

December 2008

# North Birmingham News

## NEWSLETTER



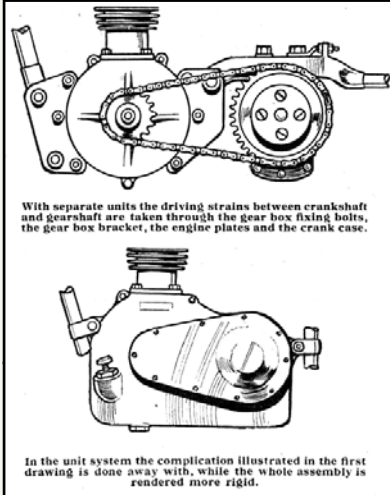
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# From the Archives

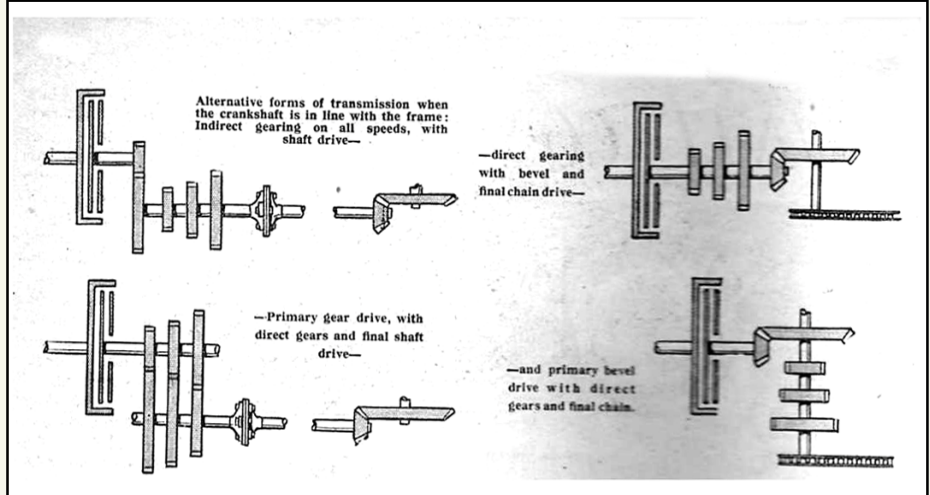
## Thoughts on Unit Construction in the 1930's

Continuation from November Issue



With separate units the driving strains between crankshaft and gearshaft are taken through the gear box fixing bolts, the gear box bracket, the engine plates and the crank case.

In the unit system the complication illustrated in the first drawing is done away with, while the whole assembly is rendered more rigid.



### Cork Clutches Will Run in Oil.

Cork insert clutches are quite satisfactory when run in oil, provided that the spring pressure and contact areas are sufficient. If a multi-plate metal-to-metal clutch is fitted, the tendency to drag when the oil is cold can be overcome by means of a clutch stop, similar to that employed on certain Sunbeam models. An engine and gear unit of this type is far more neat and compact than two separate units; it will weigh no more and will save weight in the frame and fittings.

But we are told that a unit is inaccessible, and that it is impossible to get at the crank case or gear box separately.

This need not be true, for a separate gear box can be bolted up to the crank case if one should so desire. But the argument falls to the ground mainly because no ordinary motor cyclist parts his crank case or examines the inside of his gear box even as often as once a year, and I should imagine that the proportion of riders who ever see these interiors is negligible.

In the existing separate unit system the driving stresses between crank and gear shafts are taken round all sorts of corners, through gear box bolts, gear box bracket, engine plates and sometimes through frame tubes, and all these parts must, therefore, be sufficiently heavy to prevent distortion. In the unit system, however, all these stresses can be looked after by a compact and rigid crank case casting, strengthened, if necessary, by a cast gear cover. An engine and gear unit of this type usually involves a cross-over drive, with the final drive sprocket on the opposite side to the clutch, but this is a practice which is not uncommon in present-day design, since it provides the only reasonable method of totally enclosing the front drive.

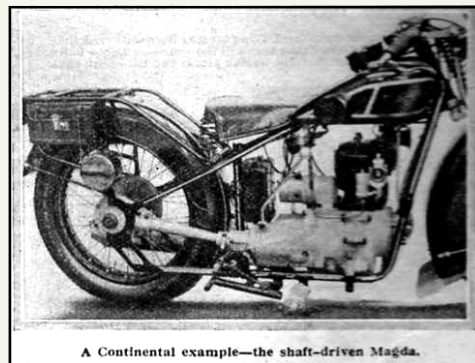
Now I have dealt with the gear drive type of engine unit first, because it involves no radical changes either in the engine itself or in the inside of the gear box. In some designs a new crank case and a new clutch would be all that was necessary to make the conversion, except for the actual gear train.

### The Shaft-driven Single.

The second alternative, of placing the crankshaft in line with the frame, is an even neater proposition, and certainly it can be applied in a most satisfactory manner for twin and multi-cylinder engines. Judging from the number of German and French manufacturers who have adopted this plan, it must be equally satisfactory in the case of single-cylinder engines, but on this point I cannot speak from personal experience, since the one run which I had on this type, a single-cylinder, shaft-driven F.N., was so long ago that my memories are not to be relied on.

Whether or no one is justified by lack of experience in questioning the smooth slow-running capabilities of a shaft-driven single, it must be pointed out that shaft drive is not an essential feature of the type of engine unit under consideration. It is equally possible to employ a final chain drive if necessary, as in the case of the A.B.C., the twin Francis-Barnett, and the American fours. This we know can be done satisfactorily, though it involves an extra type of drive which, obviously, is undesirable if the shaft drive can

be made a commercial success.



A Continental example—the shaft-driven Magda.



But possibly I am wandering from the main theme, which is engine units, and not final drives—though there is a certain amount of excuse, since the two are more or less intimately connected.

***Smaller and Lighter Clutches.***

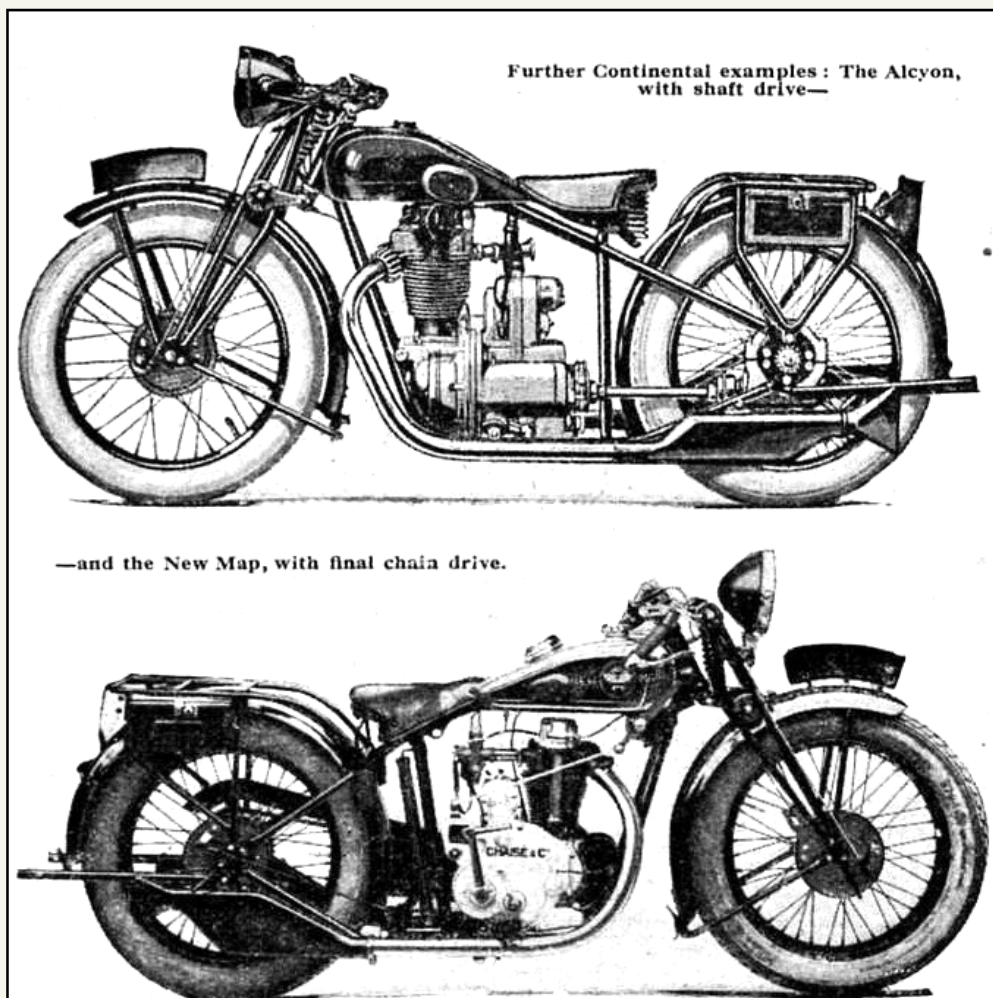
In cases where the crankshaft is in line with the frame the clutch is mounted on the crankshaft, for obvious reasons. This, after all, is the right place of it; since it runs at engine speeds it can be made lighter and smaller to transmit the same power. With the clutch in this position it may be housed in a separate compartment and run as a dry clutch if desired. From it the drive may be by worm or bevel to transverse gear shafts, or may follow modern car practice through longitudinal shafts to the bevel or worm. The former method saves a good deal of length, especially if only a chain final drive is to be considered. In the case of a shaft drive, either a third gear shaft must be employed with a primary gear drive, as in the case of the Berwick, or all the gears must be indirect, as on the Alcyon.

With modern gears there is little to be said against indirect gearing, for though there is a slight loss of efficiency on top gear, there is a distinct gain on the lower ratios, as the reduction is single instead of double.

There has been some discussion as to whether the same oil should be circulated through both engine and gear box, but to me the point seems unimportant, provided, of course, that it is well filtered before being re-circulated. Most engine oils are well suited to gear box lubrication, and oil leakage from a combined engine and gear unit is inexcusable, since only one shaft need protrude from the case. On the other hand, forced circulation through the gear box should be unnecessary, and replenishment should be so infrequent that the gear box may well be made as a self-contained unit, quite distinct, as regards lubrication, from the engine.

***Future of Unit Construction.***

As a firm believer in the future of the combined engine and gear unit on the score of silence, light weight, neatness and reliability. I live in hope that these notes may, at all events, draw a little attention to the subject in this country; for I feel most strongly that we are lagging behind our determined foreign rivals in this important respect. Whatever the devotees of the two-chain drive may argue, the fact remains that the Continent is recognizing our backwardness.



The following message has been received through the club website.

*Julian,*

*The NBS has an excellent web-site.*

*I wondered whether you would be interested in a link to photos I have put on Flickr, the Internet photo-sharing site. They are four photos of the 1930 Sunbeam owned by Walter Edge, the NBS's first Chairman. I have put a link to your site from the photos. I hope you don't mind (if you do let me know and I can remove it).*

*The web address is [www.flickr.com/people/sunbeam\\_uk\\_8475](http://www.flickr.com/people/sunbeam_uk_8475).*

I have just received a photo from Ray Jones (Marston Heritage Trust) of Walter with the Sunbeam in the 1960s which I hope to up-load shortly.

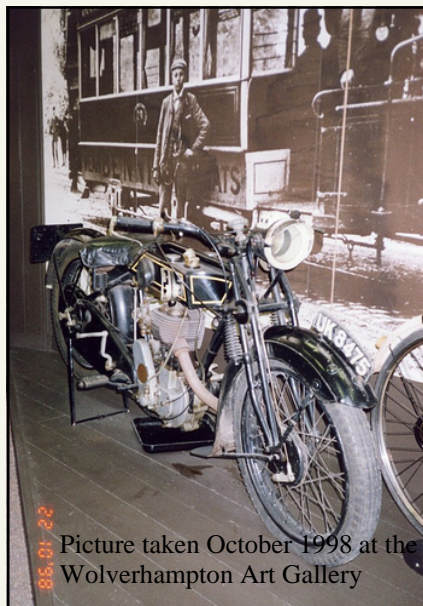


Picture taken September 2008

Any info you or your members have about Walter and the 'Beam would be gratefully received.

Regards,  
Steve Corbett  
Chester

If anyone has any information I can relay this back to Mr Corbett



Picture taken October 1998 at the Wolverhampton Art Gallery

## Classic bike show at Stafford

For those of us who may have missed the show the VMCC had a stand for two stroke machines as its theme and John Aston took his Greeves to the display.



GREEVES DB 250 built by John from boxes, First Overall at 2008 Burton Parade.1960 tax and mot.



NEW HUDSON AUTO CYCLE again built by John from boxes winner of many awards including two Best Auto cycles at Stafford.1951 tax and mot

On the NACC stand John also took along this rather nice Puch which had also restored.



## NEW YEAR'S DAY RUN

Please make a note in your diaries for the new venue of the Seven Stars at Seisdon 10.30 for 11.00am start.