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## THE ANATOLY COHN STORY

Anatoly Cohn meets Marcus King and opens the treasure chest of tales that is APCO Aviation

**D**eported from the USSR for building hang gliders, Anatoly Cohn set up shop in Israel, and never looked back. 35 years later the 62-year-old entrepreneur stands as one of the most respected names in the industry: his gliders have brought him 13 world records and numerous national and international titles.

Still very much in the driving seat of the company, Anatoly oversees design and manages the day-to-day workings of the company and its production plant in Israel. With over three decades of experience, Anatoly's seen, or been the instigator of, much of the innovation and change that's moulded paragliding. Passionate about both the sport and industry, he holds strong opinions on the future of paraglider design and talks openly about his history, his designs and his take on the future.

Anatoly at APCO HQ. Photo: Marcus King



Anatoly with test pilot Adam Weschler enjoying a typical Israeli meal at the Blue Bus. Photo: Marcus King

## ANATOLY ON ANATOLY

"I was born in the USSR to Czech/Hungarian parents and was hooked on flying from a very young age. When I was 10 or 11 I signed up for the Russian-style scouts club. You could choose your activity, so I chose the flying section. At the same time I started making models of sailplanes.

"I was absolutely hooked on the idea of flying and everything connected with it. One day I saw some people from a company that made model aircraft flying one of their planes. I was fascinated and wanted to get as close to it as possible. After they had asked me to move out of the way for the third time without any response, they explained with a boot on my backside that I should move. I was back the next day, though, and eventually the boss accepted me and taught me about the models.

"By the time I finished school I was obsessed with the idea of becoming a pilot. I applied to join the aviation academy, but didn't get a place, so instead I went to university and studied oil exploration engineering.

"A group of friends and I started trying to build a motorised hang glider trike. But this was the USSR in the early 70s, and the KGB somehow got it in to its head that we were designing our flying machine to flee the country! They made a huge thing of it, stripped me of my diploma and deported everyone connected to the project including me and my parents; it was degrading! We ended up in Israel.

"Six months later another friend was deported. When he arrived he talked me into leaving my job and going into a crazy enterprise building hang gliders. When it came to business I was very innocent. I was only 22 and had been brought up in a country that didn't have free market capitalism. I didn't know what I was doing and I quickly got lost.

"I took out loans, but had no job. I had to swim or sink, and I wasn't a good swimmer. Two years

later we owed lots of money and had no money to continue, although we had a limping prototype that flew, but not that well. As often happens in these situations, we fought and split up.

"I found a new partner in a kibbutz and with their financial help I built a relatively successful hang gliding company. It wasn't a big business. We sold around 250 wings a year between 1976 and 1982. It was good training for me, and I learnt a lot using their money. In '82 I married, and started APCO."

## ANATOLY ON APCO

"My wife, Ilana, was a lawyer and understood more about business than me. They say that behind every successful man there is a woman; well, we were a good team. Ilana helped me create APCO: she sorted the finance, logistics and running the office. The '80s was the golden era of ultra-lights in the States and I was convinced personal aviation would be the next thing. We started manufacturing the Vector ultra-light based on a rigid wing hang glider.

"Slowly some of my old hang glider customers came back. From 1983 we started making hang gliders and phasing out the ultra-lights. Soon we were selling over 400 gliders a year.

"In '85 I met Laurent de Kalbermatten, the manager of Ailes de K. He'd developed paragliders from free-fall chutes, and at the time he was selling 6,000 wings a year and needed sub-contractors. Up to then I'd thought hang gliders were the future and paragliders were just something for kids to throw themselves off mountains with. But, over the next couple of years I realised they were the future.

"In 1987 we decided to produce our own paraglider with our German hang gliding importer. He was saying we'd sell thousands, but I thought he was talking shit. It took me a long time to adjust to the real size of the market.

"I was spoilt at the time. I had a team of talented, educated people working with me and a Western

production facility. The paragliding business boomed and, with a sad heart, I phased out hang glider production completely. Hang gliding had been my business for fifteen years and was the sport I loved.

"We've been in business for 35 years now, without changing management and without any massive ups and downs. Other names have come and gone, but fortune has smiled on us and we're still here. I'm proud of that. In 50 years' time I hope the name APCO is still connected with personal aviation. I'm sure we'll have moved on from paragliders, maybe next it will be personal balloons, but as long as people want to fly for leisure APCO will be involved."

## ANATOLY ON DESIGN

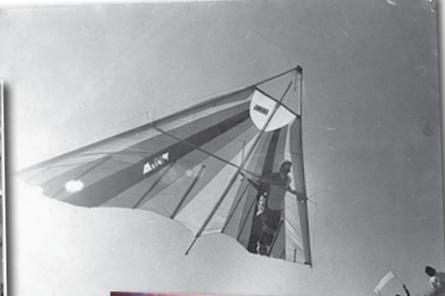
"We've always been different. Our philosophies and many of our solutions are unique. Lots of European companies use the same logic and design principles, but we try to follow our own path.

"I think it's wrong that the current market dictates we [manufacturers] compete on performance. The glide and speed range of our gliders always has to be competitive with other wings in their class. To get a better glide you either improve lift or reduce drag. Most designers do this by finding better profiles, using higher aspect ratios, using thinner lines and reducing the number of lines. However, in my opinion, these all directly affect safety and handling. So we search for different ways.

"For many years we've been using a unique internal support system to increase lift. A paraglider's profile has been calculated carefully. We know exactly what lift will be produced at the internal rib where the profile is exactly as designed. But between the ribs you have a 300-400 mm gap where you don't really know what the profile is because of the billow of the cloth. It's the first 30 percent of the profile that is important in lift production so I started to look at the construction



Photos: APCO Aviation



and how we could make this part of the profile more even across the wing. We used diagonals to the upper surface between the ribs and divided the upper surface of each cell into three segments, which made the top surface very flat and gave us a very even profile across the wing - this was a key element in improving our glide. The side-effect was the weight. People blame the Gelvenor material we use, but it's mainly the extra ribs; however, they give a huge improvement in performance.

"You have the same problem with billow between the ribs at the trailing edge; it messes up the airflow and causes extra drag. So we use a similar system of diagonal ribs there too.

"We also use a different line attachment system to reduce drag. Most companies use a tab of material sewn into a loop on the bottom surface and attach the line to that. On a paraglider there are about 200 tabs, all causing further drag. So instead we sew the top line into the glider, so a clean line comes out of the bottom surface and there is no knot. This reduces drag by at least 50%, multiply this by 200 and it makes a big difference.

"Of course some people found it hard to accept, but we use Dyneema line, which is much stronger than the line it connects to, so it's actually less likely to fail. We've had gliders 10 or 15 years-old come back to our factory and the material's worn out, but the top lines are still OK.

"It's also better to create a design so it fails in a certain way. I designed our gliders so the top line would pull out without damaging the rib, but when people saw a top line that had pulled out they'd say the product was faulty, even though the glider had been thoroughly load tested during certification. Because of this I've now strengthened the attachment point to the extent that it's far more likely to rip the rib when it fails, rather than just pulling through. It's a classic case of the market dictating how we design, even though I don't personally think it's the best way.

"We've reduced the line drag significantly, without reducing line diameter. Some people say our lines are too thick, but I say that if my glider with thick lines has the same performance as a glider with thin lines, then clearly my design must be better. For me thinner lines mean less safety, just for the sake of performance. The same applies to these lightweight materials. Always reducing size isn't a healthy thing. Everyone seems to be saying 'let's make it lighter', 'let's make it thinner', forgetting it also makes it weaker. I think this is the wrong way to go and it's not a path I want to follow. My aim is to design products that are balanced in performance, safety and longevity."

## ANATOLY ON THE ROAD AHEAD

"The industry has to take responsibility for the future of the sport. I've watched many sports born, rise quickly then die out. You see the same pattern again and again. When hang gliding was invented it was sold as a new method of personal aviation that was safe, easy to use, accessible and cheap. The most important aspect in making the sport popular was safety, then ease of use and last on the list was price. But people soon found out that you could easily break a leg, your head, or even worse, and the sport started to dwindle.

"After fifteen years of hang gliding we'd created the 'super-glider', but you almost had to be a superman to fly it! It took an hour to rig and it was very hard to learn to fly on. So hang gliding became perceived as very dangerous and difficult to learn. When paragliding came along offering what hang gliding had originally advertised, people flocked to it.

"Industry always makes the same mistakes. In the race to out-sell each other it becomes a competition to get the highest performance, at any cost, which invariably kills the sport. I've seen it happen with both ultra-lights and wind surfing. Wind surfing started with a large board and sail that you could easily stand on to get the hang of the sport, but, in the race for performance, manufacturers developed higher performing boards that required skills that most people simply didn't have. Now paragliding has done the same thing.

"In my eyes, for the future of the sport, we need to look at safety and certification. Only in paragliding do we have different grades of safety for different performance levels. Gliders should be either airworthy or not, in my opinion; having different grades forces manufacturers to maximise the performance in each category.

"The goal of the industry, certification bodies and national organisations should be to make the sport more popular by making it safe, easy to use and creating a positive soft image for the sport. We need to stop trying to sell the sport to each other and start selling it to people outside of our little club, to the non-flying public.

"We, the industry, need to be pushing down the road of safe, user-friendly paragliders, instead of always chasing performance, because 95% of our customers just want the feeling of being in the air. For these pilots an evening soaring can be as satisfying as flying a world record distance. They want a nice easy product that is as safe as possible; they don't want to be confused with different safety levels." **IG**

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