

Combining a triple chainwheel and a 4-speed freewheel, it was possible for the British cycle tourist of the early 1930s to have a wide gear range with ten useful gears, such as the “half-step-plus-granny” arrangement described in Table 7.2.

The term “half-step plus granny,” though not used at the time, today refers to a triple-chainwheel setup

on which intermediate gears are achieved by shifting between the two larger chainwheels, while a range of much lower gears is reached by shifting to the smallest chainwheel.

However, contemporary accounts suggest that triple, and even double, chainwheels were uncommon. Most derailleur-equipped tourists of this era simply had a 3-speed Cyclo Standard on the back. It would be thirty years before “gear freaks” would calculate and install opti-

mum half-step combinations of sprockets and chainwheels, on which usable intermediate gears between shifts with the rear derailleur can be made by shifting the front derailleur between chainwheels.

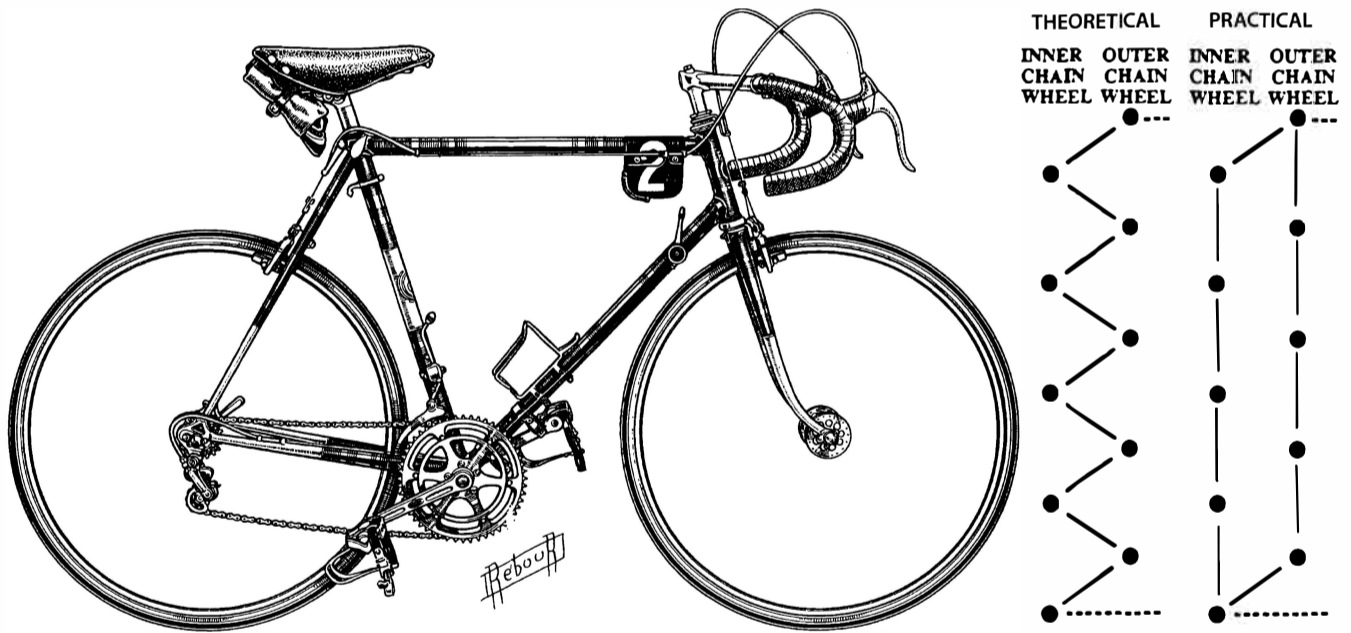
Table 7.2. Gears achieved with 1930s “half-step-plus-granny” gearing*

No. of teeth on chainring	No. of teeth on sprocket			
	13	17	22	28
40 teeth	80 in.	62 in.	47 in.	N/A
36 teeth	72 in.	55 in.	43 in.	33 in.
24 teeth	N/A	37 in.	28 in.	22 in.

* See the text on page 133 for an explanation of the term “half-step-plus-granny.”

134

Below: Fig. 9.28. Half-step gearing, shown on the Helyett machine with which Jacques Anquetil won the 1957 Tour de France. Note the 4-tooth difference between the 52-tooth large chainwheel and the 48-tooth small chainwheel and the 26-tooth (or 24-tooth) large sprocket on the freewheel. Note also the Simplex 543 rear derailleur, the lever-operated Simplex front derailleur, and the Stronglight crankset with TA chainwheels.



190 France

The Dancing Chain: History and Development of the Derailleur Bicycle

“Gear Freaking”

I’ve mentioned gear freaking and half-step gearing pretty much in the past tense. This was how mathematically inclined cyclists used to optimize their gear-trains when they only had 10 or 15 gears to play with. They used logarithmic paper to plot out the optimum combination of chainwheels and freewheel sprockets to give the maximum number of

usable gears with nice even steps between them.

A “half-step” gearing setup might use a freewheel with 24% steps between the five sprockets, combined with two chainwheels with a 12% difference. That half-step 10-speed would have had ten gears 12% apart. “half-step plus granny” gearing added a small inner chainwheel to provide three extra-low gears for the steepest hills.

A triple crankset with 52-, 46-, and 24-tooth chainwheels, combined with a freewheel with 13, 16, 20, 26, and 34-tooth sprockets was the near-perfect half-step plus granny set-up. Work it out: It provided a 108-in. high gear, a 19-in.

low gear, 13 useful gears out of 15, and 13% steps between 10 of the gears. There were lots of other arrangements with fun names. In today’s world of 9-, and 10- and 11-sprocket cassettes, gear freaking is almost dead.

Shifting today’s 30-speeds is quite simple. You start on the middle chainwheel. When you run out of higher gears, you shift to the big chainwheel and drop back a couple of clicks of the rear derailleur. When you reach a steep hill and run out of lower gears on the middle chainwheel, you shift to the little chainwheel and add a couple of clicks in the rear.