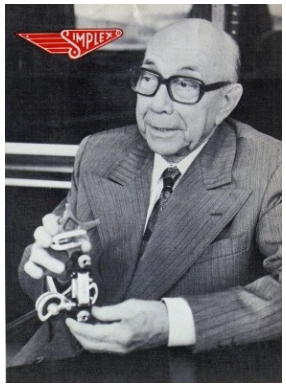
Simplex Racing Gears

Gears, Riders and Machines

25 March 2015

Lucien Juy – Founder of Simplex



- Owned bicycle shop in Dijon
- Made his first derailleur in 1928 – named it (and his company) Simplex as a bit of a dig at the competition whose products were thought overly complicated.
- Prolific innovator – many Simplex patents over the course of his lifetime and now widely adopted by most manufacturers.
- Attached his name to many of his products, e.g. Juy51, LJ23, Super LJ, JuyRecord

Key Dates

- 1928 – First Simplex derailleur
- 1933 – Production 40,000 units. 4 French National Championship wins
- 1936 – Antonin Magne wins World Championship, giving name to Champion du Monde derailleur
- 1947 – Jean Robic wins first post-war Tour de France, giving name to Tour de France gear
- 1962 – Plastic!
- 1990s – Gear production ceases

Champion du Monde Gear

- Single roller gear with chain tension provided by sprung arm.
- Sprung ‘plunger’ operation – spring pushes chain towards larger cogs (lower gears) and lever operated cable pulls chain towards smaller cogs (higher gears)
- Produced from 1930s to 1940s
- Disadvantaged by poor ‘chain wrap’ over cogs – greater chance of chain slipping or ‘jumping’ over cogs. Limited “range”.

Helyett with Champion du Monde Gear

- Very similar to the bikes used by the Helyett team in the late 1930s. Notable riders include René Vietto who rode for Helyett until 1944 and had his portrait on the seat tube on some Helyett Spéciale models

Rene Vietto – French Folk Hero

- Good racing cyclist – leader of Helyett team in 1930s and late 1940s
- Famous for sitting by the roadside – doing well in the 1934 Tour de France but compelled to hand his wheel over to French team leader Antonin Magne who subsequently won the race. French newspapers really hyped this story and he became a national hero.

Tour de France Gear

- In effect a Champion du Monde with extra roller
- Improved chain wrap and shifting performance. A bit limited in the range of teeth that it could accommodate
- Tour de France wins:
  - 1947 Jean Robic
  - 1949 Fausto Coppi (Bianchi)
  - 1950 Ferdi Kubler (Frejus)
- No win in 1948 because of Gino Bartali

Front Changer – Tour de France

- Simple pivot design – rod lever hinged near bottom of seat tube and constrained by slotted upper mount
- Produced only in the 1940s
- Shrewd Monsieur Juy also supplied double chainrings

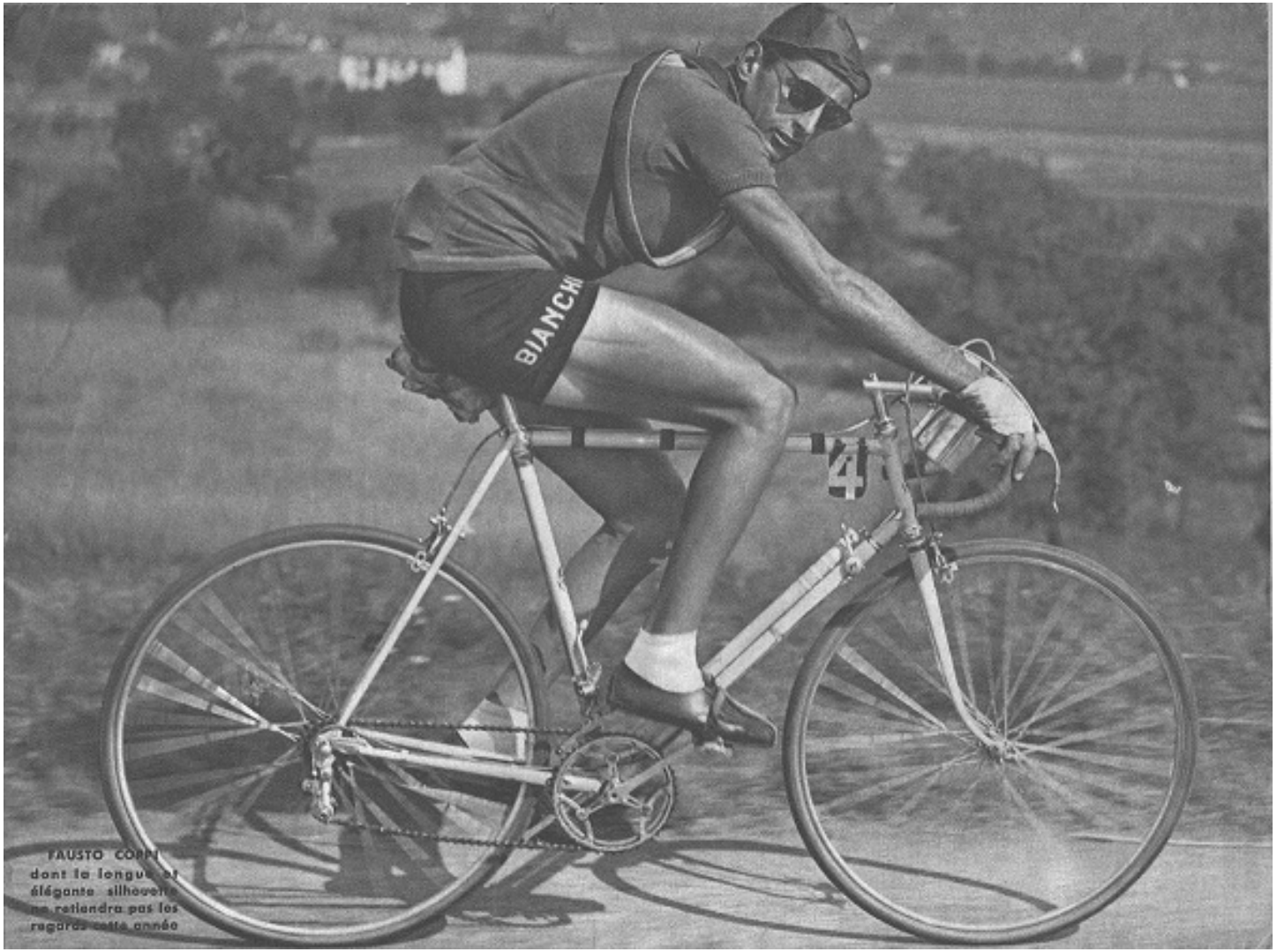
1947 Tour de France – Edouard Fachleitner

Front Changer – Type Competition

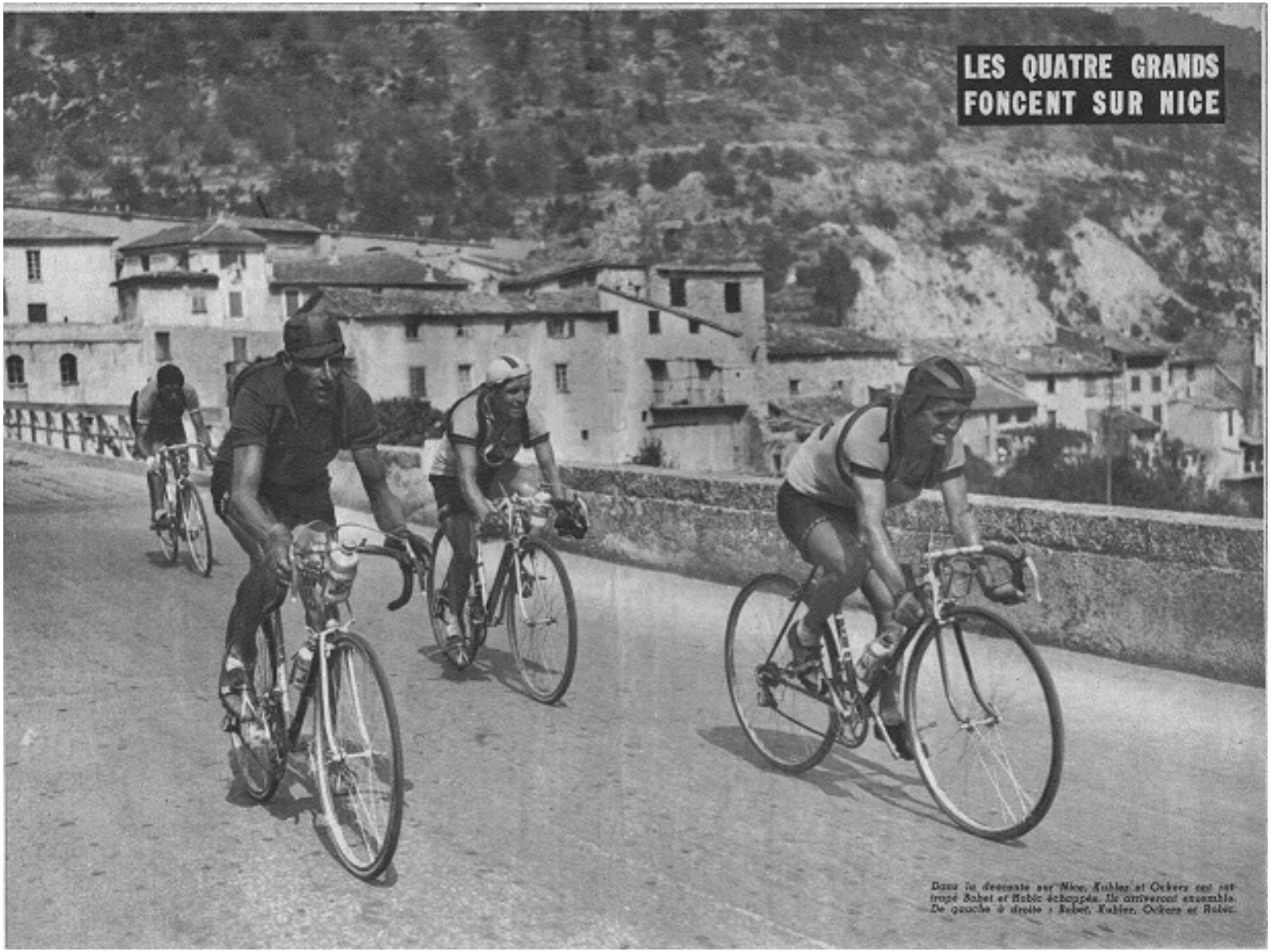
- Pivot point raised above the cage
- Lever motion constrained by stops against the seat tube
- Produced from the 1940s through to the 1960s

1949 Follis with Simplex Tour de France and Competition Derailleurs

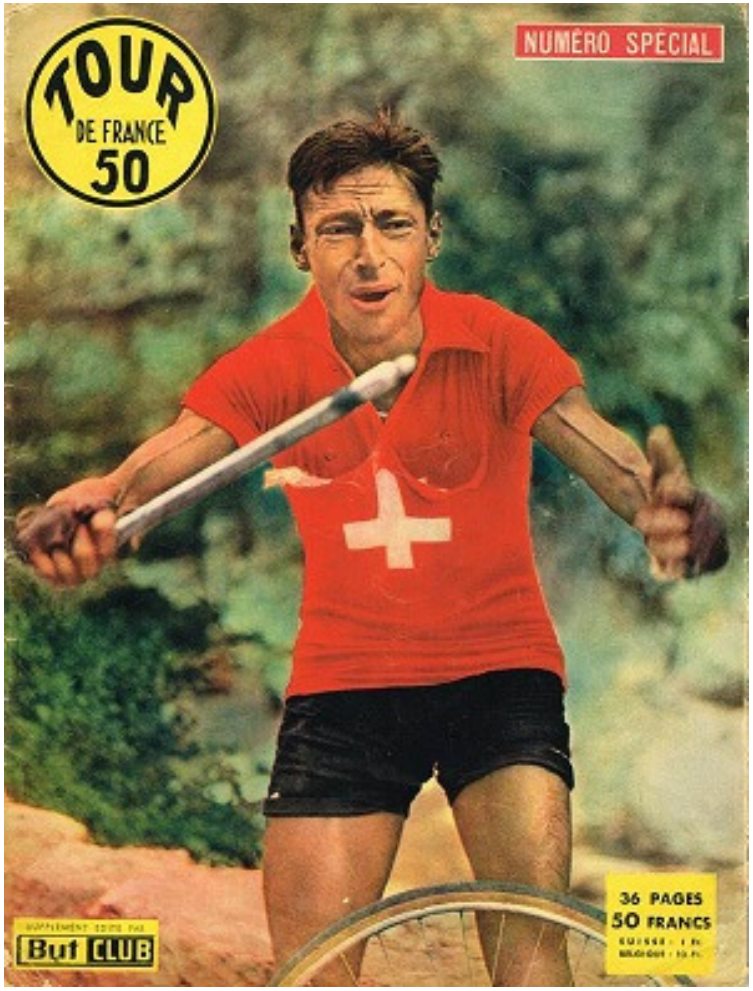
1949 Tour de France Winner – Fausto Coppi

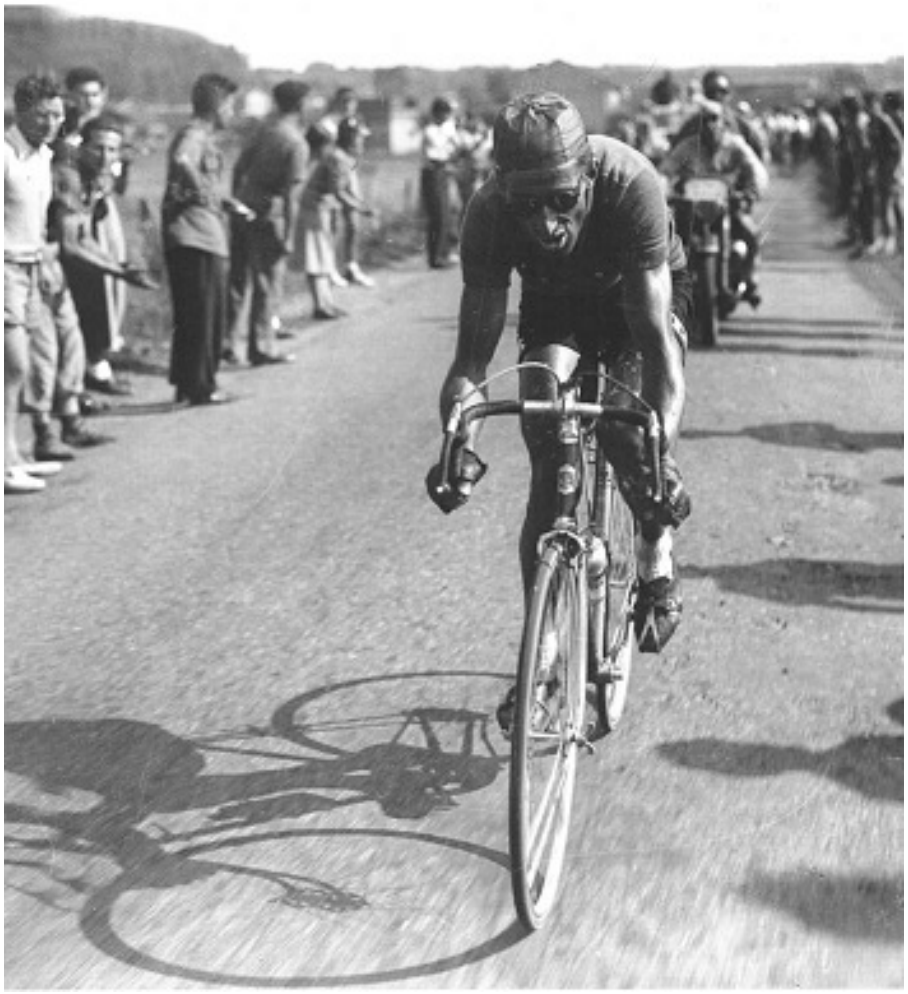


1950 Tour de France – 3 of 4 “Grands” on Simplex



1950 Tour de France Winner – Ferdi Kubler

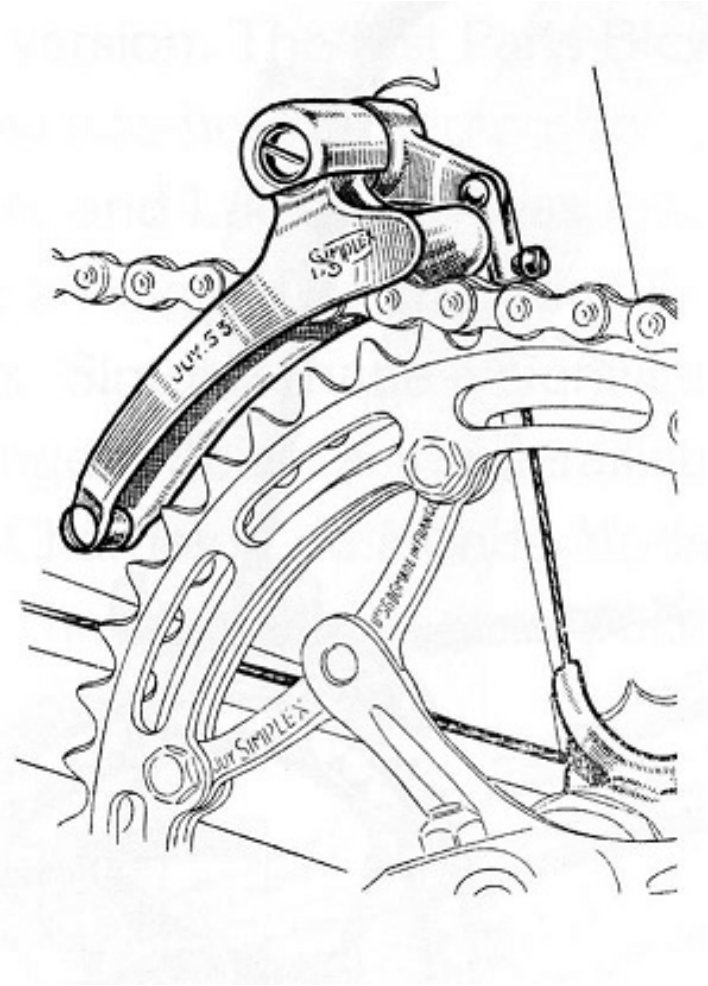




1951 – JUY51 Rear Derailleur

- Improved geometry – better chain wrap; larger gear range
- Novel feature of increasing spring tension to offset reduction that occurs when shifting to a smaller cog
- Continued in production until 1959 when a similar gear was introduced without the complication

1953 - JUY53 Front Changer



- Cable operated front changer
- Operated by small shift lever mounted with larger rear shift lever
- Photographs indicate that this was not much used on racing bikes, though I have seen a picture of Jacques Anquetil apparently using this gear.

1955 – Simplex 543 Rear Changer

- Response to better styling and convenience of Campagnolo Gran Sport?
- Easier to set up for different number of gears (hence 5-4-3)
- Same chain tensioning feature as JUY51

1957 - Jacques Anquetil - Wins Tour de France at first attempt with 543 and Competition derailleurs

LJ23 Front Changer

- A bit more conventional – separate shift lever on LH side of down tube
- Pushrod operation
- Same principle as Campagnolo, Benelux etc

1959 Helyett “Speciale” with 543 Rear and LJ23 Front Changers

1960 – Juy Record 60

- Really just a 543 without the chain tensioning cable – by 1960, cyclists seem to have realised that chain tension has a minimal effect on efficiency.
- End of the pushrod derailleurs - soon superseded by something completely different.

1961 – Parallelograms!

- JUY 61
- Superiority and popularity of Campagnolo gears made this necessary
- Simplex performance was better because of sprung top pivot
- Appearance and durability not up to Campagnolo standards

1962 – Plastic!

- New Simplex Prestige derailleurs with major parts moulded from plastic
- Structurally weak because the design was too much like the metal parts preceding them
- Pristine white parts turned yellow/brown

1962 Prestige Front Derailleur

- New white plastic body almost exact copy of LJ23 aluminium alloy body
- Surprise! They were prone to cracking like this example
- Jacques Anquetil used these new gears in some stages of the 1962 Tour de France (his 3rd victory)

1960s – Plastic with Metal Reinforcement

- The original plastic rear derailleur was a bit flexible and a bit fragile, so a new version was introduced with metal reinforcing plates in the arms and more robust spring housings

Tommy Simpson and Eddy Merckx used Simplex Gears during their careers (riding for Peugeot)

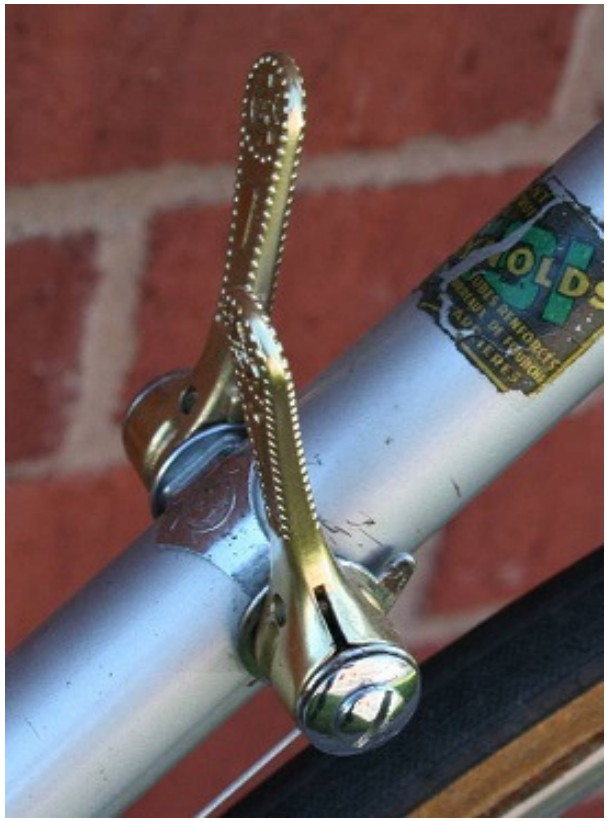
Early 1970s – Super LJ - Aluminium Alloy

- Super LJ rear changer with aluminium alloy parallelogram and roller cage
- Excellent shift performance
- Used by Bernard Thevenet (Peugeot) in his 1975 Tour de France victory (he won again in 1977)

Super LJ Front Changer

- Aluminium alloy construction (steel cage)

1970s Retrofriction Gear Levers



- Simply the best available at the time – even used by riders with other makes of gears
- Very little friction when pulling against the gear spring / more friction when moving with the spring

Late 1974 Peugeot from “Atelier Prestige Peugeot” with Super LJ Gears

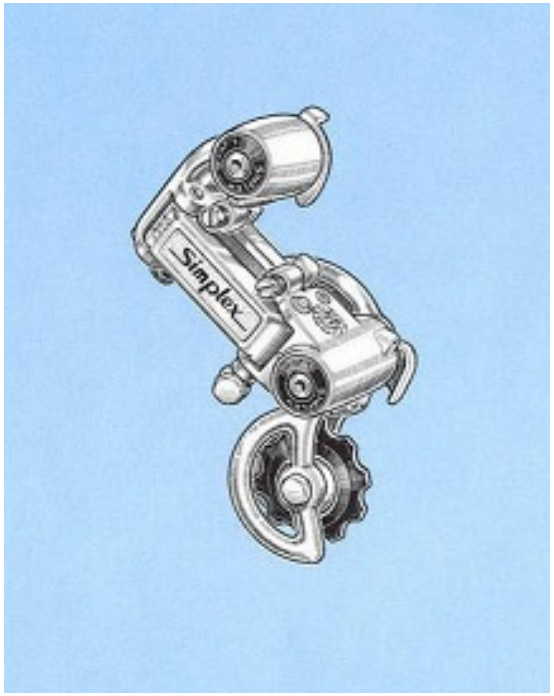
- Very similar to bikes used by Bernard Thevenet in 1975 Tour de France

Bernard Thevenet Wins 1975 Tour de France

LJ1000

- New approach with plastic spring housing bodies and steel arms
- Incorrectly advertised by Simplex as winning the 1975 Tour de France (All pictures of Thevenet show him using the aluminium Super LJ)
- Forerunner of new Super LJ for the 1980s

SLJ6600 – Another Super LJ



- Following trend (set by Suntour and Shimano) of offsetting the top pivot from the line of the parallelogram.
- Used by Greg LeMond in 1983 World Championship winning ride

LJ2000 – Super LJ

- Very similar to LJ1000 but using light alloy in place of steel
- Used by Peugeot team – they even lightened them further by drilling them full of holes.

Robert Millar, Carbon Peugeot with Simplex LJ2000

- Peugeot launched carbon fibre frame in 1983 – developed with Vitus
- Team bikes equipped with lightweight LJ2000 rear derailleurs
- Robert Millar 4th in 1984 Tour de France and winner of King of the Mountains classification

Decline and Fall

- Simplex lost out to competition by not being able to offer complete groupsets – they combined with Stronglight (cranks) Maillard (hubs and freewheels) and Mafac (brakes) to offer “Spidel” groupsets, but they did not seem to make much impact outside France.
- Increasing competition from Suntour and Shimano.
- Peugeot was loyal to Simplex until the mid/late 1980s when customer pressure forced them to sell top level racing bikes with Campagnolo groupsets.
- Gear production ceased in the 1990s