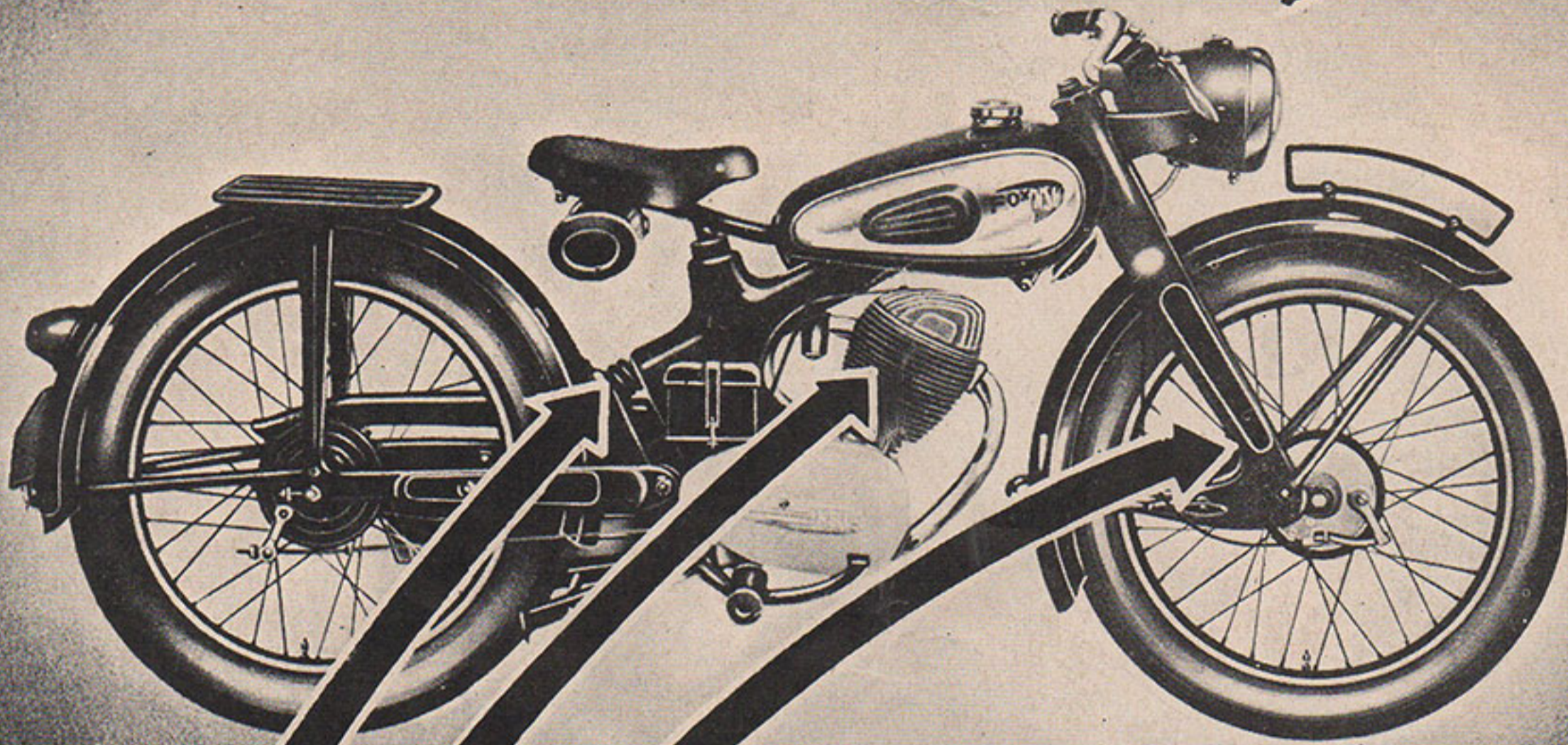
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### ON THE COVER

With the beautiful San Jacinto Mountains forming a natural backdrop to the renowned Box Springs Grade T.T. course, the riders shown are sweeping through one of the fastest left-hand turns on the track. Photograph reveals the excellent surface, width of course, and rolling nature of this track. The Box Springs lay-out has been acclaimed beautiful but tricky

# A new idea in motor-cycles



## THE SENSATIONAL NEW



*a 100 c.c. lightweight that has ushered in a new era of motorcycle construction and performance.*

*This remarkable new NSU model will give you driving ease and riding comfort such as you have never enjoyed in a lightweight.*

*A new rear-wheel spring suspension smooths out even the bumpiest roads. The powerful 6 HP O.H.V. engine makes the Fox the fastest motorcycle in the 100 c.c. class.*

*it's a smart FOX*

*Check these distinctions . . .*



*Semi-telescopic front fork with perfect springing; sturdy tires 2.5 x 19".*



*6 HP 4-stroke O. H. V. engine with completely enclosed valves; 3-speed foot-change gear, top speed 53 m.p.h.; modern pressed steel frame.*




*Rear wheel spring suspension — a feature that marks the NSU Fox as the latest achievement in driving ease and riding comfort.*

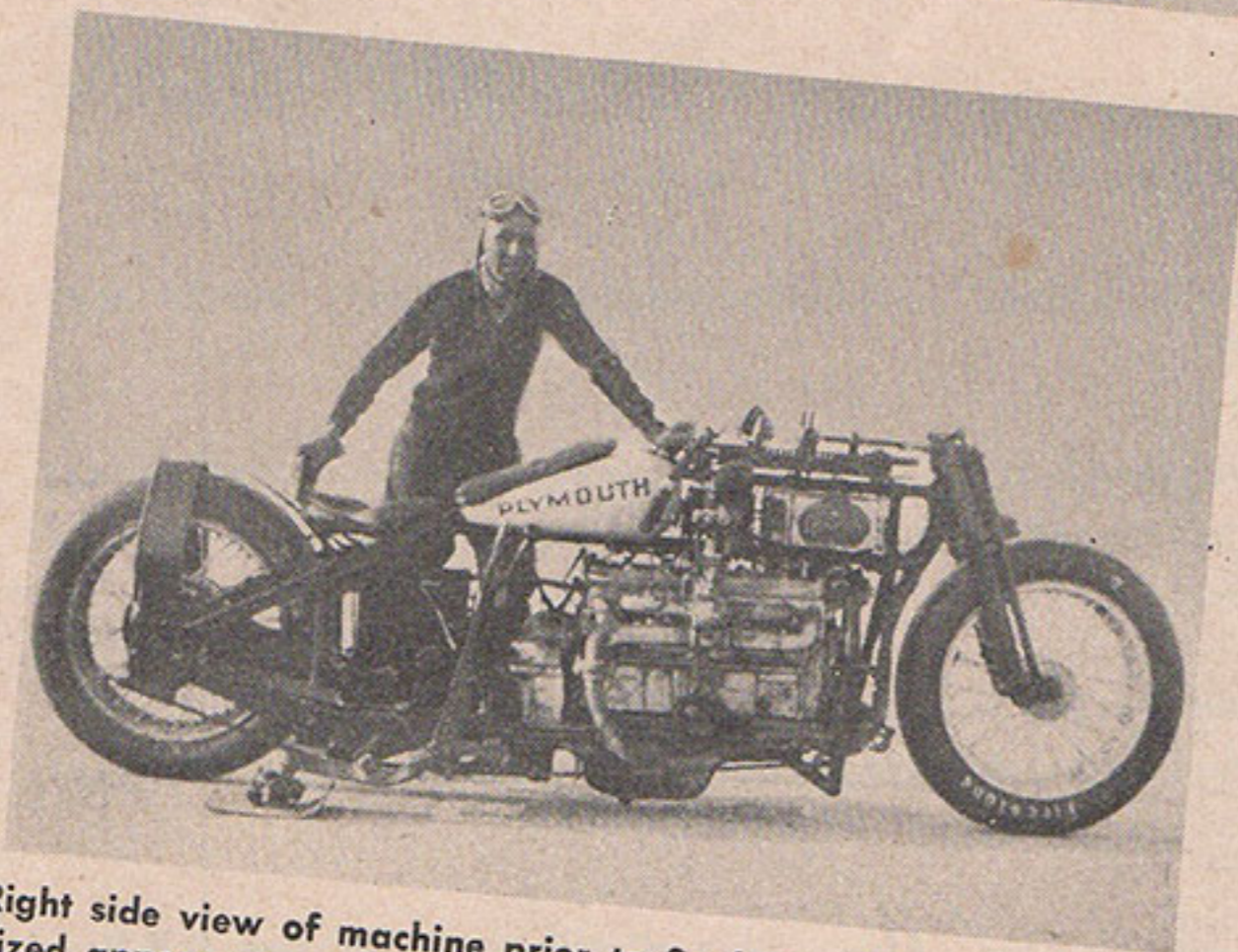
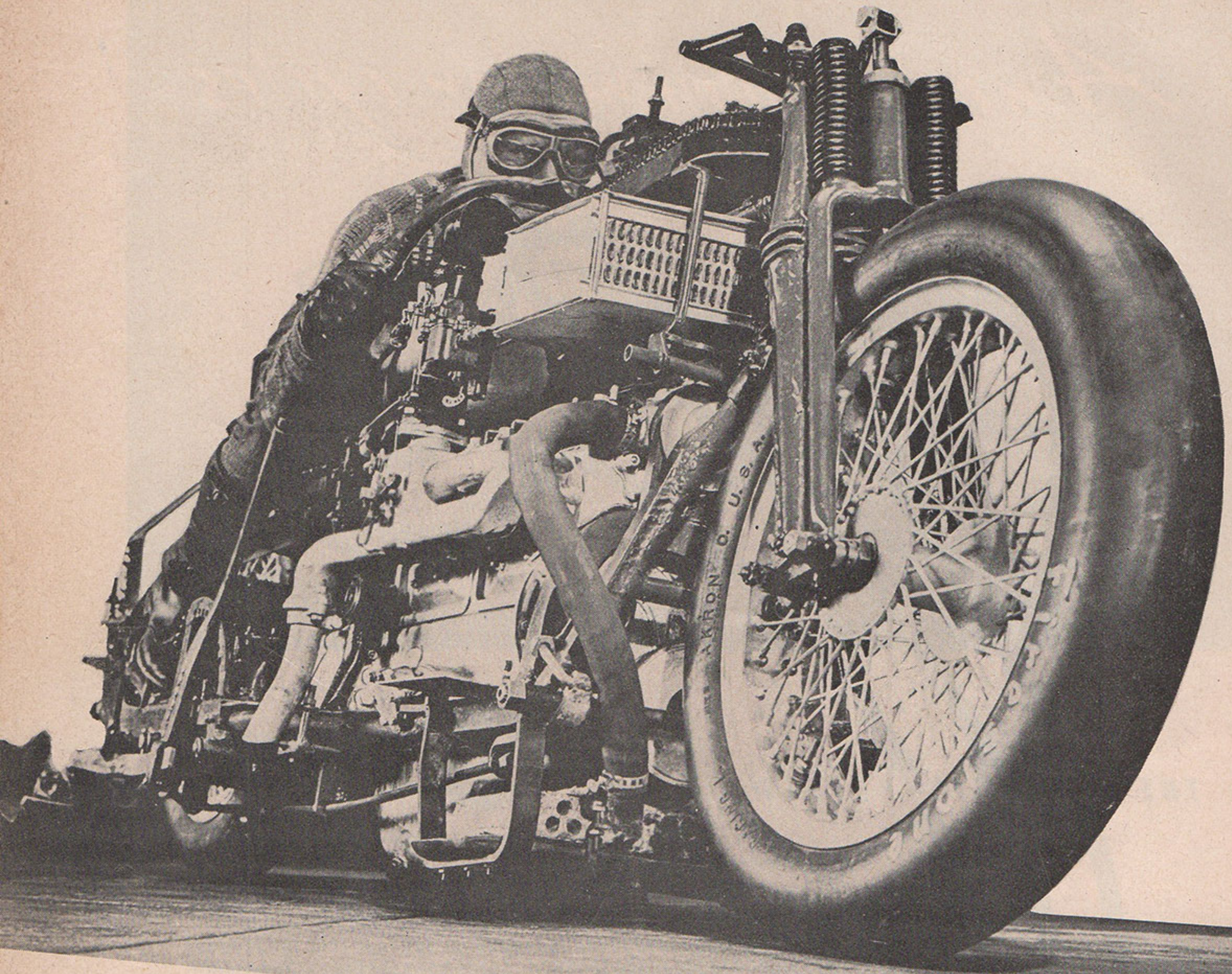
The famous NSU factory has re-entered the U. S. motorcycle field with its new and improved models in the 100 c.c., 125 c.c. and 250 c.c. class. Large quantities of all models are ready for immediate delivery. **Lowest prices in NSU history is your real big money making opportunity.** Franchise and authorized dealerships for certain territories are still available. For details write to:

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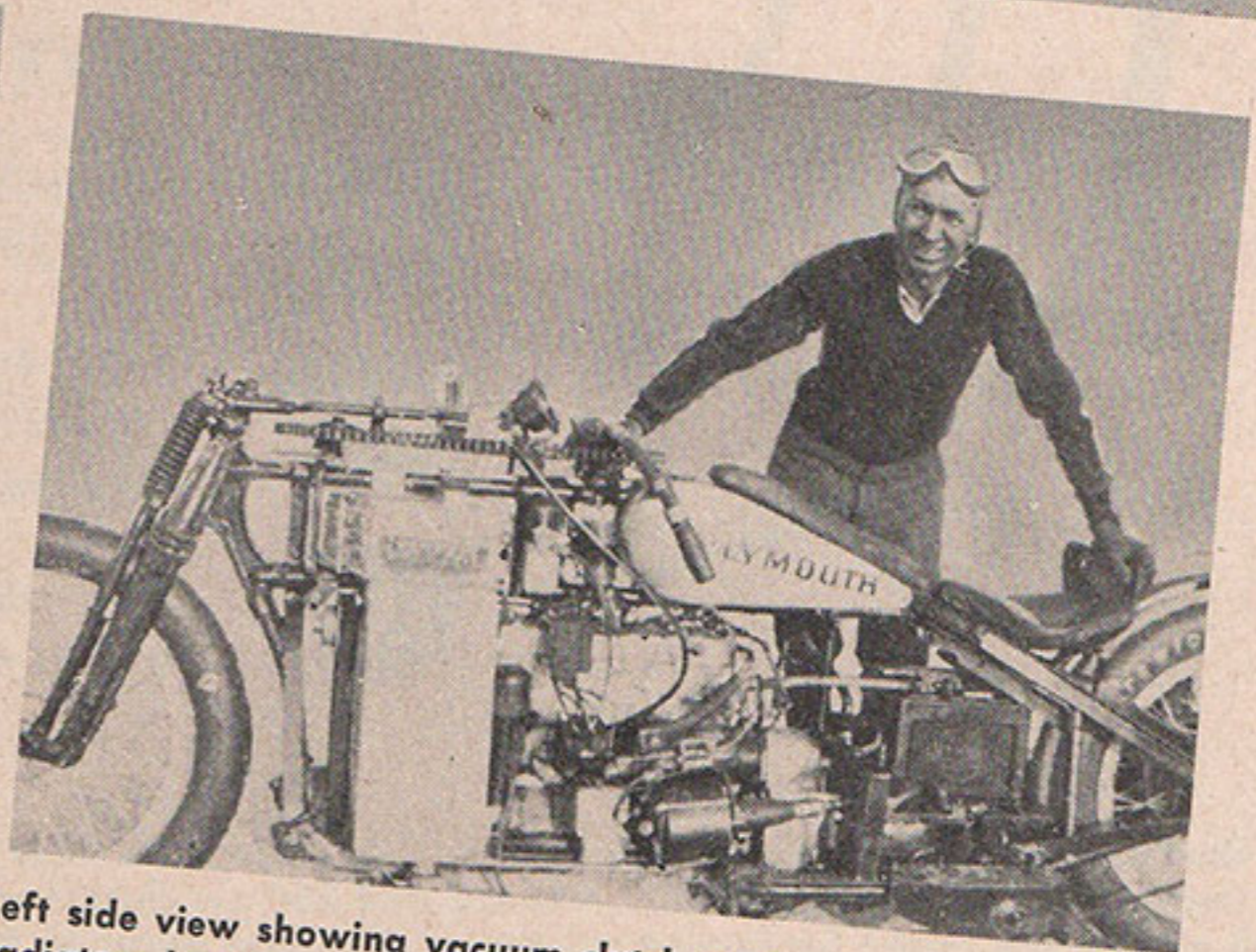
**Sharp Motorcycle Co., Inc.**

53 West 21 St. New York 10, N.Y.

BE SURE TO SEE YOUR NEAREST NSU AGENT ABOUT THE 



Right side view of machine prior to final run. The general out-sized appearance will be noted, also the "skis" for supporting machine upright while stationary. For such a long, heavy bike the steep angle of the front forks looks to be incorrect. Ground clearance was practically nil. Luther said bike handled well



Left side view showing vacuum clutch mechanism, huge cooling radiator, location of automobile-type storage battery, tachometer drive, and chain hook-up from handlebars to front forks. No attempt at scientific streamlining was made as general aerodynamics were not considered much 16 years ago

# The PLYMOUTH MONSTER

## 200 MPH ASPIRANT 16 YEARS AGO

by Gene Jaderquist

THEY had to wait over a day at the salt flats because Sir Malcolm Campbell's *Bluebird* was keeping the official timers thoroughly occupied. There was nothing to do but wait. The *Plymouth Monster* had been tuned to perfection in Los Angeles before the two men left. Tomorrow the salt flats would be deserted and Fred Luther, Adolph Thuillier and the *Plymouth Monster* would have the thirteen-mile straightaway to themselves. It was July, 1935, the behemoth was just 15 months old.

The mammoth machine had been conceived two years before in the mind of its owner and rider, Fred Luther. Fred began racing in 1909 when he was 17. During his early days as an amateur he spent most of his time on the half-mile dirt tracks of Texas and Oklahoma. Motorcycles were his hobby and his life, so in 1912 he turned "Pro" and began to make a living with them. For the next three years, he toured the big Eastern cities racing on the ultra-fast board tracks. Then in 1915 he took another step up and joined the Indian team. For the next three years he moved all over the United States, collecting his \$50 a week and expenses and whatever else he could make from prize money. During this period he first became known to the tire companies, oil companies, parts and accessories manufacturers—the firms who were later to be the cause of the dream that built this two-wheeled Brobdingnagian bike.

The First World War ended Fred's racing career. Not until 1931 did he again own another bike, a three-wheeler for the garage he had opened two years before in Los Angeles. Finally in 1933, he decided to attack the world motorcycle speed record.

It wasn't too difficult to find support. Chrysler donated a Plymouth engine; Firestone built special tires; Gilmore mixed special "80-fast" fuel and manufacturers of engine parts joined these three in offering contracts. All the contracts hinged on one condition—the completed motorcycle had to better 200 miles per

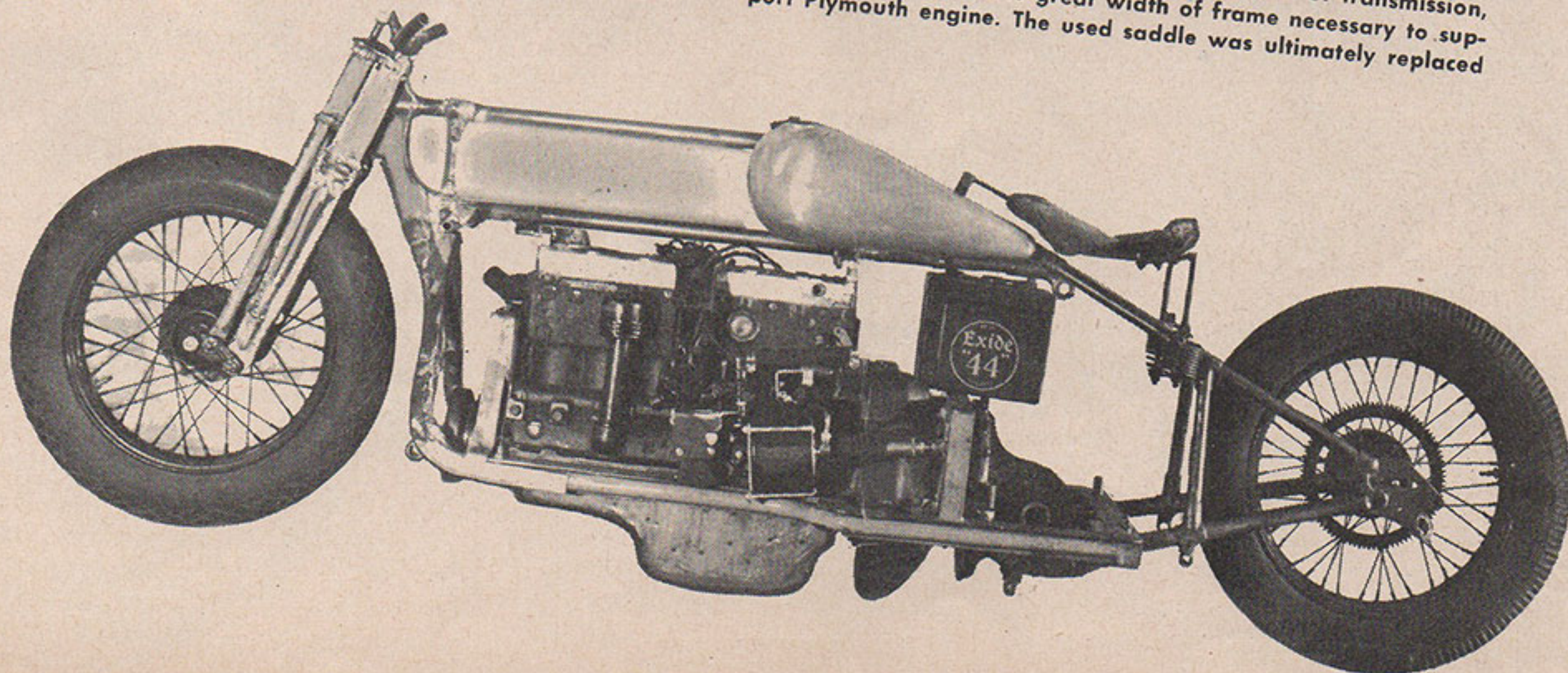
hour. If it did, \$30,000 was waiting for Fred Luther. Finding men to help in construction was not so simple. Fred finally settled on Jimmy McNeil, former racer and famous for his work in developing the early Cyclone engine, to do the special work on the engine. At almost the same time he picked Adolph Thuillier to adapt the engine into the stock Henderson frame. Work finally began in April, 1934. In the beginning there was just a Plymouth engine, a stock six-cylinder, from the factory, and a Henderson frame stripped of its motorcycle engine. The frame was cut and lengthened to a wheelbase of 105 inches, an extra bar was run along the underpart of the frame and two extra vertical supports were added to carry the weight of the heavy engine. Harley-Davidson front forks were reinforced with two extra bars. (Before the entire job was finished, 20 tanks of acetylene had been used for welding!)

In 1934, the stock Plymouth engine was a trustworthy work horse, scarcely anything to make a salt-flat man jump for joy. Compression ratio was 5.80:1 and it was rated at 77 horsepower at 3600 rpm. By the time Jimmy McNeil got through with it, the compression ratio stood at 9:1 and the horsepower rating had gone up to 115 at 4250 rpm. The regular Henderson transmission was left in the bike and a silent chain, 2½ inches wide, was used to drive the rear sprocket.

One problem that arose when the wheelbase was lengthened was the method by which the monster could be steered. This was solved by passing a chain from the handlebars, which were set well back, through a transfer sprocket mounted near the front

(Continued on Page 31)

The *Plymouth Monster* during the early days of building. Close inspection reveals very short handlebars, standard Harley-Davidson wheels (later replaced by specially built ones), general design of frame, location of gas tanks, position of transmission, and Exide battery. Note great width of frame necessary to support Plymouth engine. The used saddle was ultimately replaced



# INDIAN NIFTIES for the '50's

**OLDEST U.S. MANUFACTURER PLANS NEWEST IMPROVEMENTS**

WITH an accent on "purr-formance," the new models recently announced by the Indian Wigwam, Springfield, Massachusetts, offer many items of interest to riders of heavy, medium and lightweight motorcycles.

Naturally, in any line-up of motorcycles, the newest models get first attention and the model with the full-colored Indian head tank design bearing the "Indian Warrior" name fits that

description. The Warrior . . . another name with a familiar Indian ring, let's look it over in detail!

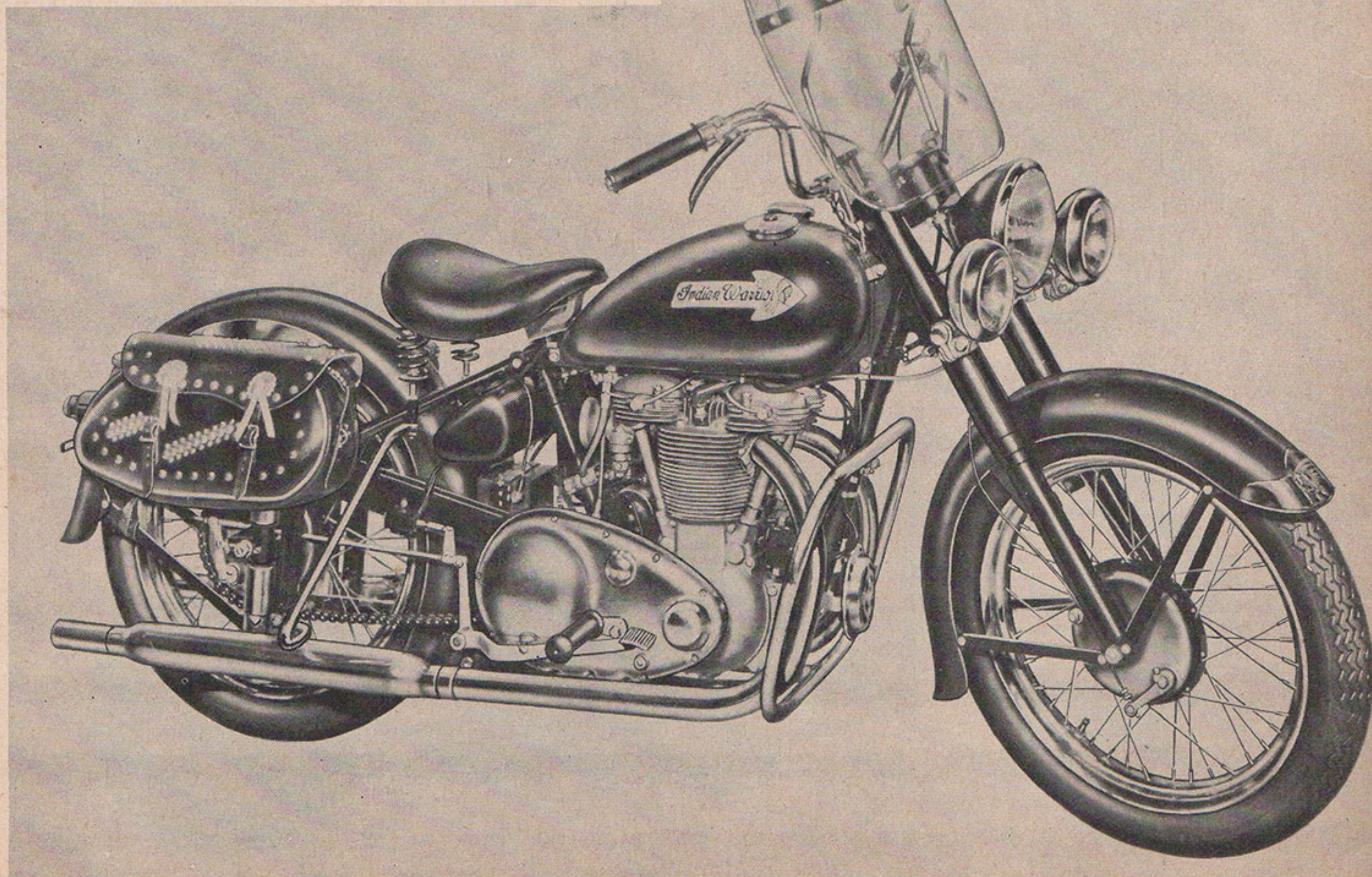
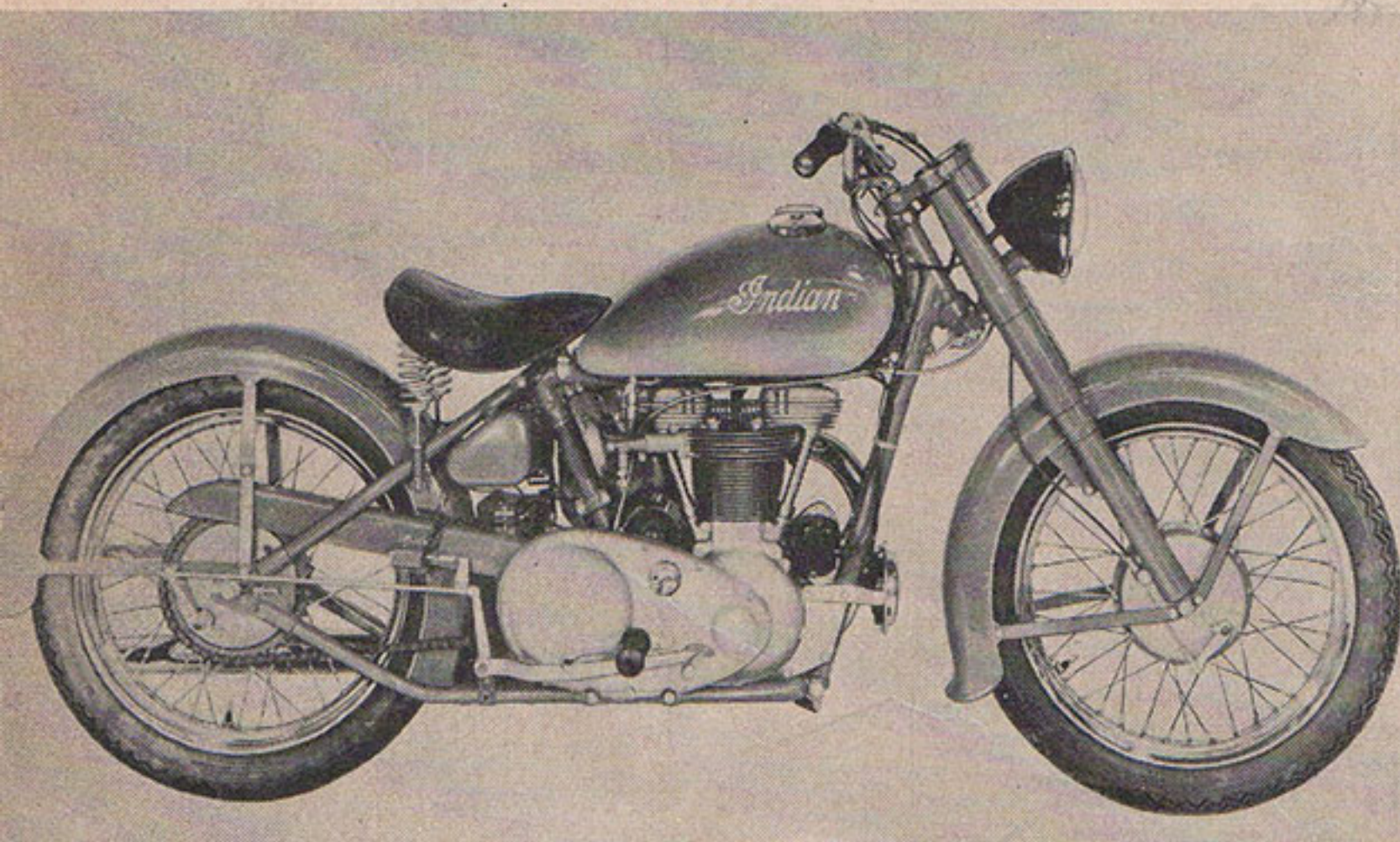
Of course, the best place to get acquainted is in the saddle, so "plunk" right down and grasp the bars. Hmmm, nice handlebar position. These are the new Indian 5" semi-rise western bars which are now available. The short sport bar is regular equipment, these semi-rise bars are optional, and the full

6 $\frac{3}{4}$ " high rise western bar is also available as an extra, so each rider can have his own choice of handlebar.

The fork action checks as "free," and notice how it "builds up" when we bounce it. The new Warrior forks incorporate a metering action that stiffens them at the ends of the stroke to take the "jounce" out of hard bumps. It takes a terrific jolt to make them bottom, yet they are real soft under nor-

**LEFT**, the improved Indian Arrow, 13.3 cubic inch overhead valve single. Separate generator and magneto, "Aerodraulic" front forks, carburetor air cleaner, and foot shift gearbox are featured. Fully enclosed push-rods and light alloy cylinder head add to trim appearance. Rear brake operated by right foot, gear change by left foot. Clutch control on bars

**BELOW**, the new Indian Warrior 500 c.c. vertical twin. The model bristles with attractive features; light alloy engine components, Aerodraulic front forks, spring frame, overhead valves, comfortably curved handlebars, dual exhaust system with separate mufflers. Spot light support brackets are integral part of the Aerodraulic front forks



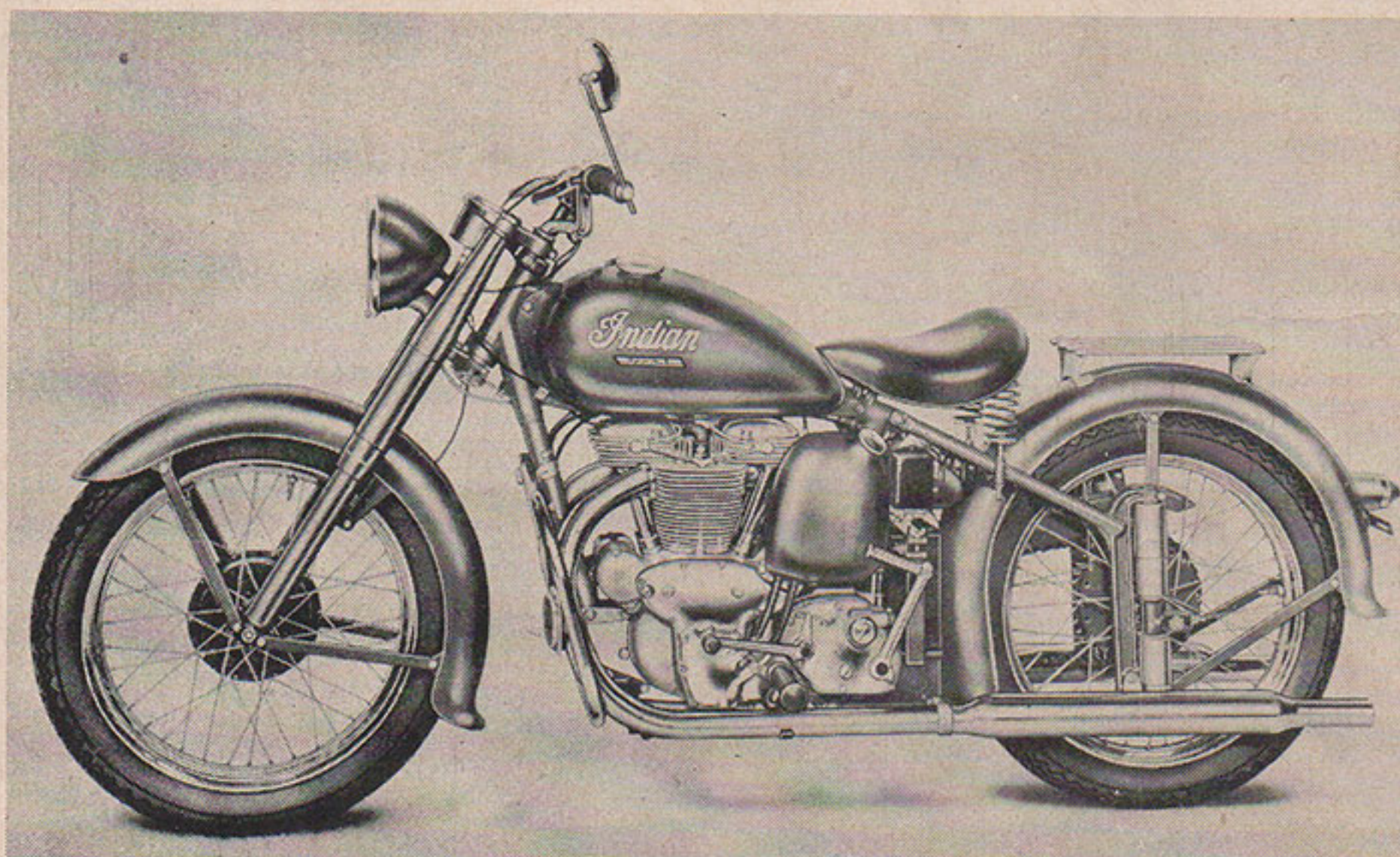


mal conditions.

How about the engine . . . looks like the Scout . . . what is the size? Why it's a new 30.40 cubic inch (498 c.c.) vertical twin powerplant with 2.540" bore and 3" stroke. Indian engineering records show that models of this engine complete with full equipment and standard road mufflers have developed 29 horsepower! A new head contour, larger 1 3/8" intake valves and 1 5/16" exhaust valves that get more fuel into the combustion chamber and out again, and the new 15/16" Amal, Type 276, carburetor contribute to this performance.

New type exhaust valves are used in the Warrior. These are bi-metallic valves, with heads of high nickel chromium austenitic stainless steel and stem of chrome nickel-moly triple alloy. The special metal in the valve head gives greater strength under the high temperatures at which exhaust valves operate.

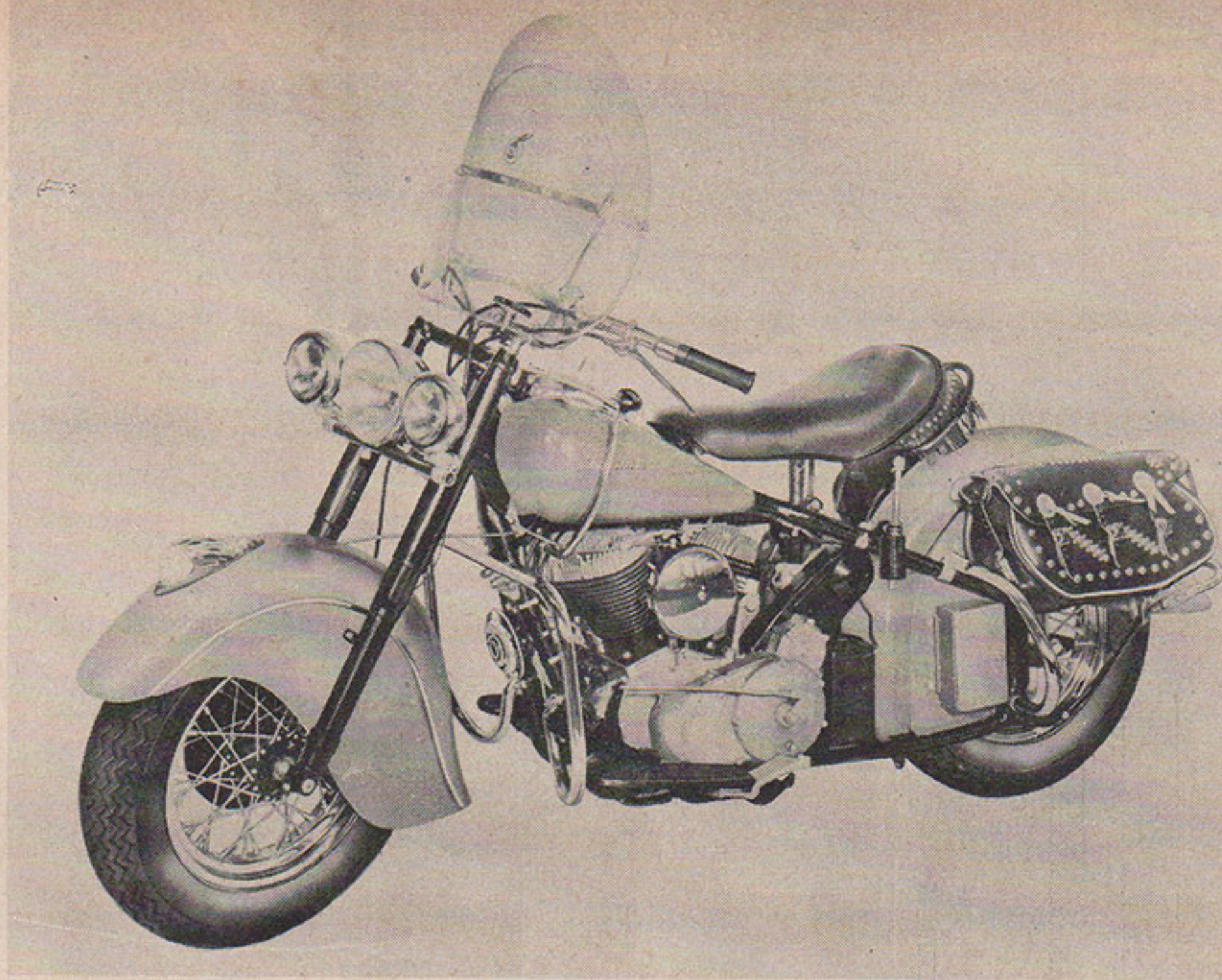
**BELOW**, the 26.6 cubic inch Indian Scout model. This bike features a vertical twin engine complete with overhead valves and footshift



The enclosed primary case of the Warrior is fitted with a new chain adjusting shoe to compensate for wear or "chain stretch," and, of course, the Indian Torque Evener cushion sprocket is used to provide smoother power at slow speeds in high gears. The bonded cork-faced plate clutch is similar to that used in the Arrow and Scout models, except that an additional spring load range of 38-43 pounds is provided to handle the extra Warrior horsepower. This is eight pounds over the standard Scout set-up.

Electrically the Warrior uses an improved magneto with a new Wico high performance coil for primary spark, and a stepped up G805A two-brush generator with voltage regulator that will cut in the generator at lower speeds.

In performance the Warrior is excellent. Because it is built of stronger



**ABOVE**, the "Blackhawk" Chief. The 80 cubic inch side valve engine produces a lusty and useful 40 bhp, new forks provide perfect ride

alloy steels that require a lesser amount of metal and a more than generous proportion of aluminum alloy, weight is kept down to 315 pounds, which puts the Warrior far below the average 30.50 model in that respect. Combine this with the Warrior high output engine and you see why the Warrior is a very snappy sports and touring motorcycle. Recent electric clock tests show an acceleration for 1/10 of a mile from a standing start in 8.5 seconds, a timed speed of 91 miles per hour, and a stopping distance of 26 feet at 30 miles per hour on a rough tarred surface.

**NEW "BLACKHAWK" CHIEF**

A look at the new Chief reveals a number of new developments. The new hydraulic-telescopic "Aerodynamic" fork sets off those familiar skirted fenders. Heavier than other Indian forks, it does feature the same "metered" action as the

Warrior to maintain proper fork movement at all times.

The range of fork control has been proved satisfactory for both solo and double riding; however, the fork can be reset internally for continuous use under extremely light or extremely heavy loads or for sidecar purposes if desired.

Fork construction is worthy of note in that it includes built-in mounts for accessory crossbars for spotlights or windshield. Crossbars attach solidly to holes in bosses cast into the fork brackets. New rubber mounts (similar to lightweight design) with risers are also built into the new Chief "Aerodynamic" fork.

The Chief powerplant is new . . . the husky "Blackhawk" 80-cubic-inch engine has a bore of 3 1/4" and a stroke of 4 13/16". It's a long stroke engine with high performance cams, newly shaped combustion chamber, and a new 1 1/8" carburetor combination which makes it possible to deliver 40 horsepower to the rear wheel.

**ARROW AND SCOUT**

The other members of the Indian family are the 1950 Scout 26.6 cubic inch model vertical twin and the 13.3 cubic inch Indian Arrow single. Although similar in appearance to the 1949 models (which added a lot of fuel to the heavyweight-lightweight controversy by their performance in trials and other sports events), the 1950 versions feature an improved "Aerodynamic" fork to which a new rubber bumper, rebound stop and seals have been added.

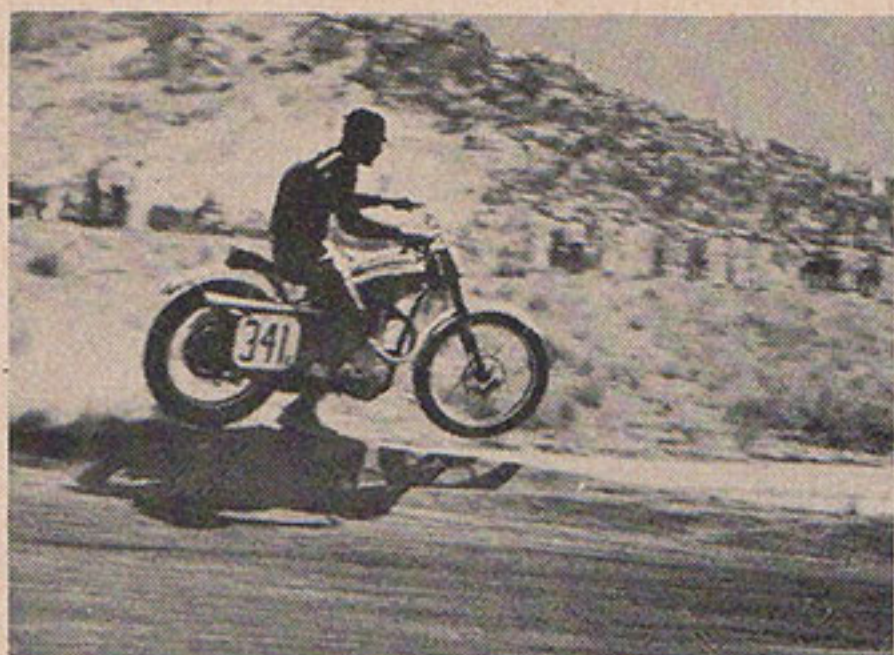
Arrow, Scout and Warrior models have been in production since the first of the year, and assembly of the new Chiefs, designated as 1951 models, was started in March.

# CALIFORNIA SEASON OPENS AT RIVERSIDE

## 1950 TEES OFF WITH T.T. CARD

by Gene Jaderquist

Photos by McBrearty and Pete



Norm Southern sallies into the soft stuff on "that wicked right hand turn." The BSA didn't buck him off but it took Norm's skill to hold it



"Tornado Tex" Luce loose on his Trophy Triumph. Tex was hot as a Lucifer match but the bike was too new to develop much HP



Robert Fulton's original steamboat didn't generate nearly the amount of power Walt Fulton did during usual Trophy presentation kiss!

Now I've seen everything! When I accepted the assignment to cover the card of T.T. races at the Box Springs course on April 2, I felt supremely confident of describing Man's actions in every circumstance. (Wasn't I a professional writer?) With the assurance of receiving any necessary technical help I might need, I looked forward to an interesting afternoon at a motorcycle race. The word "interesting" proved much too modest an adjective to apply to the affair, the word "sensational" would have been more fitting. Whew! What an afternoon!!

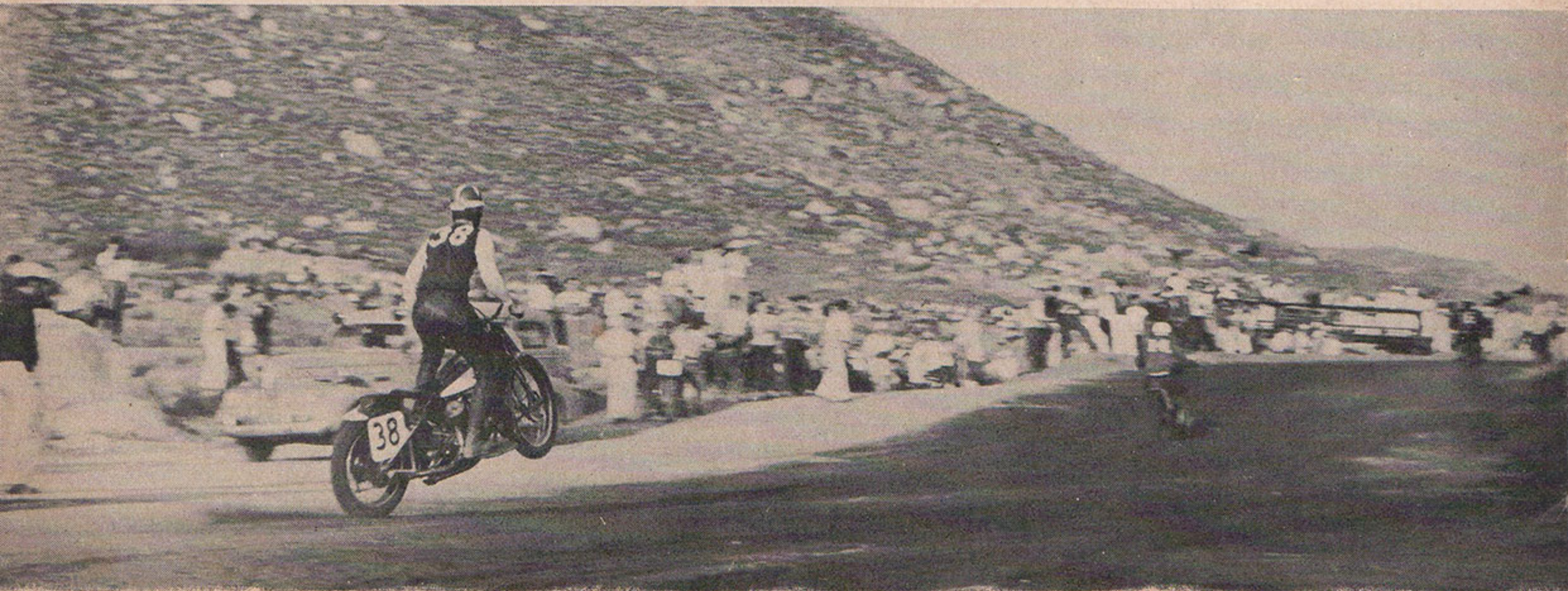
The setting was the famed Box Springs T. T. course, scene of the 1947 and 1948 100 Mile National Championship races. The sponsoring club was the consistently successful Riverside Bombers Motorcycle Club. Prevailing weather hinted of Spring—with a heavy accent on clear sky and a light but pleasant breeze. The contestants totaled 177 riders, composed of A.M.A. and C.R.A. members. (This was the first race for a long time in which riders of both factions took part, the factions having recently resolved their differences.) The purse was \$1000, and the race-starved spectators numbered nearly 3800 fans.

It wasn't long before the name of Walt Fulton, Triumph, began to get monotonous over the P. A. system. Not the sound of the name, nor the personal-

ity of the man, just the regularity with which Walt wiped 'em up—fastest qualifier, won his heat, garnered the gilt goblet and girl in the Trophy dash, and wound up the afternoon by winding up his "Thunderbird-engined Trophy Triumph" bike into top spot in the 20 lap Main. (I talked to Fulton after the races and learned two very impressive things; he's going on the road as a Field Representative in the Southwest for the Mustang Motorcycle Company, and he's the most gentlemanly, refined man I've met for a long time.)

Lots of familiar names were bantered about over the Squawk Box during the afternoon, but I was only able to personally see the hectic action of a mere handful at a time because the course is six-tenths miles around and I could only cover one portion at a time. Ed Kretz was well represented, having himself and his son, Eddie Jr., entered. Big Ed used his own Trophy Triumph, while Little Ed took a ride on the family Indian. Tex Luce was hotter than Lucifer on a Triumph, while Don Evans, two-time Amateur winner at Daytona, gave his single-stick Norton a good punch in the piston to annex a win in the third Novice heat race. Benny "King Pin" Campanale rode herd (and hard!) on his Harley to fill the seventh frame in the Main. Bud Hogan used his Indian to successfully "scalp" fifth place in the

BELOW, Eddie Kretz Jr. lands safely after taking "a lesson in aviation" over brow of steep hill at beginning of straight-away. Note how Eddie is poised on pegs forcing rear wheel to land first





The stage is set for a bit of drama. With one rider down and another about to take violent evasive action to miss him spectators sense trouble. Rider still "up" did not hit rider who was "down"

20 lapper, while Little Eddie (last name Kretz) took down the heavy sugar in the first Amateur heat race. The remaining 171 riders tore up the turns and scarred up the straights all afternoon with such frantic abandon that yours truly came away at eventide with the firm conviction that so much entertainment for so few pieces of silver could never be exceeded. Never ever!

The Box Springs course is aptly named—or was laid out to conform to its geographical location, I don't know which. Nowhere has it ever been simpler to "box" a group of riders if your riding ability was equal to the occasion, and nowhere can riders "spring" from one depressed elevation of a track to the higher elevation of the same track as when riding up and over the famous "hump" on this track. Man and motorcycle literally spring into the air, sometimes 8 to 10 feet high, when completing the west turn and entering the home stretch. This incline, about sixty feet high, provided much study of the bottom sides of cases and transmissions, as rider after rider soared gently through the ozone—alti-

tude 8 feet, broadjump distance 40 to 60 feet.

The riding skill, the hard fought jockeying, the terrific speeds, the tremendous shattering of the serenity of the surrounding atmosphere by the sweetest music this side of Langhorne, emitting from open pipes, and the spine-jabbing thrills I saw and heard makes me convinced—I've seen everything!

The summary of winners looked like this:

#### Novice Events

6 Lap Heat	Don Hawley	Ind.
6 Lap Heat	P. Tranbarger	Tri.
6 Lap Heat	Don Evans	Nor.
6 Lap Heat	Ken Malley	BSA
10 Lap Final	P. Tranbarger	Tri.
	Don Hawley	Ind.
	Frank Du Bois	Ind.
6 Lap Cons.	Don Ashcraft	BSA

#### Amateur Events

6 Lap Heat	Ed Kretz Jr.	Ind.
6 Lap Heat	Don Bishop	BSA
15 Lap Final	Don Bishop	BSA
	Ed Kretz Jr.	Ind.
	Bob Chaves	Tri.
6 Lap Cons.	Don Fera	Ariel

#### Expert Events

6 Lap Heat	Jim Phillips	Tri.
6 Lap Heat	Walt Fulton	Tri.
Trophy Dash	Walt Fulton	Tri.
20 Lap Main	Walt Fulton	Tri.
	Jim Phillips	Tri.
	Tom Turner	H-D
	Ed Kretz	Tri.
	Bud Hogan	Ind.
	Jimmy Kelly	Ind.
	B. Campanale	H-D

# Crater Camp Field Meet

## SOUTHERN CALIFORNIA MOTORCYCLE CLUB'S ANNUAL "DO"

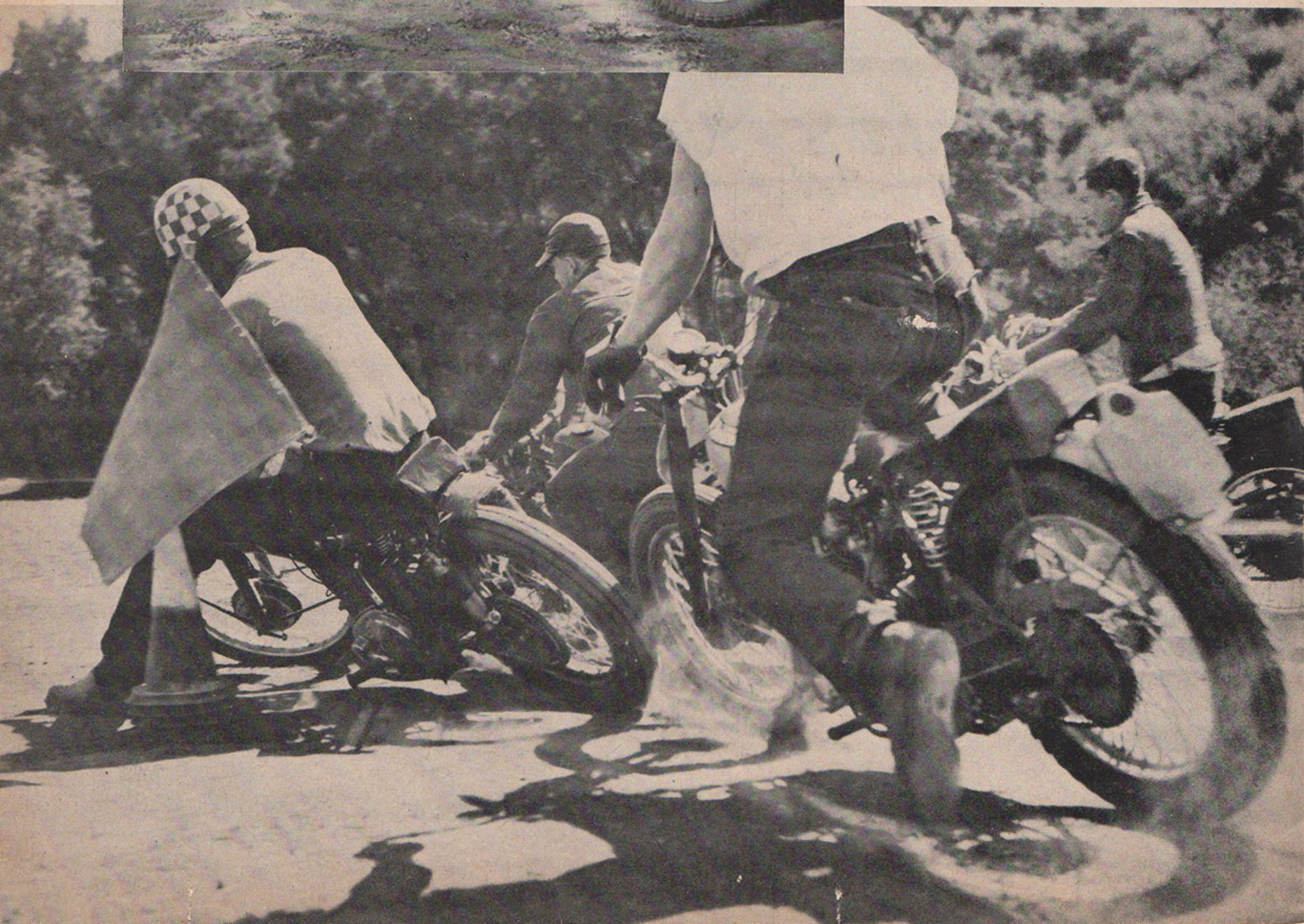
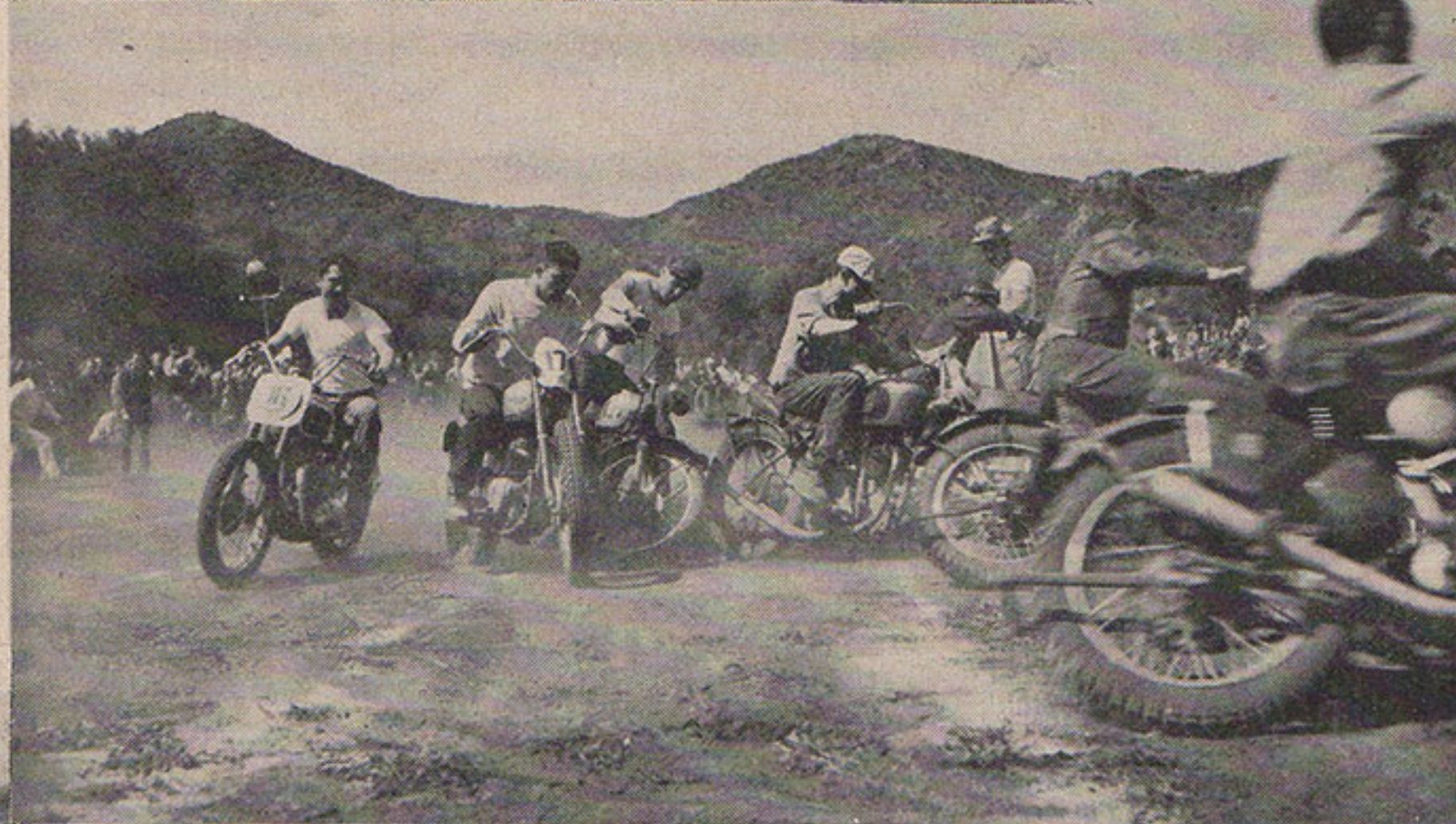
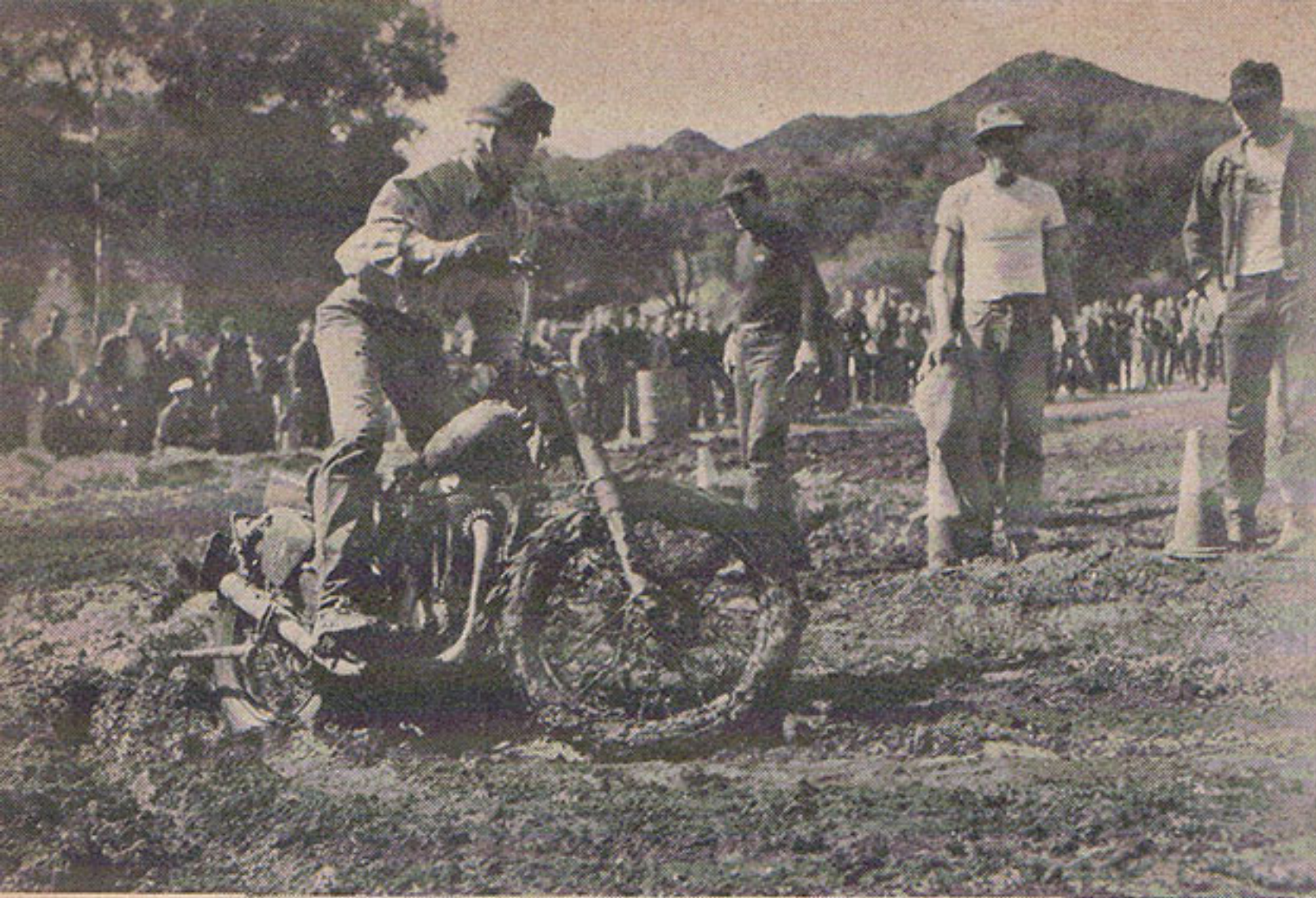
*Text and Photos by  
Ardie McBrearty*

**H**OW REFRESHED the air is after a rain. How fast a field meet course is after the same! That's the way things were March 26th at the Southern California Motorcycle Club's annual field meet held at Crater Camp. Refreshing and fast.

Crater Camp is located about thirty miles from the center of Los Angeles. The motorcycle field meet spot is situated in a natural amphitheatre with

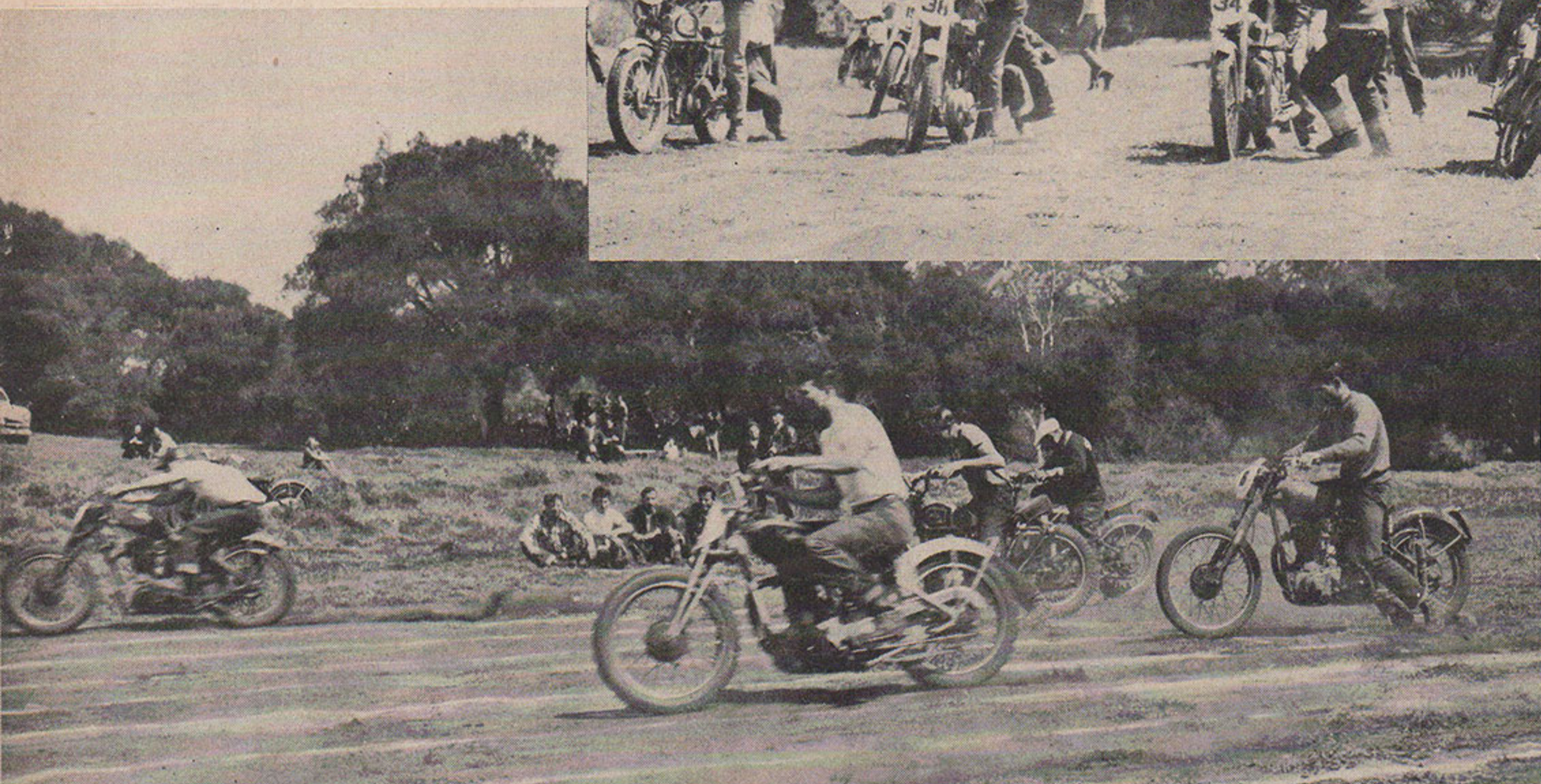
**ABOVE LEFT**, mud and guck in the Australian Pursuit race. Look at that sticky mess on the front wheel. Some riders fell off in the stuff!

**LEFT**, massive maneuvering at the first turn in the Miss and Out contest. Much mangling of metal was heard plus plenty pointed profanity



RIGHT, start of Run and Ride event. Assistants hold machines until riders arrive, take over, and get "gone." "First kick" starts are a must

BELOW, the Run and Ride develops into a contest to sort out the men from the boys. Rider in left background has his stern far rearward



towering hills forming a natural enclosure on three sides of the "playing field." The steepest hill forms the incline for the Hillclimbing contest.

The Slow Race opened the program. Any Slow Race is hard to believe, you have to see one to believe it. A Slow Race is won by the rider taking the LONGEST time to cover the distance between the start and finish lines, 200 ft. apart at Crater Camp. Chuck Minert, BSA, won this deal hands down, but with his feet up! Chuck has been nicknamed "Motionless" Minert. He can pause absolutely motionless for endless periods of time, just rocking the Beesa back and forth about three inches either way. The crowd on the sidelines cheered Chuck all during his performance. Riding a motor without moving is Minert's meat.

Wally Remel copped the Run and Ride race. Using a take-off on the old school-day's theme of the three "R's" (Readin', Ritin', 'Rithmetic), at the Crater Camp meet we had the same three "R's" (Remel, Run, Ride).

Most everyone has played musical chairs at one time or another. A Miss-and-Out race is on the same order, the last man to complete a lap around a small course marked by pylons has to automatically drop out of the race. The

race is over when a lone rider is still going. Mr. Ernie May on an Ajay had his day in this one.

The very adroit Mr. May also got his Ajay to annex the Drag Race. May always fits a big knobby Avon rear skin for field meets and it really meets all of May's requirements.

Nels Nicholson brought his "company" home first in the Passenger Pick-up race. Why this type of race is called a Passenger Pick-up race is odd, it should be called a Passenger Dump-off race.

The Australian Pursuit race saw Aub LeBard, 1949 and 1950 Big Bear winner, successfully annex the premier award. "Gold Star" LeBard once more proved to be the man to beat through the muddy course.

The next to last event, the Scrambles race, brought "Ajay May" back into the limelight. The course consisted of a water hole, several steep hills, some high-speed turns and a fast straight-away. Ernie is one of those rugged, outdoor types who revels in rough stuff. (Ernie's regular pay-check comes from a movie studio—he's a movie set carpenter.)

The last event of the day saw Don Macias win the Hill Climb. After the Scrambles deal the hill climb proved sort of an anti-climax show but Macias breasted the crest in record time. Some spectacular spills took place but no one got hurt.

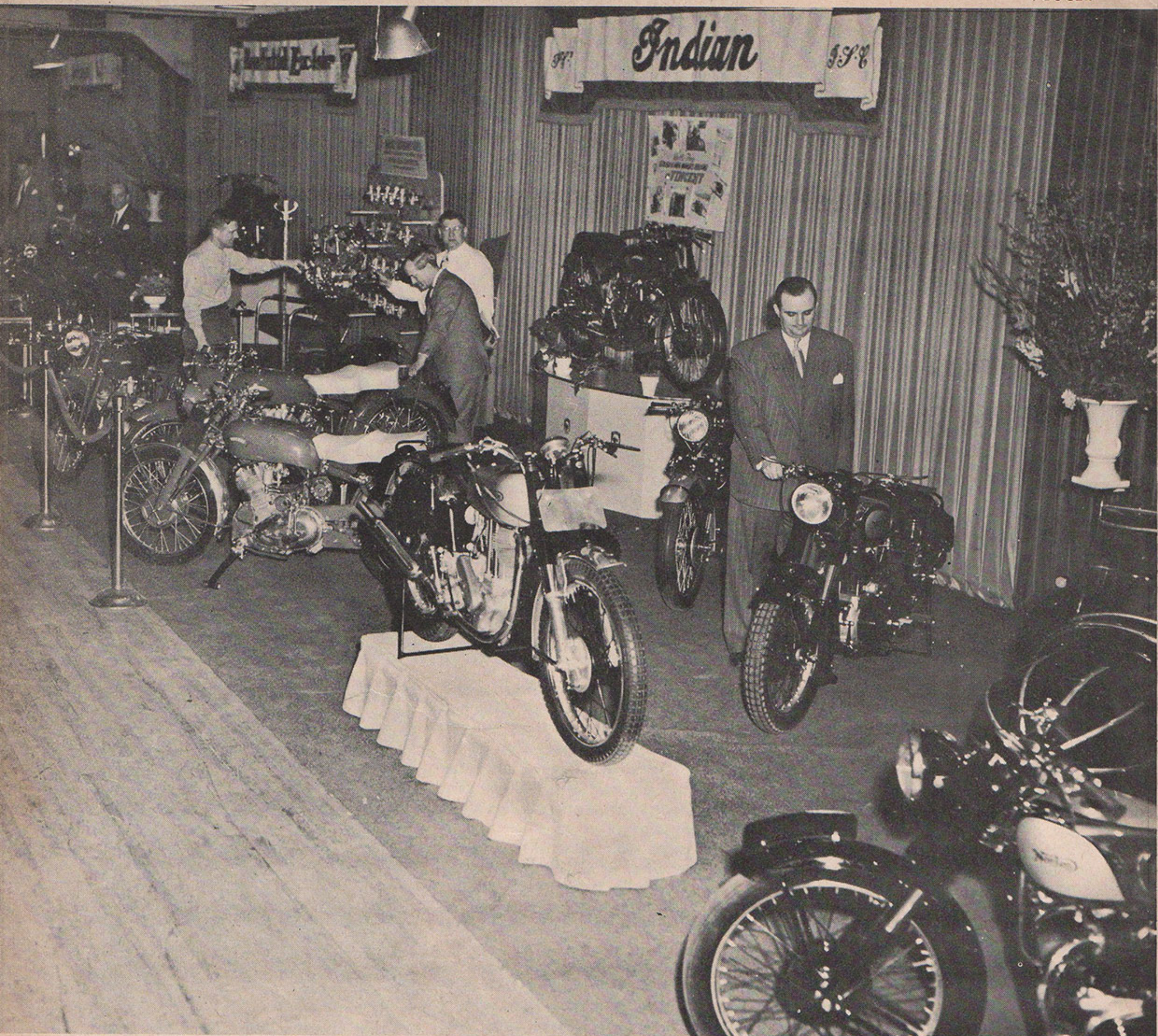


It's Later Than He Thinks! The perfect stage setting for a perfect "Jack Knife." Crash! Bang!! He done dood it!!! Rider got up unhurt



"Motionless Chuck" Minert demonstrating how to ride a motorcycle standing still. Such technique won him the Slow Race, took him longest

LEFT, another view of action at the first turn in the Australian Pursuit race. First come, first swerve does it! Crowding helps but ain't polite



## British Motorcycles on Display at Grand Central Palace

**A SUPERB DISPLAY OF  
SUPERB MACHINES**

*Text and Photos by H. Wieand Bowman*

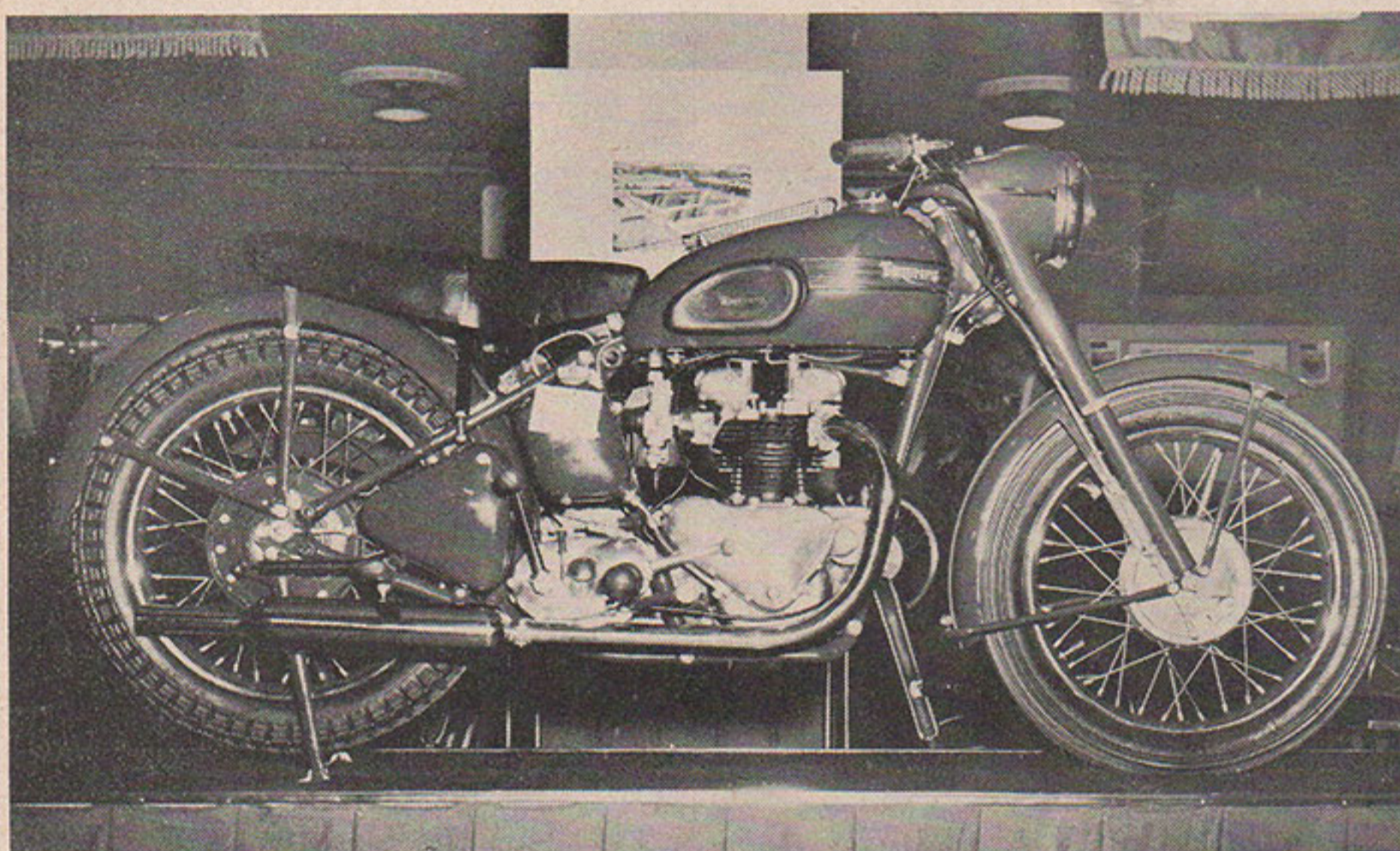
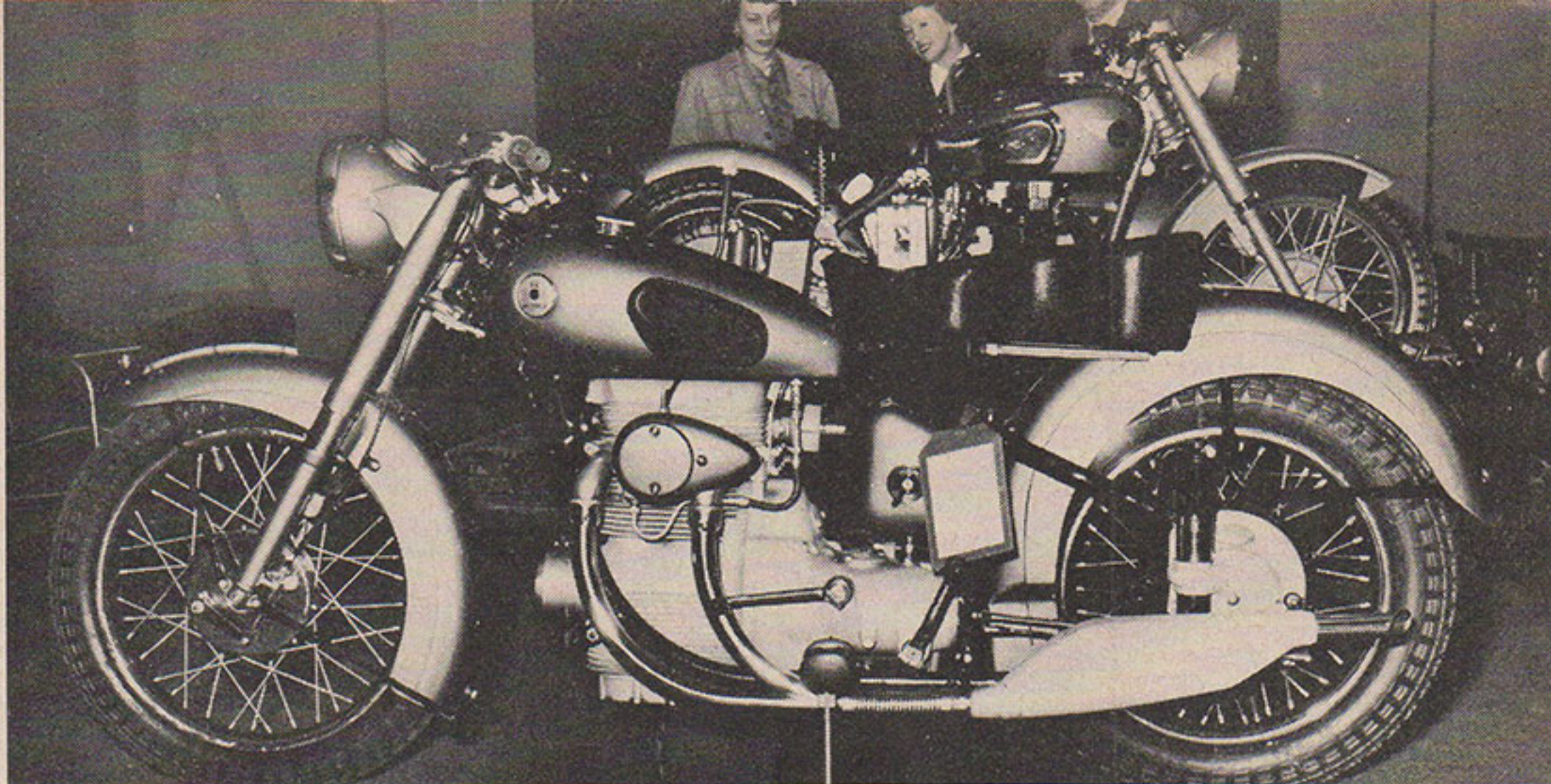
CANNED music, visuals with loud sound tracks, barkers and the off-stage noise effects of the Rootes turbo-jet car roaring and whining combined to give the motorcycle section of the first all-British Automobile and Motorcycle Show a carnival air.

More than eighty different models of motorcycles, bicycles and motorbikes filled the Mezzanine Section that overlooked the main show floor of New York City's Grand Central Palace in what was undoubtedly the most inclusive motorcycle show under one roof and displayed everything from a selection of various 98cc jobs to a 998cc model which was the mightiest of the entire show.

Birmingham Small Arms Co., Ltd.,

LEFT, the Indian display at the British Automobile and Motorcycle Show. Occupying 160 ft. of space along one side of the mezzanine floor this outstanding display featured nearly 40 different models of machines built in Britain and the U.S. Represented were Royal Enfield, AJS, Matchless, Norton, Indian, Douglas, Vincent HRD, and Excelsior. A full line of accessories was also exhibited. Man in foreground is F. E. Stote, President of Indian. Man in background, wearing suit, is Phillip C. Vincent, managing director of Vincent HRD Co. In shirt sleeves, standing behind Mr. Vincent, is Fritzie Baer, Indian's peerless "goodwill ambassador"

RIGHT, the in-line twin cylinder overhead camshaft Sunbeam. Features telescopic front forks, plunger rear springing, shaft drive. Extremely clean lines, superb finish, and smooth, effortless engine operation make the in-line Sunbeam a very delightful motorcycle. The specially thick dual seat supplies armchair riding comfort.



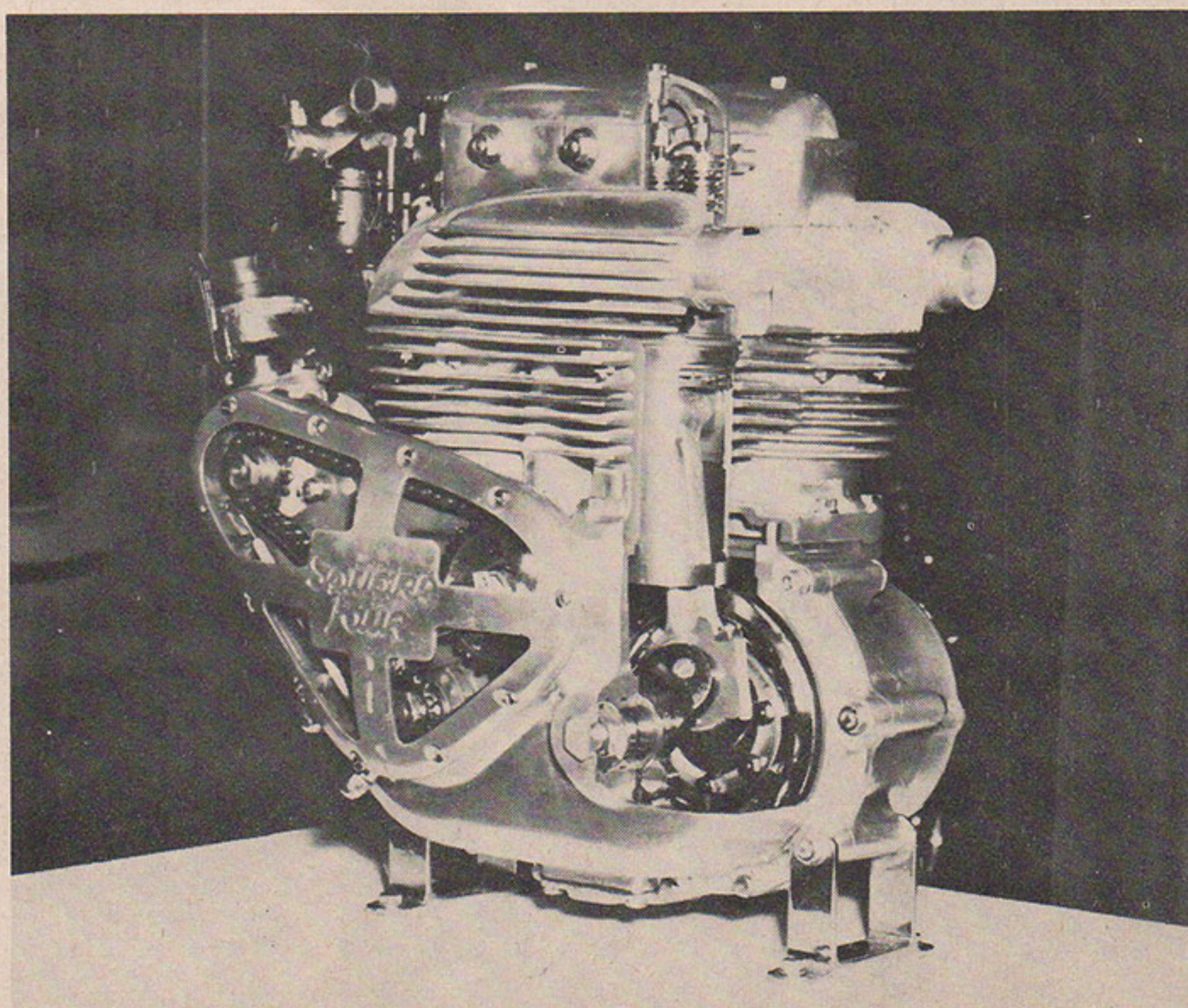
LEFT, the latest addition to the Triumph line of vertical twins, the 650 c.c. Thunderbird model. Triumph pioneered the vertical twin type of engine and has set the pace in this field ever since. Thunderbird model features push-rod operated overhead valves actuated by two separate gear driven camshafts, one for intake valves, the other for exhaust valves. Engine develops 34 bhp at 6,000 rpm. Model shown is fitted with a patented Triumph spring rear hub. Three Thunderbird models, fully equipped in road trim, averaged over 92 mph for 500 miles last year on Montlhery, near Paris

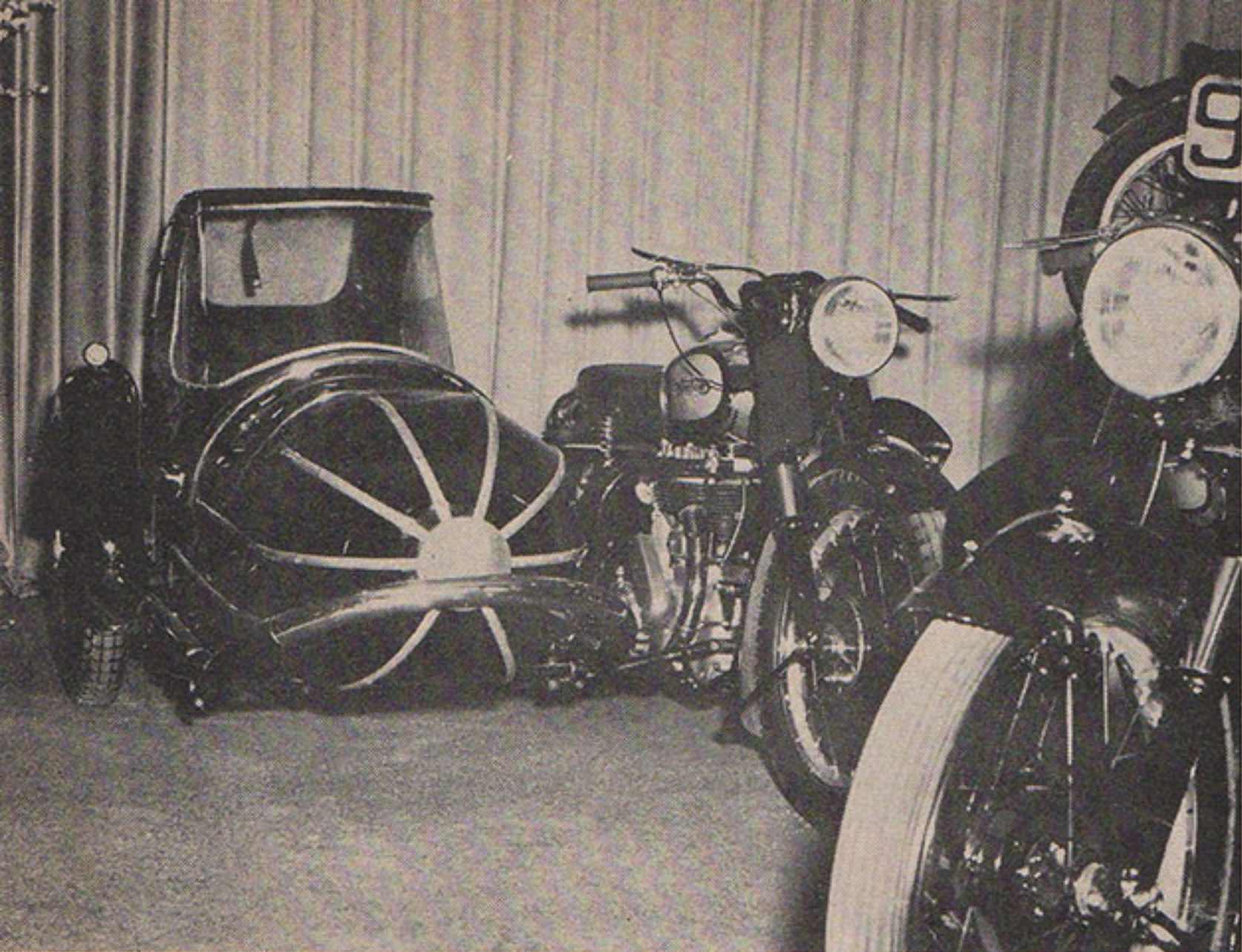
BELOW, cutaway working model of the most exclusive motorcycle engine in the world, the renowned Ariel Square Four. Cylinders are arranged in a square formation, two crankshafts are employed (geared together), bore=2.56", stroke=2.95", displacement=60.8 cubic inches. Cylinder block and cylinder head are of aluminum alloy. Cylinder bores have steel sleeves. Light alloy pistons and connecting rods are used. Eight overhead valves are push-rod operated by a single chain-driven camshaft

popularly known as BSA, the largest British manufacturer of Motorcycles, had thirteen different machines on display including the No. 29 Gold Star rigid frame bike that was ridden to a Third spot at Daytona in the recent 200-miler.

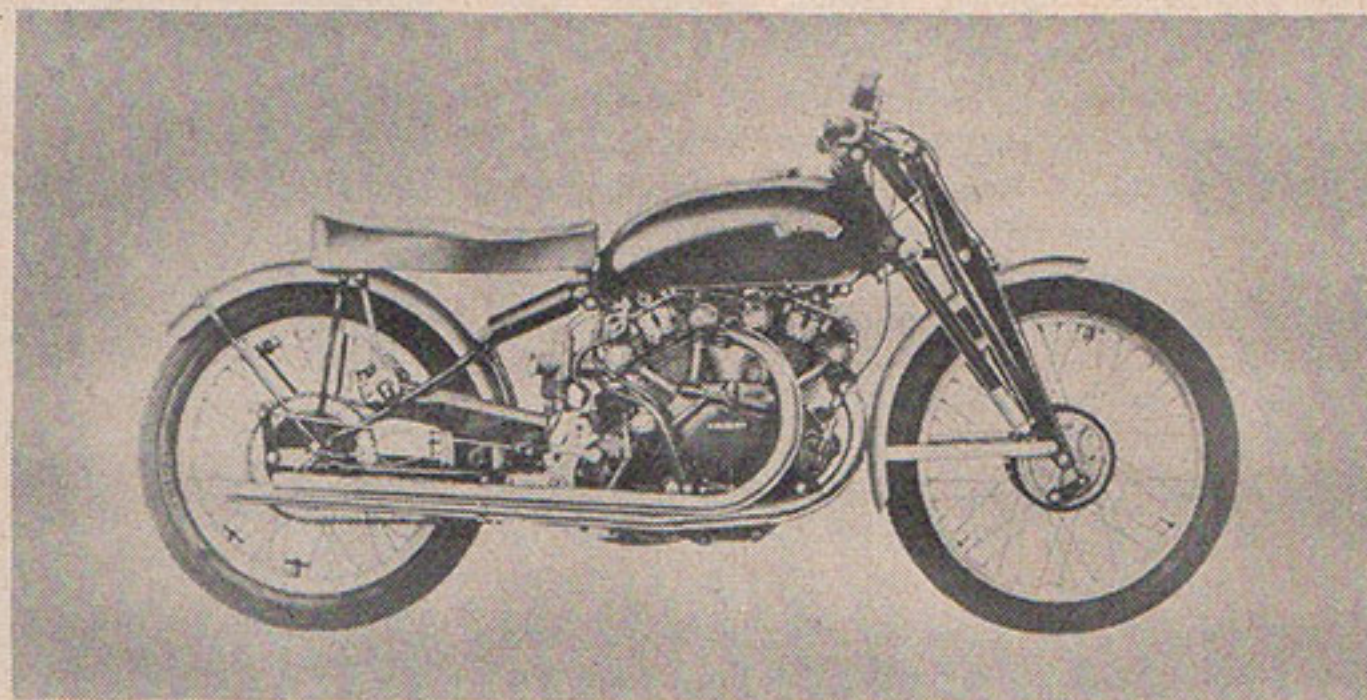
The importance of the show may be more apparent when it is realized that without any great promotional impetus 4,725 British motorcycles were sold in the United States during 1949. Great Britain, which is the undisputed leader in motorcycle production, outproduces our own factories 20 to 1 and last year exported 50,000 cycles to various sections of the world. Scaled to Britain's economy, its motorcycle industry is one of its most important and the New York show is a definite bid for more United States business.

One of the standout exhibits, naturally, was the Norton machine that carried Canada's Billy Mathews to victory in the Daytona 200-miler. Mathews' machine is new in design and employs twin overhead camshafts as distinct from the earlier model Nortons of this type which had a single overhead cam.



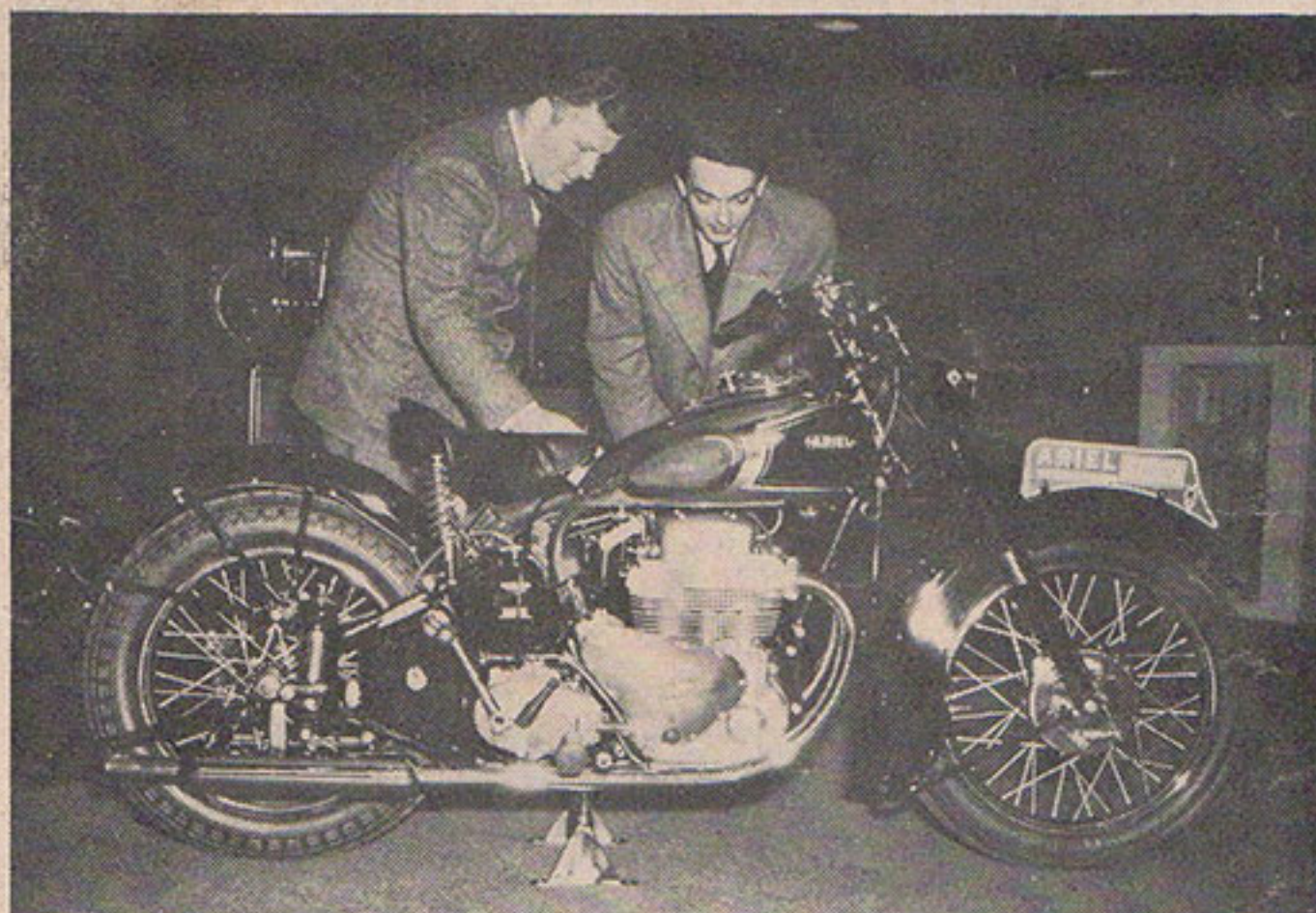


LEFT, a beautiful Black Bullet sidecar fitted to a 600 c.c. Norton side valve model, the Big 4. This sidecar is available in an open sports design or fully enclosed as shown. The Big 4 Norton is a very popular machine for sidecar work. Britishers refer to sidecars as "chairs," we slang them up as "side hacks." Once popular in this country, sidecars may again gain favor over here. Would be a pleasure to own this rig

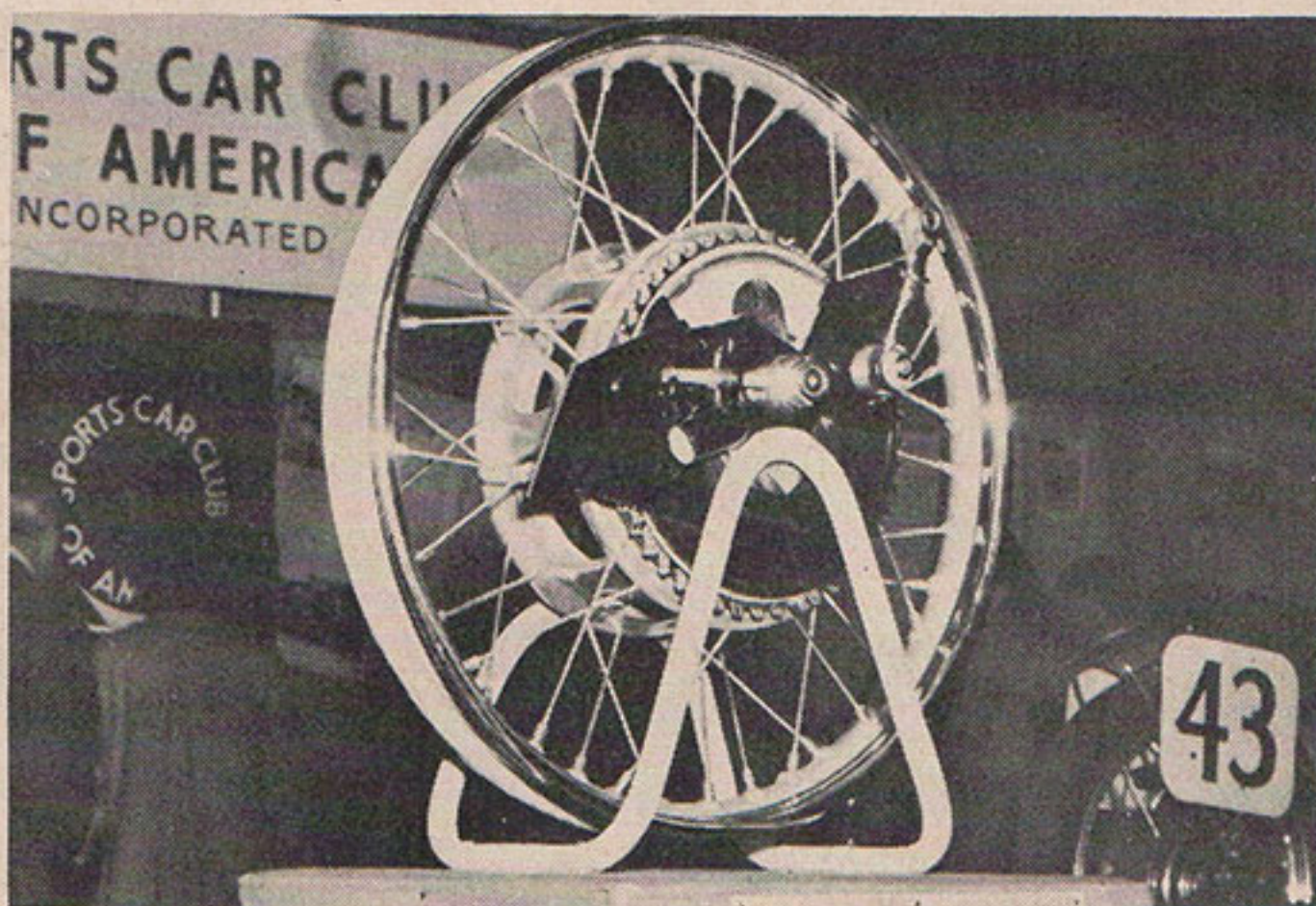
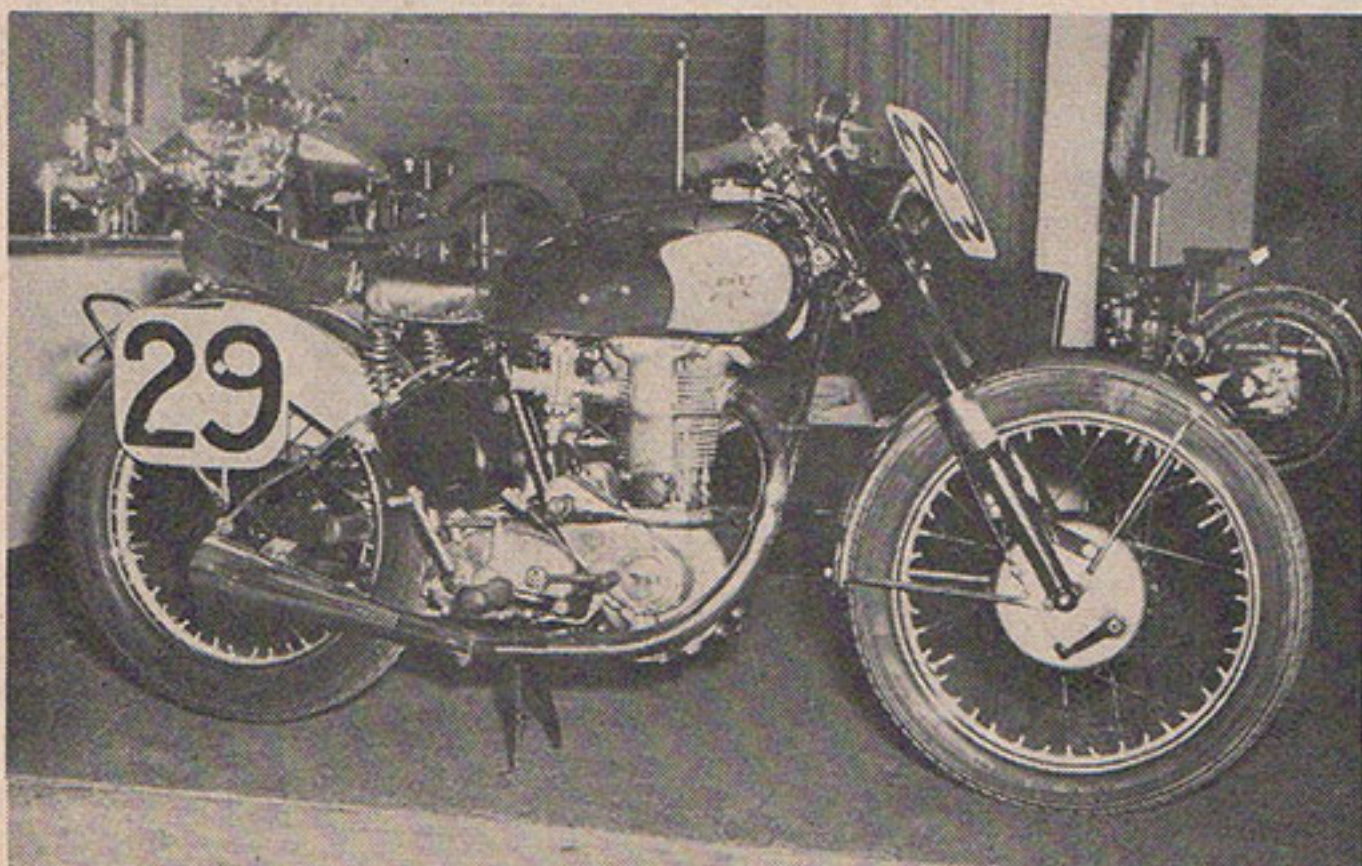


ABOVE, example of the Indian Vincent "Black Lightning" machine which holds the American motorcycle speed record, 150.313 mph. Built for sheer velocity only the Vincent "Black Lightning" suggests speed even when it's standing still! Note absence of frame front down tube, a feature of all Vincent machines. Engine suspended from main frame member

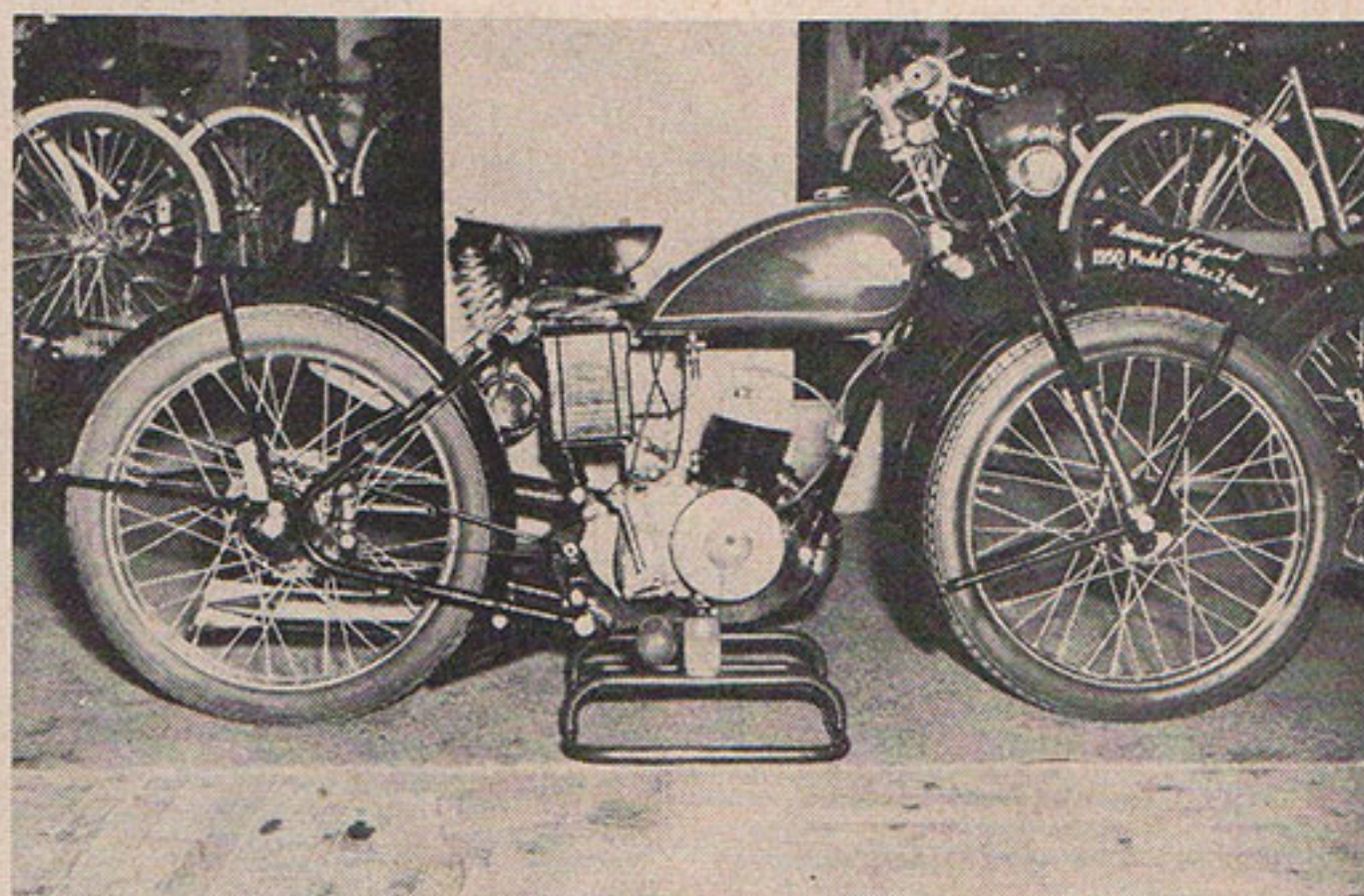
BELOW, spectators eagerly inspecting a Model 4G Ariel Square Four. This machine features telescopic front forks, a full cradle frame, patented Ariel spring frame rear suspension. 1000 c.c. light alloy engine (cutaway model of this type of engine is pictured on page 15). Ariel rear springing is very ingenious; offers complete lateral rigidity with full 3½" up and down wheel movement. All working parts are fully enclosed. Action does not vary rear chain tension as wheel movement pivots around the center-line of the countershaft sprocket. Ariel Square Four models are equipped with a quickly detachable rear wheel



BELOW, the legendary BSA Gold Star ridden to third place in the Daytona 200 Miler this year by the fabulous Tommy McDermott, Glen Falls, N.Y. Note that McDermott's machine is a rigid frame Gold Star, selected by him on the basis of personal preference. Gold Star BSA models are available with rear wheel springing if desired. McDermott's machine "straight-aways" around 118 mph at Daytona, very commendable for a 500 c.c. single cylinder production model! The Gold Star line features a light alloy, overhead valve engine with Amal T.T.-type carburetor. Exhaust megaphone is standard fitment, provides scavenging



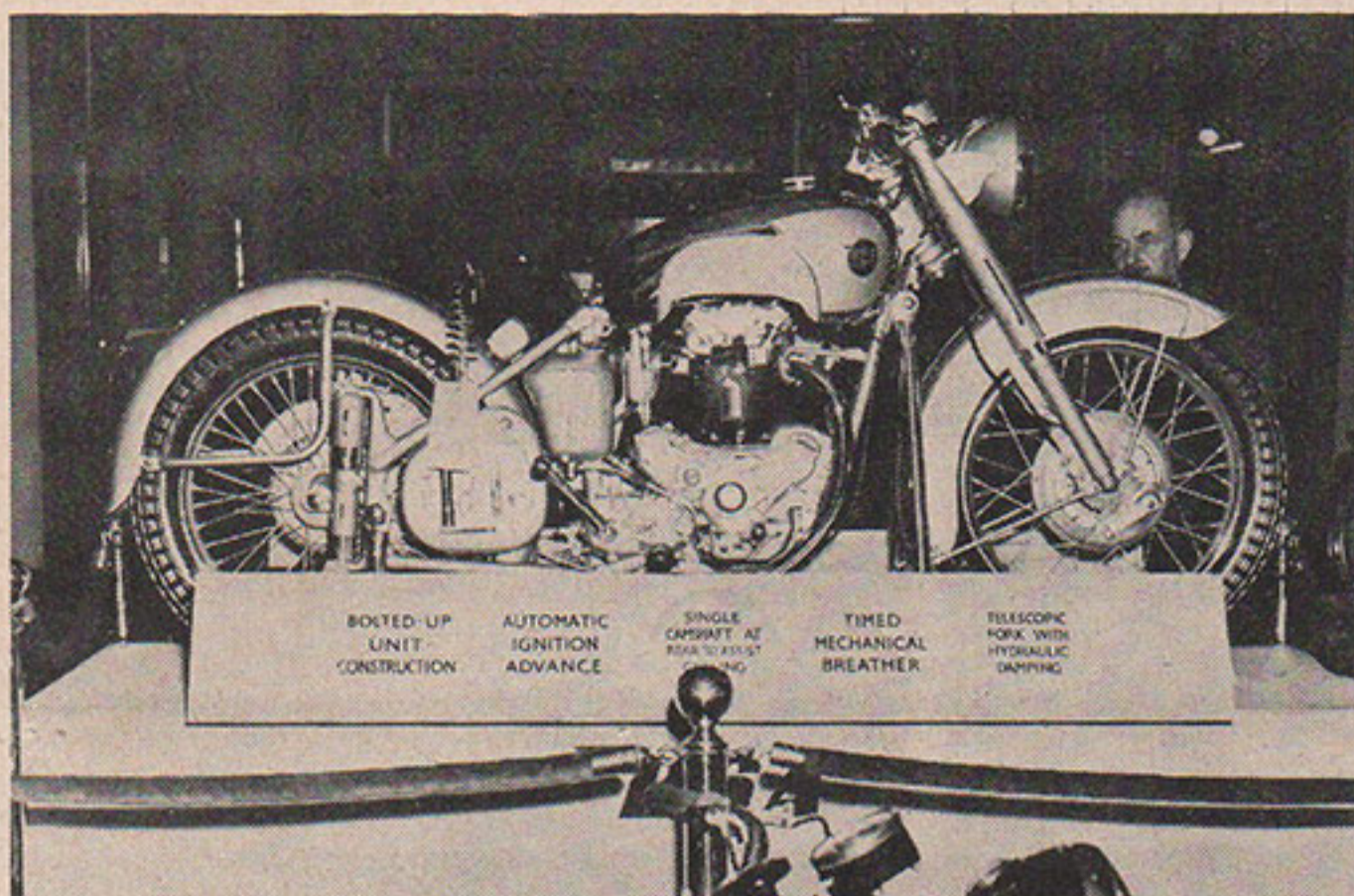
ABOVE, cutaway model of the patented Triumph spring rear wheel. This ingenious device permits the rear axle to remain bolted solidly to the rear fork ends while road shocks are cushioned by compression springs housed inside the hub proper. Movement is 3½" up and down. Chain tension remains fixed. Extreme lateral rigidity is maintained under all road conditions. Housing is all-aluminum with 8" diameter rear brake drum mounted integrally. The Triumph spring wheel requires no alterations to machine, wheel exactly replaces standard wheel



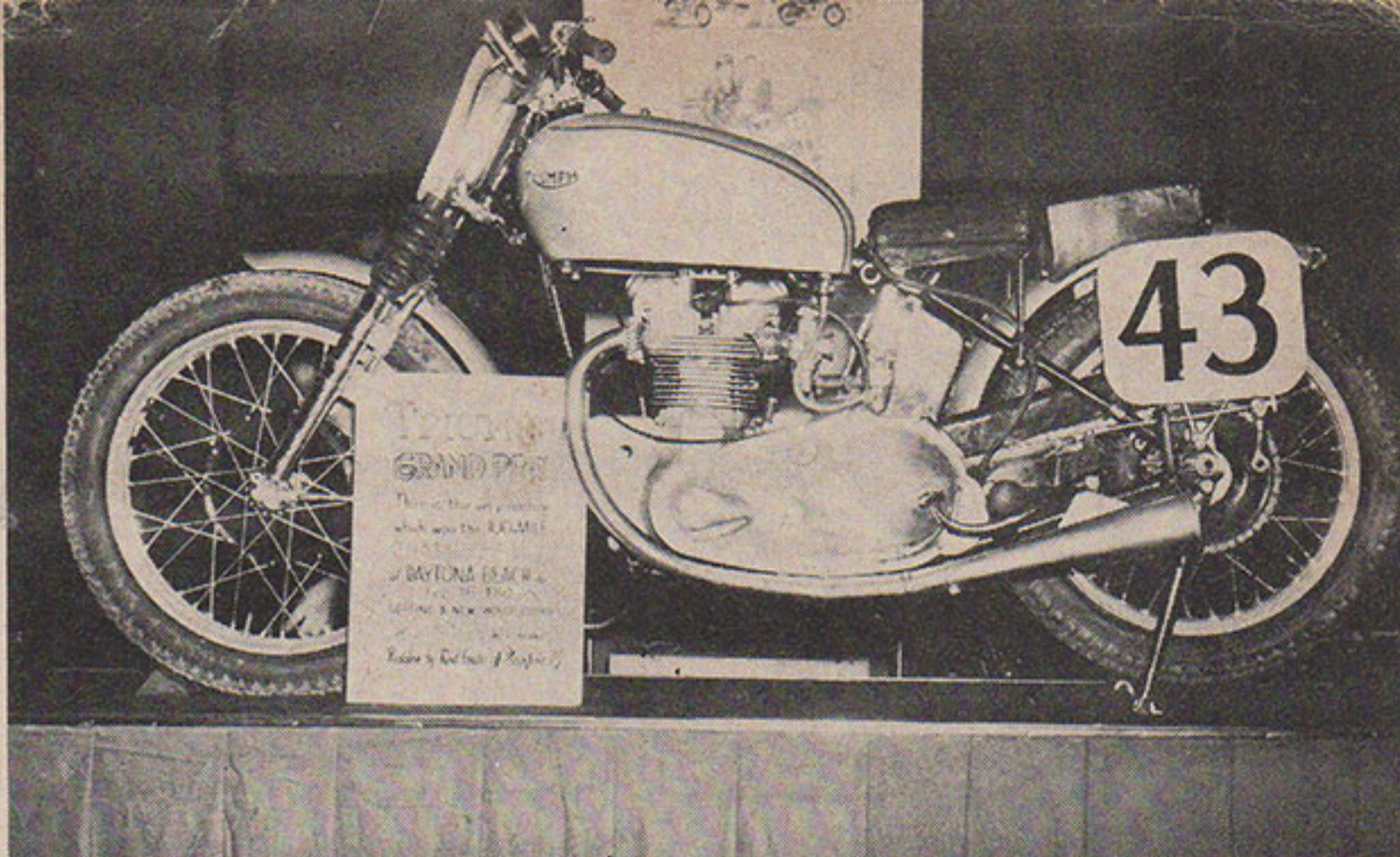
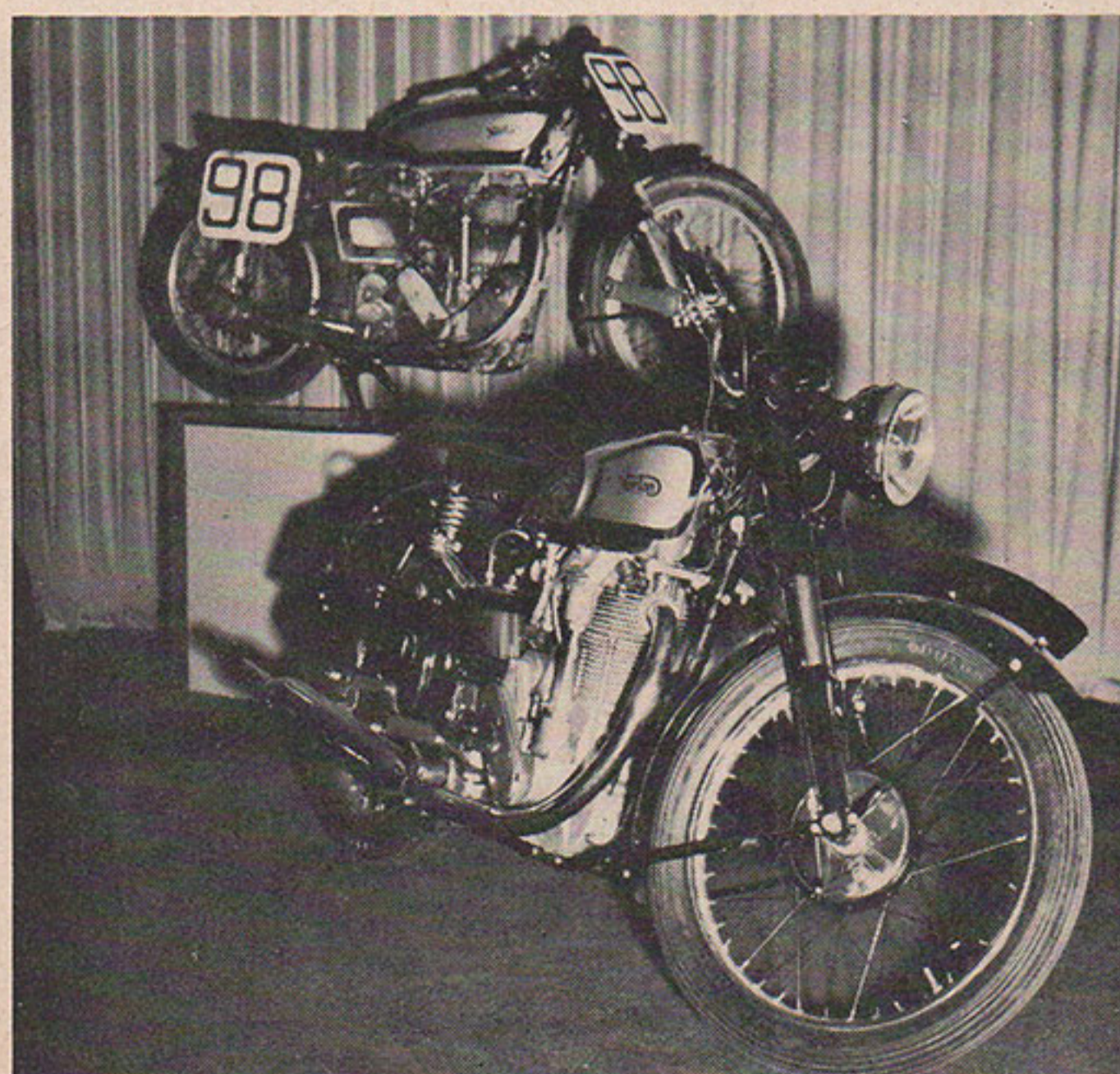
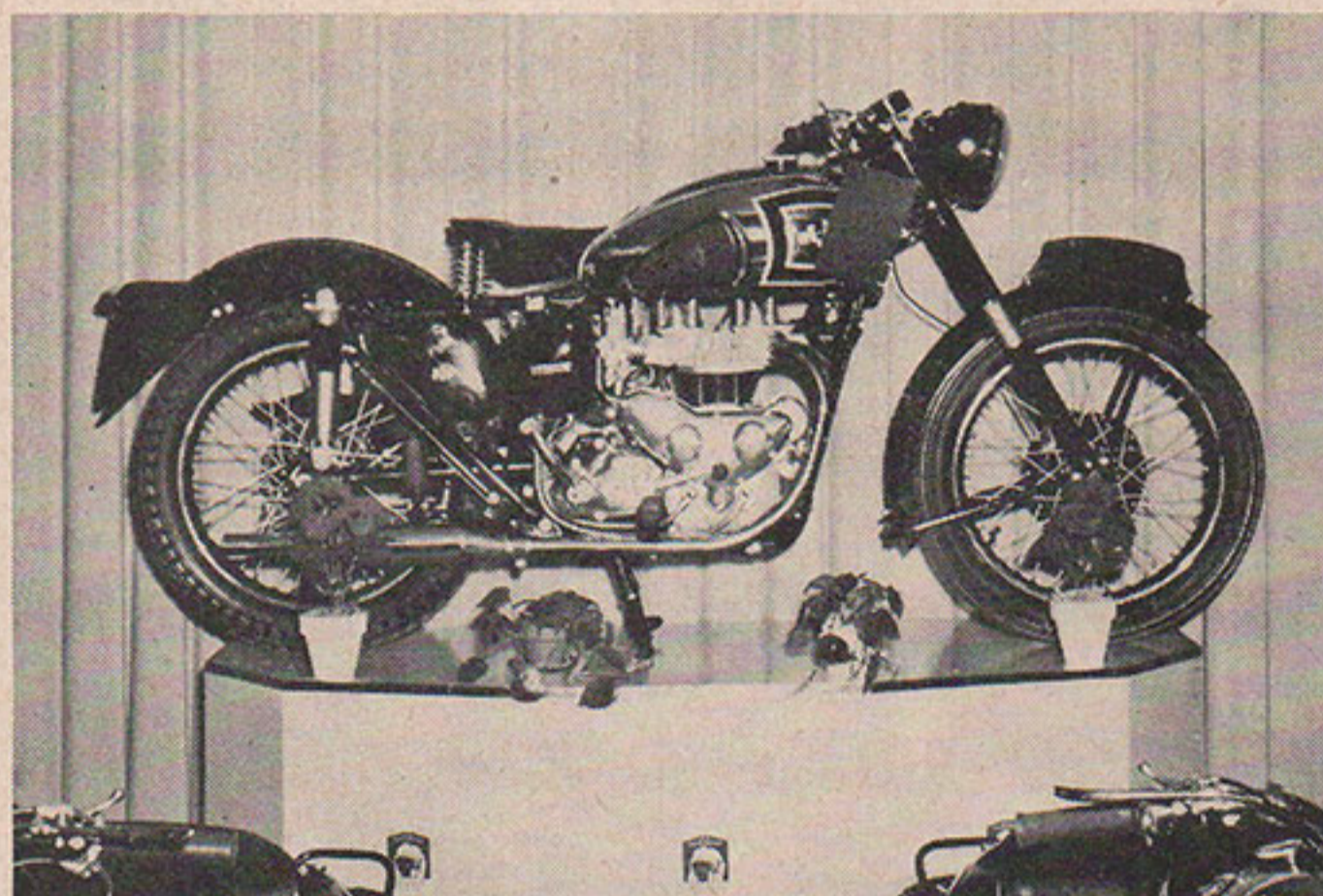
ABOVE, one of the smallest engined motorcycles at the Show, the 98 c.c. Norman two-stroke. The Norman is powered by the world famous Villiers two-stroke engine, which features a flat top, deflectorless piston. Interesting details of design; two-speed gear box, outside flywheel with integral magneto, single loop tubing frame, telescopic front forks. The Norman is a newcomer to the U.S., offering three engine sizes; 98 c.c., 125 c.c., and 197 c.c. Simplicity, economy of operation are selling points



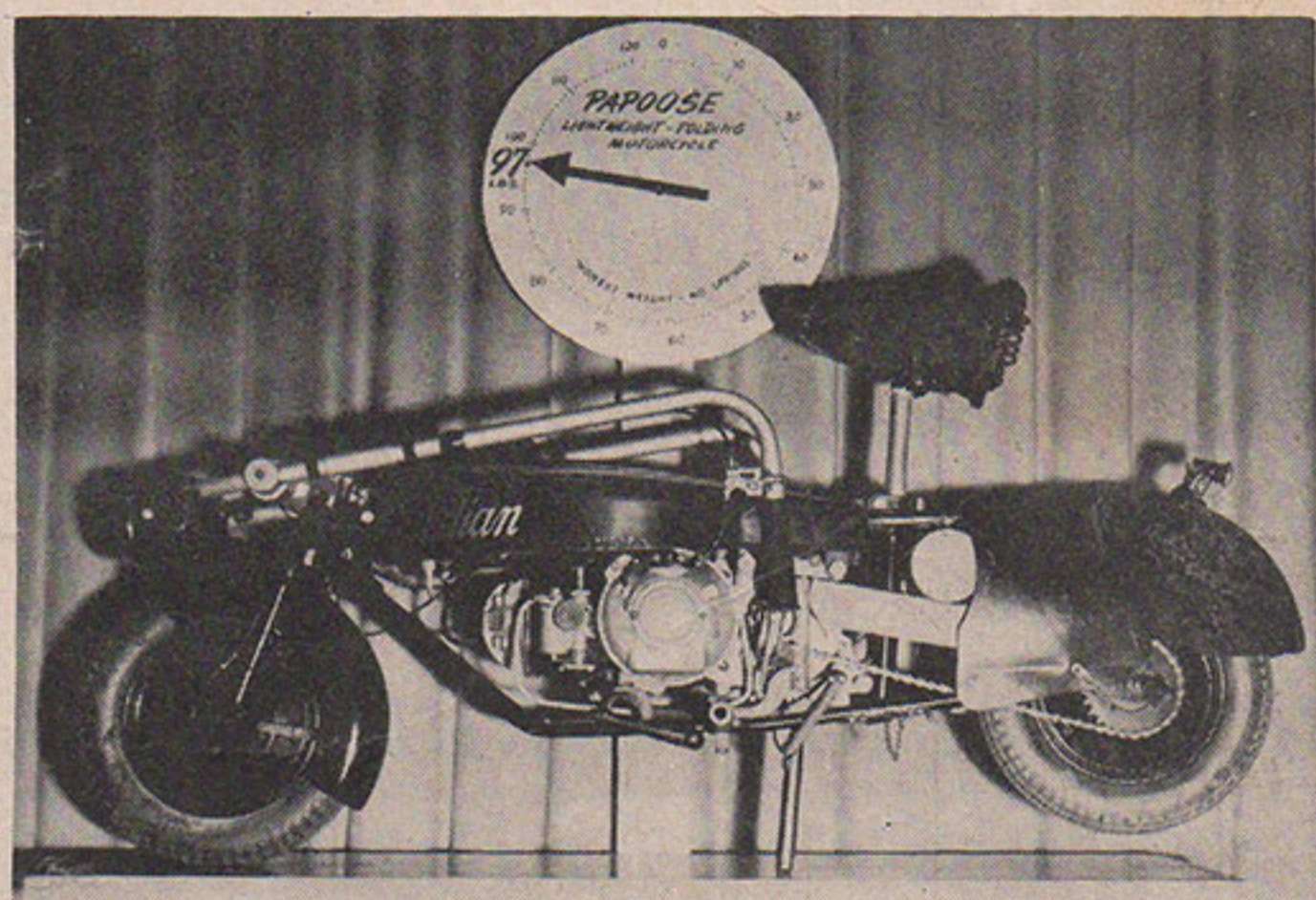
BELOW, one of the real beauties of the Show, a BSA "Golden Flash" vertical twin. Fully sectioned to reveal practically all of the working parts, this 650 c.c. spring frame machine caused much spectator comment. The initials BSA stand for the British Small Arms (Company), one of the largest general manufacturers in the British Empire. More BSA motorcycles are built each year than any other make. The BSA range of models is the most comprehensive in the world, meets all requirements



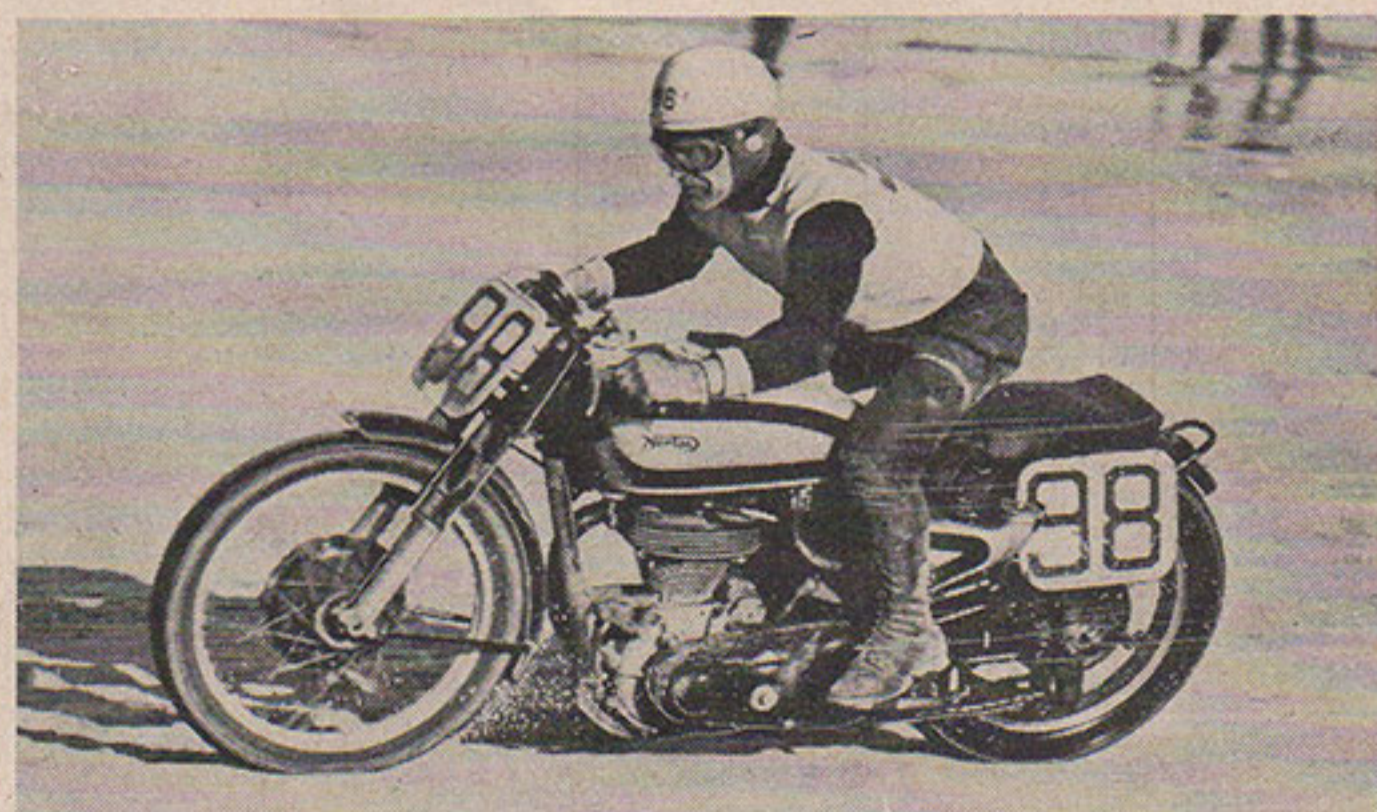
BELOW, the 498 c.c. AJS Springtwin, another British vertical twin. Engine has separate cylinders mounted so that an air space is provided between them for adequate cooling, individual light alloy cylinder heads housing push-rod-operated overhead valves, lower end assembly features three main bearings. Swinging arm type rear suspension is supported by Teledraulic oil dampened spring units. The AJS Springtwin machine is an ideal touring type motorcycle. CYCLE road tested a similar model in the May issue. Riding comfort was tops



ABOVE, the Daytona Beach 100 Mile race-winning Triumph ridden by Rod Coates. It is a "Grand Prix" model built strictly for racing. Engine is a super-tuned vertical twin of 500 c.c. capacity. Light alloy is used extensively throughout the entire machine. This particular bike set a new Daytona 100 Mile record this year, 81.26 mph. Dual Amal T.T.-type, remote float-bowl, carburetors were fitted by Coates for race



ABOVE, the smallest and lightest motorcycle in the Show, the Indian "Papoose." This unorthodox machine is an outgrowth of the famed wartime Corgi paratroopers bike. Weighing but 97 lbs., the 98 c.c. Villiers engine, with 6.4 to 1 compression ratio, delivers 125 mpg with a top speed of about 35 mph. This "Folding Flea" is a genuine motorcycle offering the utmost in low-cost transportation. Its "fold-ability" makes storage of the Papoose a simple matter. This machine is built for Indian by J. Brockhouse & Co., Ltd., West Bromwich, England



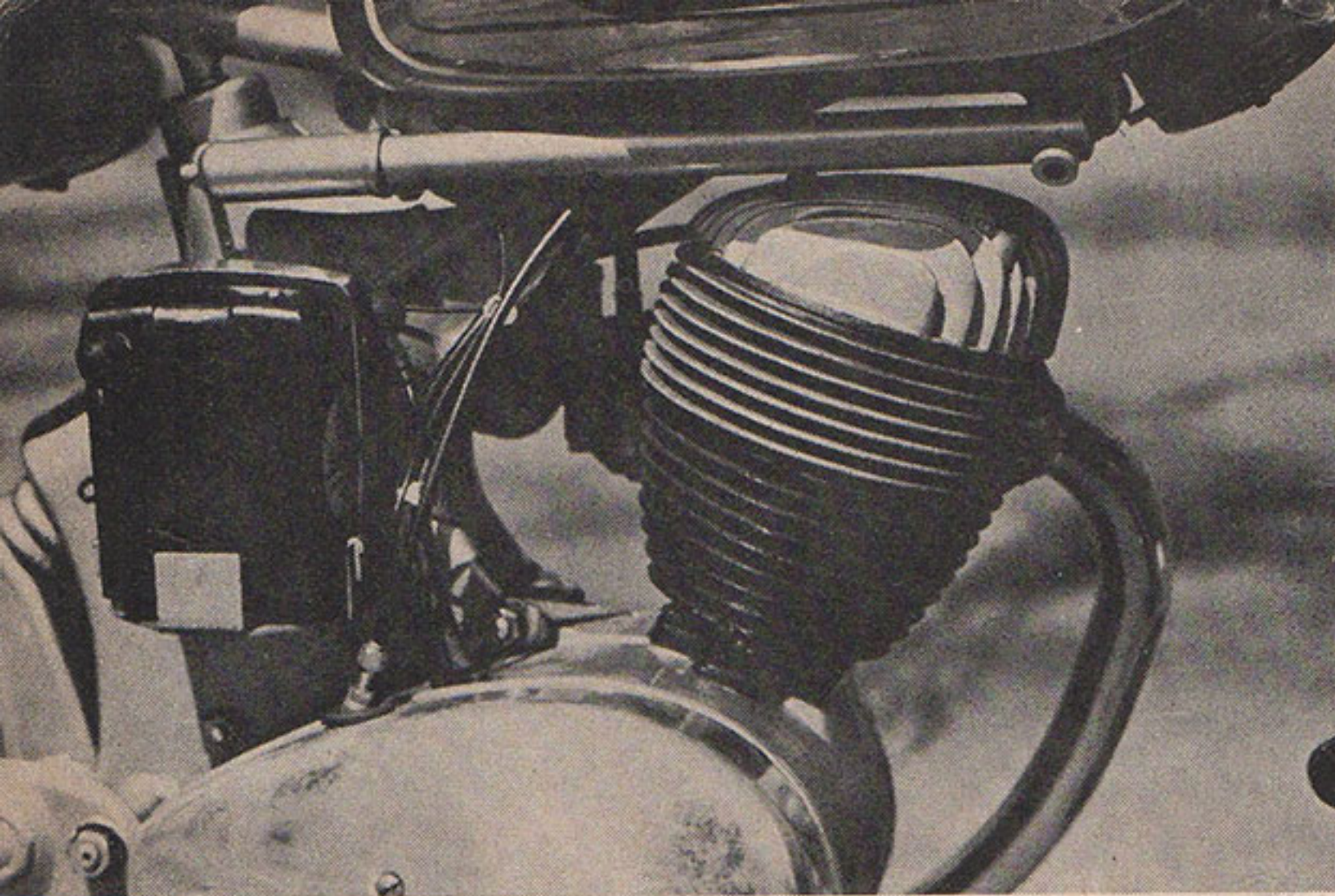
ABOVE, the old master, Billy Mathews, seen riding the famous Norton #98 to victory in the recent Daytona 200 Mile race. The same machine, with Mathews aboard, captured second place in the 1949 Daytona 200 Miler. A remarkable display of consistency and reliability. Billy Mathews, a Canadian, also rode a Norton to victory at Daytona in 1941

LEFT, the old warrior, #98 at rest. Occupying the central pedestal at the Indian display Billy Mathews' redoubtable Norton "two cammer" surveys another Norton model, a single overhead camshaft International model. Norton "Internationals" offer phenomenal performance from a 500 c.c. single cylinder engine. Light alloys are used very extensively

# The NSU Fox

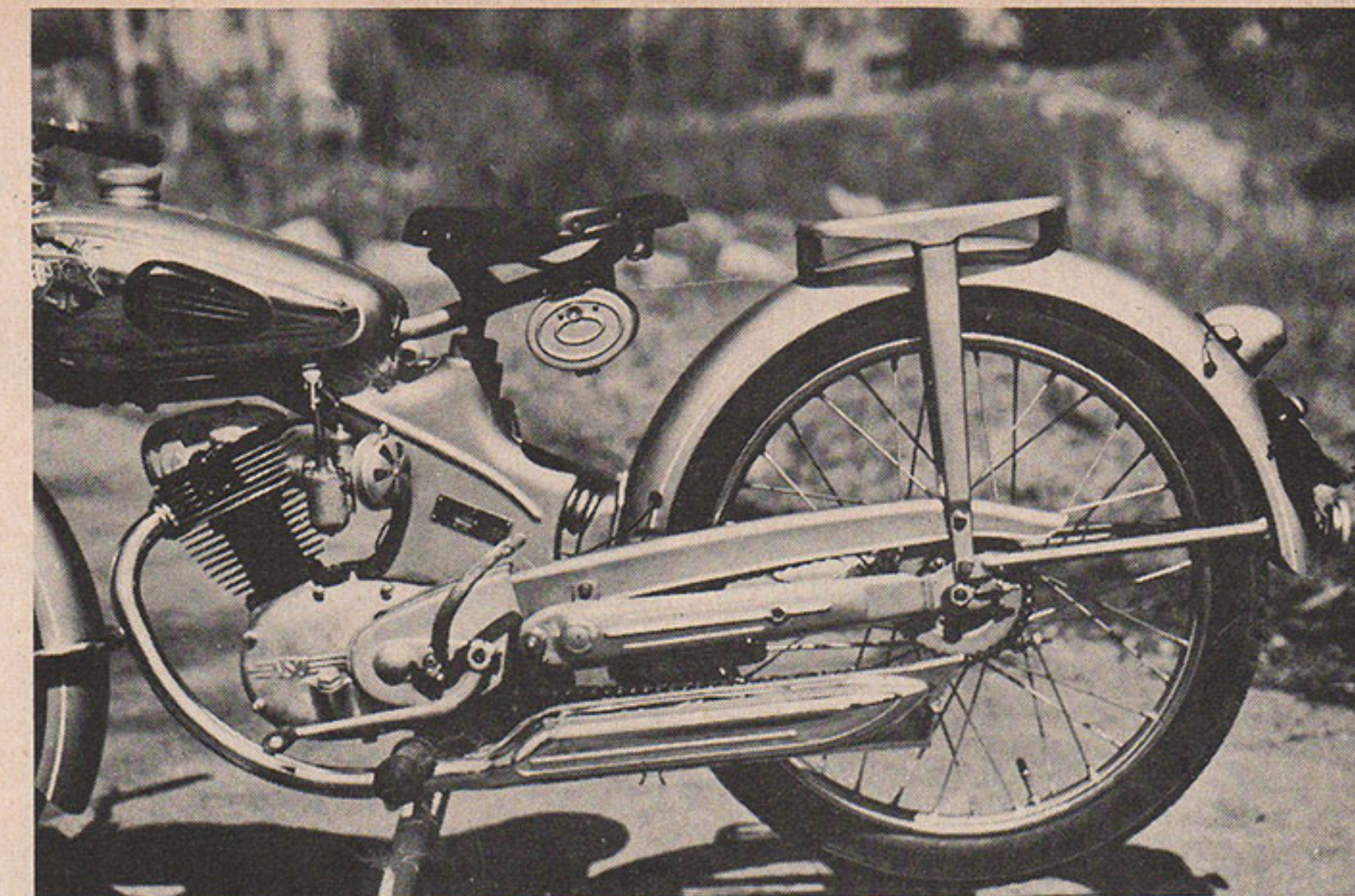
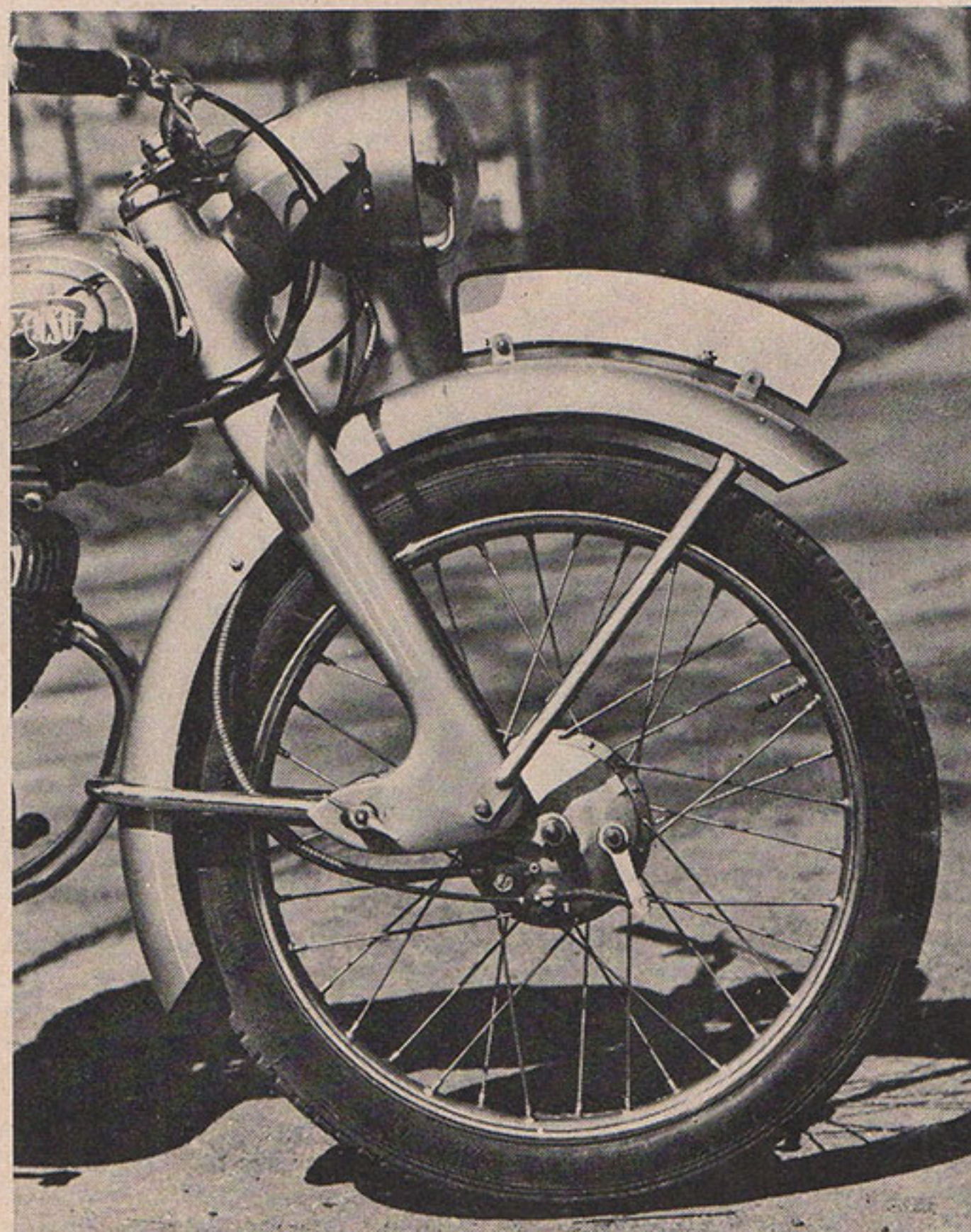
## Germany's Entrant in the Lightweight Field

Photos by Jack Mercer and Hal Spiers

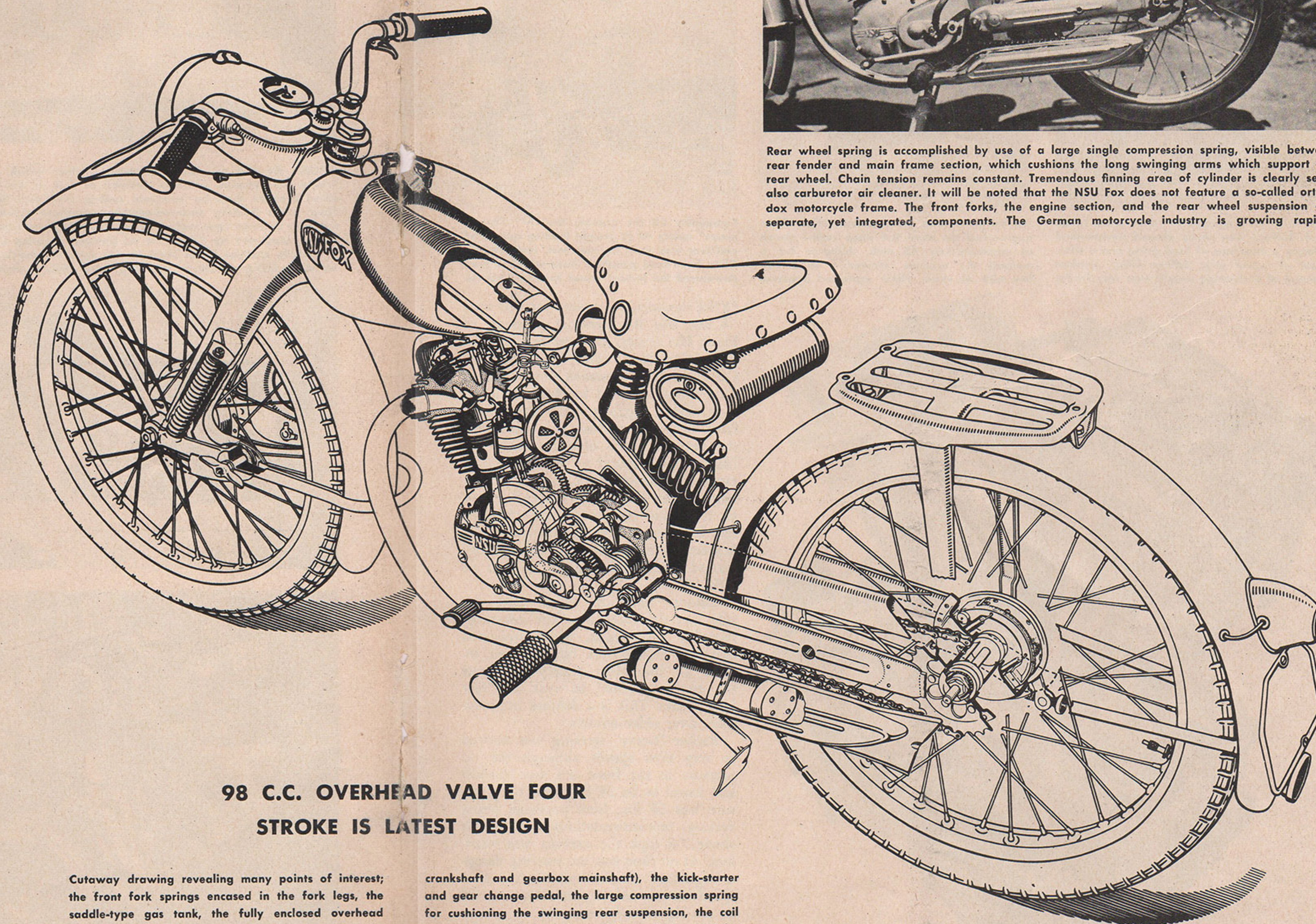


The NSU Fox has a 98 c.c. overhead valve, single cylinder, four cycle engine. The cylinder barrel is made of gray cast-iron while the cylinder head is of light alloy with inserted valve seats. This photo shows the finned, one-piece, rocker-box cover which gives the appearance that the engine is a side-valve or a two-stroke. Develops 6 bhp at 6,000 rpm. The entire valve operating mechanism is completely enclosed, even the overhead valve push-rods. The horn is mounted directly beneath gas tank with the tire pump lying parallel to the underside of the tank. Simplicity and enclosure are highlights of interest of this new model

This photo shows the ingenious front fork layout. The entire machine weighs but 175 lbs., which permits a pressed steel design of fork. The spring action is housed in the fork tubes while the front wheel is pivoted, as shown, at the bottom of the forks where the adjustable wing nut is shown. Fork spring compression is dampened by the integral friction surfaces controlled by the wing nut. Streamlined headlamp and massive fender braces are other notes of careful design. Again simplicity is revealed, achieved by careful design and engineering



Rear wheel spring is accomplished by use of a large single compression spring, visible between rear fender and main frame section, which cushions the long swinging arms which support the rear wheel. Chain tension remains constant. Tremendous finning area of cylinder is clearly seen, also carburetor air cleaner. It will be noted that the NSU Fox does not feature a so-called orthodox motorcycle frame. The front forks, the engine section, and the rear wheel suspension are separate, yet integrated, components. The German motorcycle industry is growing rapidly



### 98 C.C. OVERHEAD VALVE FOUR STROKE IS LATEST DESIGN

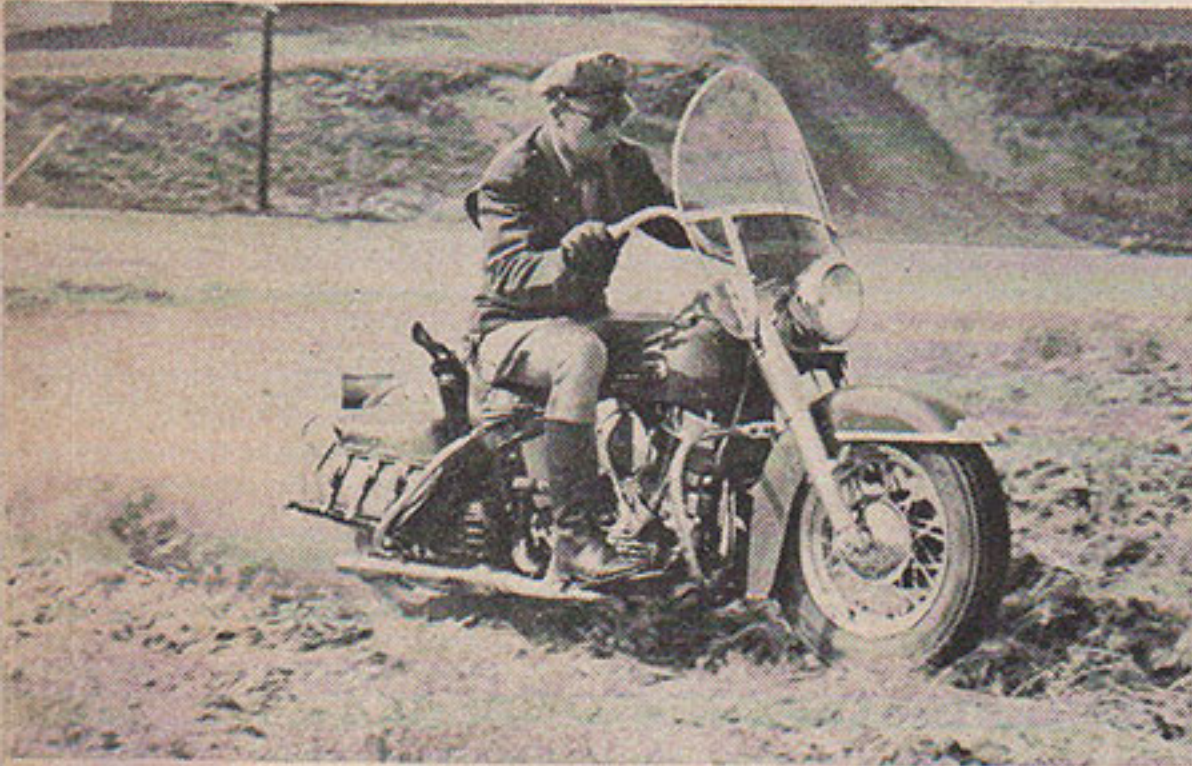
Cutaway drawing revealing many points of interest; the front fork springs encased in the fork legs, the saddle-type gas tank, the fully enclosed overhead valve gear, the roller bearing lower end bearing, the unit construction of the engine and gearbox (note especially the two large coupling gears between

crankshaft and gearbox mainshaft), the kick-starter and gear change pedal, the large compression spring for cushioning the swinging rear suspension, the coil spring for cushioning the saddle, and the saddle-mounted tool box. The carrier rack is a standard fitment, evidence of desire for a complete machine

# TESTING THE "61" TWIN

by Officer H. Filker, Alhambra P.D.

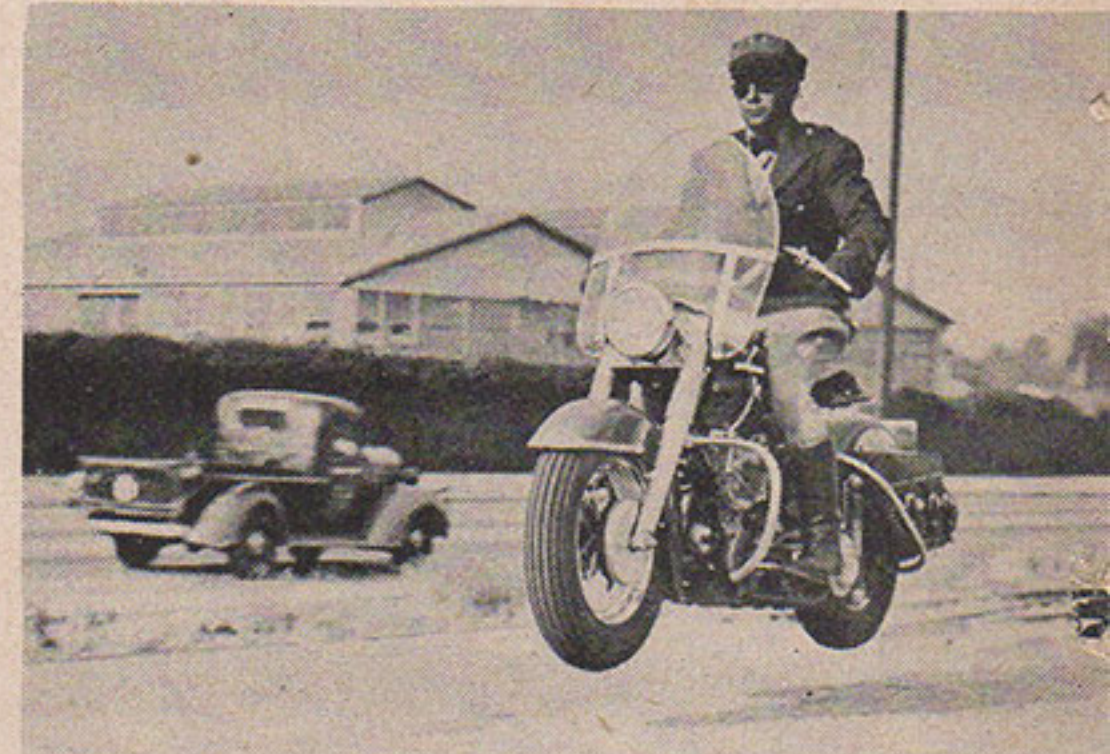
Photos by Thomas J. Medley



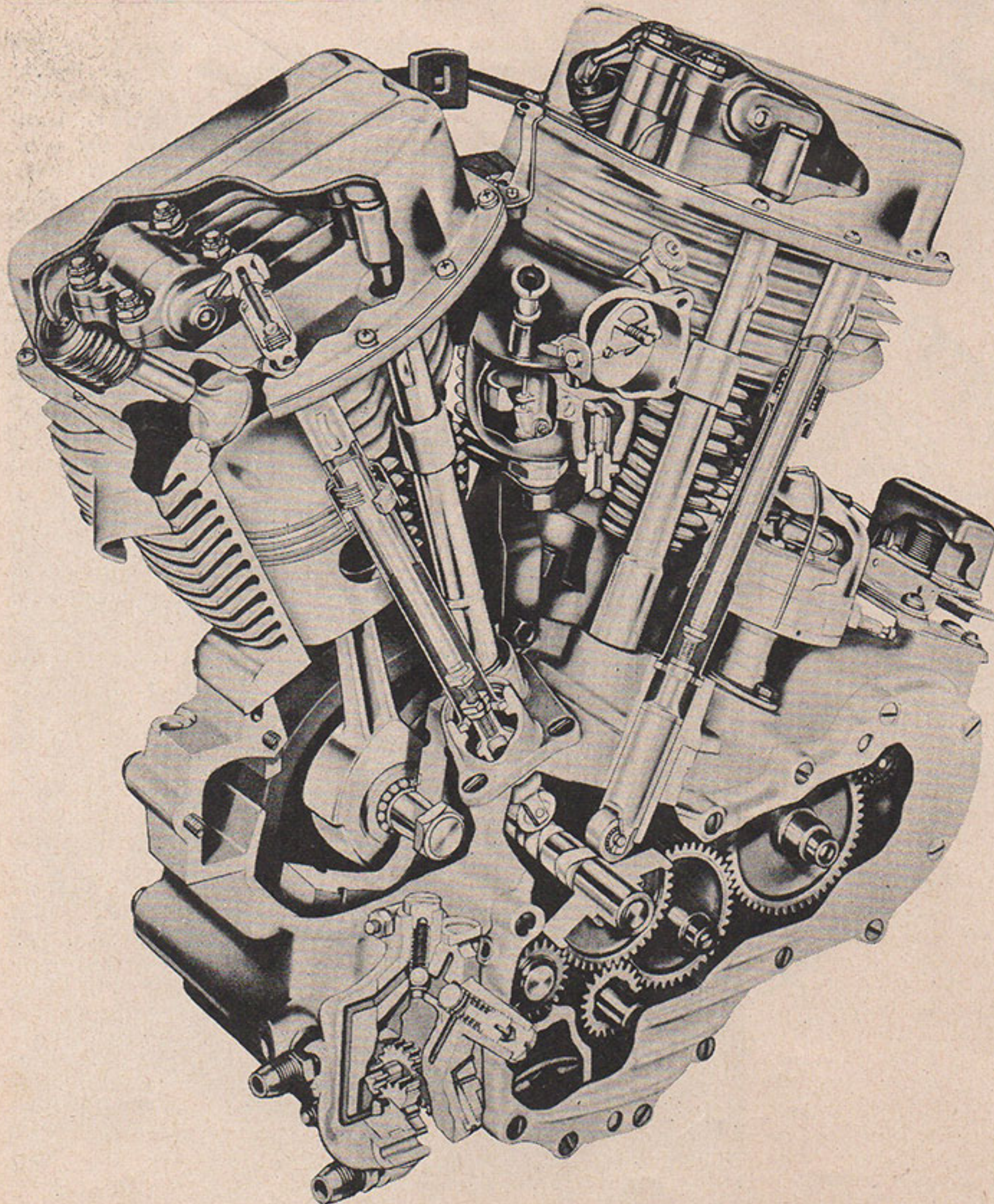
The "61," fully equipped, tackles some rough stuff. Surface was newly plowed pasture-land offering a maximum of hard going and a minimum of wheel grip. Officer Filker displays practice of positioning weight over rear fender



The Harley rises to the occasion! Officer Filker approached the short but steep incline shown at approximately 45 mph. Airborne for a moment, the machine retained a dead true line with no strain. Filker expressed approval



Completely off the ground, the "61" "broad jumps" nearly 40 ft. Freight loading ramp and platform was used for this test. Note Hydra-Glide forks have permitted front wheel to drop downward the instant wheel became airborne



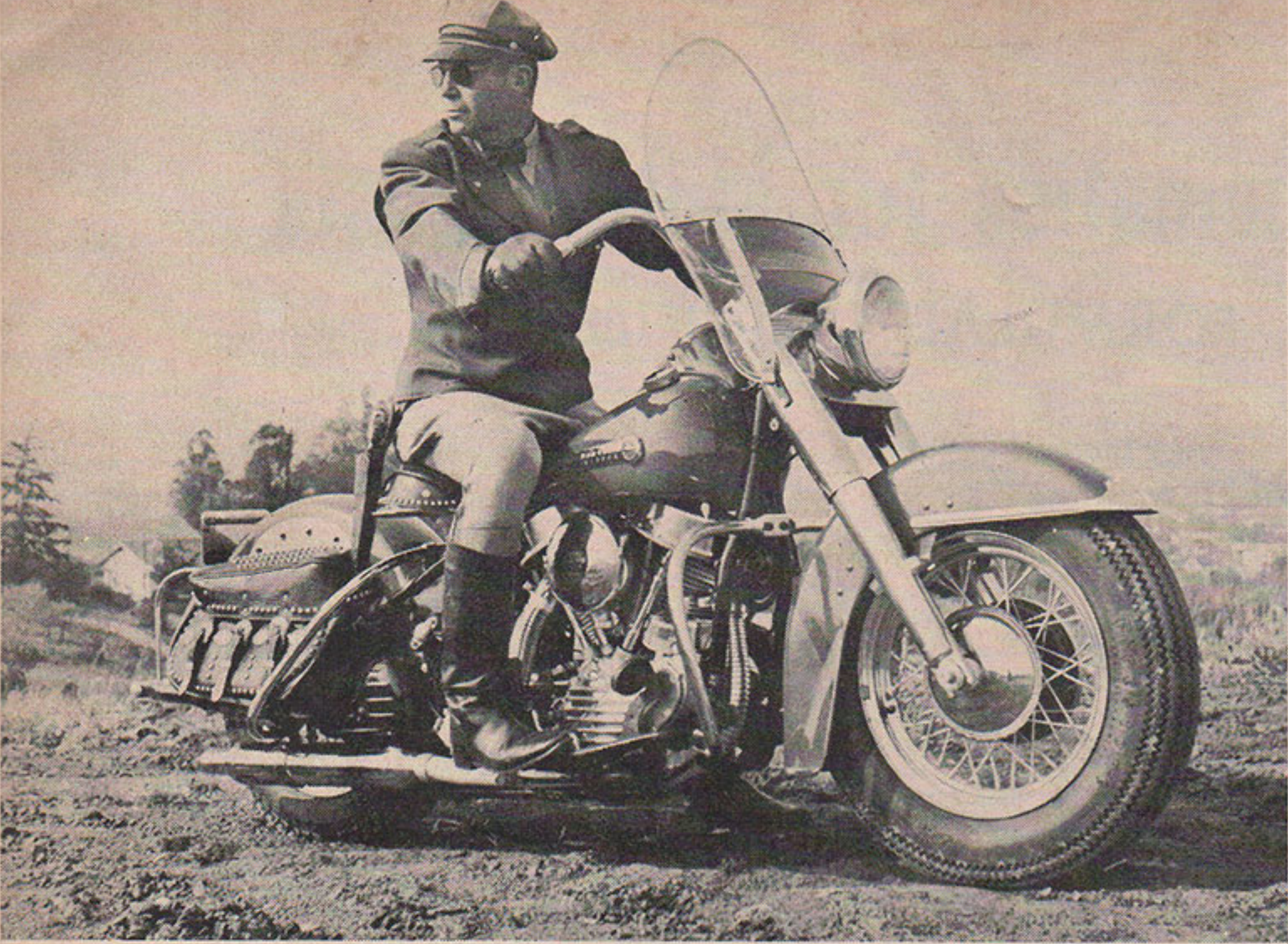
Cutaway view of Harley "61" O.H.V. engine showing general arrangement of components

The motorcycle supplied for this road test was the personal property of Frank McCartney, manager of Glenbank Harley-Davidson Sales Co., Burbank, California. The Glenbank store is one of four stores operated by Rich Budelier. It is ridden regularly every day to and from work and had been fixed up to suit the personal tastes of the owner. The "fixing up" referred to represents only external fitments; all-plastic windshield, large deluxe saddlebags, fire extinguisher, front and rear crash bars, chromed rear bumper, etc., no mechanical modifications to the "machinery" having been carried out. The engine number is 50EL1854.

Instant "one-kick" starts were the rule, not the exception. The odometer recorded 2566 miles, which indicated that the engine was fully broken in. Over 20 individual attempts to start the engine resulted in over 20 "first kick" starts. This is a definite improvement over older models.

Rather "heavy" steering was noticed at very slow speeds although the air pressure in the front tire was checked and found to be 28 lbs. Rear tire pressure was 26 lbs., both pressures being factory recommendations. At speeds above 7-8 mph the steering was excellent. At no time was the steering damper tightened down, therefore the slow speed "heaviness" may have been caused by too tight head cones.

"Laying corners" and spinning circles proved surprising. Not once did the foot boards hang up, which gave me a feeling of added security. The new

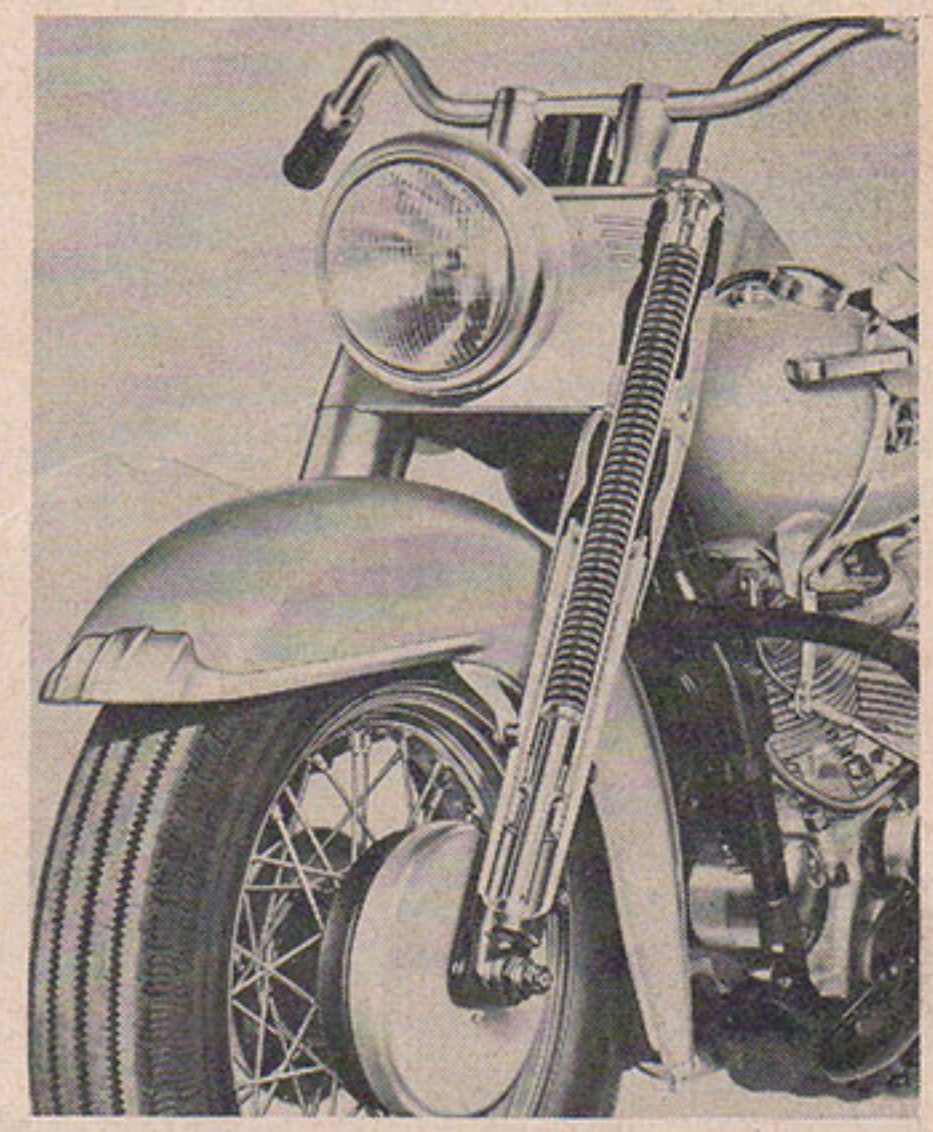


to deflect the steering out of a straight line. The rear brake was not as effective in retarding the speed of the machine but this was to be expected. Any motorcycle under acceleration shifts its center of weight in the direction of the rear wheel. Conversely on deceleration the center of weight shifts in the direction of the front wheel. Rear wheel braking under such circumstances is less effective than front wheel braking for obvious reasons.

Exhaust noise was never objectionable. A pleasant burble was heard at practically all speeds except as peak revs were approached, at which time a natural high-pitched roar could be heard. The exhaust note did not suggest any back-pressure building up in the muffler even at "wide-open" speeds.

The speedometer was checked for accuracy. At 60 mph—fast by 2 mph. At 65 mph and up to top speed—fast by 3 mph. A very commendable instrument.

(Continued on Page 29)



Diaphanous view of Harley-Davidson famed Hydra-Glide fork. Long coil spring, fully enclosed, cushions road shocks. Dampening action provided by metered oil jets, fully automatic. Hydra-Glide forks are vast improvement

Hydra-Glide forks probably accounted for this lack of "dragging the boards" because of the excellent steering qualities which obviated any necessity to bank over to excess on cornering, even at high speeds.

McCartney's weight and my own are about the same. Therefore, the grade of oil used in his Hydra-Glide forks was suitable for my requirements. On rough, bumpy roads I could not make the forks "bottom." Later on, when testing the jumping ability of the "61" I noticed that the front wheel would drop down instantly to the full extent of its bottom movement, which evidenced the inherent quality of these forks to force the front wheel to remain in contact with the road surface under all but impossible road conditions. No oil leaks in the forks were noticed.

Carburetor and spark setting were ideal. No "spitting back" in the carburetor was noticed under any and all ac-

celeration tests. A slight pinging was audible under heavy pulling conditions which indicated the spark was "right on the nose."

Harley-Davidson rubber-mounted handlebars were fitted. Road shocks and vibrations were not felt to any noticeable degree. High engine speeds, around 4500 rpm, produced a noticeable period of vibration in the foot boards but the vibration was not objectionable. All long-stroke 61 cu. in. engines have a period of inherent vibration due to the mechanical layout of a 45° Vee twin.

The front brake was outstanding. I've ridden many Harley-Davidson machines in past years, but this 1950 61 had the finest Harley front brake I have ever used. It was possible to lock the front wheel on dry pavement and skid a black mark on the road. It required very severe application, however, to achieve this result. Normal front brake application is highly effective and does not tend

## General Specifications

**ENGINE.** 61 cu. in., air-cooled, four-stroke, V-type twin cylinder. Overhead valves in removable, aluminum cylinder heads. Hydraulic valve lifters assure constant tappet adjustment. 1 1/4" crank pin and 3/16" rollers. All main bearings of retained roller type. Bore, 3-5/16". Stroke, 3 1/2". Horsepower, 40-42.

**CARBURETOR.** Linkert, easily adjusted. Venturi opening 1 1/8".

**TRANSMISSION.** Four speed with constant-mesh gears. Three speed and reverse with sliding low gear available at small extra cost.

**LUBRICATION.** Circulating lubricating system with gear-type pressure and scavenger pump. Transmission lubricated separately. All other bearings, Alemite fitted.

**IGNITION.** Generator, storage battery, spark coil, circuit breaker. Waterproof. No troublesome distributor.

**ELECTRIC EQUIPMENT.** New, sealed ray headlight with prefocused 32-32 candlepower, double-filament bulb. Dual beam control. High output generator with automatic increase when lights are on. Storage battery. Disc-type horn.

**CLUTCH.** Super-service, multiple dry disc, left foot-operated.

**DRIVE.** Motor to transmission by automatically lubricated double-row roller chain. 5/8" pitch roller chain to rear wheel.

**FRAME.** Extra low, reinforced, double loop, trussed frame made from seamless steel tubing with major fittings drop-forged. Parkerized to resist rust. Wheel base 60 1/2". Theft-proof lock.

**FRONT FORKS.** Hydra-Glide fork irons out bumps and washboard roads. Load is transmitted by long helical, oil-cushioned springs supported and contained in main tubes. Timken roller bearing steering

head bearings.

**MUFFLER.** New, mellow-toned, tubular construction.

**WHEELS.** Quickly detachable and interchangeable wire wheels.

**BRAKES.** Front and rear wheel, fully enclosed, waterproof.

**TIRES.** Goodyear or Firestone, 4-ply, 5.00" x 16" tires available in equipment groups.

**SADDLE.** Comfortable, form-fitting, mounted on cushion spring, seat post. Foam-rubber padded. Genuine leather top.

**TANKS.** Large, streamlined. Capacity: Left tank, 2 U. S. gallons. Right tank, 1 3/4 U. S. gallons. Oil tank, 1 U. S. gallon.

**FINISH.** Over rust and corrosion resistant surfaces. Available in Ruby Red, Brilliant Black, and Riviera Blue. Available at extra cost: Metallic Green, Flight Red, Azure Blue, and White. Silver for police service only. Frame is finished in black enamel.

# Helpful Mathematics for Motorcyclists

## USEFUL FORMULAE SIMPLIFIED

by Leonard A. Karber

Have some of the mathematics of the bicycle or engine ever bothered you, the amateur tuner or race enthusiast? Has it ever seemed long and tedious to those of you who do not use mathematics in your daily work? One of the necessary evils of any mathematical work is the formula. Part of the purpose of this article is to reduce some of the work involved in finding a given answer and just as important to explain some of the terms involved in the given formula.

First, let us take such a simple thing as boring a cylinder. If for any reason, whatsoever, such as race regulations or licensing purposes it is necessary to know the new engine size then the math involved, while not difficult, might be tedious. The normal formula for a cylinder volume is  $V = \frac{\pi B^2 S}{4}$  where

V=volume  
 $\pi=3.1416$   
 B=bore  
 S=stroke

Suppose the nominal cylinder bore is  $3\frac{1}{2}$  inches. To have a cylinder capacity of 30.50 cu. in. the stroke must be 3.17 inches. The work of squaring 3.5, dividing the product by 4, multiplying the result by 3.1416 and then multiplying the new result by 3.17 to find the cylinder volume is quite lengthy. If the cylinder is bored out 40 thousandths in. then the bore is 3.54 in. and the square of this number is much longer than formerly so that all the other decimal numbers involved in the formula make a very tedious problem of finding the new volume.

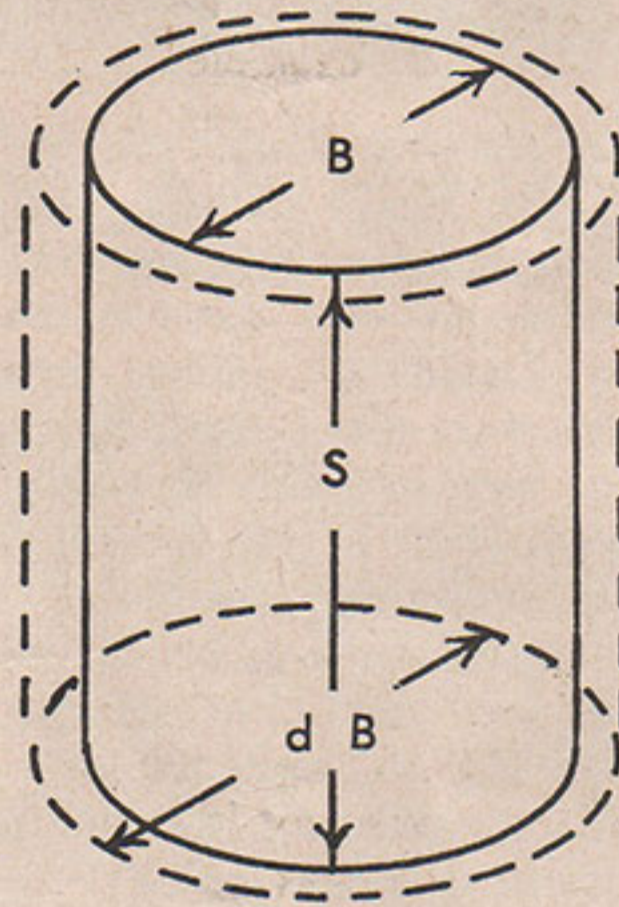
### NEW CYLINDER VOLUME

Now if we subtract the old volume from the new volume we shall have the difference in volumes. Many years ago Sir Isaac Newton showed us a way to work on this difference. His mathematics comes in handy for us on this particular problem.

Remember our volume formula is  $V = \frac{\pi B^2 S}{4}$ . Applying Newton's method

we shall leave to math majors to explain, we arrive at the formula  $dV = \frac{\pi B S dB}{2}$  where dV=difference in volume.

$\pi$ , B and S are the same as before, and dB=difference in bore, in our case 40 thousandths.



Diagrammatic illustration of changes in cylinder diameter when engine is rebored. Dimension B represents standard bore, for example 3.5", dimension S being the stroke of the engine, for example 3.17". Dimension dB, new enlarged bore, .040" oversize. Calculations are explained in the text. Illustration is purposely exaggerated. Reboring a cylinder automatically reduces the compression pressure because total area of cylinder and combustion space is increased. This fact is often overlooked

The small d's are put in front of the V and in front of the B to show that the difference in volume is brought about by a difference in bore.

Now, isn't that formula easier to use than the one where we try to square 3.54 and all the rest? Out of curiosity let us substitute into the formula our values.

B	the bore as originally	3.5
S	the stroke	3.17
dB	the difference in bore	.040

$$dV = \frac{\pi B S dB}{2}$$

$$dV = \frac{\pi (3.5) (3.17) (.040)}{2}$$

$$dV = 0.696 \text{ cu. in.}$$

If we add the difference in volume to the old volume we have the new

volume or  $30.50 + .696 = 31.196$  cu. in.

The new volume by the regular method in long hand is  $V = \frac{\pi B^2 S}{4}$ .

$$V = \frac{\pi (3.54) (3.17)}{4} = 31.200 \text{ cu. in.},$$

which is very close to 31.196 cu. in.

Some of you motorcyclists may also be hot rod enthusiasts. The engines are bored and stroked in many instances. In which case the difference in volume per cylinder is equal to the difference in bore formula plus the ratio of the difference in stroke to old stroke times the original cylinder volume or mathematically

$$dV = \frac{\pi B S dB}{2} + \frac{dS V}{S}$$

The dV should be added to the original V per cylinder and then multiplied by the number of cylinders to find the engine volume.

### TIME TRIAL OR RACE SPEEDS

Here is a very quick and accurate method of finding the average speed of any time trial or race. The units of speed are miles per hour. The units of a track are in miles or fractions of a mile and the time, especially of a time trial, is in seconds. All that is needed then is to convert seconds into hours by the simple expedient of using 3600 seconds in one hour. Here is the formula:

$$\text{Average speed} = \frac{\text{length of track} \times 3600}{\text{time trial in seconds}}$$

A common time trial is 33 seconds for a half-mile track. Substituting:

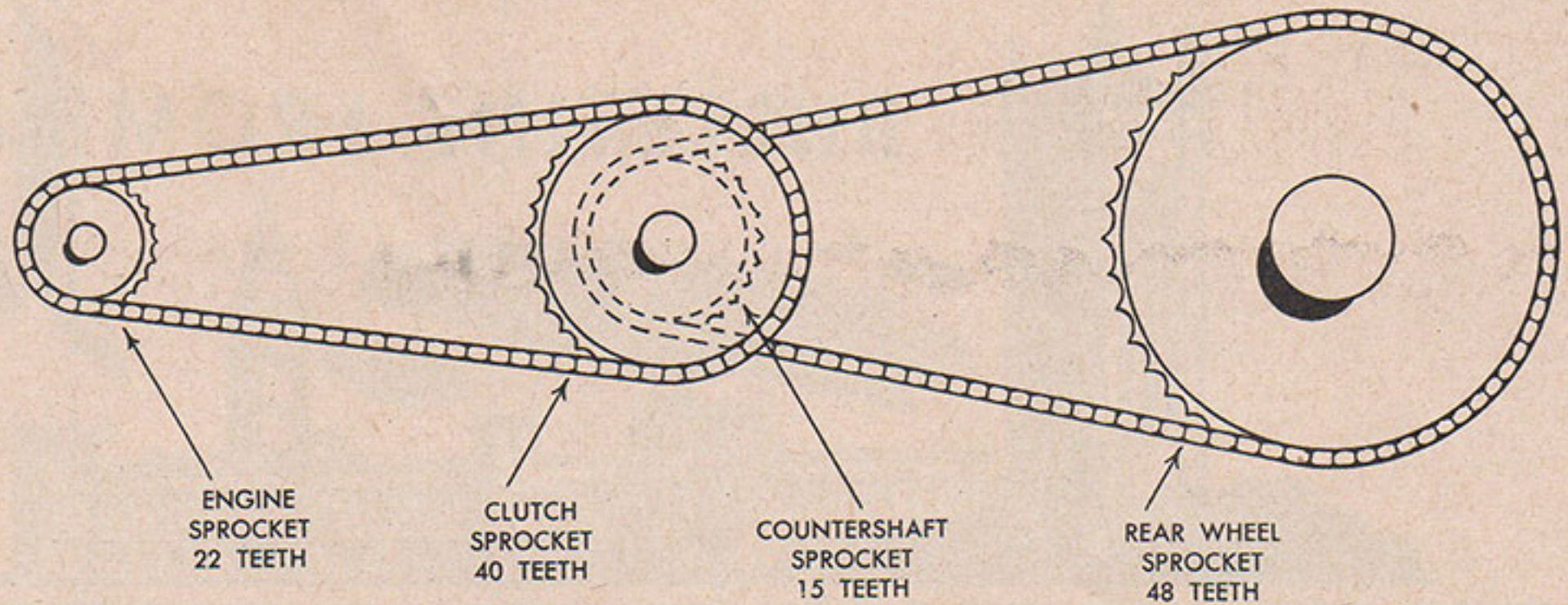
$$\text{Av. speed} = \frac{1}{2} (3600) = \frac{1800}{33} = 54.5 \text{ mph}$$

In the case of a long road race just divide the length of the race by the time in hours or decimals of an hour. Forget the 3600 which has to do with total time of race in seconds.

### FIGURING GEAR RATIOS

A tricky subject to try to explain properly is gearing. Gearing for a definite track is difficult and no attempt will be made to give advice for any one track. However, the point to be made is that some of you riders re-

Drawing of conventional power train used in the average motorcycle. Text explains calculations and results obtained when alterations are made in sprockets. Selection of proper gear ratio is of greatest importance in securing ultimate performance results. Difference of one tooth on an engine sprocket can affect peak performance very drastically. Undergearing causes engine to over-rev with resultant drop in torque, overgearing causes engine to labor. Rear wheel size and tire diameter are also very important factors in selecting ideal ratios



member your gearing by a combination of engine and rear wheel sprockets. That may be very good but generally one doesn't remember whether a 21-48 ratio is lower or higher than a 22-54 ratio. If both are the same ratio the 22-54 ratio is the better one to use because of lower stresses on the clutch and gearbox, less wear and tear on the chains and generally lowered frictional losses throughout the transmission system. While only minor, all such gains should be recognized, accounted for and used. In a long race such a minor point can be very important from the reliability standpoint.

If one hasn't figured out all the possible ratios for the sprockets available then an easy way to do so is to take the standard sprockets of the machine and figure out a constant. Assuming some sprocket sizes let us find out what the ratio is. Standard sprockets might be: engine 22T, clutch 40T, countershaft 15T, and rear wheel 48T. What

is the ratio? Most of you know that we multiply the driven sprockets together and divide by the two drivers.

$$\frac{\text{driven} = 40 \times 48 = 64}{\text{drivers} = 22 \times 15 = 11} = 5.818$$

Since an engine sprocket is the only one changed at any one time normally let us leave it out of the above formula and make a constant of the other three sprockets. For example:

$$\frac{\text{clutch} \times \text{rear wheel} = 40 \times 48 = 128}{\text{countershaft} = 15}$$

Now any time we change an engine sprocket all we have to do is divide 128 by the new engine sprocket to get the ratio. If we use a 20T engine sprocket the ratio is 6.4, for 21T the ratio is approximately 6.1.

**COMPRESSION RATIO**

The compression ratio formula is know to most of you but it might bear repeating here in words as well as by

formula. Rumor has it that many of you fellows will be making a change of compression to suit a change of regulations. Compression ratio is easy to remember if remembered by words such as: "Compression ratio is the total volume of the cylinder at the bottom of the stroke divided by the total volume at the top of the stroke." Remember that the total volume at the bottom of the stroke is made up of the swept volume of the piston plus the combustion chamber clearance. Expressed mathematically we have:

$$\text{comp. ratio} = \frac{\text{piston vol. plus comp. vol.}}{\text{combustion volume}}$$

Normally we shall know piston volume and compression ratio. The only unknown then is combustion chamber volume. It is desirable to find combustion chamber volume in cubic centimeters rather than in cubic inches because a regular compression check is usually made by pouring oil from a tube graduated in c.c. into the combustion chamber with the piston at top center and the valves closed. The formula as it stands is slightly awkward to work with so let us modify it slightly to find head volume. Modified the formula becomes:

$$\text{head volume} = \frac{\text{piston volume}}{\text{compression ratio} - 1}$$

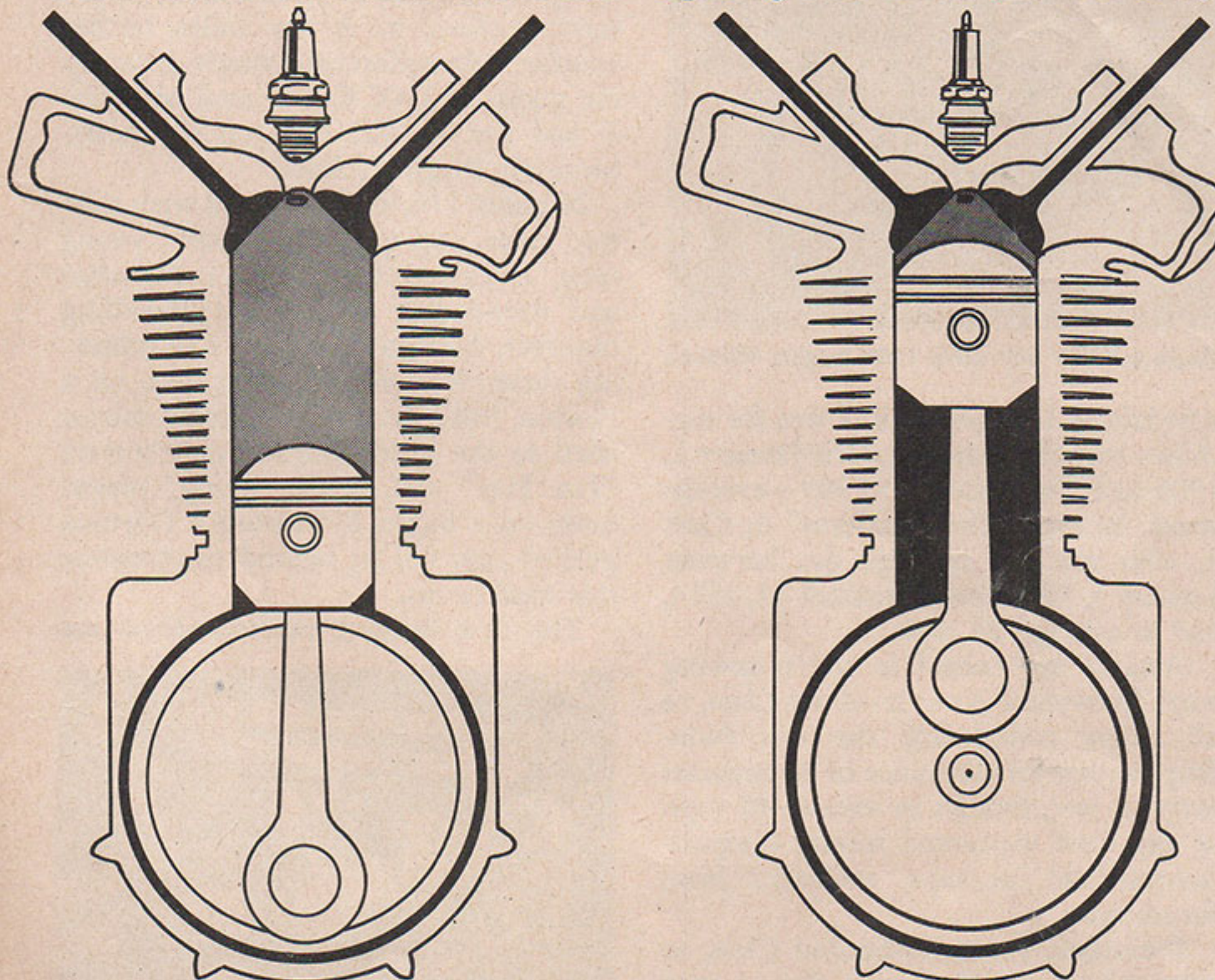
Let us pick a swept piston volume of 498 c.c. and a compression ratio of 7.5 to 1 to find the head volume.

$$\text{hd. vol.} = \frac{498}{(7.5-1)} = \frac{498}{6.5} = 76.61 \text{ c.c.}$$

From curiosity let us see how one full ratio or 8.5 to 1 will change the head volume. Hd. vol. =  $\frac{498}{7.5} = 66.4$  c.c. or a

reduction of 10 c.c. for a rise of one full compression ratio.

In such a short article as this many things must be overlooked or by-passed. Only the high spots can be covered. While much of the above information may be found in numerous text and handbooks, the author hopes that the formulas here are presented in such a way as to be readily understandable to the non-technical minded and to have clarified some problems for beginners.

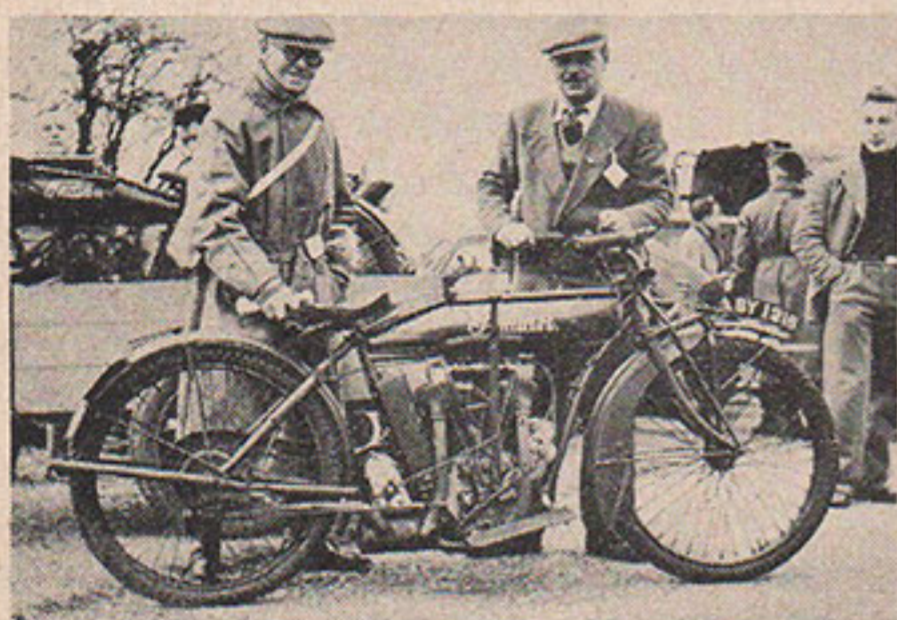


Illustrating what is meant by compression ratio. Left, piston is at bottom dead center. Grey area represents total area of cylinder plus combustion space. Right, piston is at top dead center. Grey area is the combustion space. Text explains calculations for determining compression ratio changes

BULLETINS FROM

## Britain

By William H. Onslow

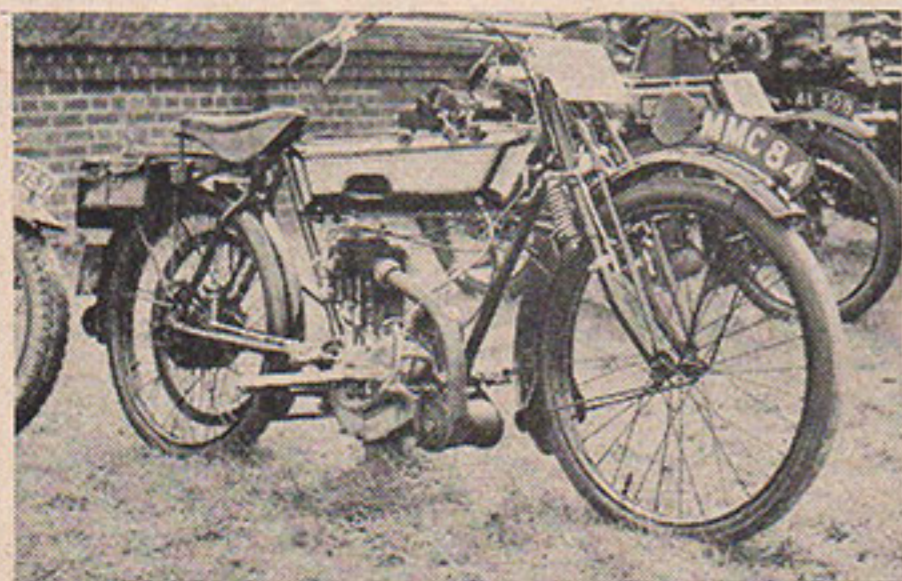


Famous Indian big twin, 980 c.c., vintage, 1912

THE HISTORY of the motorcycle was unfolded on March 19, 1950, as 187 veteran machines came under starters' orders for the 14th annual Epsom to Brighton Run. No less than 63 different makes of machine were represented.

Chats to the owners produced many interesting points relating to the many machines. Number 5, listed as a Triumph, had stood in a hedge for 25 years and was purchased by the owner for \$6.00. It is the only known example of this type in existence. Its engine, carburetor, and plug are J.A.P. products, its frame, etc., being the earliest example of Triumph workmanship. The 1902 Matchless, ridden by "Jock" West, had previously competed in the run since 1931 in the hands of T.T. riders Applebee, Brackpool and Phillips.

The history of the 1914 Rudge ridden by L. C. Newman, is one of bloodshed. Its first owner, having ridden it 1000 miles, was called up to the First World War, never to return. Its rebirth was during the Blitz when, oddly enough, a Flying Bomb revealed its hiding place. Many other interesting points were gained by snooping around, some link-

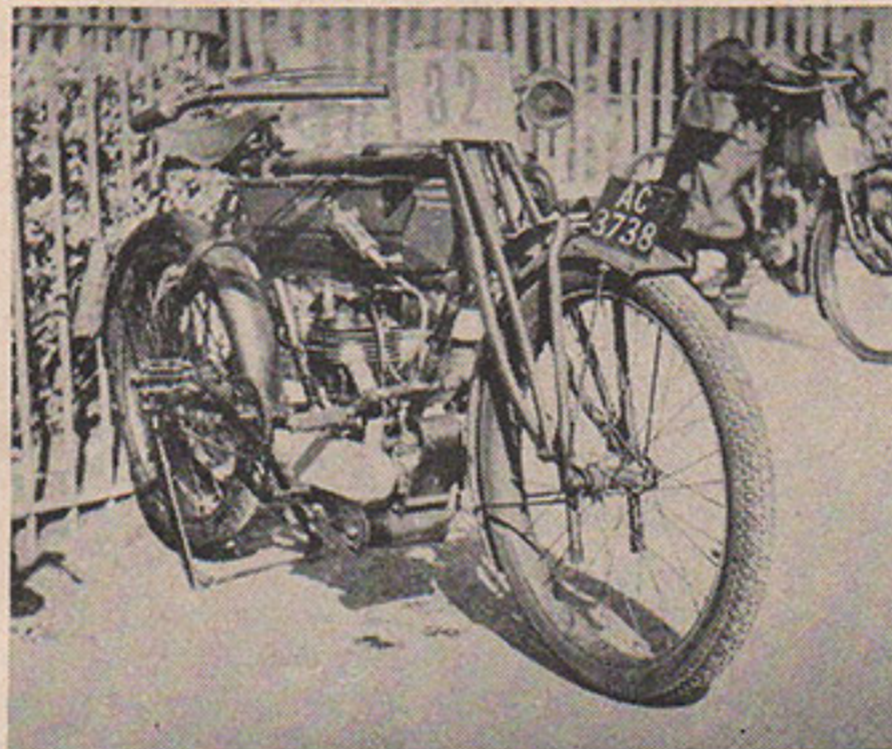


This 1910 Humber was a real man's machine

ing with the United States.

Three well-preserved Indians were parked close together, a 1911 500 c.c., another model of the same capacity, produced a year later, and a 1912 big twin. The scrutineer, Mr. E. A. Bridgeman, seemed most interested in these machines. This can be understood, for Ernie Bridgeman had been the Indian dealer in this country from 1912 until the outbreak of the last war.

For the purpose of the run and earning awards the machines were divided into three classes, each class having to maintain a scheduled speed. Class 1 constituted machines manufactured before December 31, 1904—average speed 15 mph, though Tricycles and Front-Wheel drive machines are given a lower speed

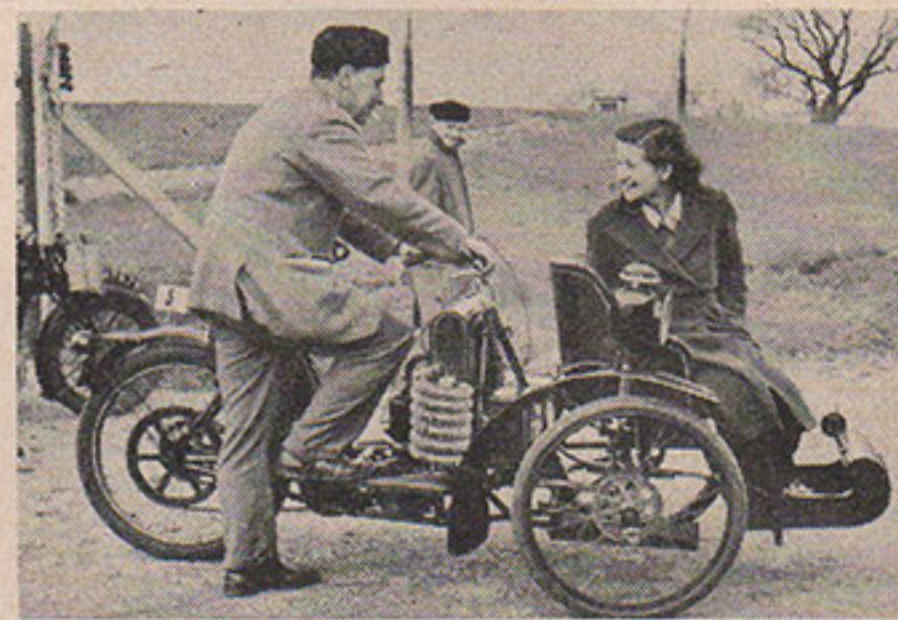


Single cylinder belt drive 1909 Belgian Minerva

schedule of 10 mph. Class 2 was for machines manufactured between January 1, 1905 and December 31, 1909—average speed 20 mph. The "moderns" in Class 3, who saw the light of day between January 1, 1910 and December 31, 1914, had to average 24 mph.

Awards are earned in the following way: Individual Awards—First Class, to all riders completing the run Non-Stop, within an allowance of 20 minutes early or late, though to exceed 45 mph at any time warranted instant disqualification and, perhaps, exclusion from future runs.

Individual Awards—Second Class, to riders who finished on time, though they may have stopped enroute. To finish after the scheduled time, but not before,



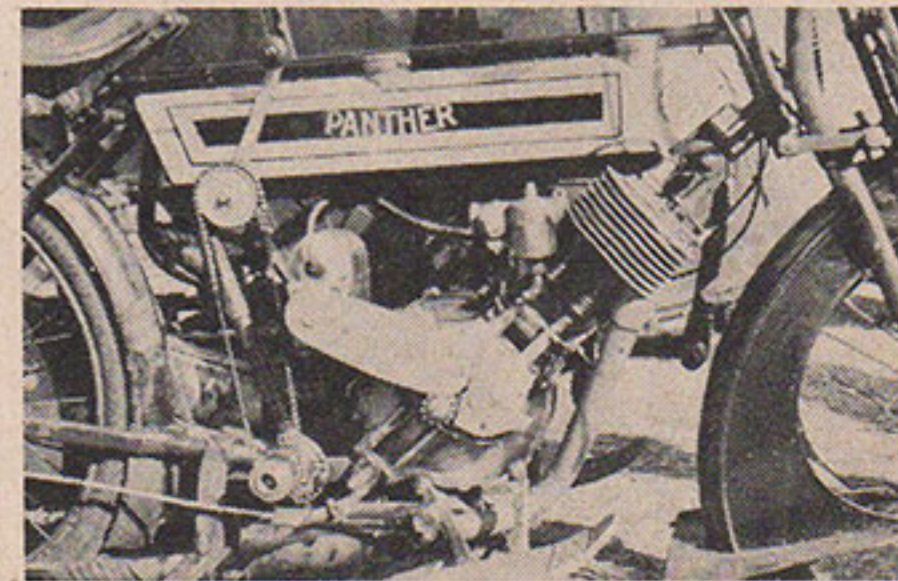
A very early model Raleigh-ette Forecar, 1904

gained the rider an Individual Third Class Award.

Having seen the early numbers safely out of the Paddock, each started in its own particular way, I mounted my trusty Panther sidehack and started in pursuit. The old warriors were popping along well, even if a little assistance via the pedal system was needed on the hills. An early casualty was a 1909 Douglas, its rider, R. L. Archdale, laughingly pushing it. A few miles farther another "Antediluvian" single gave up the ghost—a 1902 Continental Minerva. It had lost its 281 c.c.'s on the heart-breaking Brighton Road.

Number 116, a 1912 P & M with sidecar, rider and passenger, both young men, complete with false moustaches and deer-stalker hats. Their travelling observer, Norton mounted, was following them. A friend of theirs, also on a Norton, had a most novel driving mirror fixed to the inside portion of a service "Tin Hat" and, while riding, played tunes on a bugle. I, wearing a Daytona peaked cap, fell in behind to complete this mad circus.

The first thing I noticed about the



Even early day Panthers had a sloping cylinder

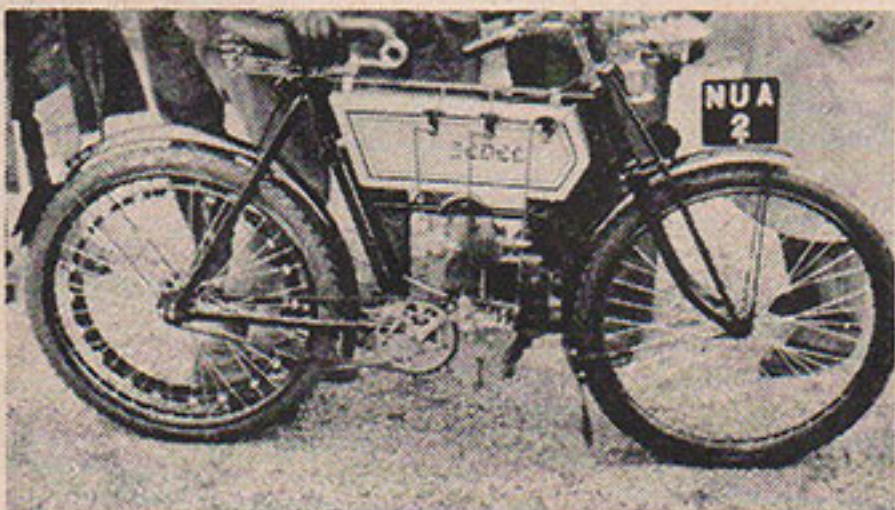
P & M outfit was the sidecar wheel, it wobbled alarmingly and I hastily said a prayer for the passenger perched up so high in that ridiculous chair. The job motored quite well for its age and reached the permissible "45 per" on



Early water-cooled Scott twin, with "chair"

several occasions, though I have to confess that many a hasty grab on the driver's part to engage a lower cog caught me unawares. Hills were managed with many a grunt, I being forced to use a gear or two lower than usual in order to keep behind. The lads were well known and took it in turn to bow to the people lining the route. As we drifted into Brighton, almost on time, I could well imagine Commentator Harry Louis announcing to the throng on the sea front, "1912 Panther Sidecar outfit followed by a late model and sidecar. Notice that many features remain the same today." We turned into the display position, I to learn the secret of the swivel-arm sidecar wheel, and the boys to confirm that they had earned a First Class Award. Several hours later came the official news of the "Old Crocks" performances.

Makes of machines entered in the run were: A.B.C., A.C. Sociable, Alldays & Onions, Ariel, B.A.T., Beeston Tricycle, Bradbury, Brown, B.S.A., Buchet, Centaur, Chater-Lea, Clemenson, Clement-Victoria, Corah, Douglas, Fafnir, Featherstone-Thorough, F.N., Frera, Hobart, Humber, Indian, James, J.E.S., Kerry, Lea-Francis, Levis, Matchless, Minerva, Motosacoche, New Hudson, Norton, N.U.T., O.K. Junior, Ormonde-Antoine, Peugeot, P & M, Pierce Arrow, Premier,



A 142 c.c. French Peugeot Lightweight, 1902

Quadrant Tricycle, Raleigh, Raleightte Forecar, Revere, Rex, Robinson and Price, Rover, Royal Enfield, Rudge, Scott, Singer, Symplex, Sparkbrook, Sunbeam, Sun-Villiers, Swift, Thomas, Triumph, Werner, Wilkinson, Wooler, Zed, and Zenith.

## HISTORY of FAMOUS BRITISH MOTORCYCLES AJS

WORLD championship honors, let alone by alphabetical preference, determines that AJS be granted the lead in this series of articles on the history of various makes of British machines. Wolverhampton, home of Villiers and the early home of Sunbeam, was a fitting town wherein A. J. Stevens should first see the light of day. His father, Joseph Stevens, and his three brothers, designed and produced a 2¾ h.p. i.c. engine in 1897, and so began a name which became well known for reliability and performance. A period of twelve months or so passed, during which time their new and popular single cylinder engine was fitted by several manufacturers of motorcycles. The sons, however, being keen riders themselves, designed a frame to withstand the knocks they were prepared to put upon it. The result was the first A. J. Stevens complete motorcycle.

Following a series of Trials and Speed Tests the Ajay made its initial T. T. appearance in 1911, the year in which the "Mountain Circuit" was first used. The Single Cylinder and Twin Cylinder classes became changed to the "500 c.c. Senior." The 350 c.c. Junior became another major change in the T. T. series that year. Two AJS machines entered and, although both finished, they were well down the field.

Following the intervention of the First World War, the Ajay continued where it had left off, with C. Williams riding his machine to a Junior victory at 40.74 mph, nearly 5 mph slower than the 1914 winning speed. Suffice to say that, even at this slower speed, Cyril won as he liked on this first 350 overhead valve AJS.

The following year the firm not only completed the "double" win but also, for the first and only time in history, the Senior was won by a Junior machine. H. R. Davies on a 350 AJS wiped it across the 500's to a tune of 54.50 mph while C. Williams repeated his 1914 Junior win at a speed nearly 12 mph faster than the victor of the previous year.

The next mention of AJS in the T. T. record book was in 1922, when, in the hands of T. M. Sheard, an even faster AJS romped home to complete the Junior Hat Trick for the stable. (The British refer to two wins in a row as a "double," three wins in a row as a "hat trick"—ED.) The two immortal Jimmy's, Jimmy Simpson and the late Jimmy Guthrie, were meanwhile showing their paces on Ajays, the latter winning his first T. T. on a 250 c.c. in the 1930 Lightweight Class.

Came the fateful economic crisis year of 1931 and a glance at the 1936 Motor Index proves the damage done to the internal combustion industry during those terrible days. Many firms were dissolved, never to be heard of again. The A. J. Stevens firm was acquired by H. A. Collier, the 1909 T. T. winner, who with his family and brother, Charles, who won the very first T. T. in 1907, gained control of Associated Motor Cycles Ltd., and the Ajay lived on. Design did not stagnate, however. Total-loss oiling systems gave way to dry sump layouts using mechanical oil pumps. Different styles and sizes of models were offered to the public. Among these were a side-valve Vee-twin of 996 c.c. capacity, four upright single cylinder designs, four inclined, or sloper, singles (one of side-valve pattern) and a single port overhead camshaft racer.

The year 1934 saw the number of inclined models increase to seven. These became known by name as—Big Port, Two Port, Big Twin and Trophy. A year later no less than fourteen AJS models were listed, among them the 990 c.c. Export Twin with its controls modified to suit the American and Continental rider. O.H.C. racing and competition machines of 346 c.c. and 495 c.c. were also produced. "Sloper" addicts were a little perturbed, however, in 1936, for the catalogue contained 12 vertical singles and three twins in the seventeen listed models.

For the 1947 T. T. they designed and built the famous "Plumstead Porcupine," an almost horizontal twin of 499 c.c. capacity. With iron liners shrunk into a light alloy cylinder block and with crankcase and heads of the same material, the complete engine assembly formed the shape of a huge "Y." A light, but immensely strong, frame of triangular shape carried the power unit while plunger-type springing was fitted to the rear. Teledraulic forks, lightweight wheels, and a huge fuel tank completed this amazing monster.

Three such machines, in the hands of World Champion Les Graham, Ted Frend and Bill Doran gained the Manufacturers' World Championship award in 1949, but I am a little ahead of my story. The machine ridden by Frend in the 1948 T. T. was taken to the Montlhery track, outside Paris, to attack a few World records. "Jock" West, Les Graham, and George Monneret, the French AJS agent, handled the beast so well that, on November 12, 1948, no less than 18 new F.I.M. World's Records were established. Among these were: two hours at 110.83 mph, three hours at 108.54 mph, four hours at 107.44 mph, and five hours at 107.14 mph.

(CYCLE printed a Road Test Report on the AJS SpringTwin in the May issue—ED.)



# A.M.A.

## COMPETITION RULES FOR 1950

(This is a condensed version)

**C**LASS "C" equipment MUST be of "stock" design, as manufactured, catalogued and sold for general motorcycle use (Art. III—Sec. 4), EXCEPTING AS SPECIFICALLY NOTED—only such parts and accessories as are catalogued and sold by the manufacturer of the motorcycle in question may be fitted to any motorcycle used in Class "C" Competition.

At all National Championship Contests, as well as Amateur events run in connection with National Championships, all motorcycles will be completely inspected by the National Technical Committee. The following regulations will be the deciding factors regarding this inspection. When a machine has been approved by the Technical Committee, an inspection band shall be affixed to the handle bar.

### MOTOR

Any motor parts catalogued and sold by the manufacturer of the motorcycle in question may be interchanged, PROVIDED:

- A—The bore and stroke is not altered
- B—The type of motor is not altered
- C—The compression ratio does not exceed 8 to 1
- D—If cylinders have been rebored, they do not exceed .040" (forty thousandths) over the manufacturer's standard cylinder bore for the motor in question (Art. III—Sec. 5) (Art. VII—Sec. 25-A)

No supercharger shall be fitted to ANY motorcycle used in competitive events (Art. VII—Sec. 16). Polishing or modification of flywheels, connecting rods, pistons, cams, combustion chambers, valves and valve ports and timing is permitted—PROVIDING—such modification does not violate any of the paragraphs A, B, C, D, as noted above. Tachometers may be used if securely attached.

### TRANSMISSION

ALL motorcycles MUST be fitted with a clutch and transmission as catalogued and sold by the manufacturer of the motorcycle in question. Gears may NOT be altered or removed from the gear-box. Special fabricated clutch operating levers or pedals may be used. Special sprockets may be fabricated, but they MUST be made and attached in a safe and workmanlike manner. A kick-starter MUST be used for all starts, and MUST remain a workable part of the motorcycle equipment (Art. III—Sec. 5).

### WHEELS

Only wheels as catalogued and sold by the manufacturer of the motorcycle in question will be permitted (Art. III—Sec. 5), except as noted under safety precautions.

### BRAKES

When brakes are used, such brakes MUST be as catalogued and sold by the manufacturer of the motorcycle in question. Brakes need not be fitted for dirt track or speedway racing. However, when brakes are not removed, they MUST be rendered inoperative by the removal of one or more brake rods (Art. III—Sec. 5) (Art. IX—Sec. 24). Special brake operating levers, rods or pedals may be used.

### TIRES

Motorcycle tire sizes shall be limited to not less than three (3) inches, and not more than five (5) inches cross section. Only tires of approved tread pattern will be permitted. Approved tread must not be altered in any manner. Recapped or retreaded tires are barred from dirt track races, road races, Tourist Trophy Races and Straightaway Races. In the interests of safety, only motorcycle tread designs approved by the Competition Committee may be used (Art. III—Sec. 5-C).

Approved tread designs at present are: Avon Supreme, Dunlop Universal, Beck Superwear, Beck T.T. Special, Goodyear DeLuxe All-weather, Goodyear Eagle, Goodyear Sport Special, Firestone Champion, Firestone Sportsman, Firestone All Non-Skid, Firestone Chevron, Firestone Super-Sportsman, Firestone Rib-Racing, U. S. Royal Master, Sears Roebuck Allstate, Indian, Rally and Kelly Springfield, Avon Special Supreme, Avon Speedster.

### FRAMES AND FORKS

Any frame or fork catalogued and sold by the manufacturer of the motorcycle in question is permitted—PROVIDING—they are not altered in ANY WAY. The addition of struts or braces to frames or forks, or the alteration of earlier type frames to fit later type motors is not permitted (Art. III—Sec. 5).

### TANKS

Only such tanks as are catalogued and sold by the manufacturer of the motorcycle in question will be permitted. Positively NO ALTERATION TO FRAME OR TANK WILL BE PERMITTED TO EFFECT INSTALLATION (Art. III—Sec. 5).

Leaking gasoline tanks or fittings as well as temporary or makeshift repairs will be prohibited.

### FENDERS

Front fenders and the rear portion of rear fenders may be removed or special rear fenders may be fitted (Art. III—Sec. 5-A). Such special fender MUST be made and attached in a safe and workmanlike manner.

### CHAIN GUARDS

ALL motorcycles MUST be fitted with a guard completely enclosing the front chain and sprockets (chainguard back cover not compulsory) (Art. III—Sec. 5), and the front portion (top run only) of the rear chain for a distance of NOT LESS THAN 6" (measured from the center of the countershaft sprocket).

In the interests of safety, in cases where the manufacturer of the motorcycle in question does not supply such guards, they may be fabricated. Such guards MUST be sturdily made and securely attached with proper bolts and brackets. Makeshift wired-on guards will not be permitted.

### EXHAUST SYSTEM

Mufflers may be removed and special exhaust pipes fitted, provided such removal does not leave the exhaust pipe pointing in a downward direction so as to stir up dust, nor shall it be directed upward so as to interfere with other contestants (Art. III—Sec. 5-B) (Art. VII—Sec. 17).

### SAFETY PRECAUTIONS

Any type front wheel may be used conforming to correct tire size in dirt track, speedway and short track.

In the interests of safety, knee hooks, steering

dampers, fork shock-absorbers, footrests, brake and clutch pedals or levers, handlebars, saddle, rear fender pad and chin rest of any type may be used. Safety bars and all stands MUST be removed (Art. III—Sec. 5-D).

### NUMBER PLATES

No single item of equipment has caused so much confusion and possible error in computing results in motorcycle competition of all kinds as the persistence of some contestants in the use of poorly designed and illegible number plates. In order to preclude this error to the greatest possible extent, only such number plates as are herein outlined will be permitted to start in any race meet. All 3 number plates—used by ALL contestants, MUST be of uniform size, shape and thickness of material, as follows:

10" high—12" wide—not less than .045" thick or .030", if beaded for added stiffness. The four corners MUST be cut off at a radius of 2¼".

Numbers MUST be painted in black, on a background of yellow or white, and be eight (8) inches in height, and of standard type block lettering. It is strongly urged that this lettering be done by a professional sign painter. Polished or chrome plated numbers or background plates will not be permitted. Number plates MUST be attached to the motorcycle in a perfectly flat position. Curving the front plate for any reason will not be permitted.

Nothing but number and letter can appear on the number plate.

No holes other than the mounting plate holes in the number plates.

Letter must appear in the lower right hand corner of the plates and be three (3) inches high.

### HILL-CLIMBING

In Class "C" motorcycle hill-climbs, all of the regulations herein enumerated apply in full, with the exception of that portion referring to NUMBER PLATES. Number plates are not compulsory in hill-climbing contests, unless desired by the promoting organization. The following are also official and subject to Technical Inspection:

- Art. VIII—Sec. 21. Any type of skid chain may be used in hill-climb contests.
- Sec. 22. Tractor bands are prohibited in all hill-climb contests.
- Sec. 23. No mechanical device is allowed on any hill-climb machine which would aid the rider in keeping both wheels on the ground.
- Sec. 24. All machines in hill-climb contests MUST be fitted with an automatic ignition cut-out control.
- Sec. 25. All machines used in hill-climb contests MUST be equipped with an efficient brake.
- Sec. 27. There shall be no limitation on gearing in any hill-climb contest.

### GASOLINE

In all forms of Class "C" motorcycle competition, the gasoline used shall not exceed 85 octane rating (as computed by the A.S. T.M. (motor) method No. D 357-47). Promoters so desiring may furnish all riders with choice of two brands of gasoline of between 75 and 85 octane rating, and when so provided, MUST be used by all contestants (Art. III—Sec. 5-F).

# THE CURTAIN RISES ON "THE GREENHORN" MAY 27, 1950

THE 1950 Greenhorn will begin in Pasadena at 6:01 a.m., Saturday, May 27, with two riders leaving the starting place in front of Johnson Motors at one-minute intervals. Riders may choose their own partners. Passing the Rose Bowl, they will follow the Angeles Crest for a while, then over fire breaks, logging roads and cow trails until the San Gabriel and Piute Mountains are in the background.

There will be "known" and "secret" checks covering the entire route, but the first scheduled stop will be near Tehachapi, site of the California Prison for women.

### OVERNIGHT STOP

The overnight camp is in Red Mountain and here a real Western camp is scheduled. There will be old time saloons, dance halls, for those who have either the strength or inclination to move around, and plans call for plenty of entertainment in the tradition of the old West's boom towns.

Wives and friends of the entrants can leave Pasadena any time and drive directly to Red Mountain or Randsburg, 2 miles north of Red Mountain, and await the riders. While waiting they can explore old mines, visit the desert museums, or rent prospector's tools and pan for gold in the dry gulches. Cases have been known where the visitors have found gold nuggets weighing as high as 9 ounces (about one hundred dollars in value).

### SLEEPING BAGS? YES!

Hotel accommodations in both Randsburg and Red Mountain are inadequate. Therefore, it is necessary that the riders supply themselves with sleeping bags, leaving the few available accommodations to their friends and family.

If the delicate instruments that register earth tremors go crazy on May 27th and 28th and the newspapers tell of a minor earthquake in Southern California, the editors should not send a flock of reporters and photographers to the Mojave desert, for the shaking will be nothing more than the bodies of the old time prospectors and muleskinners turning in their graves, as the riders in the annual Greenhorn Run go tearing across the California wastelands.

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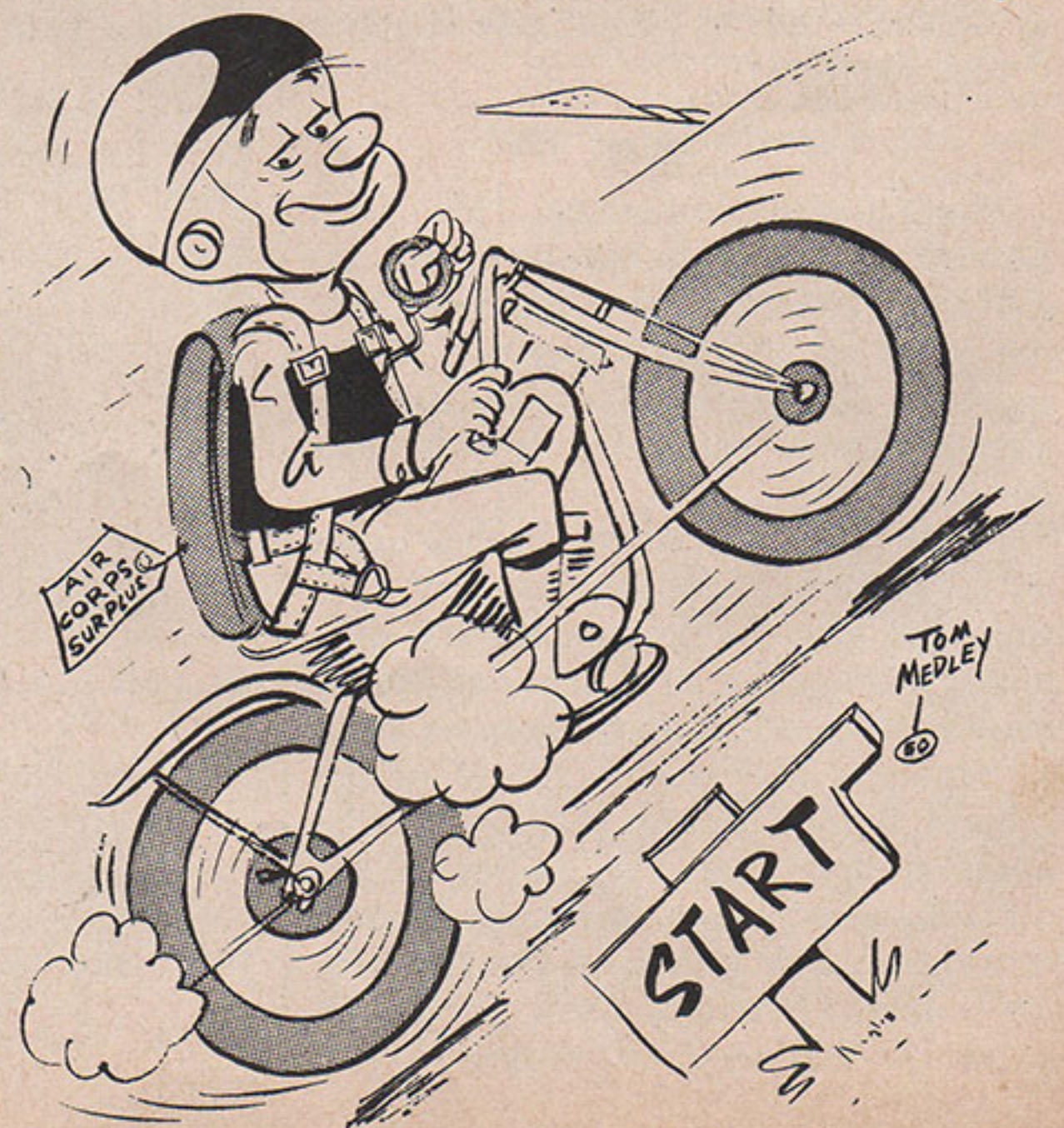
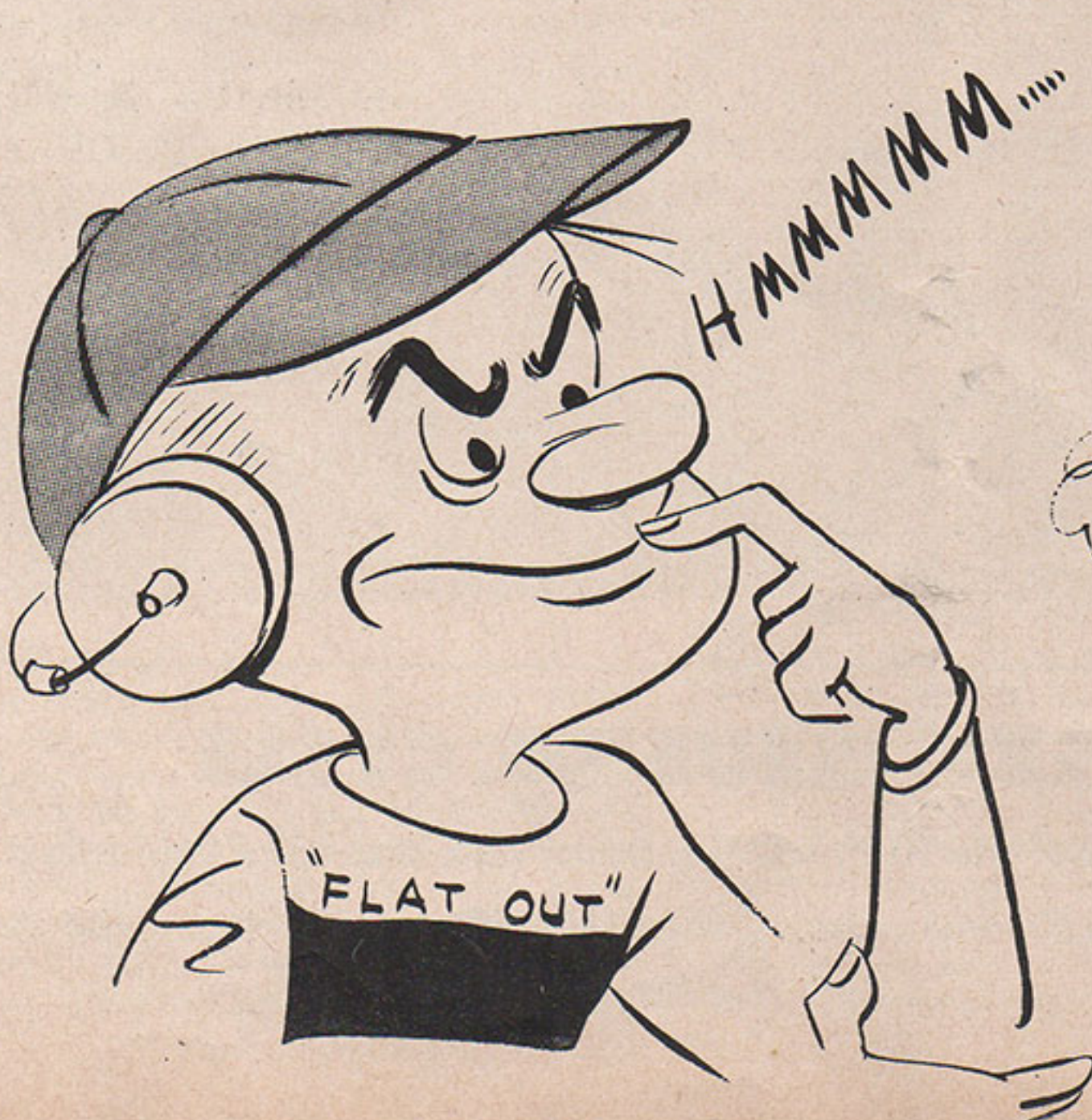
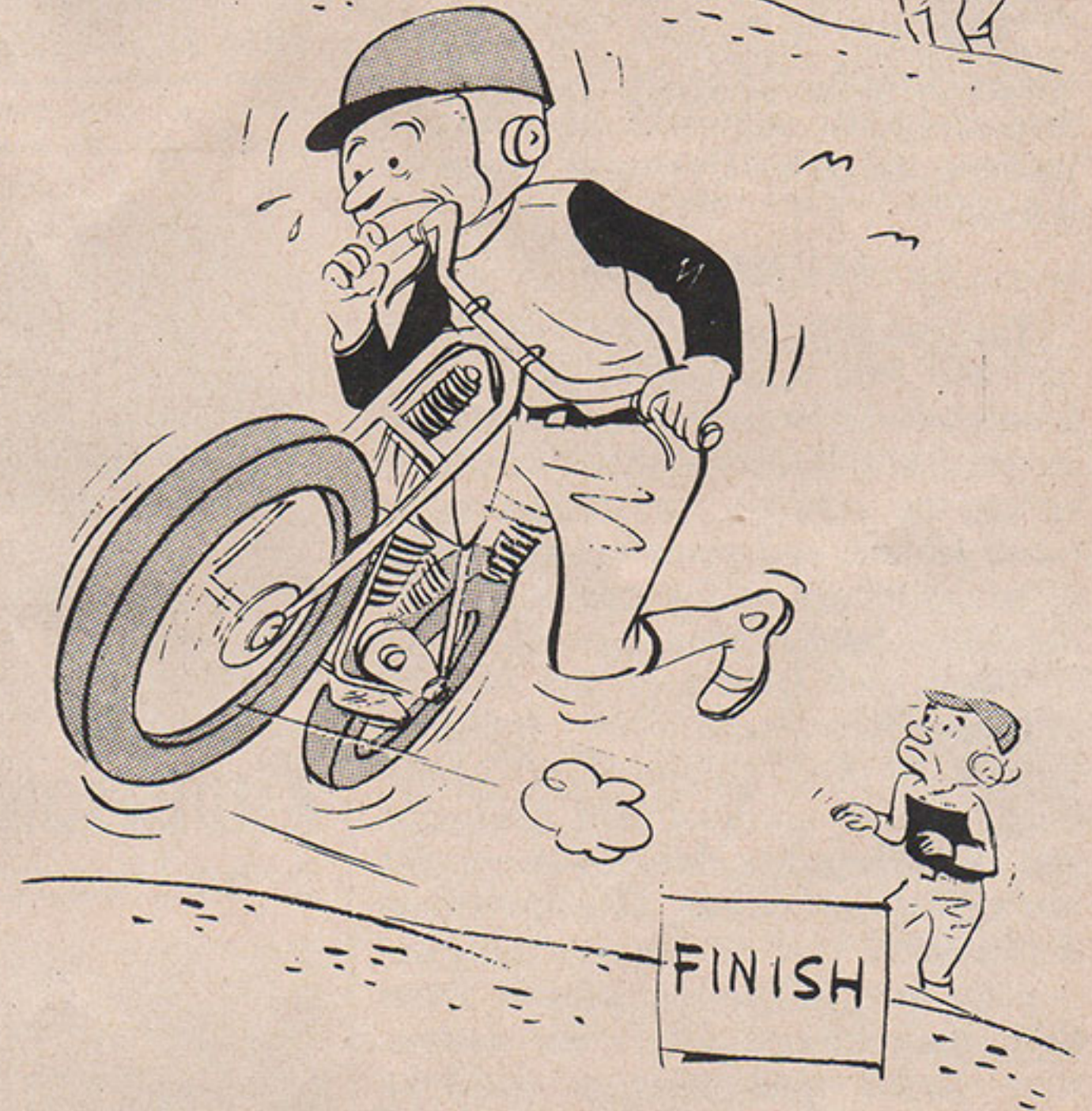
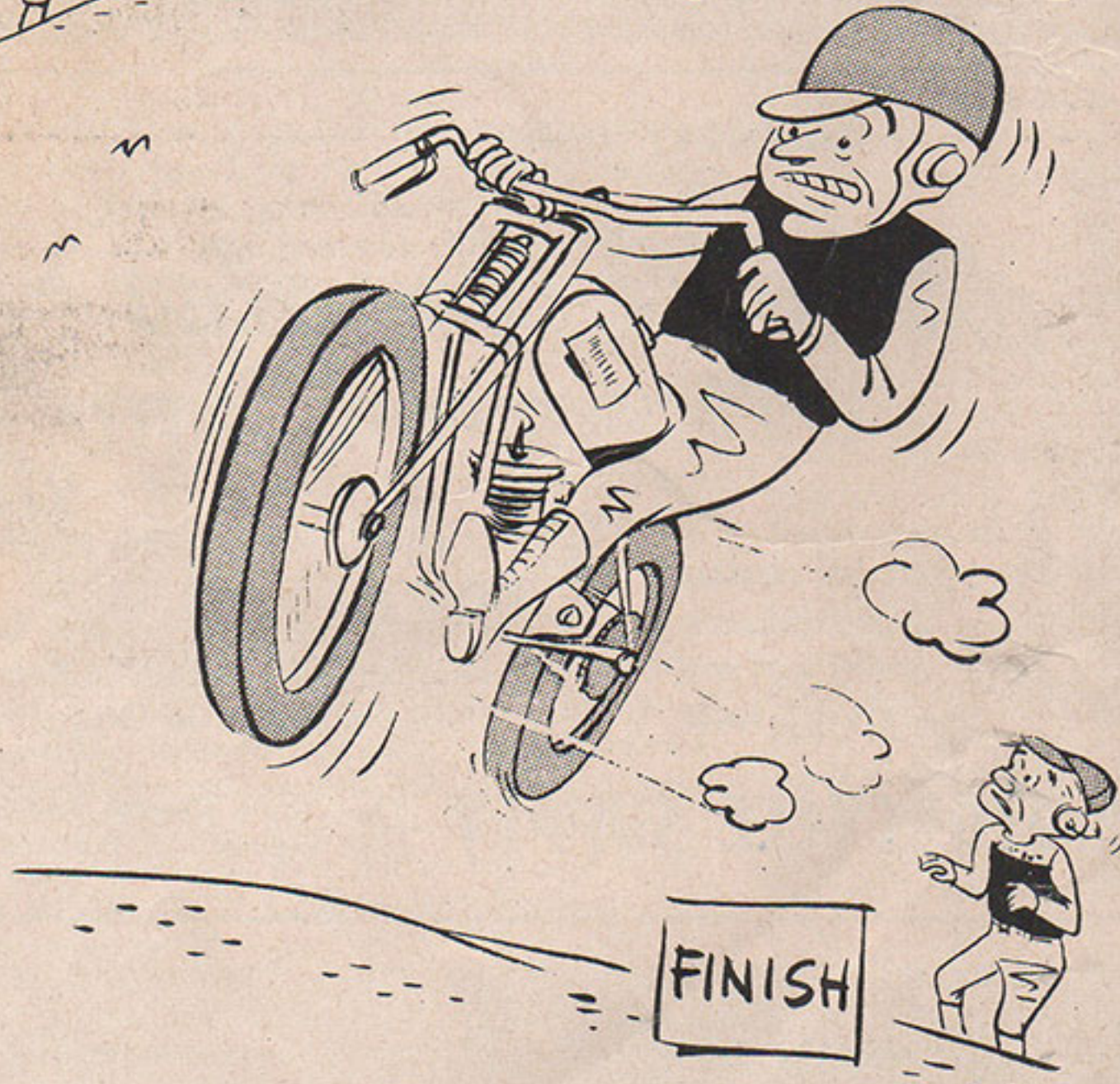
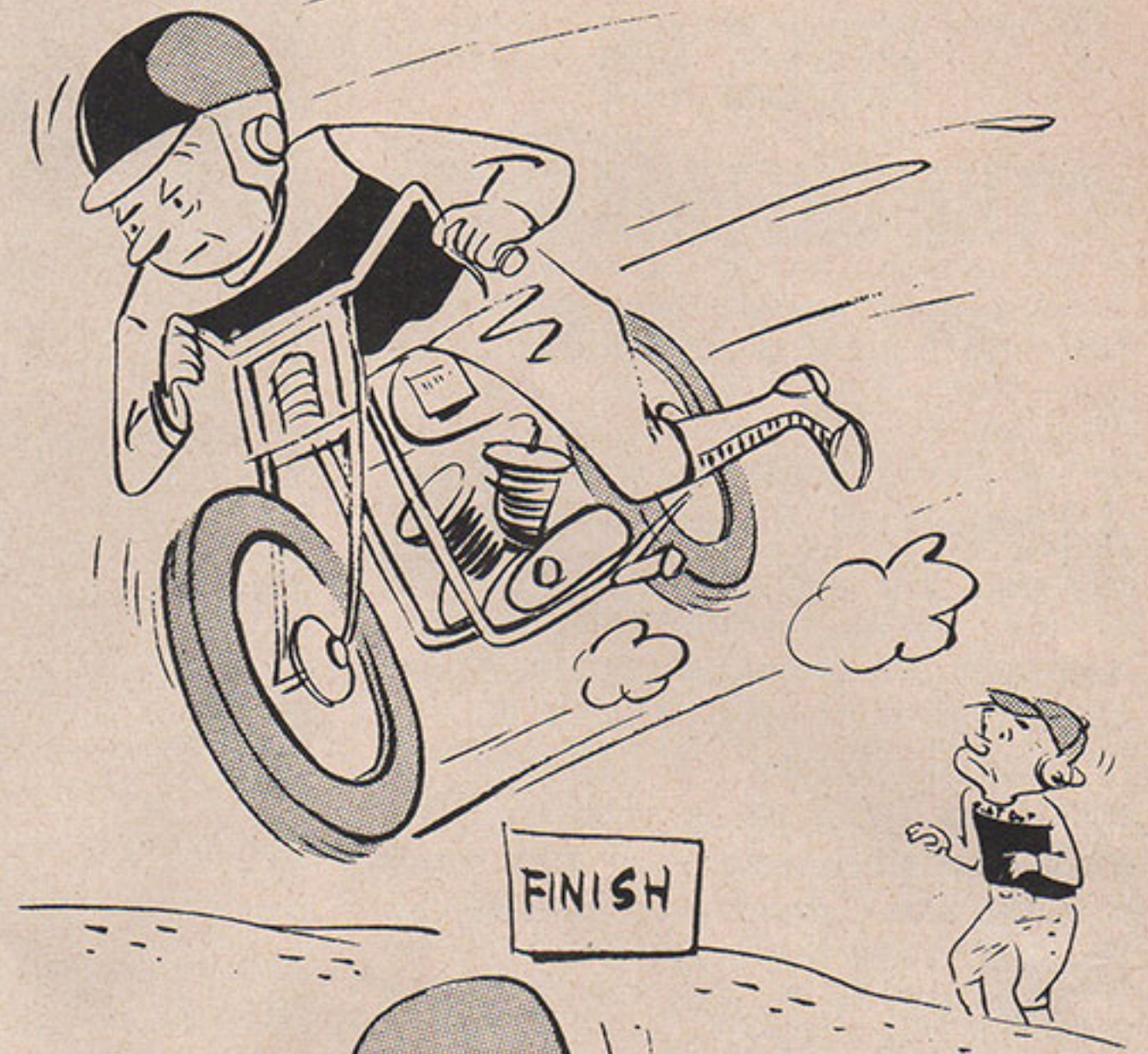
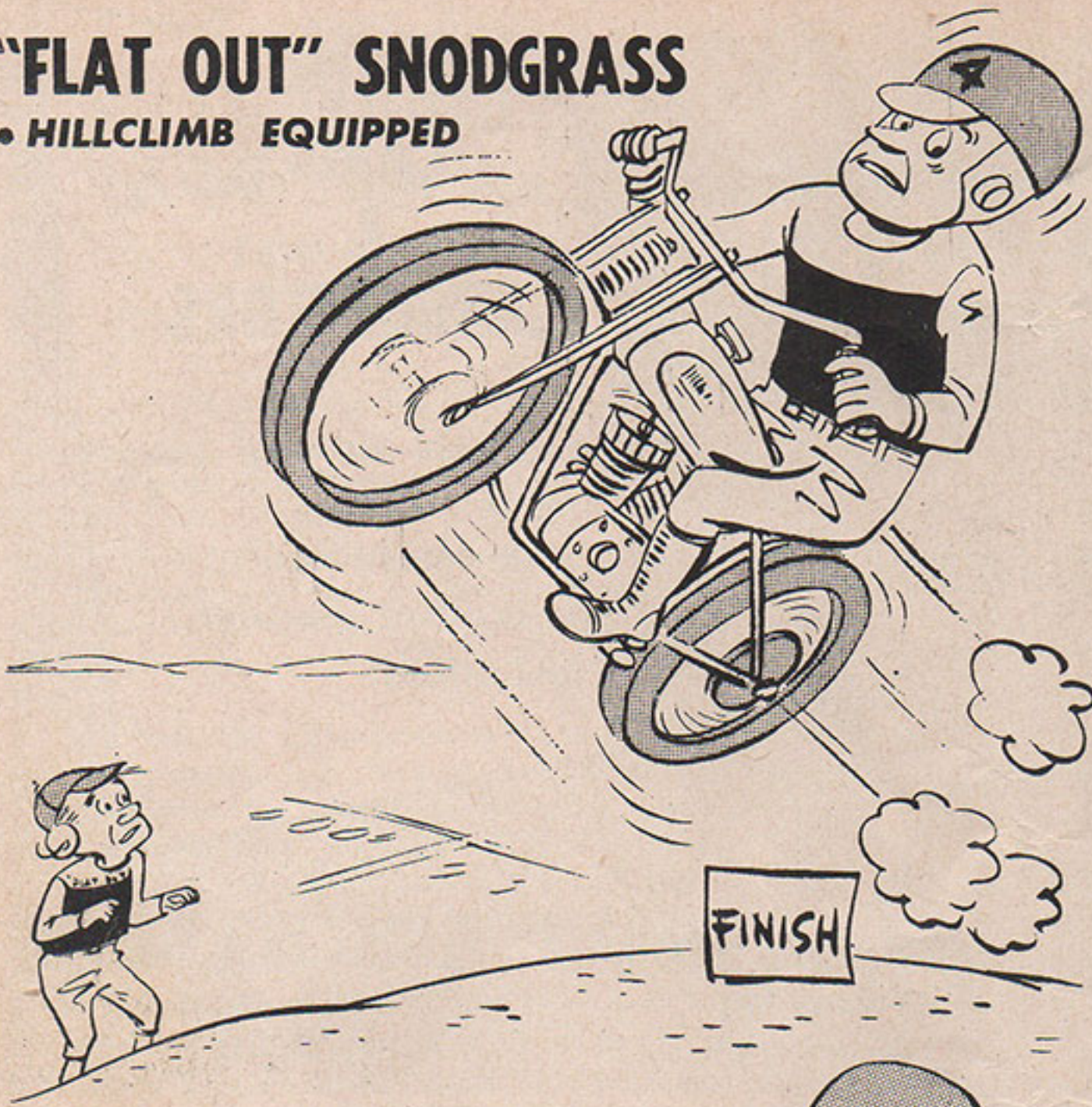
## NEXT ISSUE OF CYCLE

**Don't miss** the full pictorial details on a special fuel-injection job. Also, CYCLE's test rider, Officer H. Filker, reports on the Ariel Red Hunter single.

BY MEDLEY

# "FLAT OUT" SNODGRASS

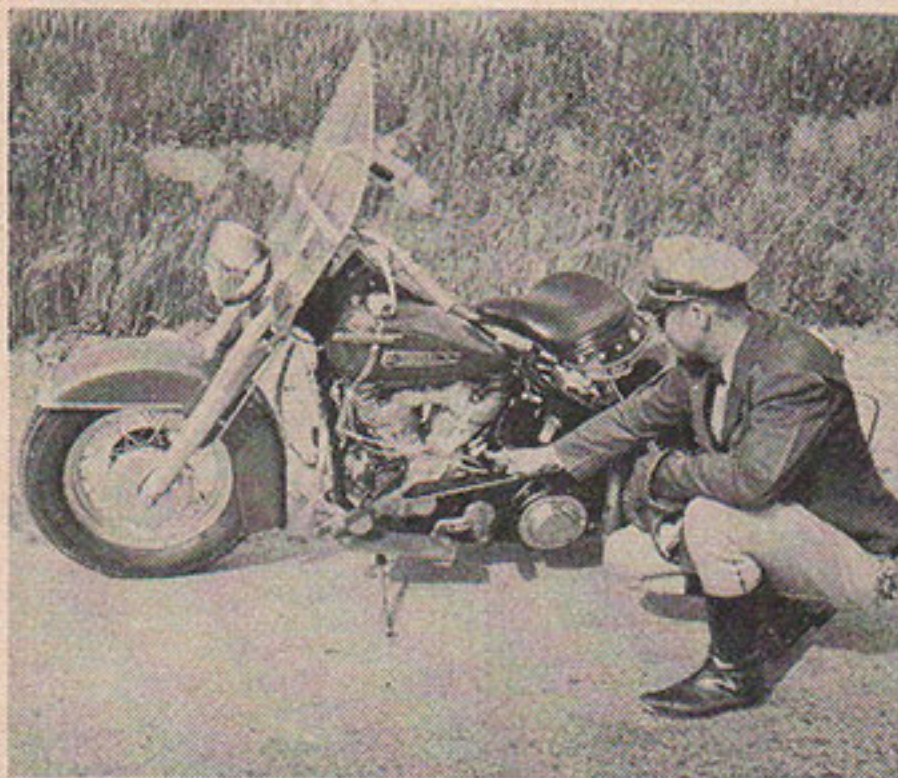
• HILLCLIMB EQUIPPED



**ROAD TEST**

(Continued from Page 21)

The sealed-beam head light gave perfect road illumination, the foam rubber solo saddle provided a luxurious ride, the finish and plating were A-1 in every respect, the gasoline consumption was 36.6 mpg (considerable periods of wide open throttle in the gears undoubtedly affected the gas mileage adversely), machine could be turned around completely in a 16 ft. circle, all controls worked very well. Occasionally, the stop-light switch would not release properly—a drop of oil was required which, when applied, removed the stickiness completely.



CYCLE road tester, Officer Filker, points to interesting accessory built by owner Frank McCartney. Small dural bar, properly threaded to carry two extra spark plugs for emergency use, is bolted to rear cylinder flange. Extra plugs are sometimes worth their weight in gold

Weight was checked on an approved State of California vehicle scale. Total weight, without rider, 637 lbs. Weight on front wheel, 295 lbs. Weight on rear wheel, 342 lbs. With rider in saddle, front wheel, 357 lbs., rear wheel 470 lbs.

Tests indicated the Model 61 is especially suitable for high speed touring and provides ample power and comfort for riding double with a Buddy seat.

**PERFORMANCE SUMMARY**

**Acceleration**

- \*Standing start to 40 mph— 4 secs.
- \*\*Standing start to 70 mph—16 secs.
- \*\*\*Standing start to 80 mph—20 secs.
- \*Low only
- \*\*Low and second
- \*\*\*Three gears used

**Braking**

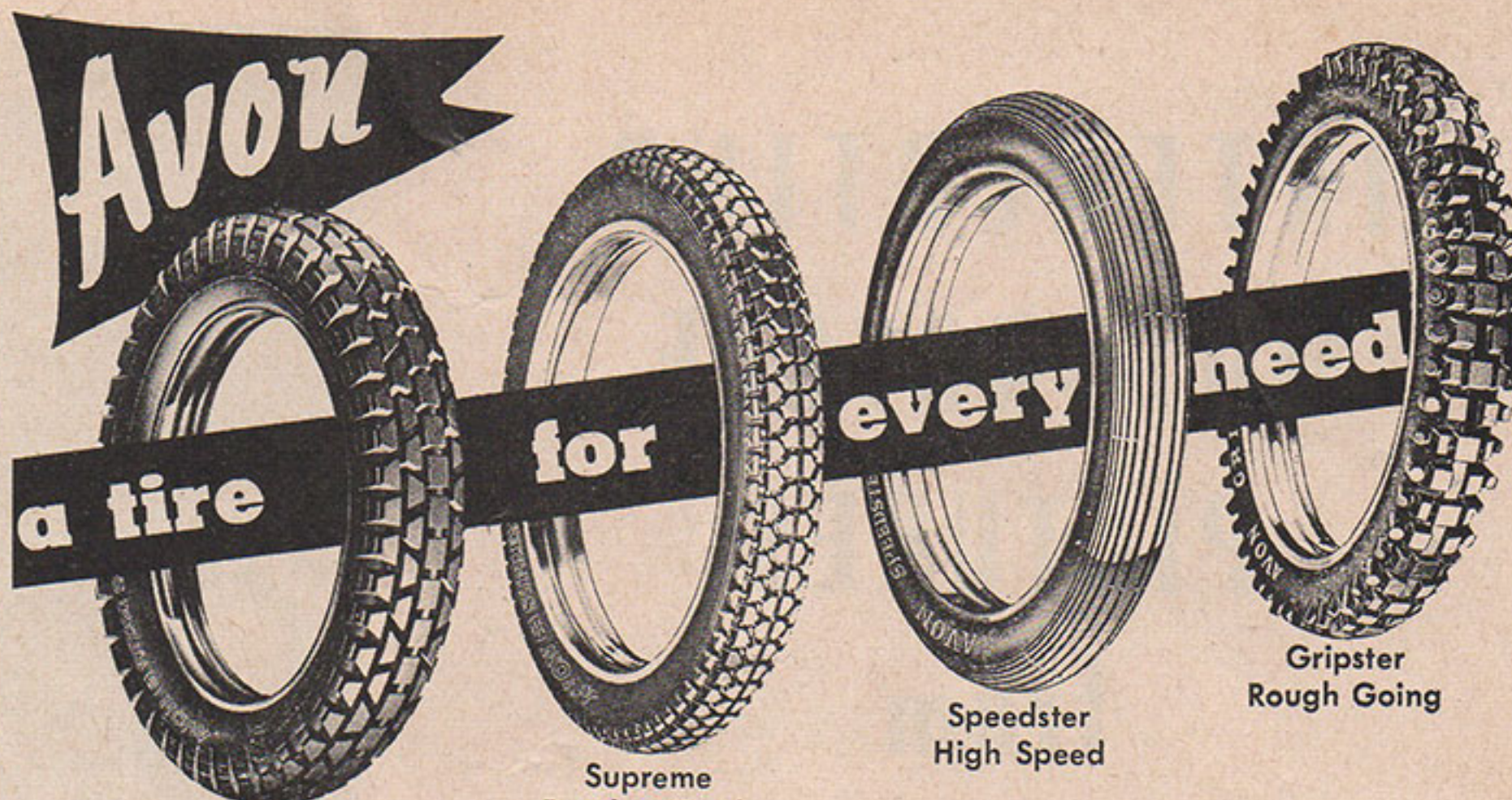
- From 25 mph to stopped, rear brake only— 48 ft., 8 in.
- From 25 mph to stopped, front brake only— 36 ft., 2 in.
- From 25 mph to stopped, both brakes— 29 ft., 9 in.

**Slow Running**

High gear without chain jerk—19 to 20 mph

**Speed**

- Maximum in low—40 mph
- Maximum in second—70 mph
- Maximum in third—80 mph
- Highest speed—88 mph



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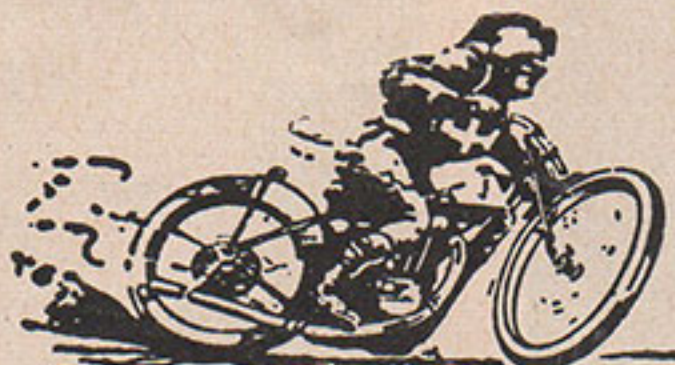
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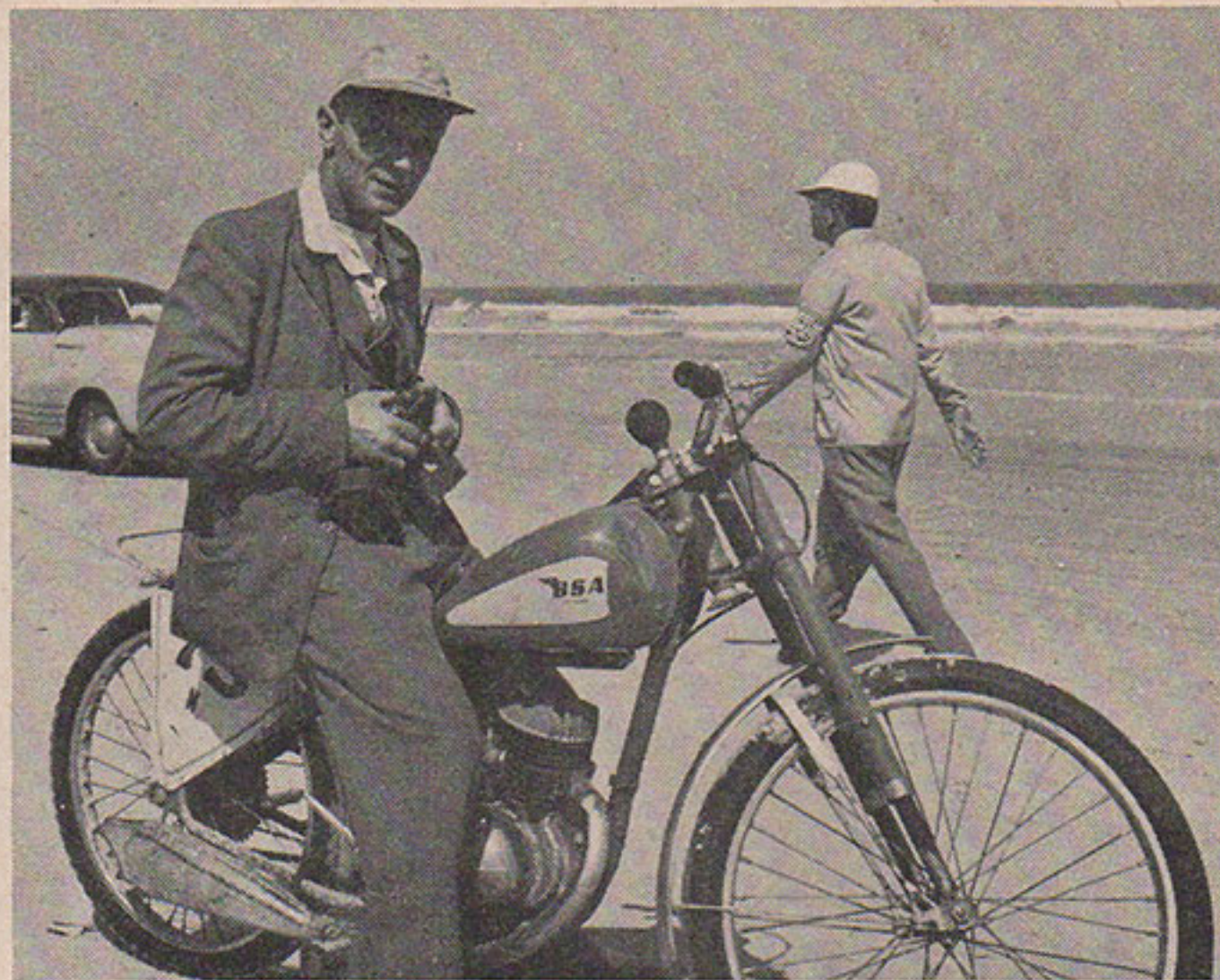
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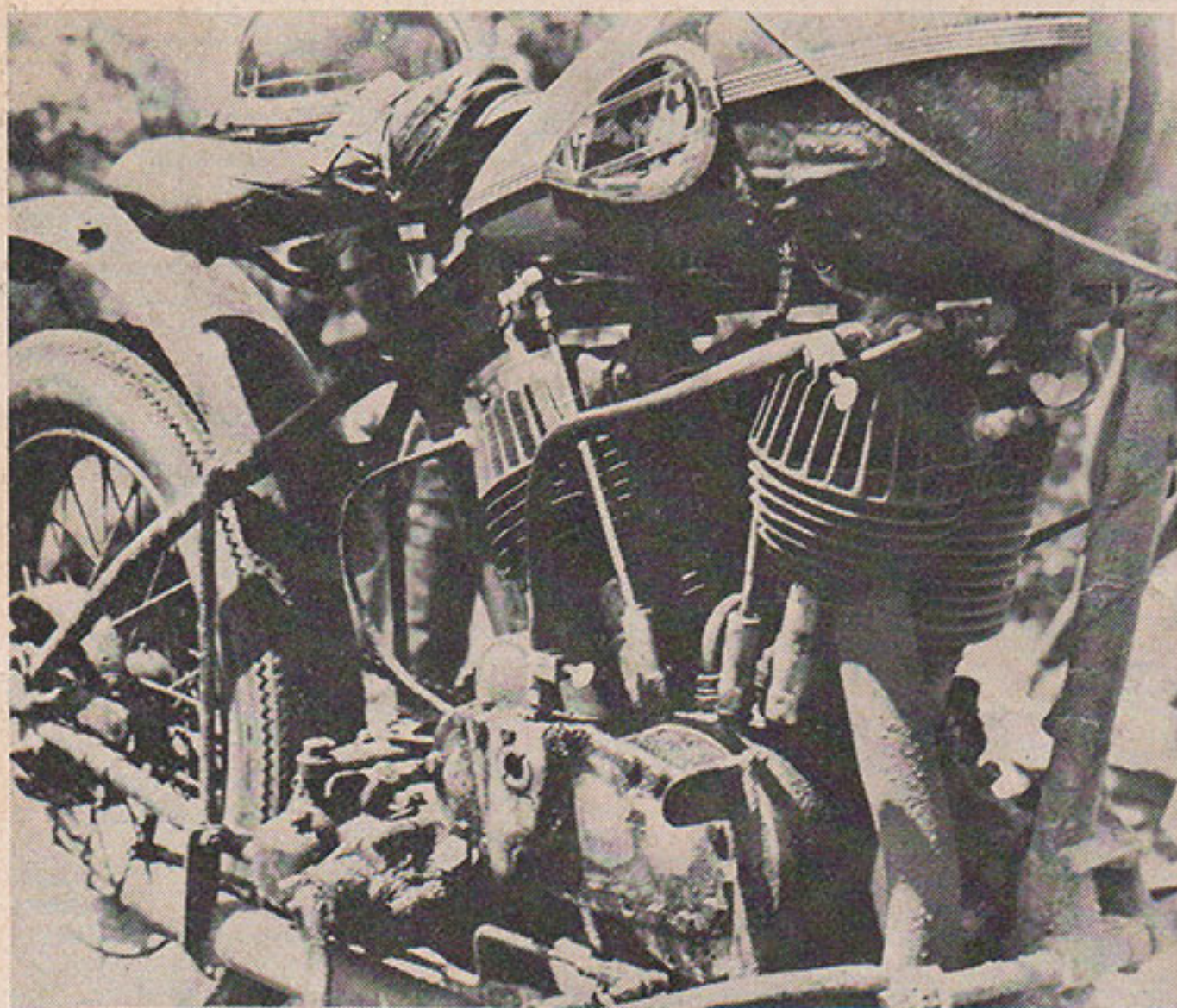
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# INTERESTING MOTORCYCLE PICTURES from Here and There



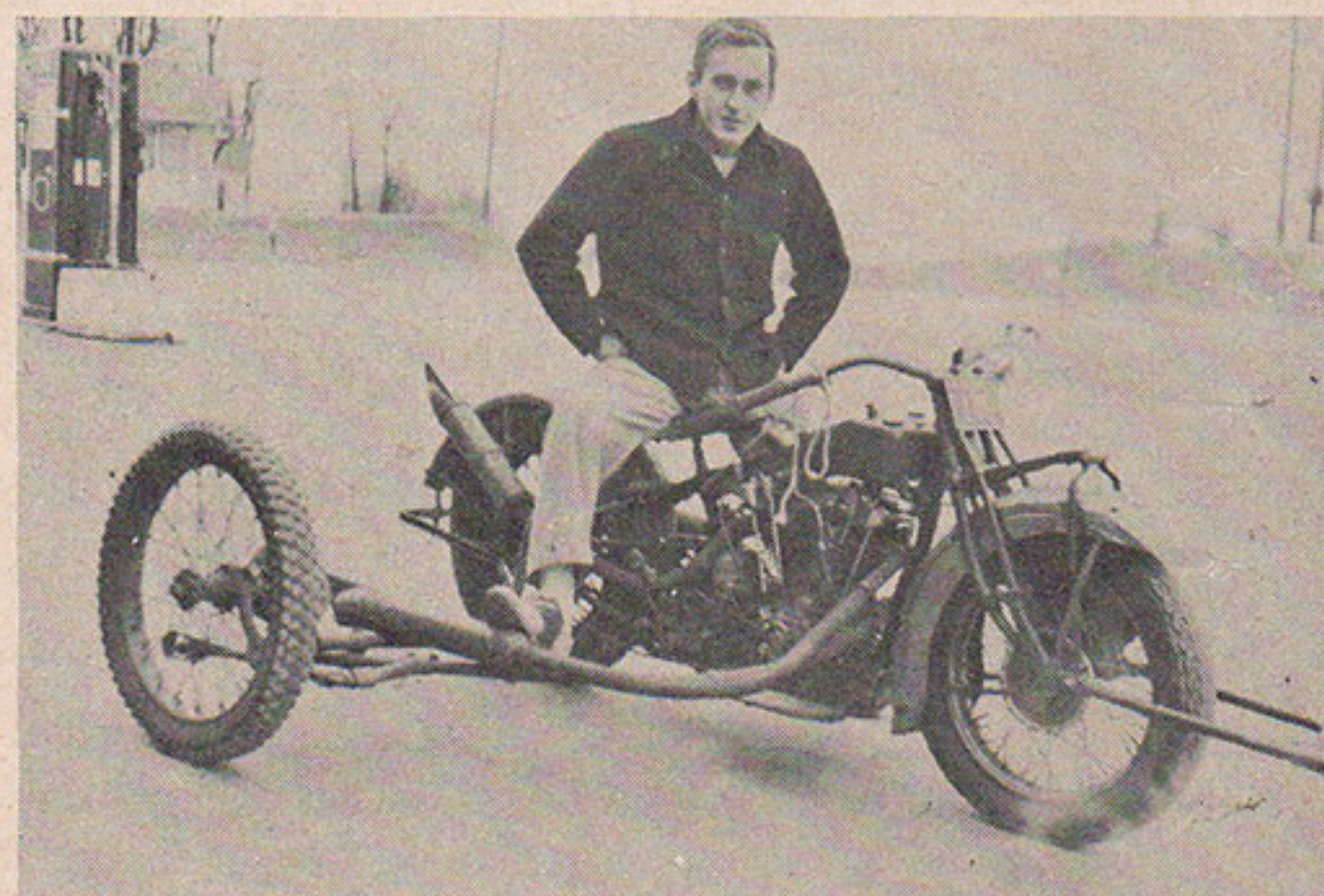
ABOVE, two bantams on the beach at Daytona. CYCLE'S Foreign Correspondent, W. H. "Bill" Onslow, rests his weary bones for a moment astride a borrowed BSA Bantam. Bill walked nearly as many miles seeing the races as the riders actually rode! He took over 600 pictures, drank gallons of orange juice, met a million motorcyclists. A right guy, Onslow!



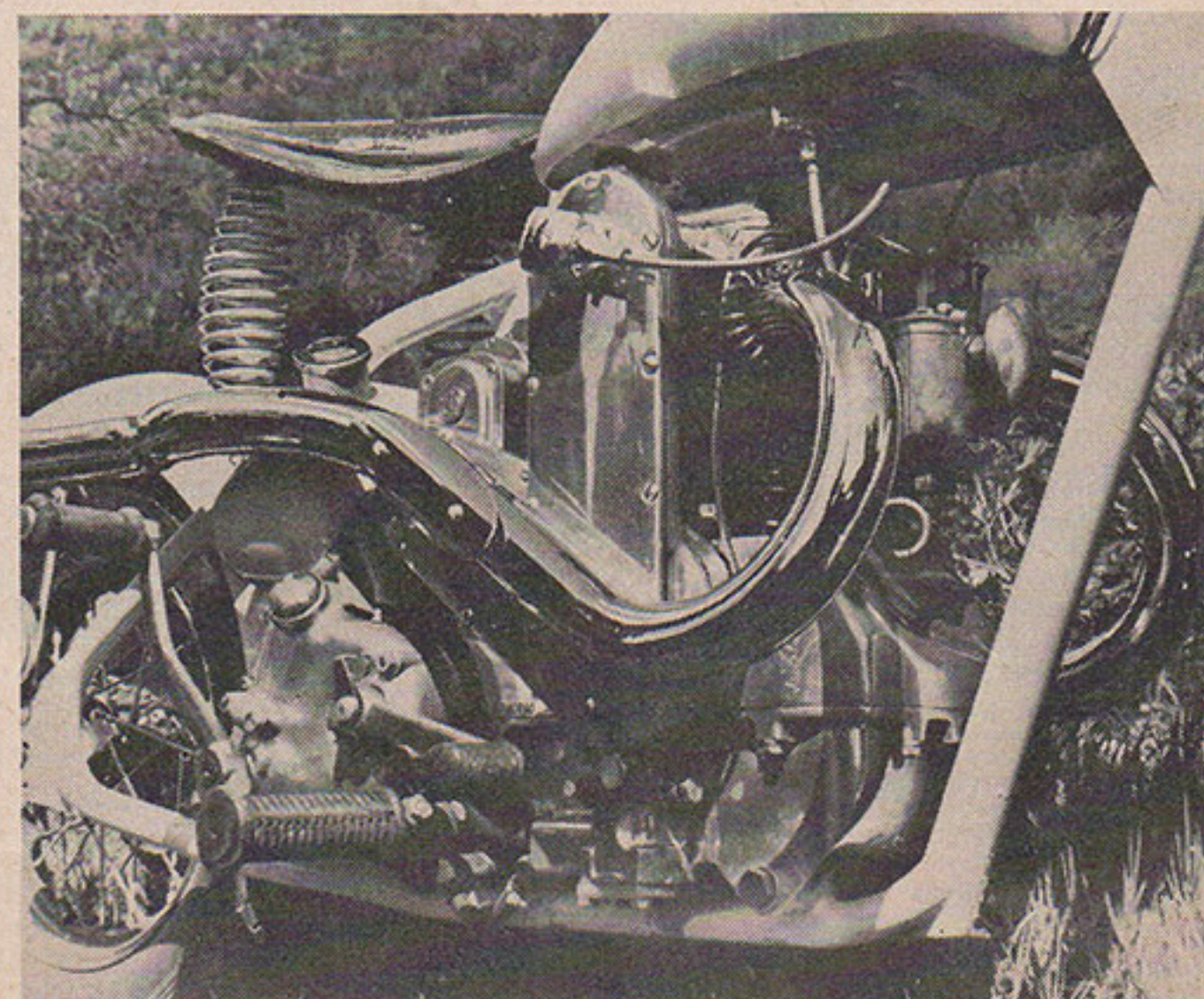
ABOVE, a venerable old veteran JD. This 1928 Harley was recently seen at a field meet in Southern California. The old dog copped two events, which accounts for its unkempt appearance. The rear fender seems to have ample clearance. But that contracting-type rear brake—no, thanks



ABOVE, Benny Vardenburg is entranced by the spectacle of his own bike "floating in the ozone." An instant later, said motorcycle crashed to earth followed by our boy Benny. Photo was taken during practice for annual Hillclimb sponsored by the Jack Rabbits Motorcycle Club



ABOVE, a special ice-racing rig constructed from a variety of junk and stuff originally belonging to half-dozen makes of machines. The overhead valve 45" engine supplies the urge, the rider supplies the skill, and that knobby tire on the third wheel supplies the anti-skid friction



BELOW, the hottest Mustang in captivity. Howard Forrest, Chief Engineer of Mustang Motorcycle Corp., adapted a 600 c.c. overhead cam Ariel Square Four engine into a Mustang frame. Uses a Burman gearbox. Acceleration is positively shattering! Top speed? Forrest jest ain't a sayin'

## PLYMOUTH MONSTER

(Continued from Page 7)

wheel. Because of this remote-control method of steering the front wheel could only turn through an arc of twelve inches, which meant that a three-hundred foot circle was required to turn in. Another result of the remote steering was the poor balancing qualities at low speed. To overcome this, Thuillier designed platforms which could be raised by a hand lever when the bike reached a speed of 20 mph and lowered when the bike was brought to a stop. Since the completed giant weighed 1508 pounds, it was impossible for Luther to balance it with his legs when stationary.

Electric power was furnished by a battery. There was no generator. The original Plymouth flywheel and starter motor were left on the final design, as was the stock 5-qt. crankcase. The gasoline tank held 10 quarts of the special Gilmore compound. S.A.E. 10 engine oil was used in the crankcase.

The engine had to be watercooled or completely redesigned for air-cooling. The final decision was to build a special radiator to hold just enough water for the record try. If the engine were idled for ten minutes, the water would boil. Running at speed, however, the engine temperature would stay around 180° F. No fan was used.

### TIRES—\$100 EACH

Tires were made by Firestone, worth \$100 apiece at the time, and consisted of eight layers of fabric, each dipped in liquid latex, covered with a minimum of rubber tread. The beads were strengthened by piano wire around the circumference of the tire in each bead. Around the tire, six wedges were placed between the beads to hold them firmly against the edges of the demountable rims. Each rim was fastened to the wheel by 10 cotter pins. The tires carried 95 pounds air pressure.

In April, 1935, the leviathan was taken for its first run to Muroc Dry Lakes. On the third run, the small Henderson transmission gave up its heavy burden with a clank of disgust. This was only the first of a series of troubles that showed up in the Muroc tests. Once a gas tank broke, another time a wheel bearing burned out.

But the promise of \$30,000 was there, so the three men pitched in even harder. The Henderson gearbox was replaced with a standard Plymouth transmission. Other weak parts were replaced with stronger ones. This all took capital, lots of it, as Fred Luther admits today with a rueful smile. The \$30,000 in contracts seemed ever nearer as

more and more money went into the monster. By the time the bike was ready for Bonneville, a total of \$3,000 had been spent, \$1,300 on the engine alone.

"We never really opened it up at Muroc," Fred recalls now. "We kept it in 'low' most of the time to check the engine at peak rpm. According to the tachometer, she could wind up to about 100 mph in low. We were sure we were in for better than 200 in high. It was only a matter of taking it to the salt flats and making an official run."

Fred and Adolph buttoned the titan into its trailer and drove to Bonneville. They waited out Sir Malcolm Campbell and spent the night sleeping out on the flats. Day after next, they would have to spend \$150 to bring the AAA officials out with their equipment to certify the performance of 200 mph along the measured mile.

"At least we saved that last \$150," Fred says now. "I took the beast out on the track next morning to open it up in high and see just what it would do. I was going to make about fifteen trips up and down the black line and then shut it off until the timers got there the day after."

On the first Bonneville trial run Fred ran the speed up to 140 in "second." The only speed indicator he had was the tachometer so he had to estimate his actual road speed. At the end of the black line, Fred turned the bike around and started back. Everything was ready for the first "all-out" run in "high." He gunned up to 140 in "second" again, flipped into "high" and twisted wide on the throttle. Somewhere between 150 and 160 miles an hour Fred heard the crash of heavy metal being split and felt the hot rush of oil on his leg.

### BLUEY! A ROD BROKE

"I thought the damn thing had exploded," he said, "so I flipped off the switch and took it out of gear. Then I heard a clank, clank, clank and looked down. There was Number Six rod, hanging right out through the block and the crankshaft was slapping it every revolution."

That was the last time the "Gargantuan Gow Job" ever went anywhere under its own power. The frame is still in Fred's shop in Los Angeles. The engine was sent back to Chrysler Motors. Fred was broke and disgusted.

He still thinks it was a good idea. If he were going to try again, Fred thinks he'd use a V-8 rather than a 6. More power, easier to work on. But Fred isn't going to try again. Not while he's still got that \$3,000 frame sitting in his shop to remind him of the first time!

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# Dealer Doings

**A**L FERGODA, San Francisco Norton dealer, recently had the honor of entertaining Mr. C. Gilbert Smith, Managing Director of Norton Motors, Ltd., Birmingham, England.

Mr. Smith is completing a world-girdling tour to study the business aspects of many countries. With a very full schedule of contacts, etc., Mr. Smith was still able to spend three days with Fergoda.



No, fellas, she's not a dealer, but she is part of a publicity deal sponsored by Indian dealer Frank Stilwell, Anaheim, California. Her name is Patti Evans, and her crash helmet fits real good, too, doesn't it? Lemons, oranges, and grapefruits are plentiful in Frank's territory! So are Indian motorcycles sold by Stilwell!!!

**T**he partnership of Chauncey "Swede" Belin and Ben Webb, proprietors of Santa Barbara Harley-Davidson Sales Company, was recently dissolved by mutual agreement. Belin will continue to operate the business as sole proprietor.

Webb's plans are not definite at this time. He enjoys the reputation of being one of the finest Harley parts and accessories men in the U. S. He has had extensive managerial experience, his background embraces the store managership of Rich Budelier's Hollywood store prior to the war and status of full manager of Motorcycle Specialties Co., Wilmar, California. Both firms handled Harley-Davidsons exclusively.

**H**AP JONES, long established San Francisco motorcycle dealer, has recently acquired a franchise for AJS-Matchless machines. His franchise embraces the San Francisco Bay area.

Hap is well known as an all-around motorcycle man. Early in his career he was a very successful competition rider. He took on the Indian line and during the war furnished local riders many G.I. 30.50 Indians which became available when military plans no longer included usage for the machines. After the war he acquired Royal Enfield, followed by BSA. The latest acquisition permits Hap to further broaden his already extensive field of motorcycle merchandising.

He will continue to service and supply spare parts for all models of machines he has handled in the past in addition to maintaining the distribution of Avon tires.



El Paso Indian dealer Walter Lupton delivers six 1950 Chiefs to the local gendarmes. Picture proves the Law has just given Walter the business or has "booked" him chief(ly) for the law. El Paso P.D. has had much success with Indians

**W**E GET letter after letter asking for pictorial coverage and written material about motorcycle activities and dealer doings in the Midwest and along the Atlantic Coast. So far we have only established a few sources of such information.

Readers in these areas, or any areas for that matter, are requested to keep us posted on such subjects.

Photographs we crave. Race reports we love. Any motorcycle activities we adore. Club News we don't have room for.

How about it, fans, can we get you to give us

**HELP! HELP!! HELP!!!**

# Sammy "SPEED" SHIFT Says

WITH Spring comes the flowers and green grass. To the cycle rider comes the urge to tour the open road, the beautiful hills, and give the nostrils a breath of fresh air. This is the season when no cycle rider's blood wants to be still.

All this brings out, not only the seasoned rider, but also the new or beginning rider. And old "Speed" gets his iron all fired up to enjoy this great sport with the rest of the gang. But lo and behold it never fails—the straight pipes and blooys start showing up again.

Gee, fellas, can't we save that noise for the race track, field meet, or hill climb? Just imagine what those Sunday motorists are thinking as we go roaring by them! Sure, this is the rocket age, but as yet none have proven successful for ground level use. Why should we try to convince Mr. Motorist that we are testing something new? He is beginning to read and hear about our good work in accident reduction and motorcycle conduct and now we get him all confused.

A few months ago I had to visit a friend in a hospital where it is quiet and people are trying to recover from all kinds of ailments. I'm trying to cheer up my friend when some joker goes snortin' by with a couple of real belling pipes. Well, I gulped a couple of times and tried to get a conversation started, but this incident was soon the topic of the entire ward and I really heard what some people think about the average cycle rider. Boy, that stuff isn't easy to cover up and I soon found myself pretty much involved in a debate about motorcycles. Just wish some of these straight pipe artists had a chance to sit in on such a debate. Maybe we could give them a try at explaining why they like to make noise. I've heard so many arguments that they must have a fast exhaust relief because the motor has so much steam that it builds up a back pressure and that injures the motor. Sure funny such things don't happen to such guys as Aub LeBard, Sam Arena, Earl Flanders, Windy Lindstrom, Swede Belin, or scads of others who don't seem to have any motor trouble in winning such events as Big Bear, Jack Pines, Pacific Trails, etc. Then, too, one would think the factories would save them the trouble and build a job especially designed to make noise. These manufacturers spend lots of money building good silencers that WILL NOT injure a machine.

## We Couldn't Resist Running This!

Sirs:

CYCLE, by following in the footsteps of its parent publications, HOT ROD and MOTOR TREND, has brought to motorcyclists everywhere a technical and informative magazine much needed and long overdue.

The review of the Daytona Beach Races was complete and untainted—as was also the Big Bear Run coverage.

The technical articles also were excellent, particularly the write-ups on Witham's Trumpets and Czys's two-stick Norton. Though engine specifications and the like seem to be lacking, it is hoped that articles of this nature will continue to appear in CYCLE.

But, far and above the rest was the opening article on the American Motorcycle Scene. CYCLE has exemplified in print the theme of an ever growing number of riders, mechanics and bench racers: that the United States lags pitifully in motorcycle developments. It is an unfortunate situation and a killing thing to American pride. Worst of all, the gap between European and American motorcycle engineering, as is also the case in the automotive field, is reaching Grand Canyon proportions with the result that more and more "Limey" bikes are taking home the bacon and are finding more diversified use as road machines. In fact, it is this writer's belief, if it were not for motorized police departments and three-wheeled delivery units there would be no domestic machines on the market at all.

It's not a pleasant point for a magazine to bring to light in its maiden issue, but nonetheless it's the truth and for that CYCLE is to be congratulated.

If the first issue is any indication, CYCLE will go a long way in bringing the respectable aspects of motorcycling to the rather belligerent public eye. As a rider, I too, am interested in furthering widespread acceptance of this greatest of sports and bringing to other enthusiasts current technical and competitive achievements. Being in a position to provide complete coverage of outstanding hillclimbs, flat-track races and other sanctioned events, as well as interesting mechanical developments, from San Jose to Reno and Salt Lake City, I would like to submit for your consideration articles of this nature. Please forward information regarding your ad soliciting articles for publication in CYCLE.

And congratulations once again on a swell magazine.

R. L. Erlin, Jr.  
Oakland, Calif.

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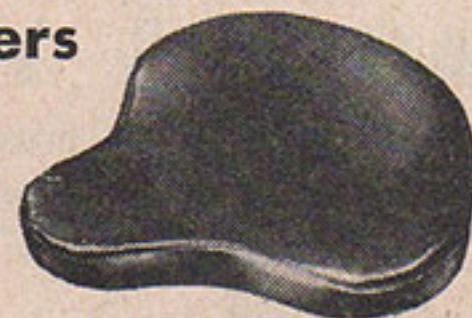
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Sirs:

Being a motorcycle enthusiast, I have long waited for such a magazine as CYCLE. I can truthfully say it has been worth waiting for. Enclosed is my \$3.00 for a year's subscription.

I would like to take this time to ask a question which has been bitterly argued in our local group.

Which first attained the land speed of 100 mph, the motorcycle or the automobile?

Congratulations for a timely and up-to-the-minute magazine.

William Robinson  
San Francisco, Calif.

(The automobile was first. July 1902, Riggoly drove a Gobron Brillie car 103.55 mph at Ostend, Belgium. December 1912, Humiston rode an Excelsior motorcycle one mile in 36 seconds, speed 100 mph, at Playa del Rey, California—ED.)

Sirs:

Since you did request letters, I would like to throw one of those old charcoaled bridges into your editorial wastebasket . . . one of those bridges that you tried to burn behind you. I fully appreciate your stand and your difficulty in making a totally impartial and truthful road test that still pleases everybody, but maybe I don't get it. Why devote 2½ pages to saying that such and such a machine has superb braking, supreme handling, ideal riding comfort, excellent road-holding, etc. Surely every machine can't be perfect in every respect. They all must be good, but if they were all equally good, why bother to write up more than one report covering Ariel, BSA, AJS, Matchless.

Maurice Lafferty  
Los Angeles, Calif.

(We like it when they come out swinging. Reader Lafferty is right, they are all good machines. When we find one that isn't, you can bet we'll say so—ED.)

Sirs:

A friend of mine placed a copy of your new publication CYCLE in my hands recently and asked my opinion of some of the technical information contained in it. From my amateur viewpoint as a mechanic and after consulting my technical publications dealing with motorcycles I would say either you

should have your Technical Writer read the articles in your magazine and correct the copy or make sure the writers know what they are writing about. As an outstanding example, see page 32, column 3, two thirds of the way down.

"Chuck" Ward  
Arcadia, Calif.

(We must assume that Reader Ward refers to part of our quotation of Mr. Gregurich. How about supplying us with the "correct" information, Mr. Ward?—ED.)

Sirs:

I have just finished reading the first issue of CYCLE and thought it was tops. Those pictures and cutaway drawing of the dual overhead cam Norton were great. Articles I'm sure all motorcyclists would like to see in future issues are those on the "Super Tuning" of all popular makes of cycles and hand-polishing of alloy engine parts.

Here's an idea that the clubs might go for. Why not have a 250 c.c. inter-club racing class that could be held on small club tracks of say one-tenth mile. Almost any club could find the location and funds for such a track. The machines themselves would be light in weight and not too fast, so there would be little danger of anyone being seriously hurt, yet the competition would be great fun for all.

George Hinz  
Alameda, California

(This suggestion seems to have possible merit. What do our readers think?—ED.)

Sirs:

The first issue of your magazine was very much enjoyed. Your article on Daytona topped the other mags. I for one will be glad to see plenty of articles on all kinds of foreign bikes and events.

I hope you will have plenty of news on eastern events for all of us here on the east coast. We always enjoy the news of western events, but like to read about events here at home.

I notice you want pictures, articles and the like, perhaps you will be kind enough to send me more details.

The only small criticism I would make is the way the mag is wrapped for mailing. It curls up quite a bit.

Enclosed you will find two-bits for the next issue. Will subscribe as soon as I can find a loose three bucks in my jeans.

Daniel J. Landis  
Lansdale, Pennsylvania

(As we develop additional story sources we hope to provide articles for everyone's tastes—ED.)

# TRIUMPH - ARIEL

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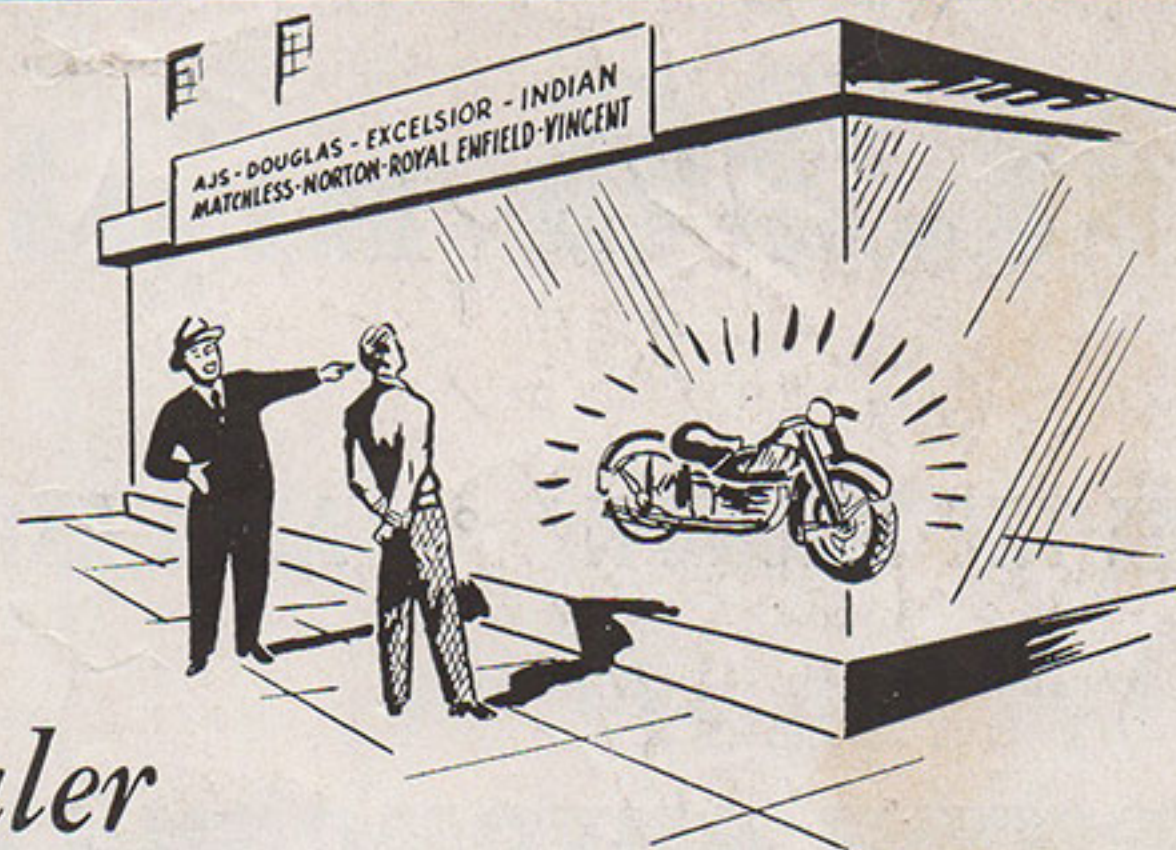
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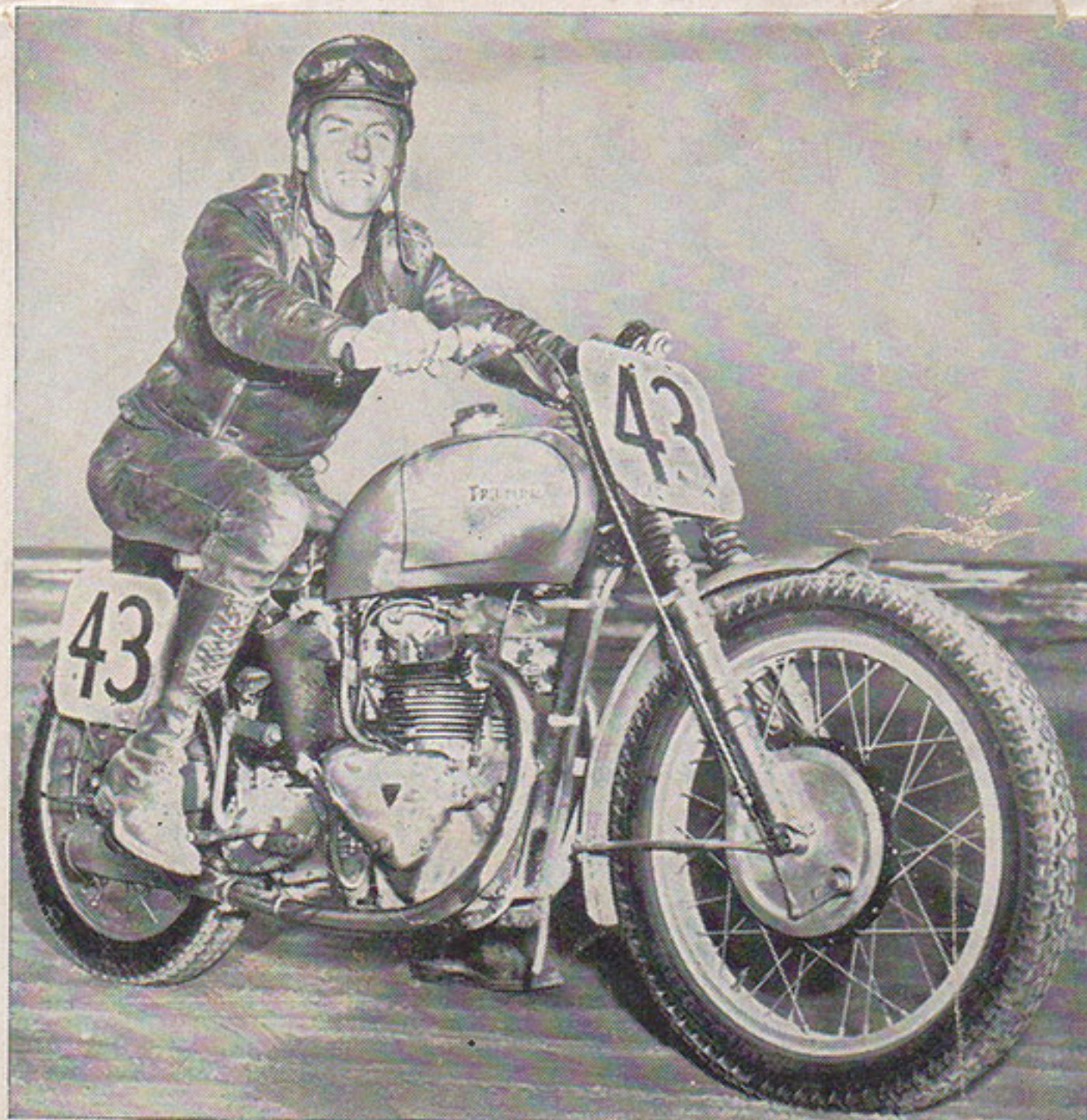
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# TRIUMPH

SETS NEW

## DAYTONA RECORD



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**AVERAGES**

**81.26 mph**

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