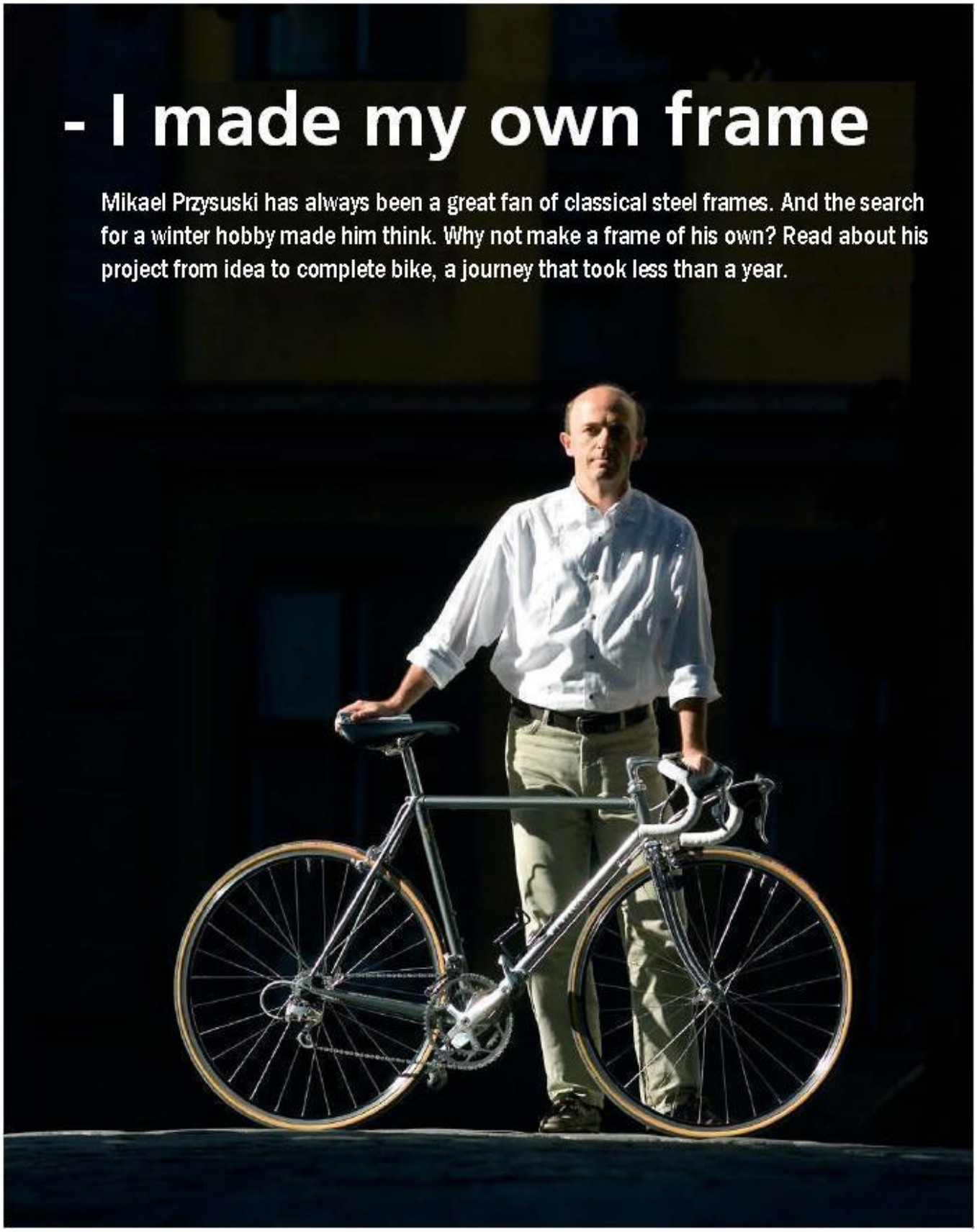
- I made my own frame

Mikael Przysuski has always been a great fan of classical steel frames. And the search for a winter hobby made him think. Why not make a frame of his own? Read about his project from idea to complete bike, a journey that took less than a year.



text: MIKAEL PRZYSUSKI
pictures: MIKAEL PRZYSUSKI, DAVID ELMFELDT

It's Saturday, the 18th of March. The snow is deep outside the window and in the living room my wife has just fallen asleep to the sounds of the Swedish Eurovision song contest. With a good conscience I can put the last hand on the bike that I will bring along to Mallorca the following Wednesday.

Much later than planned all the bolts are tightened, the gears adjusted and the bike is ready to use. Most components have been fitted previously on other bikes, but the frame and fork are brand new. I brought them from England in late January, where I had brazed them myself.

Now I am terribly nervous about how the bike will behave, especially in the mountains, the descents and hairpins.

My thoughts of building my own frame started about a year earlier. To keep the bike enthusiasm up during the winter I had, besides the training, been building and re-building wheels, but I wanted to take another step. It didn't take me long to realise that it would be great fun to be able to build bike frames in winter time.

After some research I decided for a framebuilding course in England, held by Dave Yates. He has the rather unique combination of having a background as elite bike rider, teacher, framebuilder since 1977, and nowadays also long distance rider. One aspect of the course I liked particularly was that the maximum number of pupils is set to two, in order to make the learning efficient. When I asked what previous knowledge is needed for the course and got the quick reply "enthusiasm", I knew that I had found my teacher.

Design and plumbing

Dave divides framebuilding into two distinct parts. It is the design and the manufacturing, or plumbing as he calls it, with a twinkle in his eye.

My first and quite natural choice was to select the type of frame to build and I had already decided for a fairly light and stiff racing frame. I wanted the looks of a classic road frame with some modern details, such as vertical rear dropouts and fastback seat stays.

We selected Reynolds 631 tubes for the main triangle. These have a variable wall thickness of 0.8/0.5/0.8mm and are as light as 853 tubes, but not heat treated, so they are more forgiving for the beginner. Reynolds 725 was selected for the rear triangle.

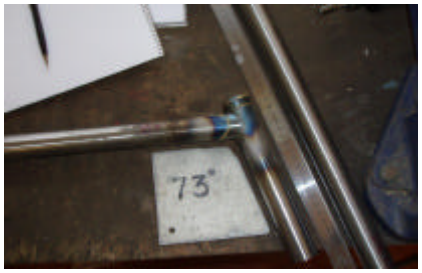
I have always loved chromed forks and rear triangles, but Dave wanted to hear none of this. His view is that the chroming process is so aggressive to the steel, that it affects the strength of the frame and fork. In order to avoid scratched paint on the dropouts and front derailleur hanger I opted for stainless steel components. We selected a 1" ahead steerer, mainly because the supply of quill stems is rather limited.

We used the frame geometry of a bike I really like, the Colnago Master X Light. Do not change a working formula, was Dave's advice. The result was a not very revolutionary geometry using 73 degree head tube angle, 74 degree seat tube and 406 mm chain stays.

Angry geese

At last the big day arrived; I packed my bag and went to England, Lincolnshire and more specifically to Coningsby. I stayed with Dave and Debbie at Ivy House Farm, where they besides two wonderful dogs and a few hen, have two slightly aggressive geese.

Dave pointed out that he taught *his* way of how to build a frame. Every framebuilder has his or her way to make a frame and as long as the end result is as desired, there is no way that is more correct than the other. At home I



Classical angles.


The rear dropouts.


The chain stays are mounted.


Fastback cluster.


Almost ready.

Micke, Dave and Vivace.

had read "The Paterek Manual", which is something of a reference manual on framebuilding. Paterek's and Yates' methods differ on some minor accounts, but what they have in common is that you make a number of sub-assemblies that eventually are put together into a frame.

The course was basically run so that I built my frame in parallel with Dave, who built another one. He showed on his frame how to measure, cut and mitre the tubes and I tried to do the same, as well as I could. In the afternoon of the first day we were ready to braze the first two sub-assemblies and with very mixed emotions I prepared myself for the moment of truth.

Dave guided me with a calm and reliable hand. He showed me where to point the flame, where *not* to point it, when to apply the rod and when a section was done so I could move on. Well, I only had to do as he told me. After sweating my way through these two sub-assemblies, I had done my baptism of fire.

As you get the hang of the brazing, there seem to be two development paths. Either you get a feeling for how much brass you should apply when brazing the joints together, or you become very good at removing excess brass quickly. At this point in time I was very happy for Dave's shot blaster.

Get jiggy with it

We did the remaining sub-assemblies and finally placed these in Dave's jig in order to produce the complete frame. Beside a number of smaller jigs for the sub-assemblies, most framebuilders have a large jig for the frame, or at least main triangle. The tolerances of these jigs are of course very precise. Dave has made his own jig and this one is his third. For each new version he has introduced enhancements and improved the design.
Once the sub-assemblies were mounted in the jig, the frame had to be aligned. We measured, made adjustments, measured again, did another adjustment, and measured once more. And once more. Now it should really be alright? Just another minor adjustment. I don't know how long it took, but we spent quite some time on this. This part must not be wrong.

Eventually I had no more excuses, the frame was aligned and ready to be brazed together. Lug by lug we went over the frame. Dave turned the jig around to give me the best possible angle while I did the brazing and after not too long we could take a step back and have a look at the result.

I had seen many pictures of frames that were supposed to have

Next project

What would I change if I made another frame? I would keep the frame geometry exactly as it is. If I made a touring frame I would probably use a more relaxed 72 degree head tube angle or a slightly longer fork rake.
I would also think about threaded or threadless steerer, 1" or 1 1/8. A 31.8 mm handlebar doesn't look good at a slender bike like this one. But the availability of slender stems for 1" steerer and 26 mm handlebars is actually quite limited. Regardless of which type of steerer I choose, I would get the stem before the choice is made. Stainless rear dropouts are great but it took me ages to get the right shape. There are other nice looking models that don't require the same amount of work. There are head tube lugs with integrated derailleur cable stops. When using these you miss out the nice stainless ones, but you also avoid scratched paint at the lug. Some of these changes might be introduced on the next frame, others not.

The final result, a classic beauty.

come straight from the jig, but none had looked as bad as this one. Dave thought it looked alright and when he returned with it from the shot blaster I could actually agree.

At this stage I mentally felt ready with the project, but in retrospect I realise that I was barely half way through. It was time to re-focus and start thinking about the fork. After having been brazing 0.8 mm tubes, we would now change to the heavy artillery. The wall thickness of the steerer is four times as thick as the butted part of the frame tubes, which gives an idea of the forces it must cope with.

Finally all details, such as cable stops and front derailleur hanger, were brazed on, this time with silver rod. This requires a different technique, so I had to re-learn. After a few faltering first steps, and some intervention by Dave when I was about to over cook it, the frame was done.

The bike turned out very well. It is quicker than the Colnago Master, mainly because the head tube is slightly steeper. Already on the second say at Mallorca I trusted it fully on the descents. At the time of writing I have used it for more than 4000 kilometres and I plan to use it for races such as Vätternrundan [a Swedish annual 300 km race] and La Marmotte.

The name issue

More and more friends got involved all along the project and helped me with opinions and ideas. Robert at Slash x [a Swedish Internet communication company] looked further ahead than I, in case this adventure would get some far-reaching aftermath. He pointed out the importance of name, logo and branding.
The name was discussed over and over. I was looking for an Italian sounding name that actually wasn't Italian. Something international and timeless. Ancient gods, celestial bodies and music terms were lined up and rejected, but eventually we got it right. Vivace, a fast and lively music tempo gave the bike its name. And at least the first bike does the name justice.

Below are some references for those who are more interested in this craft:

Suzy Jackson has a terrific home page where she describes how she built her first frames:
www.littlefishbicycles.com
The Paterek Manual is a good introduction to framebuilding and it can be ordered from the author:
www.timpaterek.com
There are several mail lists at bikelist.org, e.g. for framebuilding:
www.bikelist.org
Many framebuilders at bikelist.org also write at Frame Forum:
www.frameforum.net
Ceeway are based in the UK and sell tubes, frame components and tools for framebuilding:
www.framebuilding.com
Dave Yates manufactures custom built frames and gives courses in framebuilding using lugs, fillet braze and TIG welding:
www.daveyatescycles.co.uk
Still curious? Mail to Micke at *mikael@przysuski.se*!