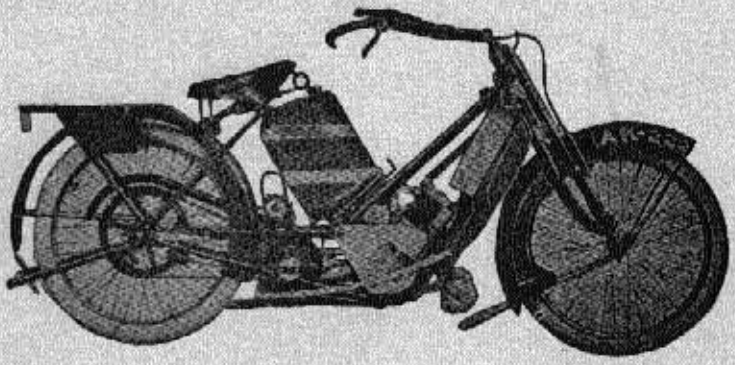
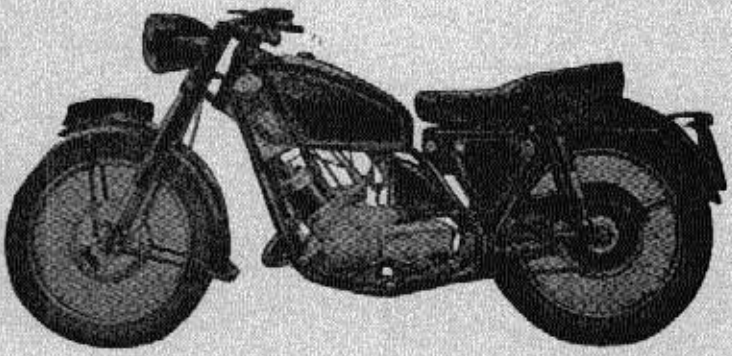


"YOWL"

THE Scott JOURNAL



JUNE, 1964

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EDITORIAL

Well, another 12-months has passed and once again TT time is here, so let us all hope that the two-stroke brigade can put the four-strokes where the belong — among the also-rans. If Suzuki get their square-four 250 sorted out in time, what price a First Place?

An editor's lament: that so few articles of an historical nature are being offered for the magazine. I am only too willing to chase material for "Yowl" when this is at all possible, but as I have said before, I can't write everything (and many wouldn't want that anyway!) Surely the vintagents among our ranks have a few cherished — and printable — reminiscence?

Now for some important dates in the coming weeks:

June 8—TT week starts. Ding-dong. Wednesday night. Support Vintage Club Rally Thursday.

17—Committee meeting. AGM proposals. Club H.Q.

21—Support VMCC annual Banbury Run.

See you in the Isle,

Val.

A SHORT-CIRCUIT RACER

by Cliff Kingham

Editor's note: Older road racing enthusiasts, who followed the stars at Cadwell, Donnington and sprinting venues, will need no introduction to Cliff, whose exploits on his own very potent short circuit-special were the delight of two-stroke fans. Eight long years and countless man hours were spent before Cliff got his Scott just right and at the end of this time he had a bike that would easily top 100 mph — and, used on the road, return over 100 miles to the gallon.

In a recent letter to me, Cliff said: "You will notice in the photographs enclosed that the frame on the Scott was stiffened forward of the magneto and connected with a point near the gearbox sprocket. This was done because I had trouble with the crankcase fracturing near the engine bolts, caused by the higher than normal speed. This mod. cured the trouble.

"Another point I did not mention is that I always used two rings on each piston, not three; compression does not matter so much when all out on the Scott. Max. revs on a good Scott should top 7,000, but it is not advisable to go to this limit, except for the occasional short burst."

But let Cliff tell his own story...

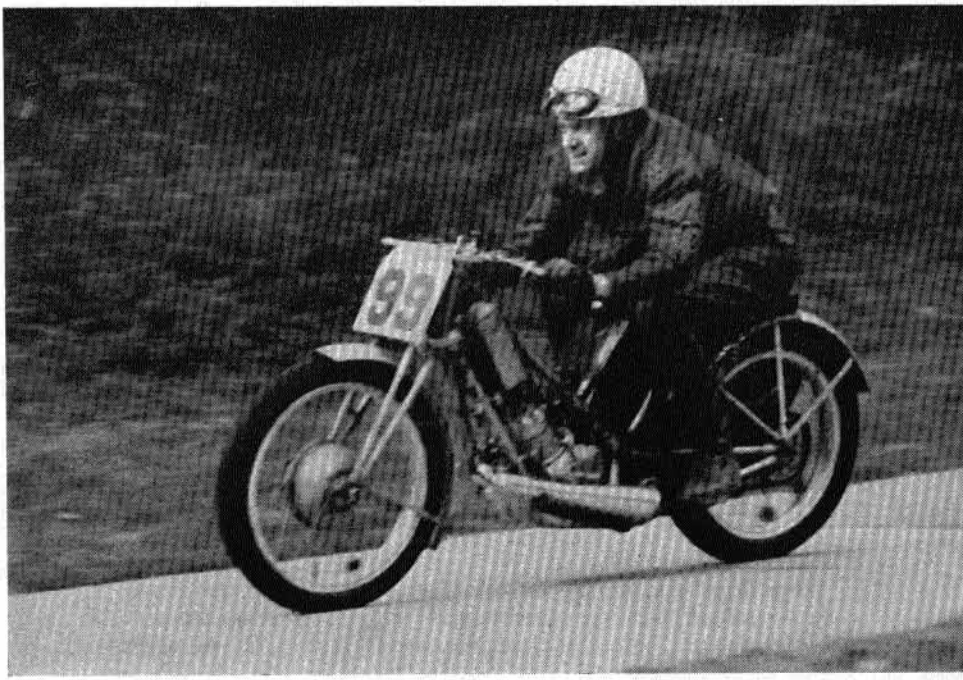
• • • •

How does one set about tuning the Scott for serious competition work? I was confronted with this problem in the middle thirties, after making up my mind to have a go. I could have bought a Manx Norton or some other well known make, which would have given me a chance from the start, to pick up the awards. At that time there was quite an assortment of machinery entered in short circuit races, and more rider-tuners than one sees today.

I thought however that it would be more of a challenge if I could get a Scott to go quickly enough to keep up with the field, little knowing at the time what I had let myself in for, and where it would lead me. Once I had set my mind on the job, I just could not turn back — only go forward, very slowly. It was to prove rather an expensive decision, but it was well worth the effort, considering the many friends I made.

My first Scott was an Olympia Show model, a 1929 Flying Squirrel, which I bought new. This machine was a joy to ride, though not very fast. Its top speed was about 70 mph, and later with some elbow grease on the ports, the top speed was pushed up to 75 mph.

At the time I was fortunate enough to have a schoolfriend who was serving an apprenticeship in engineering and had a well equipped workshop in the cellar. The equipment included an old treadle lathe, with five inch centres, in quite good condition. This was later converted to power. We also had a small shaper, grinder, power drill, and an assortment of reamers, scrapers, files, etc. I may mention here that we were both in our teens, with little or no tuning experience.



CLIFF SHOWS 'EM HOW: The rider tuner caught at speed on his one-off Special at Cadwell meeting more than 15 years ago. Who could build a faster racing Scott today?

About this time I bought a 1925 two-speeder for £25 a delightful machine and also received word which sent us helter-skelter to Liverpool, where I became the owner of a Mannerings 1929 TT Scott, for £22.

This machine was in poor condition. It was fitted with a 596cc block, Scott forks, coupled brakes, 4½ gallon petrol tank, racing BTH mag., three jet carb.,hand change, chain oilers, TT close ratio gearbox, (the best box that Scotts ever made, all ball-bearings, except on the clutch side which had small rollers — a truly grand box.

We spent quite a lot of time renovating the machine and later tested for maximum speed which topped 90 mph with two up, both lying flat. The hand change was a delight to use, especially if operated in conjunction with the cut-out button situated on the left hand side of the handlebars.

This Scott handled well, considering that spring frames were still frowned upon, and not generally accepted; this model, of course, was rigid.

As the winter was fast approaching, there was no chance of racing that year. In any case, I had yet to buy leathers. It was not until the following spring, after some experiments had been carried out on the carb, and we were debating which event to enter, that I saw an advertisement in the Motor Cycle. It ran something like this: "TT Scott for sale: acceleration will lift the front wheel with ease. Fastest Scott in the country, 498cc TT engine, 4½ gallon petrol tank, 1 gallon oil tank, throttle controlled oil pump etc..."

We were more than interested and dashed over to Manchester right away. It was a good looker, with the enamelling and chrome perfect. The gearbox was standard with kick starter. We left a deposit and had no difficulty in selling the Mannering Scott; a few days later we went to pick up the new model.

As soon as the clutch went home and I started to move off, it was obvious that it was not as quick as the TT job I had just sold. This was confirmed in a test we made, top speed being only a little over 75 mph — and I had just paid 65 gns for a slower machine. To say that we were disappointed would be putting it mildly. The test had been carried out with the silencer fitted.

We stripped down the motor. It was in very good condition and after fitting new rings, polishing the ports, fitting a 6/4 throttle slide, jetting up a shade and running on 25% pure Benzol and 75% aviation spirit, and fitting a Howarth silencer to a very short two-inch diameter ex. pipe, the end of the ex. pipe finshed about level with the gearbox sprocket. After these very elementary alterations, we managed a top speed of close on 90.

Time was running short so we decided to have a go at Clubman's Day at Brooklands, a week before Easter, and sent another entry to the Wirral 100, for another try on their Oswestry short circuit. Needless to say, at Brooklands I put up a pretty poor show. However we found out that what was required and met that very famous Scott rider, the late Nobby Clarke.

He invited us to make his flat his headquarters. We were surrounded by Scotts of every description and went out to dinner with him on the Saturday evening after the racing, finally leaving London on the midnight train, with the Scott in the guards van, arriving home Sunday morning, having had no sleep since Thursday.

I did a little better at Oswestry. The circuit was very short and favoured the rapid acceleration of the Scott. We had fitted a 17 tooth gearbox sprocket and a 21 inch long by two inch diameter ex. pipe. I managed a third place in my heat; later this meeting was abandoned, due to heavy snow.

The rest of the season saw us at Donnington and every short circuit event that we could enter and although we had no success, we did gain a lot of valuable experience towards the season's end. I suffered a sheared crank pin, and this same trouble was to dog me throughout the following season.

The winter was taken up looking for more power. The flat out speed would have to be improved, so we bought a new block, detachable head type. We also had a TT 36 carb made to suit the Scott, this being supplied to fit horizontally. But the carb. was very difficult to tune and the job took us about three years before we were satisfied. It was one of the main reasons for the very high speeds that we attained later, well over 100 mph.

Sequence of tuning:

1. main jet size.
2. pilot jet adjustment.
3. throttle valve cutaway.
4. needle attachment.

1. The main jet size should be determined first; the smallest jet which gives the greatest speeds should be selected, keeping in mind the safety factor for cooling. The air lever should be fully open during this test.

2. Pilot air adjustment. Before attempting to set the adjuster, the engine should be at the normal running temperature, otherwise a faulty adjustment is possible which will upset the correct selection of the throttle valve. The pilot adjuster, which controls the amount of fuel passed, is rotated clockwise to weaken the mixture, and anti-clock to enrich it.

Adjust this gradually until a satisfactory tick over is obtained, but take care that too slow a tick over does not result, or this may lead to a "spot" which may cause stalling when the throttle is very slightly open.

3. Having set the pilot adjuster, open up the throttle progressively and note positions where, if at all, the exhaust note becomes irregular. If this occurs, leave the thottle open at this position and close the air lever slightly. This will indicate whether the spot is weak. If it is a rich spot, fit a throttle valve with more cutaway on the air intake side (or vice versa if weak.)

4. This tuning sequence will affect carburation up to somewhere over one quarter throttle, after which the jet needle, which is suspended from the throttle valve, comes into action, and when the throttle is opened further and tests are again made for rich or weakspots, as previously outlined, the needle can be raised to enrich the mixture, or lowered to weaken, whichever is necessary.

With these adjustments made, and the main jet size settled, a perfectly progressive mixture will result from tick over to full bore. It is not necessary to alter the needle jet when tuning, but before attempting to set the carb., ensure that the correct needle jet is fitted.

We were still using the standard Amal fitted when we bought themachine, and only alteration being the throttle slide and jet, as mentioned earlier. However, we managed to get hold of the carb. 3-jet type, fitted on the Mannering TT Scott, also the TT gearbox, having traded the Scott to its present owner Charlie Meakin, through the Scott service depot in Manchester, who had been racing this machine with some success.

We also bought a dirt track engine and a few spare pistons, for experimental purposes. It was quite evident, by now, that we would have to work to some kind of plan, if we were to get the extra power necessary to stay near the leaders. The idea was to carry out a small alteration to the engine and then take the Scott on the Pennines, where we were familiar with a stretch of road just beyond the Woodhead Tunnel, about a mile long and uphill — I do not know the gradient — to get the best from the machine. It was second gear all the way to the top. We bought a Bonniksen speedometer, which had two fingers; one was stationary on the actual speed for 2½ seconds, when the other one took its place. Whatever the speed, one finger was always stationary giving a correct reading.

Hundreds of tests were to be made along this section of road during the next few years — you name it, we tried the lot. Sometimes the result would mean perhaps two miles an hour on maximum, and other times wasted effort.

The only way to tune the Scott is to study gas flow.

Having no valves, you get a much weaker charge and poor scavenging, due to fresh gases mixing with burnt ones, through the inlet and exhaust ports uncovered at the same time. Until now, we had used a compression ratio of 6.8: 1. But with the new detachable head cylinders, we were able to experiment with a much higher ratio.

Tests were carried out with the new TT 36 Carb. I may mention here that it was fitted with a single float chamber with twin feed; a single Amal racing float chamber will effectively deliver five gallons per hour. This was considered quite sufficient — it is not essential to have double float chambers, unless you intend running on alcohol fuel. The bore was one and three sixteenths, the choke of the carb. being of great importance for maximum speed.

The design in this carb. is such that the maximum volume of air may flow through to charge the cylinders together with the maximum depression or suction on the jet to supply the fuel and atomise it. The Scott engine, being inclined, is ideal for the TT 36, and a falling mixture is more likely to charge the cylinder effectively.

We had a special flange cast in phosphor bronze and machined this up, finally matching this to the carb. and crankcase. In the test that followed the machine was difficult to start, and would do 140 miles to the gallon, with a top speed of 70.

At tick-over the engine was only running on one cylinder, due to the carb. being horizontal. The difficult starting and the phenomenal mpg figures were due to the carb. being positioned too far away from the block, reducing suction on the jet.

Later we overcame this problem by brazing the carb. onto the flange in the vertical position.

The spring of 1938 came, and a week before Easter saw us once again at Brooklands for Clubman's Day. Nobby Clarke met us at the station with two gallons of petrol Benzol and after breakfast at Nobby's flat, we departed for the famous track.

I was very pleased with the performance. Unfortunately I had a piston seize about half way down the Flying Kilo; I managed to grab the clutch and coast on, reducing speed to about 40 mph, when I let the clutch in again and the engine freed itself.

The rest of the season was taken up packing as much racing into it as possible and gaining experience. The early part of 1939 was much the same, and though we did not gain any awards, we did enjoy ourselves a lot. Later in the season the war came, putting an end to further racing.

My p' ' nd I were unable to get into the Forces — the authorities considered us more important at home, he being an engineer and yours truly engaged on important work for the Air Ministry.

What spare time we had was taken up working on the Scott. We asked Scotts if they could make us a pair of heavier cranks, suitable for racing, and a couple of light con rods.

The next thing was to heat the whole assembly in the oven at home, to about the temp the engine reached when racing. W. found that the recommended side play disappeared. This must have caused our trouble with the sheared crankpins. racing. We found that the recommended side play disappeared between .015 and 0.20. This is very important, otherwise the cups will turn in the crankcase.

With a small sharp chisel, we took about one eighth of an inch of meal off the base of the crankcase and opened up the ports, the extra depth being intended for one inch.

The induction was opened up to $1\frac{5}{8}$ inch major axis, $1\frac{3}{8}$ inch minor axis. Another $\frac{1}{8}$ inch was machined off each side of the fly wheel which was then chromed. The cranks were ground into the flywheel, doing away with the shimming washers. Care must be taken lest one goes too far here. We reduced the thickness of the packing gland springs by grinding to reduce pressure. Everything was polished and assembled, side play being 18 thou.

The cylinder ports were streamlined and polished, the skirts on each cylinder were filed to match up with the crankcase ports. The step on each piston inside was removed and one sixteenth was filed off each skirt to give increased port timing. The heavy bronze gudgeon pin bottoms were replaced with duralumin and the transfer port covers were cut in two, the core removed, welded up again and clamped down from the outside.

Compression was raised to the absolute maximum. The TT 36 carb. was fitted vertically as near to the engine as possible and using a 620cc jet. A TT magneto was fitted on a special platform cast in aluminium.

We replaced the engine bolts with drawn steel tubings, duralumin was used for all small nuts, such as on the clutch. The forks were girder type. We had tried Dowty but found them a bit too spongy for small circuit racing.

A very lucky buy was a pair of alloy wheel rims from Harold Danniell, and the front carried a racing Norton conical hub. We fitted the TT gearbox with a very neat footchange, part Scott and part of our own design. It worked very well. A Pilgrim oil pump was fitted and featured in the oil tank was a hand operated plunger type pump to supply that little extra oil to the cylinder walls. Experiments with the exhaust resulted in using a two inch dia. pipe with a short megaphone.

In short circuit racing trim, the Scott weighed 282 lbs. The end of the war came and no time was lost getting back into action; in fact, long before racing was officially resumed, a little private racing took place on the Leek-Ashbourne road. where a one mile stretch was carefully measured out, and on two occasions about fifty of the lads gathered there early on Sunday mornings to let off steam after the war years. All makes were represented.

When racing did get under way, I was at last up with the leaders and rarely attended a race without coming away with some prize money — such as it was.

Some of the successes were achieved at Cadwell Park. Here also I won all two-stroke events, and an all two-stroke event which included super charged DWKs. We had some success at Scarborough and after this very rough and hectic ride fitted a spring frame.

I made fastest time at the Wirral 100 spring meeting in 1948, covering the half mile in 25.2 seconds on pool petrol. This was a new course record, previously held by W. Billington on his Norton, which was running on dope.

I made second fastest time at the Chester sprint meeting in 1949, only just piped by J. Simister on a dope powered Triumph twin. In the other races of longer distance, like the Hutchinson 100, some of my pals in the race clocked me at over 105 mph; in fact I passed one friend from the same club. who later told me his Norton was doing 105 mph.

Finally, we had achieved, with some satisfaction, what we had set out to do —to build a Scott capable of over 100 mpg at ordinary road speeds.

* * * *

I still think a good Scott — it must be good — can do well in small circuit racing . Mine was only a three speed — how about a four-speeder? (David Kirby's, raced in 1960-61, was a Birmingham Scott fitted with a Velo. 4-sp box — Ed.)

I would like to see the all-Scott races revived. I feel sure that Charles Wilkinson (boss of Cadwell) would organise one, providing there is enough support from the Scott Clan. Well, what about it?

THOUGHT FOR THE MONTH

The two-speed Scott of the 20s' could be likened in popularity to the present day Ariel Arrow. In fact it was quite commonplace to see five or six on the roads leading to Syston or Donington on race days before the war.

The few we see today belong either to the life-long Scott devotees typical of the older generation — or to young men trying to recapture something of the magic of those palmy days.

I quote a vintage friend: "There are at best possible only some 200 two-speeders in use now." Whatever became of the hundreds more that were made during the last Golden Age of Motorcycling?

Still wanted: Details of fitting alternative telescopic forks to a Birmingham Scott — Ed.

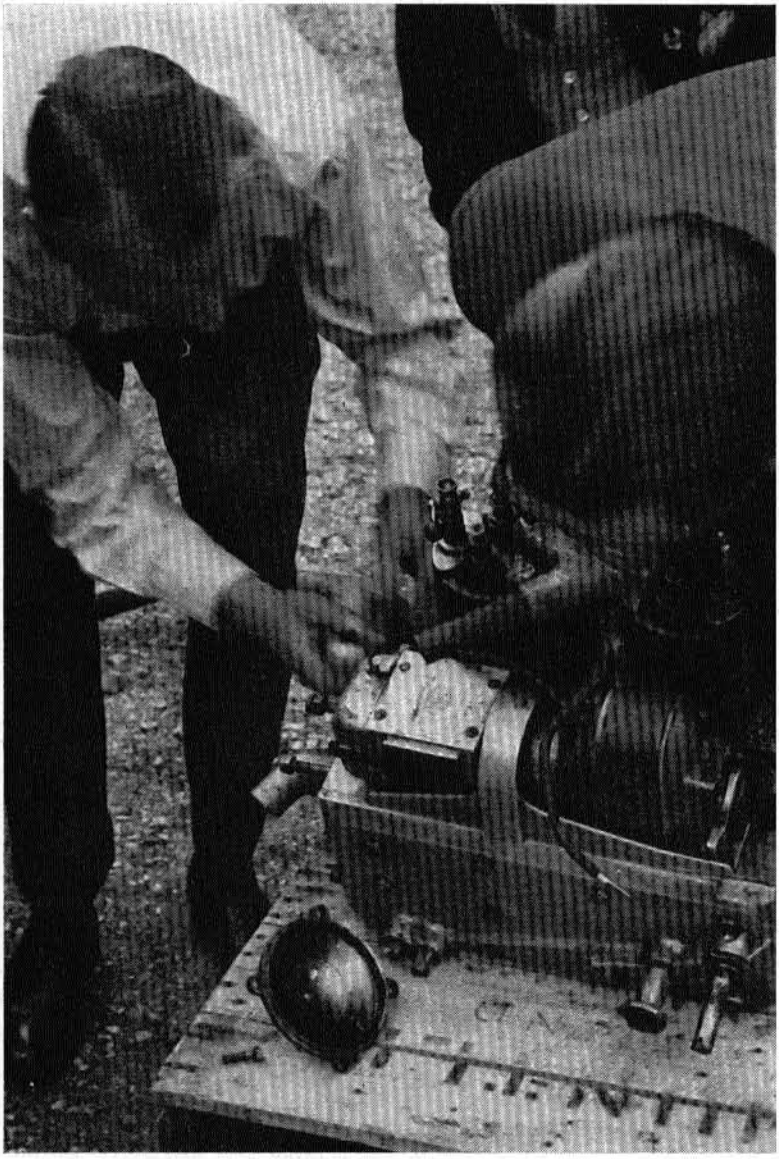
A NEW GUIDE :

An invaluable pocket-sized booklet is being prepared for all those interested in vintage Scotting. Compiled by George Stevens, the 1964 edition of "50 Years Ago" is similar in style to last year's version and gives full details of the intriguing 1914 Scott racers. With 8 or 9 illustrations. On sale in the Island or direct from George at Pen-Y-Craig, Coed-Y-Parc, Bethesda, North Wales, for 1s. 3d. post free from June 1 onwards.

* * *

A PLEA: Our Membership Secretary asks that all queries regarding missing "Yowls" should go to her. NOT the publisher, secretary or treasurer!

Wanted Urgently: anyone with memories,, photos or practical experience of the Speedway Scotts — please contact the Editor.



GUESS WHAT? ...but no prizes if you were right. This is all that remains of an engine that promised great things when the Shipley Works put it together in the good old days. It featured unit construction, gear drive and many other desireable features. This example was on display at the Motor Cycle Show when the Club put on its magnificent show stand "50 years of Scotting."

Answer: a Sociable motor.

WHERE ARE THEY NOW? — 1.

On January 10, 1954, one of the technical weeklies carried a short write-up of a blown 600cc Scott fitted with Teledraulic forks and owned by Mr. Graham Kirk, who had developed it.

I quote the author: "The most out-of-the-ordinary mount I have ridden over the past 12 months is Mr. Kirk's Scott, with its Cozette blower and mighty SU carburettor. The final job is so simple-looking in its conception that one marvels at it the more. Here is a rorty machine if ever there was one."

What Mr. Kirk had done was to fit a blower of the positive displacement type with a capacity of 560cc.

"The kickstarter-less machine, I found, started without difficulty; it two strokes and does not four stroke and is mild enough to be taken through traffic and winding lanes without any difficulty.

"But open the throttle and the mild manners disappear with the increasing revs. The power builds up and up, and one has a sensation totally different from any I have had previously or since. And Mr. Kirk told me that with all this he had found reliability.

."On trying the machine, I wondered why more folk had not worked on similar lines; then I thought of the years Mr. Kirk has been busy with two-strokes and the time spent before he developed this apparently simple lay out."

Who knows what happened to the machine? Where is it today? And what became of its owner?

SCOTT 'SPECIALS' — by I. R.

1. If you use a pet brand of oil and are considering a continental tour this year,take an ample supply with you. Mixing different brands of oil is never wise, and a change in viscosity will affect the Pilgrim pump setting.

2. Is your glittering new or re-conditioned Scott safe from the sneak-thief? With magneto models a simple ruse is to carry a spare contact breaker cover of the metal type. This is modified by rivetting a strip of spring steel to the inside of the c.b., effectively earthing the primary current. Fit when no one is looking!

3. An emergency rad. cap. can be made from a small size Brylcreem top. Slit edges radially at six equal points, and bend in slightly. Cap will now spring on over threads. Oh, don't forget a small hole for the steam!

4. Worn clutch inserts of the asbesthos type may be renewed by corks. These are extremely effective and a lot cheaper, but will not withstand: a) prolonged clutch use in traffic b) maladjustment and slipping c) soaking in oil. You have been warned.

"FELIX" THE UNIQUE

This is the story of a remarkable Scott — and its equally remarkable owner. It is probably the only six-speed model in the world today; yet it was conceived and built as long ago as 1926.

This Bradley-Scott, 596cc and sidecar, was designed and assembled at the Beacon Works, Addingham, Yorkshire, specifically to conquer the defiant Hepolite Scar on the Yorkshire moors. — a landmark which had foiled all previous attempts to ascend by mechanical means.

"In 1925, the Bradford Club had improved a new hill of their own, known as Hepolite Scar. It had a maximum grade of one in one and a half, a surface of quarry tippings, slabs of flat stones of all sizes and rocks and sand, which would have shocked most people even on the level.

In 1925, Bill Bradley bought a new Super Squirrel and "I thought this would be 'it.' I soon found, however, that two speeds were not enough and fitted an NSU 2-sp gear to make it a four-speeder.

"I don't remember how I did this, but it was so arranged that, in the event of the NSU failing, I could by-pass this and revert to 2-speeds. It failed, and the result was that I started in our Grand National with a four-sp Scott and Sidecar — and finished with only two (But I did bag an award).

"I heard that all previous attempts to climb the steepest gradient with sidecar had failed, and that some riders dispensed with the rear tyre and fitted angle iron cross pieces instead.

"I thought a lot about this state of affairs and decided I would design and make the outfit to do it."

Mr. Bradley was as good as his word. Less than 12 months later, "Felix" the Bradley 6-speed Special was ready to go:

It featured a footbrake and parking brake servo coupled to the front wheel. A handlebar lever also applied the front brake. Transmission comprises a Scott 2-sp gear mounted in tandem with a three-sp. Strummey Archer gearbox (yes, very like the racing Kreidlers ke know today) with a handlebar controlled clutch, there being two clutches to manipulate.

Selection of gears was made by a dexterous use of one or both clutches at the same time.

Even the sidecar wheel is driven. The transmission for this is by means of two chains and a light high speed countershaft, which has been mounted on Skefco bearings and fitted in the ends of a large diameter tube member. This tube was so arranged that it will withstand driving and braking torque — and now, 38 years later it still gives good service.

Gear ratios are: 22.0; 16.2; 11; 8.1; 6; and 4.5.

With so much thought having been given to the engine department, it would have been unwise to neglect the frame parts; so Bill Bradley gave it 10 inches of ground clearance and lifted fittings and accessories as high up as possible. His care paid off.

The hill was climbed at the first attempt, with the passenger normally seated, no acrobatics being necessary, on May 29 1926; a check after ascending Beamsley Beacon revealed that the only damage was one missing footrest and a slightly bent exhaust pipe.

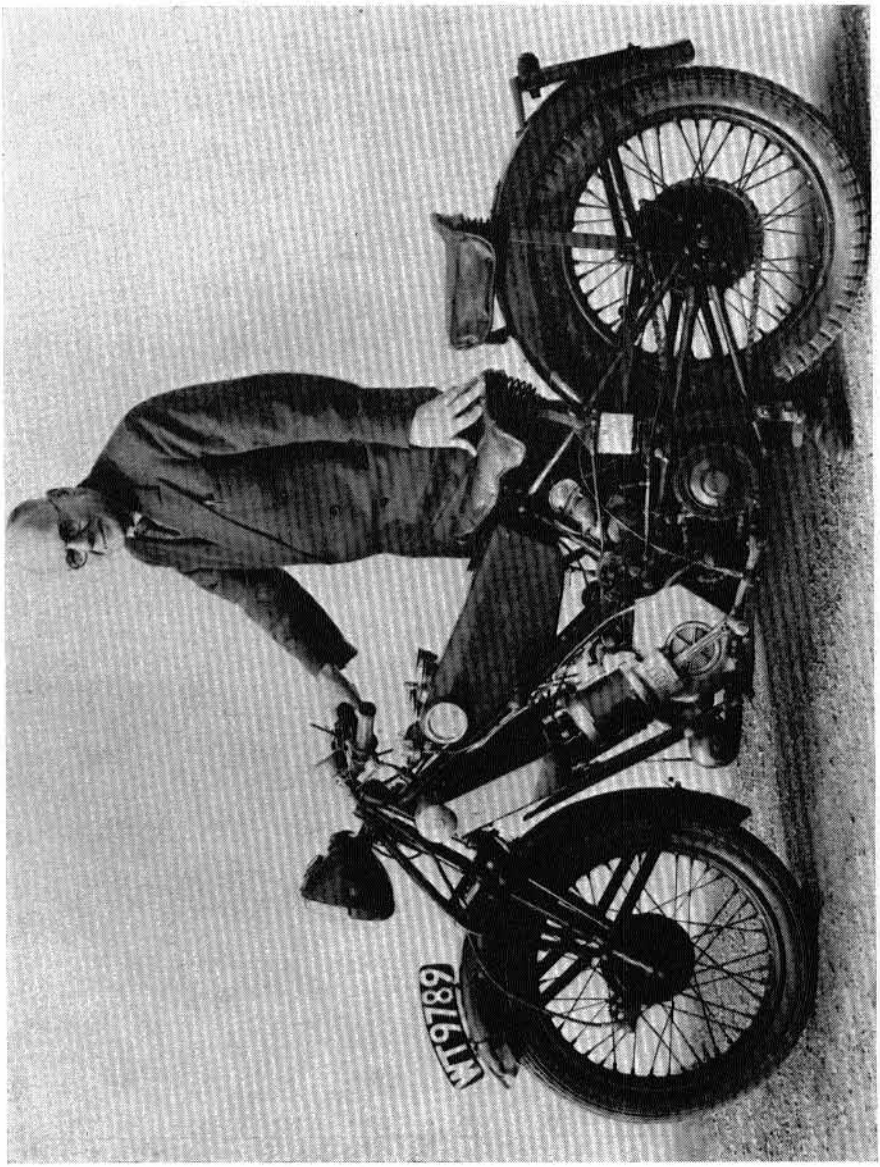
What drew him to the Scott? Mr. Bradley explains:

"In 1908 I built and rode my first motor cycle No. C2022. It had a $2\frac{3}{4}$ hp Minerva engine, no clutch gear or kick starter. I soon learned how to get it started, and give a run jump on to the saddle, and derived a lot of pleasure and experience trying to coax it up our notorious Wharfedale hills. About this time I heard something which was like music to my ears. This, I discovered, was due to the excursions of Mr. Alfred A. Scott and Mr. Frank Phillip when they tested their new Scott motor cycles. How I wished I could acquire one of these 'bikes.' About 1910 I found that a youthful Scott owner had bent his 'mount' rather badly, and had to get a new frame. I managed to buy the damaged frame and, at least, I then owned a piece of Scott, but no engine or radiator. Rather disgracefully, I suppose, I fitted a "White and Poppe", $3\frac{1}{2}$ hp 4-stroke engine in the Scott frame, by then repaired.

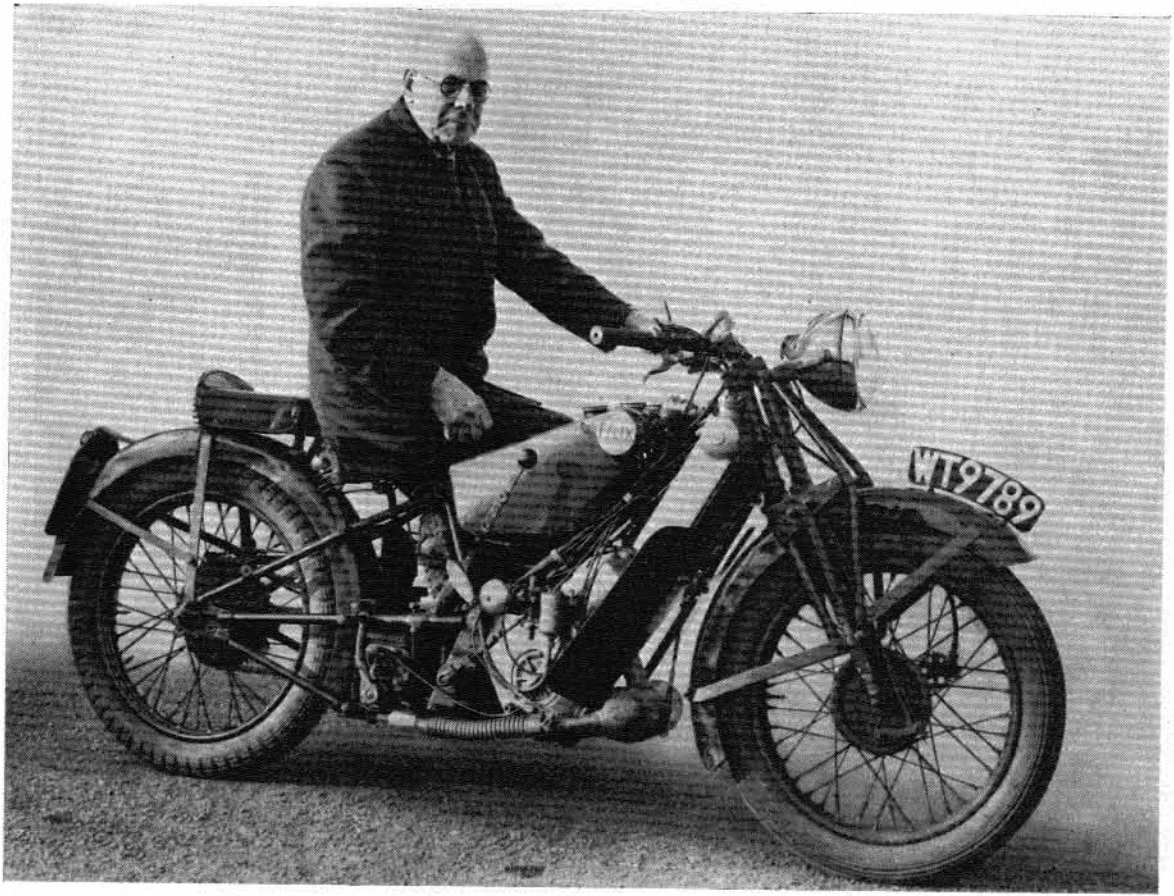
"The W & P had a water-cooled head. I then made a radiator, detachable in two halves, out of sheet copper, also a seat-tube petrol tank with two polished copper bands encircling same at the correct angle. It made a very presentable machine, causing a lot of interest, although I carefully avoided Mr. A. A. & Co., thinking, wrongly no doubt, that they would be offended and probably sue me for infringement of design patents. I later, in 1910 to 1911, fitted a sidecar, which did not do the Scott frame any good. The roads were poor in those days, and I did not always keep to them and found even worse conditions. The bike had no clutch, gear or kick starter but had a Bosch magneto. Later, during the War and up to 1925 I built and, or, rode many various outfits both solo and sidecar, and having joined the Ilkley and District Motor Club in 1919, had time to appreciate the short-comings of motor cycles in general and side-cars in particular."

Like most perfectionists, however, Bill has continued to modify, improve and incorporate new ideas over the years, and it was with real pride that he told me his "Feilx" boasted many desirable features "not seen today on so-called modern machines."

He deserves the greatest praise for his terrific perseverance. Long may he and "Felix" yowl on.



PROUD OWNER — PRISTINE BIKE : Bill Bradley poses with "Felix". The chair has been removed to show details of the engine room mods. By any standards, a fascinating Scott. (Photos C. H. Wood, Bradford.)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OBITUARY

This year's third annual Coventry-Brighton Run, held on April 25, was marred by an accident involving Scott rider Alastair MacIntrye, a sea-going engineer, of Hornchurch, on his 1930 498cc model. Alastair suffered multiple injuries in collision with a lorry in Coventry and three weeks later he succombed.

Our President, Harold Scott and Mrs. Scott opened their home to Alastair's relatives during their hospital visits. On behalf of the Club, may I express our sincere condolences to his widow and family.

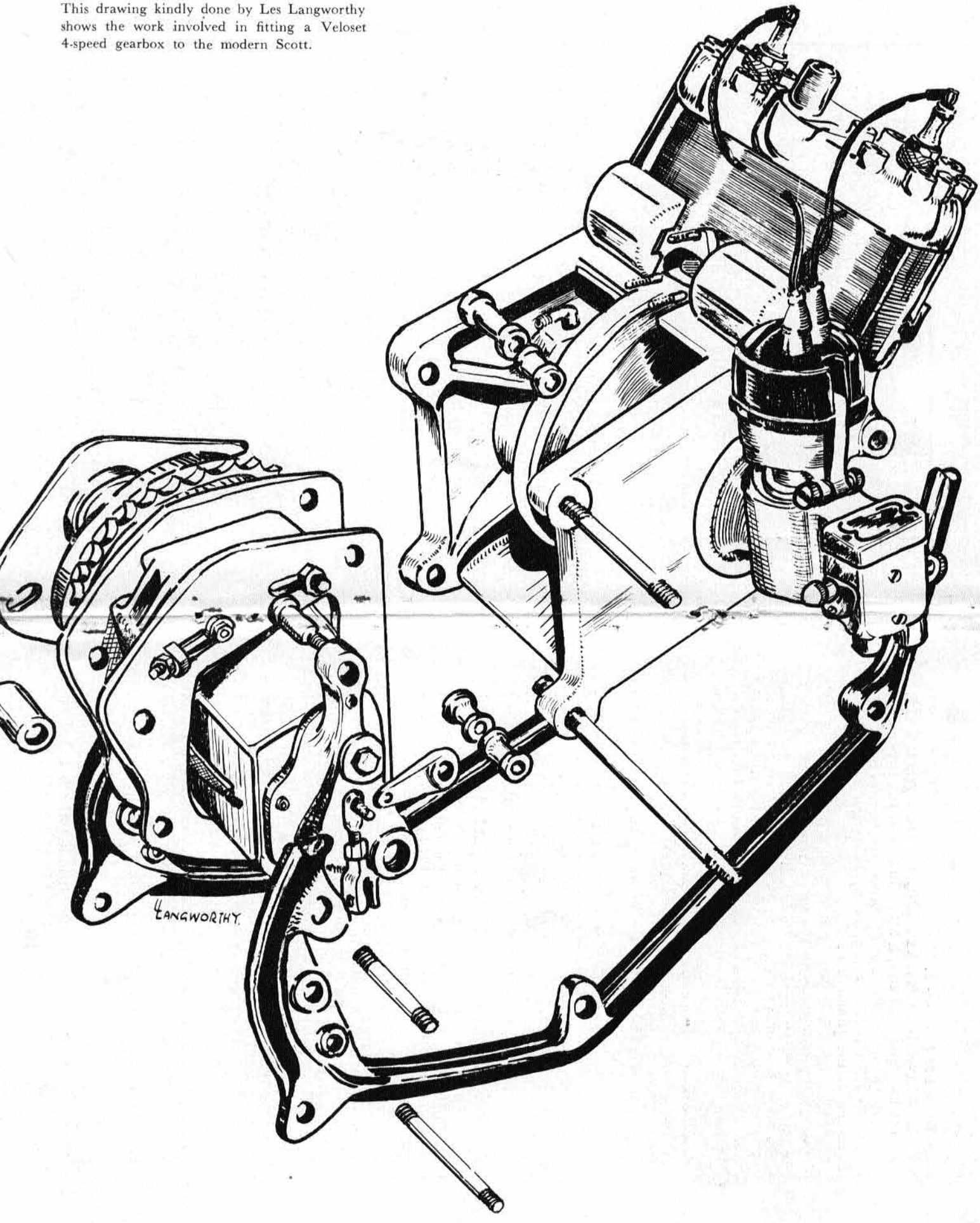
NEW MEMBERS :

John Adcock, Bella Vista, Two Hedges Road, Woodcote, Cheltenham.
Denis De Ferranti, Gorddinog, Llanfairfechan, N. Wales.
Trevor Gosdon, "Kenmare," Queens Road, Freshwater, Isle of Wight.
Peter Godwin, 120 Humber Road, Blackheath, London, S.E.3.
Walter W. Harding, 10 Heathfield, Thundersley, Essex.
Stanley Holyroyd, 128 Turks Road, Ratcliffe, Lance.
Richard Hope, 23 Chapel Lane, Upwey, Weymouth.
Richard Hunt, 104 Princess Ave, Tolworth, Surrey.
Paul Myatt, 17 Gloucester Road, North Harrow, Middlesex.
David Parry, Hillcross, Norton, Freshwater, Isle of Wight.
George Partridge, 19 Bilton Lane, Harrowgate, Leeds, Yorks.
Alfred Pickering, 62 Eckington Road, Coal Ashton, Nr. Sheffield.
James Rankin, 113 Park Road, Caterham, Surrey.
Alan Roberts, 86 Church Lane, Scunthorpe.
James Shuttleworth, 13 Stanley Road, Bolton.
John Thompson, 17 Brook Street, Rriffield, Yorks.
Conrad Whitlock, "Sansol," Middle Lane, Headley Heath, Birmingham.
Colin Booth, "Jude Hill," New Mill, Nr. Huddersfield.
Norman Cox, 95 Halton Road, Sutton Coldfield, Warcs.
W. E. Gibson, 7 Kelley Road, Trescobeas Road, Falmouth.
W. G. Pealing, 15 Windsor Ave, Litherland, Liverpool 21.
Cliff Kingham, "Greeba" (good name for a house, that) George Lane, Bredbury, Nr. Stockport, Cheshire.

Changes of address :

B. Kitchen, "Oaklands," 12 Clonard Way, Hatch End, Pinner.
G. R. Silk, 17 Holcombe Street, Derby.
E. V. Silk, Ward 2X, Stoke Manderville Hospital, Aylesbury.

This drawing kindly done by Les Langworthy shows the work involved in fitting a Veloset 4-speed gearbox to the modern Scott.



Ideas for a fast Scott — 1.

A RACING PROJECT THAT'S MORE THAN JUST TALK

By the time you read this, a 348cc air-cooled two-stroke twin road-racer from the Birmigham Scott Works will either a) have been shelved indefinitely, or b) being got ready for a serious go at the Junior TT.

Eagle-eyed types will already have seen a brief write-up of this completely new motor in the motorcycling technical press, and now after much letter-writing and quite a bit of detective work, I can confirm that the story is more than rumour.

The one-off engine is being developed and fitted with special expansion boxes by a two-troke tuner who insists that for the time being at any rate, his name and address should be kept secret.

But he kindly broke off from cleaning up the one-piece crankcase casting to give me a sneak preview of some of the bits and pieces the motor will use.

A ninety minute talk yielded the following snippets.

1. The engine will drive a five-speed Albion gearbox.
2. Ports, fed by twin Amal GPs, will be piston controlled.
3. All-up weight of the complete machine will be 210 lb.
4. The frame will have bottom-link front forks.
5. Estimated power output is 45 bhp.

The design of the motor is largely the effort of Bill Read, of Aerco Jigs and Tools who has settled for equal bore and stroke dimensions.

It was evident that a great deal of thought had gone into its design. To save time, should a quick rebuild be necessary in the pits, the linered bores each have "built-in gaskets" which make a one hundred per cent seal with the cylinder heads; and the racing seat hides more than frame members: beneath a press-stud fastned cover is a moulded tray for spare plugs and spanners.

What of the old, old two-stroke problem of overheating? "I don't anticipate any trouble in that respect. The cylinders and heads have plenty of finning and they will be well out in the airstream, being inclined slightly forward."

Apart from its amazing low weight — which promises to be 60 lbs lighter than a well-known 250 road racer — the machine may well surprise by its very compact appearance. Says its keeper: "If I hadn't seen it worked out myself, I wouldn't have thought an engine-gearbox unit would go in so small a space."

To cope with an expected heavy fuel consumption, a friend is making a large economy-size alloy tank to carry several gallons of petroil mixture; mpg may be as low as 22.

Full-disc flywheels, gripping Excelsior type con-rods will be carefully balanced and run on Hoffman roller bearings. Primary drive will be conventional — on the nearside.

I can reveal that one of the tuner's immediate ambitions is to see an All-British two-stroke twin on the TT leaderboard — "and quite seriously, I believe this motor can make it."

If anyone thinks manufacturing a new racing engine in 1964 is inexpensive, I should add that this one alone has one way and another cost Aerco Jigs an estimated one thousand pounds.

Will it "yowl?" Your guess is ts good as mine — but if the complete machine goes anything like as well as envisaged, there will be qutie a few startled four-stroke riders left breathing two-stroke fumes...

At the time of writing, (March 27) the engine has still to be bench-tested and given its first track test.

If — and it's a big if — the machine does come up to expectations, the Scott Works will be encouraged to make a full-scale return to racing — and build production racers modelled on the prototype. Let's all keep our fingers crossed.

* * * *

In the same tuner's well-equipped workshop is a much-coveted 498cc alloy Scott block with standard porting. Already tested, it is said to give a top speed close on 100 mph, thanks largely to the better heat conducting properties of this metal, compared with cast iron. — Ed.

Ideas for a fast Scott — 2.

MORE GEARS by A. K. KING

I have maintained for many years that the Scott has plenty of potential for short circuit racing and perhaps, with a Swift engine, Grand Prix racing too. The following is my idea of a short circuit racer based on the current Flyer.

The biggest problem facing anyone with thoughts of quickening Scotts is of course, the three speed gearbox. Some successful adaptations of the Velo gearbox have been used, but I would use the standard three-speed unit, less kickstarter plus an auxiliary box of two speeds, driven off the mainshaft, and mounted in place of the outrigger.

Drive in to the auxiliary box would be via an internally splined shaft that fitted over the standard mainshaft. The final drive sprocket would be mounted over this sleeve on needle rollers, also being contained in a ball race similar to standard.

The outer end of this sprocket would carry engagement dogs for a one-to-one drive via a sliding engagement mounted on splines into the sleeve itself. With mechanical selection, operated by a foot lever on the left side, the sliding engagement, moves away from the sprocket to engage a free mounted gear on the far end of the drive sleeve. This gear drives a two gear layshaft which in turn, drives a gear which splined to the sprocket, gives the final drive.

By means of this device we have retained our Scott gearbox, and given ourselves an extra gear. (Details of gearing, bearings, selection etc, are not given as they are only development details.)

But it is worth mentioning the necessity for taking the footrests rearwards some six inches, to give clearance for the auxiliary box, and of course, redesigning the brake pedal and linkage. A rearward extension to the normal gearchange is also necessary.

The fettling of the Power Plus engine for racing has been covered so many times that I think it unnecessary to go into again, but I would suggest that twin contact breakers mounted on the nearside crankcase door and connected to twin coils would be the most efficient and least power wasting method of producing sparks (Hear, hear — Ed.)

I have often thought that the Scott engine could very easily be converted to the Yamaha oiling system i.s. seal off the mains from the crankcases, giving them a scavenged system of their own, and introduce oil for the rest of the engine via the inlet tract.

With tanks and mudguarding made out of fibre glass, plus the usual clip-ons, racing seat and fairing, I think we would have the basis for a very potent machine.

If someone cares to finance me, I'll build one!

TRAMPS SUPPER REPORT

Probably the best ever, this increasingly popular event was held on Saturday evening, instead of a week night as in previous years. Nearly 150 attended — and most of them looked as if they had never heard of soap or water. Scruffy Lyall, who resembled an inside-out silencer, laid on some hilarious games, while Mr. Raynor provided us with his usual high quality dance music.

The film show included a trip down M.1 at 300 mph (perhaps shot from this mythical Scott racer we've been hearing so much about!?) Another high light was a film made by J. Arthur Rank-Avis, of the club's antics in the Isle last year and also some fine shots of our last Rally.

Lord Pitherington conducted an 'honest hauction' and his gracious wife, The Lady Phenella Pitherington, made some draws (for the raffle, that is.) Among the layabouts were noted Alan Cooper with the family pram, bug-ridden Barry and his lousy girl friend, and Farmer Talboys, who incidentally seemed to be expecting something to happpen.

After the Parade of Tramps and the prize giving came the appearance of that fab group — yes, you've guessed it — The Beetles! (scream) Some honours remained in the Club when Jill and Dave Talboys won the Twist contest (Dave incidentally, still looked as if he was expecting something to happen, and Mr. Taviner shared the prize for King Tramp. Just after midnight a rather hectic and chaotic but most enjoyable evening drew to a close, and the room quickly cleared to the sound of a ukelele and many Formby requests.

TWO-SPEED MODIFICATIONS

Undoubtedly, much of the enthusiasm with which the Scott was greeted when it made its debut, about 1908 or may be earlier, was due to its two-speed gear and kick-starter — two things motorcyclists regarded as almost unattainable perfection at that time. Naturally Scotts were complimented by the riders, and the writers, of the day. And naturally, too, Scotts were proud of their gear, but that pride gradually turned into a haughty distain of any suggestion for alteration or improvement — "we know what we are doing" — and that in its turn developed into a sort of mystique and worship under which the gear was sacred and not to be touched or altered in any way. The result was that when, somewhere about 1930, the gear was quietly dropped in favour of the more complicated and heavy gear-box, it was still the original item, direct from its introduction, with all the initial faults and failings. Two of these faults I hold, were fatal to the satisfactory operation of the gear-oilng and the technical application of the ball bearings.

Oiling was critical and nothing was ever done about it. Anyone looking at the quite good technical drawings of the gear which Scotts published in the Book of the Scott will quickly realise that the oil was led in to the centre of the gear and there released to its own devices and these were, under the impulsion of centrifugal force, to get outside the gear as quickly as possible — an activity in which it was singularly successful. The underpan, the flywheel, the underside of the magneto and anything else in the centre line of the machine was always in a mess from the oil escaping from the gear. But, the main cup-and-cone bearings on which the gear ran never, under any conditions, got any oil and the constant demand for 7/- or so for cups and cones and balls speedily became a little wearying. Particularly as those parts needed renewal as frequently, or rather more so, than de-coking was called for. Older riders will remember, perhaps with amusement how, how long it was before engine designers realised that valves and guides would benefit enormously from total enclosure and proper lubrication. Ball bearings suffered from the same curious neglect, and going back again to that machine drawing a careful inspection will reveal that the two-speed gear was singularly exposed to all the water and filth found in such good supply about six inches from the surface of the road. Round each cone was an annular space at least 1/16 in. in width — if not more — giving direct access to the balls. And the two gear drums in the centre of the gear had a space of appreciable dimensions between them, through which the oil poured out and through which water, dust and dirt freely entered. True there was the underpan and the gear shields, but they were more eye-lotion than any effective protection for the vital parts of the gear.

There then was the basic problem, how to stop the oil getting out and the water getting in. As a first step the cup-and-cone main bearings were given some protection by turning up a light steel disc which just slipped over the spindle and fitted butted up against the outside face of the cone and practically closed the annular gap already referred to. One was fitted to each side of the gear and although the effect of them was to slightly increase the overall width of the gear between the lugs, it was largely adjusted back to the right width by the removal of some of the washers used to adjust the clearance of the kick-starter ratchet. Lubrication, however, was a different matter. There is practically no room for any tricks inside the gear and the oil had to be got to the cup and cone bearings. The gear runs on a hollow spindle rigidly mounted between lugs. Oil is fed in to the near side through the spindle, but the off side carries the operating rod — a nice sliding fit in the spindle continuing right along to the middle where a $\frac{1}{4}$ in. diameter cross rod takes the movement of the operating rod to a sleeve. This slides on the spindle and provides a mounting for the ball-bearing thrust washers which carry a thrust block actuating the ring expanding lever. This expands one or other of the gear rings and so links that gear to the final drive. The gear operating rod is a most effective cork preventing any oil getting to the right hand side of the gear. Not only so, but at the point where the $\frac{1}{4}$ in. cross pin comes, two slots in the spindle about an inch in length and $\frac{1}{4}$ in. in width are needed to give the cross pin clearance. That provides a most efficient opening through which the oil could escape — and to make quite sure it did, two shallow channels were cut in the spindle continuing the slots to left and right. Over all this openwork slid the sleeve to which the $\frac{1}{4}$ in. cross pin was rivited. And the sleeve was provided with four holes 'for lubrication purposes'! On top of all this glorious unsatisfactoriness the spindle is entirely unlocated in a rotational sense. One could get the $\frac{1}{4}$ in. cross pin vertical or horizontal or in any of the other 360 positions of rotation that were possible. For a start the spindle was clearly nicked at the kick-starter end where the operating rod comes out so that when assembling the gear in the frame one could be quite sure of getting the $\frac{1}{4}$ in. cross pin horizontal and in one only of the two positions possible. This was necessary so that one could ensure that one point, and one only, was always 'top' when the gear was in position in the frame, and, more important still, that one point and one only was 'bottom.'

This positioning having been established a 1/32 in. hole was drilled in the hollow spindle close up to the shoulder on the near side end of the spindle up against which the thin adjustment washerse but to give the correct adjustment of the main bearings. It was considered that the oil coming into the spindle

would 'drip' from the small hole — and sometimes less than 1/32 would be preferable — get on the cone and so come in contact with the balls. Assembled and run on the road for a time this idea certainly worked. Not only so, but the oil worked its way through the bearing on to the locking ring, from that on to the final drive sprocket which the locking ring holds in chain — an unexpected benefit most cheerfully accepted.

A similar 1/32 in. hole was drilled at the off side end of the spindle and in the same relative position to the cone on that end, though here the problem was to get the oil past the thrust rod which filled all the right hand half of the spindle. Furthermore there was so little metal in the parts that at first sight it did not seem possible to cut any oil-ways. However a start was made at the middle by filling in with solder the channels cut in the spindle in continuation of the central slots; and three of the four holes in the sleeve were similarly filled in. Taking a hint from the two continuation channels which had been filled in with solder, a short channel was cut in the bottom on the spindle at the point where the two slots came. This oilway was kept as short and as shallow as possible so as not to weaken the spindle. In addition the inner edges of the slots, at the bottom, were bevelled off to provide small channels giving clearance past the quarter cross pin. This arrangement got the oil very satisfactorily past this difficult position in the centre of the gear. To carry it right along to the right hand side the thrust rod was provided with a number of shallow 1/16 th. in. channels turned in it rather like a number of piston-ring slots. These were arranged at about $\frac{1}{2}$ in. intervals and the one on the extreme right so positioned that it moved directly over the 1/32 in. hole every time the gear was operated. These channels were connected one to another by a series of short slots alternately top and bottom on the thrust rod, the idea being that they would, under gear operation, collect oil and pass it on one to another to the last annular ring which would under the same gear operation, release it through the 1/32 in. hole. When tried out on the road this was what happened and for the first time the left and the much more important main bearings were satisfactorily oiled. Apart from the greatly extended life of the bearings there was another advantage. The oil tap from the tank to the gear could be 'forgotten' in the 'on' position for long periods without all the oil in the tank being found underneath the machine. Acting on this hint a drip feed was arranged from the main oil line to the gear, parts from a conventional drip feed being used, but without the glass, and the whole hung in the oil pipe line. (to be concluded).

* * *

OVERHAULING THE MAGDYNO (part two)

by Ian Robertson

Various dynamos have been fitted to Scotts in the past three decades. This article will deal primarily with the Lucas Type E3HMAX — used on most 1937 to 1948 machines, and it will be assumed that the dynamo is not functioning.

After detaching dynamo from magdyno casing, by removing two end nuts and slackening strap, the dynamo casing should be wire brushed to remove rust and dirt.

Remove brush gear cover, and observe positions of brushes in their holders. Brushes that have worn down below the top edge of the holder, will tend to give intermittent contact with commutator, and should be renewed. Lift up brush springs, and remove brushes carefully. The end of a serviceable brush should present an evenly polished face, where it has made contact with the commutator.

Does the armature spin freely without noise? Test for wear in bearings before stripping.

Commence complete strip-down by removing drive pinion retaining screw. This is locked by a tab washer, which if treated carefully, may be used again. The pinion is keyed onto the shaft and may be easily levered off with a pair of small screwdrivers.

The next step is to remove the tab-washered locknuts on the two retaining screws at the drive end, permitting removal of the drive side end cap, bearing, and armature.

The armature should be cleaned and the commutator examined carefully. A worn commutator will prevent proper brush contact, and will severely limit dyno output. The only cure for serious wear, is to have the commutator skimmed up in a lathe, and the mica segments undercut. A friend with a lathe, or most small engineering works and well-equiped garages, will do this essential job for a small charge.

Examine armature pole pieces for signs of contact with the stator poles. Bright marks, caused by contact, denote either badly worn bearings, or a bent armature shaft. The most certain cure for the latter is an exchange armature!

To test armature electrically, use your battery and a six volt bulb. Contact should be shown between each of the commutator segments, but not between any segment and earth.

The drive side bearing is retained by a plate held by three small screws. Remove and wash out all the grease. Replace if in any doubt. The bearing at the commutator end is usually a bronze bush, which will normally be found in good condition.

To check stator windings again use battery and bulb. A circuit should be shown with bulb and battery in series with the stator coil, but not between either and of the coil and earth.

Faulty insulation of stator coil will be shown by a circuit to earth, and this will normally mean a new coil. It is not recommended that the coil be removed from its pole by other than an expert, as a special press is used at the factory when tightening the pole-piece retaining screws.

Providing that the armature and stator checks have shown these to be sound, the commutator, brush gear, and all electrical connections are in good order, and the bearings unworn, the dynamo must charge.

RE-ASSEMBLY.

First pack drive side bearing with HMP grease. Replace retaining plate and screws. Replace armature, oiling felt pad for bronze bearing at commutator end. Re-fit drive side end plate, and tighten locknuts. Replace brushes. If these have been renewed make sure that they are a free sliding fit in holders, and that electrical connections are replaced correctly. Brush springs should be in good condition and free from rust. With new brushes it is sometimes necessary to 'bed down' the ends onto the comm. For good output it is essential that all of the brush area is in good contact with the commutator segments.

TO TEST. Join terminals D and F. Run a wire from these to battery positive. Connect battery negative to dyno casing. The dynamo should now motor slowly and evenly in the correct direction of rotation. This is a good indication that all is well, and may be verified by replacing the dynamo on machine and running engine. Do not yet replace plug to voltage control, but instead again join D and F, running a wire from these to a six volt 36 watt lamp, and the return lead from lamp to dyno casing. At a fast tick-over the lamp should light brightly.

If there is still no sign of a charge, when voltage regulation or plug is repaced, then the fault must be in regulator, wiring system, or switch.

REVERSED POLARITY. It is possible during the overhaul or previous to same, that the polarity of the dynamo has become reversed. This will cause a discharge to be shown on the ammeter while running, and is puzzling but easily rectified. To rectify, make sure battery is connected correctly, and that leads D and F have not been crossed. Remove voltage control cover, and press cut-out points together for a moment. All should then be well.

* * *

A NORTHERN SECTION:
FIRST PROGRESS REPORT... ...

Things are looking up. Since reporting that Ken Swallow, of Stoney Croft, Station Lane, Golcar, Nr. Huddersfield, was going all out to launch a Northern Section, he has written to say (and I quote his letter): "I see no reason why membership should not eventually reach four figures."

After recent appeals to boost membership, this is indeed encouraging news.

Ken has started a publicity drive for the Club, too. Readers of "The Guardian" will have seen the write-up in its columns and as this "Yowl" went to the printers, Ken was hoping to get similar news items in his local papers drawing attention to our Club.

But so far I haven't heard of anyone in his area assisting him; which is a pity. What about it, you enthusiasts?

I'd hate to see all his efforts come to naught for want of support. If the new Section is to have a proper footing, it will take more than one organiser to keep it alive. — Ed.

SMALL ADS

WANTED for 1930 open-frame two-speeder: set of engine covers, front barrel type silencer and right-hand tail pipe, rear stand, two speed gear in good order and kick starter — Slater, 91 Buckingham Road, Bicester, Oxon.

Last year's winning sidecar, child/adult Wessex, fittings and sprocket for Brum, £60, delivered — Chambers, 47 Vesta Ave, St. Albans.

SCOTTSNIPPETS

1. Detachable heads can be extremely difficult to lift if the studs became rusted up. Avoid such trouble by passing an eleven thirty-second drill through the cyl. head holes whenever you carry out a decoke.

2. As old as the hills but still invaluable: coarse wire wool to get ports really sparking.

3. Spit-and-polish fiends can't stand leaking gaskets. How do they cure them? Simple: by using Heldite, a sealant which measures up to aero engine requirements.

4. The more comfortable 7/8 inch Vincent type handlebars can be fitted to your Scott if you fashion alloy discs for the holding clamps.

5. Weight-saving experts have 'rumbled' most of the make-it-lighter dodges, but what about this one. The conventional oil tank on some models can be discarded in favour of an alloy bottle strapped to a rear sub-frame tube.

6. A softer ride can be yours by using the rear springs from a 650 Norton SS. Roadholding is unimpaired.

Member H. G. Chambers, of 47 Vesta Ave, St. Albans, and Ron Cresswell of 126 Henniker Road, London, have between them a most comprehensive stock of Scott pistons and rings for all years, going cheap. Buyers note: Mr. Chambers has the rings, and Ron the pistons.

IMPROVING A TWO-WHEEL WONDER
by W. C. Fox

Although the introduction of the Scott quite undertandably aroused considerable enthusiasm — it supplied things which motorcyclists had long been wanting — the greatest surprise has come from the fact that that enthusiasm continued and still continues. As a machine it was original, but its handicaps were unusual: within a very short time of its being launched its designer ceased to have any interest in it; at the start technical know-how and even engineering skill were scarcely up to the task of producing and taking full advantage of the opportunities that the design offered and, worst handicap of all, the folk into whose hands it was placed for exploitation and development, honest and sound engineers though they may have been, were plodding folk lacking any touch of imagination and genius. Consequently any development which took place was heavy, clumsy and solid or went to the other extreme and was hopelessly flimsy. All too often things which simply cried out for alteration were not touched. All this may sound like inspired hind-sight and I certainly would not have said any of it some 40 years ago when in 1926 I became the proud owner of a 1923 almost brand new Scott Squirrel. But it was not long before the budding of those ideas made themselves felt and influenced me in my handling of the machine from the point of view of altering it to meet my needs, or how I felt it should be developed. I adopted as guiding principles that no alteration should be made unless, in the event of it proving unsatisfactory or a failure, it could be removed and the machine restored to its original condition without any scars to mark the failure. Also that there should be no drastic carving about of frame or engine. Simple rules, but extraordinary difficult to abide by. Often enough an alteration hung in the air for years because I could not be satisfied that it would be sound engineering and would meet the need. That and the complications of a small workshop and little spare time — I am no engineer — were responsible for for much of the delay.

For those who do not know what a 1922 Scott Squirrel was like it can be said that it had a stirrup front wheel brake, a back brake which consisted of a shoe which pulled on to the inside of the shroud of the chain wheel — excellent as long as there was plenty of grease on it, but worthless in rain. It was then better to open the throttle, you did at least know what to expect, but the brake under such conditions was more than uncertain. Oil was stored in the frame tubes and fed via drip feeds and under crankcase suction to each crank-case. There was a magneto — it usually worked — and the plugs were Splitdorf, Green Jacket which were quite good as long as one

did not try to maintain 50 mph for too long. Two-speed gear with rocking pedal and, of course, a kick-starter. In the Feb. issue of 'Yowl', there was an illustration of a 1912 to about 1919 Scott. My Squirrel was very like that and it may be interesting to put beside it the present illustration of the machine, bearing in mind that now my machine has no magneto, there is a crank-case dynamo, Scott pattern, and on the other crank-case door is mounted the distributor and oil pump: both brakes are hub brakes, the two-speed gear has a hand clutch and a definite location of each gear — the friction band has been discarded: the oil is carried in a separate tank: there is a top tube tank and the carburettor is mounted directly on to the inlet port and centrally and not asymetrically over the right side of the machine as was the case with all early Scotts. There is electric lighting and the speedometer is driven off the back wheel. Also there are 14 mm plugs, a central stand and the saddle is mounted direct on the frame.

No doubt those who are keen on detail will have noticed that the front forks are, and yet are not, Scott type. They were my first big alteration. I had the front forks crack through at the crown. They did it quietly during a 300 mile ride and for the last portion of the trip I was puzzled as to why the front of the machine felt so 'soft' — and 'waggled' the handlebars quite violently to find out. Finally, getting off to investigate, when I pulled the machine on to the stand the front wheel advanced a few inches, I knew all that was necessary. When the new main fork member was secured I realised that never again could I trust that type of fork, and I decided to stiffen it. Mild steel strip, 1 ins. x $\frac{1}{8}$ th. was bolted across the front and back face of the fork crown, the $\frac{1}{4}$ in. bolt which held the mud-guard in place providing the necessary location and support. At the outer ends, close up to the fork crown, both strips were drilled 3/8 th. and a piece of 3/8 th. mild steel rod, flattened at one end was put through with a distance piece between the strips. It was threaded 3/8 th. mild steel rod, flattened at one end was put through with a distance piece between the strips. It was threaded 3/8 th. 26, t.p.i. and with a couple of nuts served to clamp the two pieces of strip firmly on to the fork crown. The rod was made of such a length as to permit it to project forward about three inches and the end was flattened and drilled 5/16 th. From this hole a piece of $\frac{3}{4}$ in. mild steel tube of quite light guage was run to the $\frac{1}{4}$ bolt on the fork end which helps to retain the bottom sliding bearing in place. The tube, of course, was tapped and drilled appropriately at each end. From the same 5/16 th. hole a second piece of light tube was run to the handle-bar clip. Behind the point where the top bearing of the sliding member of the fork is housed and the steering column of the fork there is about 3/8 th. clearance and quite enough space for a 5/16 hole to be put through, but it **must be** dead square with the centre plane of the machine.

Through this hole a short piece of 5/16 rod, threaded 5/16, 26, t.p.i. was passed and with a couple of small distance pieces provided the top anchorage point for the tube. The same arrangement of tubes was provided for both sides of the fork, care being taken to see that both sets of tube were drilled to exactely the same length and the ends set slightly so that they bedded nicely up against the anchorage points. The threaded rod projecting from the fork crown, being threaded and with two nuts, one before and one behind the fork crown, provides a means of adjusting the m eeting point of the two tubes and the rod so that they all coincide: it also allows for any slight adjestment of the top, steering column, bearing. In assembling care should be taken to see that all goes together sweetly with no forcing anywhere, otherwise the steering will suffer. The ends of the two pieces of rod were cross linked with a piece of $\frac{1}{2}$ in. steel rod drilled down and tapped 5/16 th, 26 t.p.i. and studs were used at that point to attach the tubes. This cross member also made a very acceptable anchorage point for the horn. The fork, so strengthened has stood up perfectly ever since it was done in 1928 and when, in due course, the later 7 ins. diameter front hub brake which Scotts produced was put on, it was more than strong enough to handle the very considerable stresses imposed.

Anyone with a senitive ear for sound will be aware that the early Scotts never, ever, really fired quite evenly: there was always a slight difference between one cylinder and the other, and no amount of adjustment of the carburettor, the oil supply or the gaps on the plugs had any real effect. Scotts themselves provided a piffling little 'baffle' in the induction pipe at the point where it joined the crankcase and whenever approached on the matter suggested that one should bend it. However bent, though, it made very little difference, nor did anything else. Playing with mathematics one day and converting cylinder capacity into its equivalent of a $1\frac{1}{4}$ diameter tube and then multiplying that by engine revolutions in an endeavour to get an idea of the speed of the incoming mixture down the induction pipe — it worked out between 60 and 80 miles an hour! — it seemed likely that the irregular firing was due to the unbalanced arrangement of the induction pipe to one side of the engine, common to all early Scotts and now discarded. Inspection disclosed that the left hand cylinder had an almost direct straight line path to the carburettor, while the right hand cylinder, if it was to get anything at all, had to pull the incoming charge through a fairly sharp right angle. Furthermore, the jet in the carburetter being placed below the level of the induction pipe suggested that the 'mixture' in the pipe would not be even, the lower section of the pipe containing the richer — and heavier — portion. Hence any division of the induction pipe

by way of a baffle would have to be in a vertical sense. But as the pipe made a right angled turn and a downward bend at the same time such a baffle would not be one of the easiest things to fit. However, as no other solution except very costly bits of casting and machining seemed possible, the fiddling cut-and-come again business of producing such a baffle in brass sheet was tackled. When completed the induction pipe was practically converted into two parallel pipes.

In use, the effect was truly remarkable. Gone was the old 'pif' — 'pop' and in its place a steady 'pop', 'pop', and no nonsense: the plugs burned to an identical appearance: one on longer felt that the pump was delivering too much, or too little oil to one side of the engine or the other, and oil delivery could be precisely adjusted. Carburetter adjustments became real adjustments and there was no longer any of the temperamental nonsense that had become almost a tradition with Scotts and was attributed to atmospheric pressure, rain or anything else you liked. And then, like so many other things in life the carburetter and induction pipe were swept away because Scotts in conjunction with Lucas had produced a crank-case door dynamo and I had evolved a method of fitting it to the old engine!

The coil ignition idea had long been in mind, but in cold store. The more immediate problem was first to fit the Pilgrim oil pump on the crank case door and do it without drilling holes in the crankcase to take studs and doors in the way Scotts had done — and still do. The essential idea came one day from a London taxi-man, himself a Scott fan, who had solved the problem by making the crank-case door bar into a big 'O' with two ears, one to go in the existing crank-case slot, and the other drilled to slip over the existing door-strap stud. The dynamo, however, with its large diameter, nearly as great as the diameter of the crank-case door presented the problem of getting the door strap round the dynamo. It was solved by making the door strap in two parts, one like a large 'U' and the other rather like an 'I' without the seriffs on one side and in place of them a blob in the middle thus 'E', or if you prefer it an 'E' with the central piece turned the other way! Each arm of the 'U' was drilled for a 5/16 th. bolt and the two arms of the 'E' were similarly drilled and tapped 5/16 th. bolt and the two arms of the 'E' were similarly drilled and tapped 5/16 th. 26, t.p.i. and the reversed centre piece of the 'E' was drilled to take the door-strap stud. The heads of the bolts provided two pads to rest on the crank-case door at opposite sides and secure even distribution of the load. The door strap was assembled round the dynamo and the whole then fitted in position — a bit tricky to be certain of entering the driving stud in the disc, but no more so than fitting all the pistons into a multi-cylinder aero engine and not breaking any of the rings!

A very similar arrangement of door-strap was used for the ignition distribution head and oil pump on the right hand crank-case door, and it was this unit which caused the fitting of the carburettor straight on to the crankcase in the standard fashion — carburetter and distributor unit both wanted the same position in space and the carburettor had to give way! This however, entailed another alteration, and a major one. Some years before I had fitted the more conventional tank on the top tube and had cut out the saddle tube and replaced it with a triangulated arrangement of two tubes a-la-Scott. The sidecar lug behind the steering head, opened out in the middle, made a very convenient point for the front of the tank, but I had hesitated to cut out the main frame tube which goes from the main engine bolt to the steering head. It is the backbone of the frame on which the whole depends. After considerable hesitation and much working out of applied forces and incidental stresses from road unevenesses, the step was taken. That was some years ago now, and nothing has shifted or broken in the meantime. Coil ignition and the central position of the carburetter again made a great improvement in performance and starting and, of course, cruising speed went up. For my particular engine Scotts gave a maximum of 65 to 70 m.p.h. when making them, around '26 to '28, in ordinary touring trim. I have had mine up to 65 without any trouble, so that at least it can be said that all the alterations have done no harm. The main frame tube when cut out was replaced by a triangular arrangement of two tubes going from the main engine bolt to the sidecar lug behind the steering head. The effect of this arrangements was to make the frame a copy of the Scott frame — but very much lighter as no heavy lugs were used, except in the case of the two tubes replacing the main frame tube, and — this was most necessary — it actually made the frame more rigid with an improvement in steering.

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"WHISPERS FROM WALES" — by Simple Sam.

Scott fans will be glad to learn that the movement is growing in Wales — especially in the Cardiff area, where weird and wonderful things are afoot. One chap still needs about 25% of a 1930 TT Rep. There is also a story of a Cardiff enthusiast, Peter Bidder, who is trying to sell a van in order to pay for a major operation by Barimar; and if the firm of wonder welders can clear up the trouble, sprinting types had better watch out!

Spies peeping through cracks in Graham Gardner's shed have passed on the news that it wn't be long before something special emerges. It's supposed to be a two-speeder — but five cylinder blocks have been seen on his bench. Draw your own conclusions...

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N.B. Past issues still available: March and May 1963 and Feb. 1964 — Ed.

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TEN SECOND TIP

A long knitting needle is very handy for retrieving dropped parts from the gearbox tray and crankcase interior.

Mr. W. C. Fox