TIM GILBERT

Uniform Kilo

CHAPTER 1

In the begining

Martin and I first met, aged 11, at school.

As boys we were always keen on flying, to the extent that as boys we'd both made lots of Airfix models of Spitfires, which we used to set fire to and launch out of Martin's attic bedroom window, but it took us a while to get up in the air ourselves. I had done a lot of sailing, both in dinghies and later in some quite serious yachts, even though I suffered quite badly from sea sickness, and a lot of motorcycling, which helps when you become a dispatch rider as I did soon after leaving school. So it seemed natural that flying was the next thing to try.

We first got off the ground in gliders. Gliding is a fantastic way to get up in the air, but it did seem to involve a lot of work for what you got out of it. You pushed other people's gliders around the field all day, in exchange for just four minutes in the air yourself, and then you got to clear up afterwards. And take-off is scary.

Needing to be more frightened still, Martin bought a hang-glider. I stood at the top of the hill with my arms folded. It became one of Martin's passions, and he became really expert at it, but it wasn't my thing. Too much waiting around on a hill-top waiting for the perfect conditions for my liking.

Next, we moved from gliders to powered flight. Our small motorbike despatch courier business in London had begun to do quite well, and we didn't have to pay ourselves much out of it, as we were both still single. So with our first real profits, achieved in our fifth year, we decided that we'd had enough of being sensible and reinvesting everything back into the business. We listened to our instincts, ignored all advice, bought a small four-seater aeroplane for £25,000, and learned to fly it at Biggin Hill.

For the average cautious beginner, a flying license for small private aeroplanes in the UK is useable on about ten weekend days a year. Britain is a rather damp little island, just over half way from the equator to the North Pole. That's just at the point where warm air from the one meets cold air from the other, and cloudy and rainy weather is the inevitable consequence. This, together with the need to find your way to a place with a few hundred yards of concrete strip every time you want to land, means that for those of an adventurous spirit the restrictions of the sport soon begin to weigh more heavily than the freedoms. So the newly qualified but adventurous pilot either gives up, or looks for a new challenge.

And so I tried helicopters. At the time, at the end of the eighties, helicopters still had millionaire status in the public mind. That and air-sea rescue, using the kind of machines where you needed a ladder to climb up to the cockpit. Suddenly, from California, there was a small personal two-seater available to train on, the Robinson R22. It was the size of a fairground dodgem, and it cost no more than a nice premium saloon car to buy. You could buy a full training course for the price of a family skiing holiday. I thought I could just about afford it, and went for a trial lesson.

Every now and then in life you find something that you really feel at home with. I had always felt that other people were ef-

fortlessly better than me at most things; exams, drama, music, and anything involving the use of a ball. Yet here was something I could do from the first moment I tried it. I just took hold of the controls, relaxed, and was hovering it. It's a really weird feeling, being in charge of this thing clattering away, with no visible support, a few feet above the grass of the airfield. Your brain keeps looking for a rational explanation, as it does when you're watching a clever card trick. But there appears to be nothing rational about it; it's just very noisy and complicated.

I started building all sorts of plans in my head. All I had to do now was learn to fly the thing.

CHAPTER 2

Learning to fly

I arrived at Oxford Airport on a sunny Tuesday evening, in early summer 1989, with 120 hours fixed wing flying in my log-book. Small though that amount of flying experience was, it had taught me some useful stuff, such has how to use an air-port circuit, how to use the radio, how to go places without get-ting lost too often, how to keep a good lookout, what the law said I could and couldn't do, and so on. These are useful things to to have under your belt, as they allow you to focus on the really tricky matter in hand; learning to fly the helicopter.

These were still relatively early days in the history of teaching civilians to fly helicopters, and things followed what, looking back, was quite a military format. This meant, specifically, that the pace of the training was brisk. I hoped to cram it all in to what I thought was a sensible amount of time. In my head, this was two weeks. After all, if you only needed 35 hours, how hard could it be? I reckoned I could average 3.5 hours a day, as of course I needed to go back home to the family at the weekends. I'd need good weather, and a metaphorical follow-ing wind in all respects.

At the time, Oxford Airport was an imposing establishment, visually reminiscent of its wartime training role (for glider pi-lots) as RAF Kidlington, now making a living from training large numbers of foreign airline pilots. I dumped my bags in my student study/bedroom, where I was to sleep and work in between lessons, and followed the sound of nearby voices to a dining room, carrying my flying revision notes. I sat down, sur-rounded by teenagers from a Middle Eastern country playing table tennis in Arabic, and started reading my notes about Lost Procedure. One of my biggest fears was getting lost while out on my own. I had chosen Oxford as a place to convert to helicopters for lots of good reasons, but one downside was that I was pretty unfamiliar with the surrounding area, and with the nearby airspace. I made some notes about local radio frequencies, danger areas, controlled airspace, local land-marks, and so on. Outside on the grass were parked in neat rows dozens of Piper training aeroplanes for these boys to fly. I wondered what their secret was for navigating in such, to them, totally unfamiliar surroundings.

The next day I reported to a small office at the far end of the apron, known by the fixed wing boys, I learned, as the bee-hive. This was the office of CSE Helicopter School. Outside were two R22s and a Schweizer 300C. I walked round them, trying to familiarise myself a little. In the office I introduced myself to the Chief Flying Instructor Capt Andy Gutteridge, who, I later learned, had joined the Royal Air Force in 1962, learned to fly on the Jet Provost, then moved on to helicop-ters. Andy had subsequently flown all over the world instruct-ing and examining for the RAF. He was now a civilian instruc-tor. He wore highly polished Oxford brogues, with leather soles, naturally, which I still find are excellent shoes in which to fly a helicopter. He checked my paperwork, discussed my aspirations, and didn't try to alter my plans, though I can imagine he thought that he thought I was being a little optimis-tic.

He took me outside into the sunshine, and introduced me to the available machines. I had settled on the R22 as my preferred training choice. The 300 seemed more cumbersome and old fashioned to me at the time, though of course I didn't know enough about helicopters to make that judgement. By contrast, the R22 looked modern and well designed, and drew me in instinctively. There was a choice of two R22s, G-BNKX and G-FMUS. They were early model R22s, with no governor, and tail booms that were pretty much parallel to the main rotor. Andy gave me an expert tour of all aspects of the airframe, the engine, and the transmission and rotor systems. I was excited, and keen to get cracking, but it all seemed very complicated. I made notes of the component names to memorise later, particularly of the main rotor head, as Andy said I might be asked about it in my final handling test. Most of what Andy said went right over my head. The only thing that seemed familiar to me as an aeroplane pilot was the engine, which was very similar to the ones in the planes I had been flying, though even that appeared to be fitted the wrong way round, with the front pointing to the back. This meant the oil filler was on the wrong side, and the magnetos, Left and Right, were mislabelled.

We climbed in together, to get familiar with the controls and instruments. My main impression was how much perspex there was ahead of me. In an aeroplane, you look at the world you're flying towards through a slot of a window, over the top of the bonnet, and through the spinning prop. The result is, looking forwards, you don't get much on an impression of what's below you, and how high you are. Here, you can look up from your toes and immediately look down at the terrain immediately ahead of you. A little bit like standing on top of a flagpole.

Andy went through what was what in the neat little free-standing instrument panel. A lot of it was familiar, but the warning lights, and the Engine/Rotor RPM gauge and and something called a MAP gauge were new to me. We discussed the controls. There was one at the end of every limb, which clearly would present some challenges when the need arose to reach for something else like a chart, a pen, or a radio switch. In front of me was the cyclic stick, which I now prefer to call the stick. I had to disregard its most obvious arc of movement (up and down) which does nothing other than to present it in a convenient position for each pilot, and instead train myself to use the bit in my hand as a kind of pantograph, where my inputs were reproduced 1:1 on a single central stick heading down to the floor between the two pilots. So in the normal run of things, neither pilot actually touched the only actual joystick. Clever, simple and lighter than two proper sticks, one each, but another unfamiliar thing to become happy with.

At my feet were a left and right pedal. Simple enough, and light to the touch. These adjusted the thrust of the tail rotor, and in practical terms determined the direction in which the helicopter pointed. In my left hand was a lever, called the collective, hinged at the back end like a car hand brake, with a twist-grip throttle falling conveniently to hand at the front

end. This adjusted the thrust of the main rotor. I was a bit confused by this. Andy invited me to extend all the controls simultaneously to their limits, while watching the resulting change in the angle of attack of the main rotors above us. We then rehearsed the start up procedure.

We got out, used the office phone to book out with the tower, came back to the helicopter, strapped in, started up, and set off. From a place in my head where I thought I might have some talent at this, I was suddenly humbled into feeling completely behind the machine and the situation. Everything piled up to confuse me. The unfamiliar airfield and its procedures and radio frequencies, with planes flying about in all directions, and even the fact that I was sitting on what was for me the wrong side of the cockpit. Then there was the machine itself with that weird stick. All the unfamiliar checks were done before moving. Taxying was actually flying. Hovering appeared to be a kind of stationary taxying. And the take-off roll involved tilting the machine forward alarmingly such that the view through the windscreen comprised only the neatly mown grass of the airfield. Incomprehensibly, from this take off roll, as we accelerated, there was a sudden rush away from the ground, and the windscreen suddenly filled with the clouds and sunny blue sky I could associate with a climb. Even "following through" with my hands lightly on the controls to learn from Andy's inputs, I was aware that I had actually felt him do little or nothing. How was I supposed to learn to fly this thing, when all the control movements appeared to exist only in the instructor's imagination? It made me smile, though.

Andy flew us to a place well clear of the airfield, over nearby piece of open ground known as Otmoor, so I could have a go. He flew with enviable ease and elegance, with great economy on the controls, authority on the radio, and with plenty of spare brain capacity with which to explain everything that was going on, interrupted only by relevant radio calls from a constant chatter which he seemed to be able effortlessly to disregard except when they included our callsign.

Once at a safe distance from the airfield, and at 2000ft above rural Oxfordshire, he invited me to try the stick in my right hand, though covering it in case I messed things up. He reminded me that I should never let go without agreeing this with him first, and that all inputs should be gentle and tiny. More like squeezing movements than energetic aeroplane-style lunges. The greater the extent of any control input in a helicopter, the faster would be the rate of change in the machine itself. So whether I pulled the stick back a tiny amount or a huge amount, the effect would ultimately be the same, i.e. the nose would rise, we'd end up in a steep climb, and we'd end up looking at the underside of the clouds through the front window, but the difference would be how quickly and violently this happened. After a briefing and a demonstration from Andy, I tried some descents and climbs using the stick. This was all very familiar in concept to me, other than the ridiculously tiny inputs required. Andy said I should be particularly careful when pushing forward on the stick, lest we go weightless. So, head towards a distinctive point on the ground in the distance, and very gently pull the stick back to bring the

nose up. The helicopter began to climb, the windscreen filled with sky, the speed decreased as I was asking it to do more work (against gravity's effect) but adding no extra power. Just like a car encountering a hill slows down unless more throttle is applied. Gently, very gently, easing the stick forward again, the nose came down, the helicopter picked up speed as, the airframe shook a little, the noise of the blades changed subtly, the horizon rose in the window sight picture ahead of me, and I saw less sky and more of the ground. Recovery was another gentle pull back on the stick until the horizon returned to what I had to learn was its normal place in the windscreen.

This taught me an important early lesson. Everything in a helicopter is constantly being controlled by the pilot. The machine has no "settings" for straight and level, what is up what is down, what is acceleration or deceleration, what is a left or right turn. You must find the control position that equates on that flight to straight and level by trial and error. In other words, unlike in an aeroplane, there's no inherent stability to trim out to, to give the poor pilot a break, or a swig of coffee, or a look at the map. Worse still, if you let go, you're instantly no longer safely straight and level, you're upside down in a few seconds. Irrecoverably so.

I then tried some left and right turns, just squeezing the stick left or right as appropriate, and not letting the nose rise or fall by monitoring the sight picture out of the window, and adding some tiny nose up or down input (stick back or forward) as required to keep the tilting horizon at the same height in the windscreen. Recovery was a squeeze back the other way, until the view outside returned to normal.

I didn't seem to be doing much with the pedals, but every now and then I thought I could feel Andy making an adjustment from his side.

I then had a go with the lever in my left hand. Keeping the stick still, and with Andy on the pedals, I tried lifting the lever an inch or so. The nose lifted a little, and the helicopter began to climb. That baffled me slightly, as I hadn't really got my head round what the lever did for a living. I'm one of those people who needs to understand the physics or aerodynamics of something before I can use it properly, and I wasn't there yet with this control. Andy then pulled the carb heat out fully, and invited me to lower the lever a little. This really spooked me. So far, my only understanding of this lever was that it controlled the effectiveness of the main rotors. So to lower it seemed, to my uninformed brain, to be like asking me to unclip the wings of an aeroplane. Didn't we depend on that lever being far enough away from the floor of the helicopter to stop us falling from the sky? I had to trust my instructor. I gritted my teeth, lowered it a little, the nose dipped, Andy made a discernible input of some kind on the pedals, as the helicopter began gently to descend. I could feel it, see it, sense it, hear it, and even get confirmation of it from the Vertical Speed Indicator; we were descending, but we were not falling from the sky with no wings. Recovery still came as something of a relief, by pulling the lever back to some kind of normal position, at

which point the sanity of straight and level flight was resumed. As a natural extension of this, Andy demonstrated a normal autorotation, where the lever went so far down (but not quite all the way down, it seemed) that I really was cured of my silly notions about unclipping the wings. Especially when I gave it a go. The helicopter descended quickly, but seemed to be really controllable, and easy to steer. Recovery was lever up, stick forward, and left pedal to keep the nose straight, and carb heat in.

Time to go back, announced Andy, after what seemed like 10 sweaty minutes of all this, but actually after nearly an hour. With two of us on board we were approaching our fuel safety margin.

Back in the office, a debrief in which Andy said he was satisfied with my handling of the helicopter in simple turns, descents and climbs, which he attributed to my previous relevant experience in the air. Then a quick lunch, and out for the same again.

By the end of the day, I was exhausted, physically and mentally, felt I had learned relatively little, and worst of all I was only half way through my daily target of 3.5 hours. I was at just under two hours flown. I was going to have to up the work rate, though I couldn't at that moment, over a welcome portion of cottage pie in the student dining room that night, see how.

I sat and reviewed what I'd learned. It was all extremely difficult, and not in the least self-explanatory. Well that wasn't too surprising. You seemed to have to learn to fly three kinds of aircraft. A hovercraft, an aeroplane-like craft with a frisbee-style wing, and a glider (for this autorotation thing). And you have to be able to handle the transition between them all. I tried to learn the start-up checklist, and went to bed before dark.

The next day, Andy introduced me to the instructor who was going to take me through the rest of the course. This was Capt Michael JH Smith (Mike), a former Royal Navy helicopter pilot. I immediately warmed to his dry humour, his gentle English manners, and his slightly eccentric bow-tie and deck-shoes dress style. Mike asked me if I had any residual questions from the day before. Right then I didn't even know what I didn't know, so questions about it were beyond me. So he suggested we try a bit of hovering, and if that went well maybe we could venture into the circuit. This was my opportunity to shine, I thought, remembering what I'd managed at my trial lesson some months ago.

Of course it was harder than that. Whatever spell had been woven by my trial lesson instructor to make me think I could hover had by now evaporated. Having taken the doors off to keep us cool, Mike took us effortlessly across the main runway to the far side of the airfield, and settled us into a rock steady hover, into what was generally the prevailing wind, and with our backs to the sun so we didn't fry. It was a hot sunny day, delivering some flukey gusts of light wind. I had a go. With the

stick. Humiliatingly, I could generally manage only about 10 seconds of dancing about in more or less the same place before losing it completely into a pendulous “dishing” motion left and right or back and forward, each swing bigger than the last. Each time I lost it, Mike took the stick, and patiently placed the helicopter back into a perfectly stable hover for me.

I soon came to realise that whereas I made an input or two and then waited to see what happened, Mike made an input or two, safe in the knowledge that the machine would do precisely what he wanted it to do. That was the gap I had to bridge. I watched him hovering, and followed through on the controls. It seemed to be better to do nothing, than to do too much of anything, even of the right thing. So I tried to do less. It improved my hovering immediately. I realised that doing too much of any input on the stick simply resulted in a problem of excessive movement of the helicopter that I then had to fix. It was hard enough to hover, without superimposing the unnecessary and complicated task of fixing the results of my own mistakes.

Mike let me experiment. I sweated in the June sunshine.

Once I’d learned the value of doing very little with the stick, I started focusing on the movement of the helicopter relative to the ground in my peripheral vision. I set myself a limited target. I decided that I didn’t mind if I moved around a bit, which I decided to call “travelling”, as long as I was reasonably stable, with no “dishing”. This stability came from reducing the size of the control inputs. If I found I was moving (uncommanded by me) to the left, I could accept that, and start to make a series of tiny dabs of the stick to the right. Each dab was not enough in itself to stop the travelling, but as a series of dabs combined they might over 10 seconds or so amount to enough of an input to slow or even arrest the leftward travel. I would then wait for the next uncommanded drift, and deal with that one as appropriate. So we waltzed slowly around our training area, no longer losing it, and gradually even achieving less distance travelled over the ground. Next I learned to recognise more quickly the incipient uncommanded movements of the helicopter, so I could start my little dabs earlier. This meant I could use fewer dabs.

After 45 minutes, I was making real progress, but I had two problems. I was still doing all this in my conscious brain, making a series of decisions about movement and dabs. It was like focussing in a car, consciously, on the steering, to the exclusion of all else. Too much of my brain, and not the fastest part, was allocated to the task. It needed to be an entirely unconscious activity, like changing gear while negotiating a complicated road junction while selecting the right exit. And that led to my second problem. There were two other sets of controls in the helicopter that I hadn’t even even started to learn about. We headed back to the beehive for a break.

My next lesson that day, to give me break from dabbing and travelling, was hovering only with the lever and the pedals. The lever, in the hover, controlled how high off the ground we

hovered. The pedals primarily determined which direction we faced, and, of course, compensated for the changes in the direction we faced by the changes in the lever setting. Why did how high the lever was alter the direction we faced, I asked? Because the higher the lever, the more work the main rotor blades were doing, and with more drag, and therefore the more power was required from the engine, which in turn affected the delicate balance between the main rotors being turned by the engine, and the tendency of the fuselage to turn the opposite way. It's the tail rotor's job to get that balance right. So without adjustment at the pedals, if you pull the lever up, the helicopter turns right. Lower the lever, the helicopter turns left. To help my conscious brain, I called that "down right", i.e. lever down needs right pedal. Damn, it was hard.

Mike showed me how to practise with the lever and pedals by choosing a tree on the airfield perimeter and comparing its position with a distant church. They moved up and down relative to one another as the helicopter rose and fell. Also I could see the grass getting bigger and smaller out of the corner of my eye. I put all this received information together, and moved the lever and pedals as a pair. This bit seemed to come quite naturally, and towards the end of the 45 minute lesson, I was travelling, dabbing, levering and pedalling all at once, on all three controls. It didn't leave much brain space for talking or anything else, but it was a hover. Now I had the basics, I could practise at the beginning and end of every lesson, to get it more unconscious.

To cool down, we tried one circuit, still with the doors off. Mike showed me a complete circuit, talking me through it, and focussing on the two aspects we hadn't covered yet; going from a hover to a climb, and from a descent to a hover ("transitions"). I also still couldn't lift into the hover, or land from a hover, but I was otherwise close to having the skills to make it round a circuit. From my lessons with Andy I could climb and turn and level off and fly straight and level and descend. The circuit gave me an insight of how far we had come, and how far we had still to go. We took a break.

There were two more lessons that day, focussing on take-offs, landings, transitions.

My first go at a take-off was clumsy. As I pulled the lever up, too far and too quickly, the nose came up and round to the right and the heels of the skids dragged their way inelegantly sideways from the ground, and I had a hell of a job to recover to a hover. I watched Mike demonstrate again. I realised that the take-off was another thing that needed no rushing, and tiny inputs. With the machine sat on the grass, I had to set the stick to my best guess as to what was neutral, add just enough left pedal to keep the nose straight, to suit the amount of lever it was going to take to get us off the ground. This was another one of these "pilot-decides" things in a helicopter. There's no "take-off setting" for the controls, you just had to go for whatever approximation to neutral on the stick and the pedals you thought might work on that day, with today's weight in the helicopter, with today's wind, and so on. As the lever rose lit-

tle by little, first the helicopter would shiver slightly as the weight transferred critically from the skids to the rotor head, making us not yet airborne but “light on the skids”. With less weight on the skids, there was less ground friction, so any pedal error (too much or too little) would just begin to make itself apparent with a suspicion of nose movement left or right. That was the opportunity to correct the pedal error, before continuing to lift the lever, still little by little. As the helicopter came clear of the ground there was a strong temptation to yank an armful of lever to get clear into a hover. But actually I found that doing this just created another self-inflicted problem that I then had to fix, as the yank would translate itself into an unsteady hover that then just needed steadying. Better to get light on the skids, pull a suspicion more lever, and another, and yet another, until the skids were no longer taking the weight of the helicopter, but were still in the grass. This, I decided, was the beginning of the hover, which then just needed a gentle series of adjustments for height. Another gentle squeeze upwards on the lever, with left pedal to match, and another and another until you were at the right height. I practised, and it came together.

The landing was the same in reverse. From a normal (i.e. stable at 3ft above the grass) hover, rather than seeing the job as a landing manoeuvre, watching Mike’s expert demonstrations, I realised I just had to achieve a series of lower and lower hovers, with no travelling at all, until I was in among the grass with the skids, and continue the process until I was no longer flying.

Mike now introduced me to translational lift. As I understood it, this was the moment when the helicopter morphed from being a hovercraft (beating the air downwards towards the ground to overcome the weight) into being a frisbee, where the lift came from the passage of the rotor disk through the air. The penny dropped that this was what was causing the sudden rush of lift as we accelerated away from the hover. As Mike demonstrated, I could even feel the moment when this surge of “free lift” allowed him to lower the lever a little from the high setting that was needed to hover, while continuing to accelerate. So it went like this. From the grass into the hover. From the hover, add a little stick forward, which produced a little acceleration. Raise the lever, as otherwise the stick-forward action meant you hit the ground. Push the stick a little further forward to gain more speed, and to overcome the tendency of the main rotor to flap back away from the direction of travel (a little like the peak of a cyclists baseball cap catching the wind and causing it to fly off). Then feel for the translational lift cutting in like a turbo delivering more power, at which point you could lower the lever a touch, and ease the stick a little more forward to turn this extra lift into more acceleration until you reached 45-50 knots. At this moment, pull full power with the lever (determined not by a setting on the lever, but by whatever the MAP gauge said was your maximum for that day’s conditions) and the helicopter would lift its nose and settle as if by magic into the desired 60 knot climb away into the circuit.

This was more like it. By the end of the day I had done four les-

sons totalling 3 hours. I could do almost all of the individual components of a circuit, and could pretty much hover. I went to bed feeling like I was back on track. I was completely wrecked physically and mentally, but it was beginning to be worth it.

Day three started with an introduction to transitioning from a descent into a hover. I watched the demonstration, and tried it. Of course, I fluffed it. I was far to high and fast, as I was thinking like an aeroplane pilot coming in at a shallow angle, and leaving 60 knots on the airspeed to stop myself stalling. This had to be a steeper approach, with the last knot of forward speed bleeding off at the moment when I was at my landing spot. I also massively underestimated the amount of lever required to hover, once translational lift had evaporated at around 10-15 knots airspeed. I pulled more and more lever to avoid hitting the ground, asking the engine under my breath to give me more power, and while distracted by that I failed to put in enough left pedal to allow for the torque change, so the nose slewed to the right. If that wasn't bad enough I jumped out of my skin when the low-rotor horn went off as I pulled the lever. Shockingly bad, and not good for my confidence. We practised again and again, and Mike showed me how to anticipate the need for more power from the engine, and to twist the throttle on just enough, to stop the rotors slowing as the drag increased with the sharp increase in blade angle of attack from raising the lever. Best of all, he taught me the importance of keeping the R22 in translational lift (by keeping the speed on) for as long as possible, to make best use of all that extra lift.

Now I was on top of the basics, we started doing circuit after circuit to get me performing reliably. After a morning of four circuits lessons, with a total of 8 hours 10 minutes in my logbook, Mike sent me solo.

This was one of those flying moments when you realise that it's all up to you. There was no-one else there to advise me, or to save my skin, or to take over and land it if I decided that I didn't fancy it. In an aeroplane this first solo realisation arises usually on the downwind leg, as you get near the hardest part; landing it. In a helicopter, the feeling starts the moment you leave the ground, not least because, no matter how much your instructor warns you, nothing can prepare you for the difference in performance and balance and general feel of an R22 with only one person on board, compared to two. As I lifted off, I found I had to put the stick forward and left so far that I thought it would come out of its mountings. This was because there was no instructor to keep the left skid low and the nose down with his weight. Recovering from the shock of that, I found that I was in a ten foot hover, because the kind of lever raising inputs I was used to for two were enough to send me into orbit with one. With a grunt of alarm, and conscious effort, I managed to get it all under control, but by now my palms were sweaty, and I had a head full of doubts. What else in this circuit was going to bite my ass like the take-off I'd just done? Out of the corner of my eye I could see Mike standing on the grass, and I decided that getting a grip was marginally

better than putting it back down again and refusing to go.

The climb-out was also a shock. The thing seemed to head skyward like a rocket, with only me on board, so I had to level off at circuit height a long way before my first turn. I was also in an unaccustomed place over the ground, as everything was happening sooner than normal. In the downwind leg I looked left to see the airport and the runway I was flying parallel to, and jumped slightly as I suddenly noticed that the seat next to me was empty. To steady my nerves, I did what I could remember of my downwind checks, and looked around in the cockpit to make sure everything looked normal. I turned base, pulled full carb heat to stop the inlet manifold icing up, and started to descend. Again, the difference in loading became apparent, and I was forced to choose between landing several hundred yards past my target, or lowering the lever further than I was used to. I chose a half way compromise, rather than trying to force it to the ground early. Despite all this, it worked out. I got round the circuit and back down onto the grass. The controller congratulated me. The transition to the hover had not been my best, again because of the unaccustomed weight and balance set-up, but the landing was reasonably controlled, now I knew what the stick could do without coming out at the roots.

Climbing back in, Mike congratulated me, with an understated matter-of-factness that came straight from the helicopter flight deck of a Royal Navy ship. We did some more circuits together, during which Mike again talked me through some emergencies and what to do about them. He pointed out some useful local landmarks, such as the huge concrete grain store on the other side of the main road, which he said was a surefire way of getting back to the airfield if you were a bit lost. For my seventh flight that day, he sent me off solo to find Otmoor and then return to Oxford. As I flew around alone I could hardly believe it. I landed back, tired but happy. I had flown 3 hours 45 minutes that day. I was finally on track. I drove home for the weekend, my head full of speeds and checklists, having thought of nothing but helicopters for three whole days.

I could now do the basics. The very basic basics. Now it was a matter of ticking off items on the syllabus, and perfecting them. Over the next week and a half, life settled into a routine of a dual lesson, followed by a solo sortie to practise. Mike sent me off to find obscure English towns, dots on the map, to practise my navigation and general handling. He taught me engine-off landings, and how to land on the concrete roof of a brick shed on the airfield. He paid particular attention to confined area landings, as he said this was where people tend to hurt themselves if they're going to. He showed me several ways of exiting a forest clearing when power is limited. Sometimes I just spent an hour dancing around the training square, turning the machine around it's tail, or pirouetting across the grass. Possibly most memorable, of an extraordinary fortnight, was climbing the R22 up to its service ceiling to feel and hear the effect on rotor, engine, and pilot performance.

A week and a half later with 35 hours under my belt, I took my final handling test. My pass was marked with characteristically neutral “Satisfactory” by Mike in my logbook.

All I had to do now was embed this amazing new skill into my life. After ten years of using a variety of helicopters as a company car, as a family crew bus, as a European tourer, I was really enjoying helicopter life. Martin too.

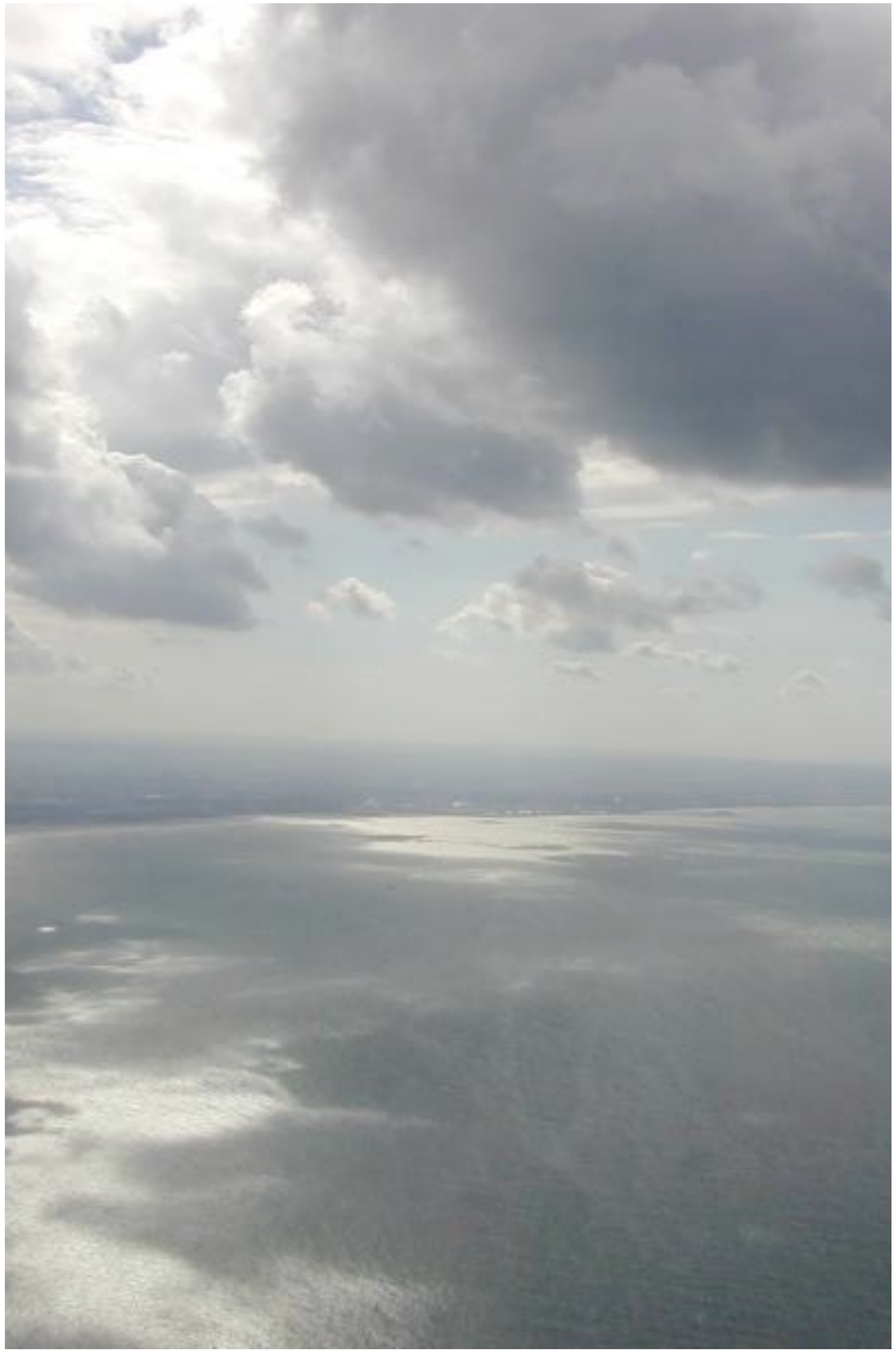
One day, right out of the blue, Martin came to me with a plan. We simply had to go and visit his brother Matthew. In Australia. In our helicopter.

I thought about it for a few seconds. My geography was a bit sketchy as to how much sea there was to cross between here and there. It sounded like an important detail that could be resolved later.

Why not? After all, what could possibly go wrong?

CHAPTER 3

England



Strapping in, and cramming on my headset, I heard Martin's words through the intercom:

"This thing's running so rough it'll hardly take off!"

He put on more power with the **collective** lever in his left hand, to compensate for the grumbling engine, tipped the nose in a theatrical bow to the crowd of family and friends seeing us off, put the nose into wind, and teased our helicopter, Uniform Kilo, into the air.

"You sure it isn't just that we're so absurdly overloaded with all this stuff we've packed?" I said as I waved through the perspex side windows at the crowd. Their hair was all now horizontal in our downwash.

We had had a silent compromise session while loading Uniform Kilo the night before. We knew what our maximum permissible weight was, and we needed to make sure that everything we were loading would earn its keep. I couldn't see why Martin had been to his local mountaineering shop and bought a huge solid brass water purifier, weighing as much as several gallons of fresh water. Martin had obviously thought I was silly to bring so many spare batteries for my two video cameras, each weighing as much as a pint of engine oil. Rather than fight about it, we'd brought the lot, and as a result Uniform Kilo looked like we were using it to move house.

Our take-off was later than the 08:30 scheduled, of course, as a consequence of rather too much time spent over the bacon rolls and coffee we'd laid on for our friends and family. During the bacon rolls party there had been a kind of inertia stopping us saying something as inadequate as "Well, we'll be off then", when quite clearly most people there expected never to see us again. Perhaps our naivety was more obvious to them than to us.

So, with the helicopter's engine coughing and grumbling, we climbed out from **Cambridge Airport** and flew south-south-west, aiming straight for an unscheduled visit to Heli Air at Denham, our maintenance base.

We set down on the pad outside the huge engineering hangar, to the evident surprise of the engineers, who clearly thought they'd seen the last of Uniform Kilo for a while, if not for ever.

They pulled all the panels off to reveal the engine, and did something plausible to the ignition timing.

It made me think how far we were about to stray from civilisation, as defined by the presence of nearby Robinson engineers. As pilots, we're not even allowed to take a screwdriver to any part of Uniform Kilo, so this complicated machine was going to have to start off perfect and stay that way, certainly once we left Greece in a few days' time.

John Mikealakis, Chief Engineer at Denham, talked to me with only his legs visible from the engine compartment:

"I see you couldn't agree on what stuff to leave behind!".

He'd been supervising personally the preparation on Uniform Kilo for most of two months, checking every component, and

fitting special hot weather filters to everything that needed filtering. He was clearly perplexed at the rough running, and alarmed at our huge payload of personal stuff.

“You have remembered how hot the climates are you’re flying through?” he asked. The hotter the air, the thinner it is, and the less weight it carries for the same amount of power.

He wished us luck, rather gravely as we climbed back in.

Putting the engine right did not in itself take all that long, but by the time we were back from Denham on the western fringes of Greater London towards our intended course over the Thames Estuary, we were two hours late.

With the sprawl of London spread out on our right, we passed very close to the point where the year before I had survived an **engine failure** in my Jetranger helicopter. As we passed by, it was a reminder to me of how quickly and unexpectedly things can go wrong in a helicopter.

I had been flying to see my sister-in-law, with my wife and young son. It had been a perfect flying day, with cool still air, blue sky, bright sunshine, and forward visibility across three counties in every direction. Suddenly, with no warning, the Jetranger had lurched violently, the nose had tipped up, and every warning light in the cockpit had come on. Lowering the lever to enable the machine to glide in **autorotation**, I had looked around me for a suitable field to land in. Below me had been a mixture of dense housing, and green fields, and, while calling an urgent Mayday, I had chosen one quickly, and aimed for it. Twenty seconds later I had come over the hedge, in the right place, at the right height, but too fast. The field had been too short for me to stop in without hitting the hedge at the far end, so, still gliding with no power, I had lifted up over the second hedge, passed over a road, and found myself over a muddy field, sloping gently away from me towards the edge of a housing estate. Not wanting to end up in someone’s back garden at 120 mph, I had turned sharp left. Ahead of me now, up another slight slope, I had been able to see a huge set of electricity pylons. Knowing I just had to put an end to this situation before the pylons put an end to me, I had stood the helicopter on its tail to stop it. With the last gasp of energy in the main rotors, I had put the skids firmly down into the mud, and looked up to see the pylons and cables towering right above me, knowing I was lucky to be alive.

I shivered with the memory of it all, as we flew on.

A headwind had got into its stride, which would delay us further. And we had used up extra fuel, which meant that we may not have the range to make our first fuel-stop in Germany.

Not a great start, I reflected, but I was sure we could catch up a couple of hours over the next seven weeks.

We set course for the Channel coast, passing overhead the airport at **Biggin Hill**. To my right, where Kent meets south east London, I could see **Beckenham**, where I had grown up.

It had been an idyllic childhood, following the 1960’s model of a father out to work, and a mother who stayed at home and

looked after the children. Beckenham in those days had still been a post-Edwardian oasis of un-made roads and impressive merchants' houses with rooms in the attic for the servants. In this suburban paradise,I'd been free to wander off after breakfast, to make camps and have elaborate adventures in the generous parks, and return home, grubby and tired, only when food was needed.

As I looked down, I could see how Beckenham had changed since then. The Edwardian houses had been pulled down to be replaced by blocks of flats to accommodate London commuters. The High Street, when I knew it, had had several butchers, lots of bakers, and probably even a candlestick maker. Alongside them had been one of the original version of Sainsbury's, complete with men in white coats and boaters cutting cheese with wire and wrapping your stuff in grease-proof paper. Now the shops are all restaurants offering a glimpse of Italy or Bombay, and Estate Agents.

Just south of Biggin Hill, we picked up the long railway which cuts a dead straight line for twenty miles through the greenery of Kent, and followed it until we could see Beachy Head. Checking our fuel gauges, we called London Information to say we were coasting out, and turned out over the Channel heading for Calais.

The sea crossing took a quarter of an hour, and it reminded me of all the water we were going to have to cross in the next seven weeks. Half way across, the steel grey water of the Channel looked cold and merciless. The engine's note and rhythm seemed to vary minutely, and I couldn't be sure whether this was my brain playing tricks on me, reminding me of how personally vulnerable we were to mechanical failure mid-Channel.

Martin kept the inflatable liferaft on his knee, gripping the tag marked "pull here to inflate" with his left hand, while holding the map with his right.

"Make sure that thing doesn't go off inside the cockpit" I said quietly out of the side of my mouth, in case I made Martin jump and pull the cord accidentally. I reckoned the inflated raft was probably twice the size of the inside of the cockpit.

On reaching the French coast with it's upturned wartime concrete gun emplacements still littering the sand dunes, Martin took the controls and turned east. I did a calculation of our **groundspeed** and **endurance**, and could see that Germany was a write-off for fuel. We would run out of fuel completely about 30 miles short of the airfield, which would not be a great start, so I suggested to Martin that he should head for a small airport used by gliders not far from Ghent in Belgium.

"They should have the right sort of fuel", I told him, reading from the directory. I gave him a revised course to steer, and we landed an hour later, our eyes everywhere for landing gliders.

This little rural airfield seemed rather untypical of Belgium. It was a huge grass meadow, set in a range of pretty grassy hills, bathed in sunshine, and full of interesting and charming peo-

ple having fun. A million miles from the usual impression we British have of Belgium as a dull flat landscape dotted with grey industrial cities connected by crude motorways permanently damp from the greasy drizzle.

We found the right fuel, but, embarrassingly, we had no way of paying for it. We had not planned for a stop in Belgium and so we had no Belgian cash with us. When landing, we had assumed that we'd be able to pay by credit card. "Never assume anything" was rapidly being reinforced as my personal motto. The airport for some reason refused to accept credit cards, or even other currencies, and there was nowhere to change money. It took more than an hour's negotiation in three languages humbly and gratefully to secure an invoice for later payment in Belgian francs, and get away, now more than three hours late.

"Did you see that smear of oil by the exhaust pipe?" Martin asked me, as he restarted the engine. The clue had been two tiny spots of it on the concrete at the fuelling area, but the source of it was obscured by the panels around the engine. I wondered if it mattered.

One of our original objectives for the day was to fly to, and possibly to land at, a dot on the map called Imst in Austria. This small mountain town was where the charity **SOS Childrens Villages** had built their first village for the care of orphaned children soon after the second world war. Their British fundraisers, headquartered in Cambridge, had suggest we drop in for a photo-opportunity. Imst is about 30 miles west of Innsbruck, and to reach it we would have to clock up another 500 miles, which meant four or five hours. With the weather looking increasingly miserable, and with nightfall approaching, this now looked unlikely, and we began to feel that it would be better to settle for much less than that.

The least we could aim for was to reach the small town of Treschklingen in southern Germany, about 400 miles ahead. Here we had arranged to have lunch with my friend the Baron, Freiherr von Gemmingen Hornberg and his wife Freifrau Gudrun, friends since my teenage days. I had worked on the Baron's poultry farm in successive summers. I had drunk a lot of beer, some even for breakfast, while trying to learn a lot of German.

The route from Ghent, clumsily redrawn on my knee in the cockpit, took us through cloud and continuous rain to the Rhine above Cologne, where we turned south to follow this huge river up to Mannheim, and its confluence with the Neckar. Great industrial landscapes emerged from the misty rainscape immediately ahead of us, and we were rocked by the slowly rising heat from massive power stations. Forced by the low grey rainclouds to fly low along the river, we had to dodge the hazards presented by the industrial might below us; high tension cables hanging sullenly across our path, and alarmingly high chimneys giving out heavy metallic smells.

At Mannheim we turned left, and Martin flew low up the wooded Neckar valley in the direction of Heilbronn, and some

miles short of there landed at the tiny hilltop airfield at Mosbach, about 10 miles from Treschklingen. Four hours late.

The Baron and the Baroness were patiently waiting at the airport to welcome us, with their son Götz. They were completely relaxed that we'd made them wait so long. I suppose they were used to me in a way; as a teenager I'd always turned up late at their place, 1500 miles from home, on a oily old Triumph motorbike, completely out of petrol and in need of a good bath. So not much change there, then, I reflected.

They gave us a sumptuous traditional German supper, and as much beer as even Martin could drink. We talked long into the night with their sons Götz and Frido about old times. Frido told us a refreshing joke about the way every German who ever attended one of Hitler's great popular rallies will tell you that he had put his right arm up in front of him to raise a point of moral objection with the words "Er, hang on a minute" but his voice had been lost in the din of others saluting their Leader with a remarkably similar gesture.

Full of beer and Wurst, I was overwhelmed by the nostalgia of it all. The Baron's lovely house was all so exactly the same as when I'd last left it when I was eighteen. It was unsettling. The third stair up on the heavy oak staircase still creaked to defy your attempts to arrive back in the small hours without waking the whole house, the same antlered hunting trophies, the same lavatory paper holder with "Leck mich am Arsch" inscribed cheerfully in authentic Gothic. Baron Gustav had always been a notable figure in some sort of LMAA society; it seemed to have some connection with Goethe from what I gathered, but I never really worked it out.

I went to bed feeling more than a little anxious. So many things were not going right. The engine ought to have been running faultlessly after its lengthy overhaul, which seemed a rather basic requirement. And it now appeared to be leaking oil. The timetable was in shreds, which hinted at a complete re-write of all our planning if it carried on like this. We had had no useable currency for our first fuel stop, which had made us feel like real beginners. The day was supposed to have ended up several hundred miles farther on, which felt like an impossible distance to catch up. We had inconvenienced the Baron and Baroness, which was rude. Without their kindness in putting us up for the night we might easily have found ourselves kipping down in the corner of a damp and freezing hangar, which would have forced us to confront the fact that despite the fact that we'd packed Uniform Kilo with enough survival stuff to climb the Eiger we hadn't actually brought any bedding.

Things would have to improve from now on or the whole trip was going to collapse around our ears.

Chapter 4

Germany

What looked to us like British weather had caught up with us; low cloud and rain. Mosbach airport is high on top of the hills at 1085 feet above sea level, and we were aiming for Innsbruck, which is high up at 3000 feet and surrounded by 13,000 feet snowy mountains. So the cloud at a few hundred feet at Mosbach might be seriously in our way if the clouds stayed at the same level later in our route while the land rose to meet it.

We spent some time wondering what to do – hoping the problem would somehow answer itself while we phoned home and repacked the cockpit. The control tower's weather reports provided little comfort: there was next to no wind and conditions were not going to change.

We had coffee and croissants with the people in the control tower, and scratched our heads about whether to wait or to go.

In practice we had only two available routes. One would take us along valleys and away from the weather, back down the Neckar valley to the Rhine, where we could turn left to fly south along the lower ground up the river past Strasbourg and up to Freiburg, at which point we would turn south-east to cross the Wurtemburg Hills to Lake Constance. Once across Lake Constance to Bregenz we would hope to be out of the weather even though we were within reach of Imst and then of Innsbruck farther on. But this would be a very roundabout route, and would take ages.

The other would be to continue south up the Neckar Valley past Stuttgart, Ulm and Memmingen and then follow the motorway and railway routes through the hills as the weather allowed, making straight for Imst from the north via what looked like an alarmingly high and narrow mountain pass.

Or we could wait.

The controller in the tower, a smart and efficient man in a white short-sleeved shirt and epaulettes, showed us the **Meteorology** reports. There was a slow moving warm front, an area of very low cloud and drizzle, sitting right across from the hills at Mosbach south to the mountains of Austria.

"Not good flying weather today, I think!" he said, in a tone of authoritative finality. And with some pride he added: "The German Weather Service chart is 100% accurate, as you can see for yourselves by looking through the window!" as if trying to stop us denying some aspect of its veracity. It was undeniable: thick low cloud was indeed clinging to the tops of the surrounding fir trees, and condensing rather miserably into heavy droplets on the end of each pine needle.

A local fixed-wing pilot in the kind of shiny leather jacket which accommodates an impressive German waistline, had just showed up with an armful of local maps. He set about giving us a grim briefing, concluding authoritatively that no one would be leaving Mosbach airport, otherwise than by road, for the next two days.

A couple of other pilots who'd just come up the steep stairs to the tower nodded sagely.

Martin and I exchanged glances. We could see the way this was heading; a mutual dissuasion session, often indulged in by club fixed wing flyers, to agree amongst themselves that it's ok to say that today is an in-the-bar day. It's a good thing for club safety, but it needs resisting if you actually want to go somewhere.

I looked out of the window and compared the surrounding hill-tops with the hills shown on an aviation chart on the wall.

"I reckon that if we take-off low-level, we can shoot down that valley over there, which would take us down at treetop level to the Neckar valley. That would get us low-level through the hills to Stuttgart, Ulm and Memmingen, from where we can follow the motorway and railway routes going south towards Imst as the weather allows. It's only a problem here in Mosbach because it's so hilly. We're up in the clouds."

The Germans looked on in astounded silence as Martin checked out the plan. Were these people mad as well as English?

"Let's go", said Martin.

Our instinct, based on experience of flying helicopters in similar cloud conditions in the UK, was that the cloud would stay on the hilltops, leaving the river valleys clear, and if it did not we could either find another local airfield to land at or come back to Mosbach.

We were lucky; conditions turned out to be as we expected, though the day was dominated by cloud and rain.

"They're expecting us either to be back in the clubhouse or dead within 10 minutes" muttered Martin, as the water was flung off the rotors as they gathered speed on start-up.

We edged our way carefully over the hedge at the airport boundary, and found the shallow helicopter-flyable slot above the trees down the hillside, and flew south from Mosbach past Stuttgart and from there to Ulm and beyond. Our next turning points, while we climbed all the time as the cloud permitted, were Memmingen, Kempten and Fussen. From there we followed the railway and road south-east up into the Austrian Alps, turning right to go over the Fern-Pass at about 4000 feet and from there on about 15 miles to Imst.

The weather in the mountains was simply awful. Great walls of rain smashed into us from what seemed like every direction. With slabs of grey cloud wedged in the steep valleys we couldn't climb to see where we were, so we had to pick our way through the mountain passes by following the roads and railways.

The GPS is not much use in this terrain, as it can't give you enough detail about where the mountains are, so I felt pretty sick from paying the map on my knee so much attention in the turbulence. Martin kept telling me with quiet urgency to look

outside for wires draped across the valley whenever he spotted a lone pylon high on a mountainside.

Our fuel stop destination was the International Airport at Innsbruck, located on the narrow valley floor 30 miles East of Imst, in the same range of mountains.

Imst, a mountain tourist town, houses the world headquarters of the charity SOS Children's Villages, and happened to be on our route. SOS's UK headquarters are in Cambridge, and we'd done a bit of tin-rattling for them in the past.

We circled at a safe height over the town to see if we could identify the Childrens' Village from the air; but with no permission to land, and short of fuel because of our slow progress through the mountains in the poor weather, we didn't plan to stay long.

I was quite keen to land at the Village and say hello. The only trouble was, we didn't know where exactly the Village was in Imst. We flew around the town for a few minutes, and found at least six possibilities, which didn't narrow it down much. We couldn't land at all six, and none of them was particularly suitable for landing unannounced anyway.

On the edge of the town we spotted a grand looking alpine hotel set in its own generous grounds, and decided to put it down on its lawn and ask.

Feeling rather foolish, I got out while Martin stayed in Uniform Kilo with the rotors running, and tried to make sense of the what the hotel gardener was saying above the noise of the helicopter. He had the most amazing local accent, and no teeth, which rather hindered matters.

When you land to ask for directions, it's very hard to make people say something useful like "head west over that ridge and look for the white building with the grey roof next to the railway". Quite reasonably, they always give you road directions, and refer you to landmarks like roadsigns that you can't possibly see from the air. I wasn't sure that I'd understood a single word, but he did keep pointing at something.

I climbed back into Uniform Kilo and put on my headset to talk to Martin.

"He says it's somewhere over there" I said lamely.
I took the controls, having had enough navigating for one day, and headed off.

Just as we were circling over what we decided must be the Village, and I was lining up for an approach to what looked rather too much like someone's private garden, Martin reported quietly: " **Low fuel warning light** is flickering on."

This light is similar to the one you get in your car; the one which suggests that you have at least 50 miles to go, so you'd better stop at your choice of the next three petrol stations. In a helicopter, it's a red light, and it's rather more urgent.

I said, " Better head for Innsbruck, then."

The next 30 miles, out of the mountains and over the start of the flat valley floor, seemed to go on for hours. I set max range speed, which is the speed at which the helicopter travels furthest for a given amount of fuel, and headed straight for Innsbruck Airport.

A bit like the way it feels when you go to a party with a spot on your nose, that red light seems to grow brighter by the minute, especially when you haven't got anywhere flat to land if the engine stops.

In a hurry to get on the ground, I landed heavily on the apron next to an Air Ambulance, having firmly rejected the Air Traffic Controller's instruction to fly a huge airliner-style circuit round his airport, as I hadn't fancied gliding in without an engine for the last ten miles.

We landed at Innsbruck with the engine still running, and, it turned out, with about a pint of fuel to spare. Testing the level with the fuel dipstick once we had landed, we reckoned the light had come on at 5 US gallons instead of at 10. The R44 cruises at about 12 US gallons an hour, so an alert at 5 gallons is uncomfortably late, giving not much more than 20 minutes' warning. I called up the tower to apologise for my unconventional arrival at his International Airport, and we parted friends.

With tanks filled up by BP at Innsbruck airport, I had a moment to think back on the trip across the Austrian Alps. We had been flying among mountains rising many thousands of feet on either side of us, dodging pylons and power cables, worried by patchy clouds, shaken by constant rain, and diverted from time to time by snatched glances at fantastic Gothic castles standing on a mountain ledge or by lakes high up in the valleys. Once the agony of head-down navigating and of avoiding the dangers faded away, it would be one of those trips that experience is built on. For the moment it was overshadowed by the prospect of the high Brenner Pass into Italy, which was likely to be every bit as difficult, even if perhaps just as magnificent.

In the airport buildings we met Christina, an athletic young paramedic with lots of fantastic blonde hair, who looked great in her fire-proof flying suit. She was there with a bunch of pilots running twin-engine turbine helicopters as part of the Austrian mountain rescue service. One of them turned out to have had to 2000 hours experience in R22s in South America, where he had been spotting tuna for the fishing fleets. He, like us, had no doubts at all about the reliability of Robinson machines, but was alarmed and daunted and at the thought of our flying even the larger R44 on a such a long, varied, and under-supported journey as this.

Coffee and cakes were produced, and the group gave us their experience of the mountains into Italy and the local conditions, along with maps, weather wisdom, and weather forecasts. And, given the stress involved in flying in this terrain, they suggested the town of Trento as a good target, giving a stage length of around 80 miles, an option which we should not otherwise have gone for. We had had our sights on Rome, about 300 miles farther on.

That morning's journey through low clouds and the hazards of the mountain passes were still in our minds, and the weather forecast for the Brenner Pass was no better. The shorter hop to Trento, recommended with all this cheerful and valuable experience, had a strong appeal, and we settled for it. Rome could wait till tomorrow, and with a bit of luck and some better weather we could reasonably hope to complete the 400 miles from Rome to Brindisi the following day as well. It was a firm safety rule of ours, always to listen to local helicopter pilots.

We left Innsbruck just before 5 o'clock and were soon at 6000 feet above sea level, only about 50 feet above ground, climbing south towards the Brenner Pass, a low point in the huge Italian mountain range which rose like a wall a few miles ahead of us. The weather, forecast to be grey and cloudy, was to start with sunny and fairly clear.

As we flew higher, we saw the fabulous Italian Alps rising on either side to 8000 feet. We followed the motorway A22, the river, and the railway, all jammed together on a rising strip of land, not more than a couple of hundred yards wide. Soon, though, the steely clouds came down to meet us; and the higher and steeper we climbed, the less likely it seemed that we would clear the top of the pass.

"It looks awfully angry up there," I said, looking at great streaks of snow-laden grey cloud draped over the snow-covered peaks. "And there's no way through, by the look of it".

I'm not a great fan of flying in mountains in any case. There's just too much in the way of vertigo and turbulence.

"Keep your nerve," said Martin, with the benefit of his hang-gliding experience, " it's just the perspective. As you look up the slope of the pass what you see is only the underneath of the cloud above. The pass may go on looking blocked until we are at the same height as the top of the pass."

We climbed higher and higher, following the motorway. Cars were starting to put on their headlights as the visibility worsened. We could now see the old road, long disused, and pushed aside by the motorway. There was an ancient track taking an even older and steeper route amongst the boulders and cliffs to the summit. White mountain goats scattered in surprise as we flew low overhead.

We turned what we thought was our last corner before the top of the pass. Ahead of us in the distance was the motorway disappearing into a snug tunnel, and huge grey clouds still blocking the pass. We slowed a little down for a moment, to review our options, cautious about ending up in a turbulent rocky cul-de-sac blocked in by cloud and granite.

Suddenly, to our right, there came into view what mountain flyers like to call a letterbox. It was a slot of brilliant sunshine wedged between the sullen grey of the cloud above and the damp granite of the mountain top, with room for us to post ourselves through it towards the clear view of the lower ground on the far side. On either side of this narrow slot the granite disappeared into the cloud. Martin flew a careful

course to the windward side of the letterbox, minimising the risk of any high altitude mountain winds pushing us into the clouds at the other end of the slot and dashing us to pieces on the mountainside.

"We're through the pass. Look, there's the motorway below us coming out of its tunnel and going down into Italy," said Martin, pulling the carb heat fully to guard against ice formation, and lowering the collective to set the helicopter into the long, slow, ear popping descent.

I gritted my teeth as I looked down at what looked to me like the whole of Italy spread out at what seemed like miles beneath us beyond the mountains.

“Nice” I said. I really hate extreme heights, and here I was a mile and a half above the ground. But as with so many moments in helicopter flying, I just needed to stick to the training, trust the machine, try to man up, and everything would be fine.

As the ground began to slope south, the valley widened out to a couple of miles or so, and the mountain peaks got lower and more rounded. We passed over the little town of Bolzano and called for entry into Trento airport’s airspace. It turned out we were sharing the airspace with the European Parachuting Championships, with startlingly colourful silk canopies dropping in groups out of quite large aircraft flying not very high above. The Trento controllers handled us calmly in to land, despite the sky being full of falling humans in lycra jumpsuits.

We booked a room a local hotel, white-washed balconies overlooking olive groves, and after a fantastic Italian meal of colourful vegetables slow-roasted in olive oil and garlic, we took a wander round Trento to see what the walled town had to offer.

"Not much at all," the girl in the control tower had said. "Look in on our party, though" said the parachutists. "We will," we said.

When we got into town we walked along the narrow streets expecting little real action or entertainment. The whole place seemed to be made of shiny pink marble, including the pavements, which made it feel like a mausoleum.

Turning a dark corner, suddenly from a distance we heard the thud of music. We soon made it out to be the sound of live music from the main square. By what seemed like a spookily coincidental echo of our day in the mountains, a rock band was playing on a stage draped with SOS Childrens’ Village posters. We had happened upon an SOS Childrens’ Village fundraising event for Kosovo.

We introduced ourselves to the pretty blond girl who was organising it all, to wish her well. My Italian is limited to being able to ask for “cinque cento kilo di prosciutto cotto”, which I learned from a teach yourself Italian tape. It translates as “500 kilos of cooked ham please” which doesn’t come up very often. I managed to explain to her in a mixture of English and German what we were up to. I was pretty sure she couldn’t decide whether she’d misunderstood me or I if I was mad, or

both, but she toasted us in grappa. We stayed very late to dance to the music with the young and trendy of Trento, enjoying the lights playing on the fountains and castle walls all around the square.

By the time we got back, the parachutists had all finished their party and gone to bed. We did the same, shamed by their good flying sense, but knowing the late night had been worth it. We could always take it in turns to get some sleep tomorrow in the helicopter.

CHAPTER 5

Italy

Today was catch-up day. We had originally intended to be in Rome last night, and here we were, starting out 300 miles to the north of it; and with another 300 beyond that to get to Brindisi, today's original target. This meant that we were looking at something like seven hours' flying, including time for the boring form-filling you have to do at bigger airports.

Catching up was important. Hanging over us all the time was the prospect of flying into the Middle East, where permission to enter airspace has to be applied for months in advance, and once granted is date-limited. If you are late, and your permission lapses, you have to start the application process again, which can delay you for weeks. This in turn trashes all your other permissions later in the route. You stick to your schedule, or the whole plan unravels before your eyes.

We made an early visit to the control tower to confirm that flying out to the south would not tangle with the parachutists.

Martin borrowed a bit of rag from a hangar and took several panels off the helicopter so that we could look at whether our oil leak was getting serious. There really was an enormous mess of what looked like engine oil, all over the inside of the panels to the rear of the fuselage. After a lot of wriggling about on the ground under the engine we were able to persuade ourselves that "a little bit of oil goes a very long way" when dripping into a helicopter in flight with all those blades thrashing about nearby. The oil level on the dipstick was still OK, but we weren't altogether happy to be operating with a leaky oil seal so far from maintenance cover. I spoke to Heli Air on the phone and they reckoned it would be alright to leave it until we could get it checked in Greece. This seemed fair enough, so we put everything back together and tried to forget about it.

The weather this morning was much better; no rain or clouds, and already it was 21 degrees. Just like being on holiday.

We took off and followed the roads down the valley towards Verona, leaving Lake Garda on our right. From there we crossed the plain of the Po Valley, making for Modena and Bologna. Climbing again, we followed the A1 going south as it snaked its way up the slopes of the Apennines to Florence. I thought about all that culture we weren't stopping for, and picked up the A1 again on the other side of the city going south- south-east to Rome. I put The Ride of the Valkyries on the CD player, which was the most cultured music track I could find amongst the CDs Martin had brought along.

As we passed Arezzo I thought back a thousand years to dear old Guido d' Arezzo, the Benedictine monk who invented written music, according to the Michelin Guide on my knee. Little did he know what he was letting the world in for. We passed Perugia and steered down over the mountains towards Roma Urbe airport.

We never did make any sense the air traffic control system around Rome.

At least three controllers have a hand in it, and you get passed on from one to the next. Overlapping radar systems inform those voices who tell you to route via places you've never

heard of, and can't find on the map. We were lost for ten minutes, but it all seemed to sort itself out eventually.

Rome's Urbe airport is a sleepy old place, which has been passed over in favour of longer runways and more modern passenger facilities at nearby Ciampino. Built as Italy's principal airport by Mussolini, complete with a major rail connection, it's now a shadow of its former self. You can see the outline in the grass of the car race track that ran around the perimeter.

The man in the Esso fuel office served us perfectly while never removing his gaze from the Grand Prix on his office TV. Ferrari seemed to be doing really well, and there were wild cheers audible from a back office full of airport firemen watching it as well.

Outside, we watched respectfully as a dashing Italian pilot in a little wooden aeroplane with a hook under its tail practised picking up an advertising banner from a contraption he had set up on the grass like a washing line. His lovely young girlfriend gushed at us in Italian about how much she admired his skills, pointing out extravagantly the detail of his flying with her slim brown arms. She didn't seem to rate helicopters much, and still less British helicopter pilots.

There were four separate lots of forms to be filled in and stamped, all in different areas of the airport, with long hot walks in between, before you could hand over an absurdly tiny amount of money to pay for the whole experience. And, with it being Sunday afternoon, the restaurants and shops had all shut down. We got some warm drinking water from a machine, checked the helicopter carefully, and took off at about 4 o'clock, unimpressed. The man at the last payment window kindly shared with us a packet of snacks which seemed to be some kind of dusty dried bread.

"Just goes to show," said I hungrily. "Show what?" said Martin.

"Never assume anything". I had assumed that lunch at Rome would be both available and fabulous.

It was an early lesson in being organised, though. The hotter it gets, the more sure you have to be that you have lots of clean water available in the cockpit, and pilots need regular calories to stay on top of things. So you have to plan well in advance. Obvious, really, and we needed to get a grip.

It was now very warm, in the high 20s in the cockpit. We moved south a bit towards the coast and down towards Naples, and then turned back inland going east towards Brindisi. Our long-sleeved fire-proof flying suits were suddenly too heavy and became uncomfortably hot, draining our concentration.

Over-dressed and over-heated, we took little notice of the more arid landscape now below us, the olive groves, the Moorish style of the farm buildings, and the general appearance of a peasant agriculture sustained by EU money. As we pressed on across this centuries old landscape, the **GPS**, which of course we were using to navigate with, went down. I had to sit in a flurry of maps trying to work out where we were until it

came back up again twenty minutes later. Just a gap in the coverage, but a reminder that we would always have to know roughly where we were, or at least which map we were on, to stay safe.

Ominously, as we approached Brindisi, night began to fall, and we got there are only just in time to avoid landing in complete darkness. Landing in the dark is at the frightening end of flying a helicopter. It's like parking your car in the dark with your headlights off. We were qualified to do it, just in case, but it didn't feature regularly in our flying experience.

But we had completed a long day, we were back on schedule, we had a hotel booked, and there was a shower and a meal to look forward to. And, tomorrow, the journey to Corfu would be nothing like as far in one day.

Chapter 6

Greece

We awoke to find Brindisi engulfed in a sea fog, so there was no prospect of an early start. More delay. I used the time to read some of the manuals of the photographic equipment I'd brought with me but didn't know how to use.

By mid morning fog lifted to form a sultry layer of thin cloud at about 1500 feet; and with next to no wind Brindisi sweltered beneath it. We looked out to sea, and hoped for the best as we saw just sunny brightness, with no discernible horizon.

For the long sea crossing to Corfu, Martin wanted to wear the special rubber-lined immersion suit which promised to give some protection if you had to ditch in the sea. I wore the lightweight white cotton flightsuit. I thought it was much less likely to induce heat stroke or drowsiness in the aircraft, where the temperature was getting into the 30s, even though it was not so good at protecting you against the coldness of being in the sea or even some hours in an open dinghy. As with so many things in flying, it was about deciding on a balance of risk.

"That air-sea search and rescue place over there looks pretty good", said Martin brightly, as he pointed with his head to an expensive looking compound on the edge of the airfield, full of various rescue aircraft including a massive helicopter with a winch on the side. His arms were lost somewhere in the sticky rubber sleeves of his suit as he tried to get his shoulders into it. I helped him fasten the stiff waterproof zip.

We flew below a layer of cloud at about 1000 feet, over a totally calm sea, where the only ripples on the shimmering blue came from the wakes of ships. The journey took two hours, following the coast of Italy, down the extreme part of the heel to minimise the sea crossing time, then east across the sea directly to the northern tip of Corfu, and along the coast to the airport at Kerkira. Two hours is a long time over water in a single engined helicopter, as every minute you're over water, you're exposed to the risk of ditching in the sea if the engine fails. We both knew that there where much longer crossings ahead of us, and in much less friendly parts of the world. But we took everything one step at a time.

Kerkira International is the main tourist airport for Corfu. It lies on the Eastern side of the island, a short bus ride from the resort town of the same name, with its luxury hotels perched on the tree-lined cliffs overlooking a glittering sea. Arriving from Brindisi, the first landfall was of course on the Western side, rather barren and volcanic, but a welcome sight after our first long sea crossing.

"How was the suit?" I asked, as the steaming sea gave way to the first sun-baked rocky outcrops of Corfu, and climbed a little to clear the low cliffs.

"It's a bit like going sunbathing wrapped in clingfilm taped up at the neck," said Martin, " but it makes me feel better." Martin hates flying across the sea almost as passionately and irrationally as I dislike taking a helicopter into mountains.

The handling agent at Kerkira, working for her considerable fee, arranged transport from the helicopter to the airport building. When it arrived, absurdly, it was an 80 seater air-

conditioned coach, solely for us two. We stood strap-hanging for the entire 200-yard journey, enjoying the cooled air.

The objective for the following day was George Legakis's aircraft maintenance business, Aerotechnica, a few minutes north of Athens. George is the Greek agent for Robinson helicopters, as well as for Boeing, and using his private airfield and his engineering was likely to be a better bet than using Athens International. He is an old friend of ours from international helicopter competitions.

We spent the next morning in brilliant sunshine on the balcony of our hotel in Corfu, looking ahead to the route from Athens to Crete, which is straightforward, and worrying about the route southward from Crete across the Med and into North Africa.

The sounds of late season holiday makers in the pool below us made me feel strangely out of place. They were here to stop and unwind. We were here on a mission which might kill us. The contrast made me wonder what I was up to. Looking at our timetable of clearances into and out of countries with exotic names like Myanmar and Indonesia, still as unreal to me as ever, made me realise that there were no half measures in this. No pausing for a few days to think about it, however inviting the pool looked. Now that we'd started, I couldn't slow my hamster wheel; either I carried on running at full speed, or I had to jump off.

We knew we had clearance to land at Alexandria in Egypt, which at 450 miles from Crete is well beyond our proven fuel range. We could make a shorter sea crossing, crossing the coast in Eygpt just west of Mersa Matruh, about 350 miles from Crete, though we had been refused permission to land at the old RAF station at Mersa as it was not a "**port of entry**", and we could therefore not land there to refuel. So that was no good either.

What we needed was clearance to land at Tobruq, in Libya, which gave a sea crossing not much more than 240 miles from Crete. We had applied and applied to the Libyans, without success, and been repeatedly refused. Without this clearance we were in trouble, but the communications facilities at George's place ought to be a help.

We had written to Colonel Gaddafi. We remained hopeful, because with sanctions recently at an end there might be some easing up. Just as we were leaving the hotel, our office phoned with the news that Mike Gray, our **flight clearances** agent, had got us clearance into Libya.

Mike, the only real professional involved in our adventure, was an expert in obtaining flight clearances, or official permission, to fly into foreign countries' airspace.

At this point it was not clear where exactly in Libya this was clearance for. But it was progress. We asked Mike to stay with it, pushing for clearance into Tobruk. There was scope for confusion, because we had originally wanted to avoid a long sea crossing of the Med altogether, by going into Sicily and Tunisia and entering Libya from the west. If someone in Libya was working on our original set of papers we could still be stuck,

ending up with clearance into west Libya 750 miles away. We relaxed a bit though, and left it to Mike to progress while we continued the journey, laughing with the cheerful taxi driver who took us, oblivious of the traffic, speed limits and danger, back out to Corfu airport.

There was an edgy incident as we went through the paperwork at Kerkira control tower. Some members of the staff took exception to my video camera. Then the rest of them joined in and there was a huge fuss. In Greek. People had been arrested for such things recently, so we were lucky to be able to charm our way out of an argument. In the event I kept cool and good-humoured, claiming in English that I was taking pictures for my children. I did get the impression as I left that we'd very nearly been arrested.

"You're going to have to be a bit more subtle with that thing, especially in some of the places we're heading for," declared Martin as we walked back across the apron. He was right.

This was a typical example of the way our relationship worked. We had known each other for long enough to feel free to criticise each other, without it causing a fight.

The journey from Corfu to Athens can be done as a straight line across the mountains, or as a sort of L-shape following the coast southwards and then turning east into the Gulf of Corinth. We chose the mountains, but they turned out to be dry, dusty and rather dull to look at. We regretted not seeing the islands – though we did get a good look at the Gulf of Amvrikikos, where Antony and Cleopatra holed up with their fleets before Octavian defeated them at the Battle of Actium in 31 BC.

The Athens air traffic control is obviously completely unused to handling single engined helicopters flying at low altitude. They could not understand what we wanted to do, we could not understand their instructions, and every heading they gave us took us further from where we thought we should be going. We listened. We spoke to them. It all didn't seem to meet in the middle. We just pressed on at very low level, to where we wanted to get to, knowing that we were at least 25000 feet lower than anything else they were controlling. At 2:45pm we landed on the helipad at George's huge hangar.

"Quite right" he said. "We always ignore Athens Air Traffic Control – it's the only way to get here".

George's people set to work on the helicopter, having pushed it into the hangar. A huge yellow gantry was rolled up, and an engineer climbed the steps onto the platform, carrying a precision micrometer and a huge servicing manual for the R44. He was measuring the surface of the rotors.

"You hit something mid-air" he called down from up there. I was sure I would have remembered if I had. Either that or I was already dead.

After a while he grinned down at us. "It's OK – all dents less than 3 microns deep, so in limits say Robinson manual".

What would have happened if the dents in the rotors weren't within limits, I wondered. And what had caused them to appear between Cambridge and Athens?

"You lucky" he said, "10 centimetres closer to tips, and the whole blade would been write-off".

What had caused it?

"You probably hit small bird or something – and I tell you, he really was write-off".

The blade tips travel through the air at 450 miles an hour, so the bird probably hadn't seen it coming.

Was it really that easy to write off a blade, I wondered? What would happen if we hit a big bird over the sea? Or if the bird had been flying 10 centimetres further to the left?

Behind me, Martin was re-organising and re-packing the helicopter. There was already a big pile of stuff which we thought we could now throw away or send back home.

The kit needed for any new adventure is hard to predict; you don't have any real idea about the conditions or dangers you'll face. We had left England in the autumn, so we had expected that we might need warm clothing on some evenings at ground level, and at high altitudes during the day. We had wondered if we would have evenings to fill, some of them possibly with social occasions, so we had thought a few books and some respectable clothes might be useful. We hadn't so far touched the books, as we were either busy with preparation for the next day in the evenings, or were out drinking in our flightsuits, so they could all go back. The smart clothes on hangers, like suits in a sales rep's car, now seemed silly. We hadn't been out of flightsuits in a week.

"Anyone who wants to entertain us, can take us as they find us" observed Martin as he rolled up Marks and Spencers' finest blazers and dropped them into a huge box he was filling to post back to the UK.

Fearful of the water supplies, Martin had brought his huge purifier, robustly engineered in solid brass. With bottled water being available everywhere this looked as though it was not going to justify its weight. But somehow Martin couldn't bring himself to part with it. He was really worried about getting ill, which was fair enough.

I had not had time before we left to learn to use all of the communication and photographic equipment, so we were carrying a considerable weight of manuals. By now, either I'd read them, or I'd worked it out anyway. In the box they went.

And, every day, maps we had brought, or that the office had faxed to us, were used once, and were then just litter under our feet. Rather than throw them away, the used ones went in the box. They seemed suddenly awfully scruffy and crumpled, compared to the unused ones.

Every day we accumulated dirty washing. We could wash it in our hotel bathroom sometimes, but generally we could not get it dry, and obviously the thing to do was get rid of it now be-

fore it went really sour and unpleasant. That went in the box last.

All of this meant that altogether we could get rid of a lot of stuff, and enjoy the reduction in weight as an improvement in the performance of the machine. Hotter air means less lift, so as the conditions warmed up as we flew further south, we needed to ensure that we were carrying as little as possible, or at some point we might find ourselves unable to take off.

In the event, we sent off about 20 kilograms (about 44lbs) of dispensable items back to the UK, which made us feel better. That's the weight of about 7 US gallons of helicopter fuel.

The other engineering priority was to sort out why the engine was still running rough. This proved to be harder to solve. We'd thought it was the magnetos, which generate the power to make the spark for the engine, but they all seemed OK, so we looked for another suspect. George's experienced engineer Takis soon found it. Half the spark plugs were the wrong type owing to a mix-up in the manufacturer's serial numbers. He put in the right ones and the engine suddenly sounded and felt right for the first time since we'd left Cambridge.

Just as we were all leaving George's hangar, we received a note from the office sending us an entry clearance number for Tobruk. This meant, in principle, that we had a registered number to quote on our flight plan and which also, once we entered the Tobruk's airspace, would establish who we are and link us up with the permission to land.

I couldn't decide whether I should feel pleased or not that I was holding a piece of paper that removed my last excuse for not flying into a country as unpredictable as Libya.

"Fantastic news!" said Martin, reading it over my shoulder.

George took us home to his duplex flat, in a narrow street in the fashionable part of Athens. He parked his Mercedes raffishly in the tiny basement carpark, and we went to meet his American wife, Lydia, in their book-lined sitting room. His office, up the spiral staircase from the front door, had a welcome notice for us: "Welcome to two Super Pilots". The delicious evening meal, on the roof terrace, listening to George's stories from his long involvement in all sorts of flying, felt to me like some kind of last supper amongst friends.

George wished us luck for the rest of the trip. "I've arranged for you to be looked after in Crete by a good friend of mine," he said.

"How will we know him?" I asked. "Ah," said George, "he will contact you."

Chapter 7

Crete

We escaped out of Athens airspace with its eye-watering air pollution, and headed for the island of Kea and then due South down the chain of islands forming the western edge of the Cyclades. One of them, Kythnos, is terraced all over from the time when many more Greeks earned their living in agriculture, and even now many of the terraces are still green and under cultivation. From the southern tip of this island chain there are 50 miles of sea to cover before you make Crete.

The weather was good and hot, around 30 degrees C, and we covered the last 10 miles over mist that obscured the sea, which was alarming for a while as we could see neither a horizon nor our destination. Our landing point was Khania-Soudha airport in the west Crete, a military airport which does civilian charter flights at weekends. Eventually the mist thinned and we saw the high brown cliffs of Crete just below us, surrounded by glittering sea.

We were met at our helicopter by two immaculate Greek Air Force officers. They clearly wanted to satisfy themselves that we didn't pose a threat to the security of their airbase. After a few questions and document checks, with comments between themselves in Greek, they said, " Your host is waiting for you. If you would like to get into the car we'll take you across to the terminal."

We weren't sure how they knew who we were supposed to be meeting, but a lift to the distant terminal was welcome, so we loaded our overnight bags, locked the helicopter, and jumped into their car.

They dropped us at the Flight Office, where the air-conditioning was an immediate relief. At the flight ops counter, I said, feeling rather sheepish, "We're looking for, er, George Legakis's friend.....?"

"Of course! he's right through that door in the office over there."

Feeling as though everyone knew what was going on except us, we went across and were met by a neat, colourful and cheerful man with a sun-drenched face, hand outstretched towards us as we walked in.

"You must be Tim and Martin," he said. "George sent me. Call me Vangelis."

We loaded our bags into Vangelis' bright yellow Fiat runabout, and he drove us into town. With the windows open we enjoyed the sights and smells of this sunny holiday island, which, as Vangelis explained, was now mainly closed for the season.

He parked outrageously in a backstreet corner right outside a bar he knew, to collect, he said, "a woman to make your beds". We assured him that, being modern men, we could happily sort them out for ourselves. Vangelis looked cheerfully affronted. In his mind, it was a matter of principal, evidently. A line never to be crossed.

"This is Crete! Tonight you stay as my guests in one of my holiday homes, and the beds need making."

We thanked him, and followed him into the street corner bar. It was empty of people, except for the owner and his wife, and her sister who was feeding her young son the Corfu equivalent of fish fingers and chips. But caught fresh that morning. The bar was comfortably local in style, all Coca-Cola mirrors, high stools, pine chairs, and that kind of smooth marble flooring made of black and white chips.

"You guys look as though you could use a drink!" said the tall male owner in immaculate Home Counties English. "What can I get you?"

"Beer, large and cold, please!" said Martin, who as a rule needed a regular topping up towards the end of every day.

Vangelis disappeared into the night, promising to be back.

We went on to enjoy a couple more beers, chatting to the owner about his study year in Reading, Berkshire and about our plans for Libya.

“You’re crazy” he insisted “no-one flies to Libya”.
Libya still lay like a menacing presence over the horizon in my imagination.

The sister departed, to put her son to bed, kissing us good night like family friends, and we were just deciding that one more Greek beer would usefully help pass the time till Vangelis reappeared, when he walked back in through the door. He was shadowed by a rotund and wrinkled old lady in traditional black costume.

“Come” he commanded. We drank up, promised postcards from improbable places, and headed off into the night in Vangelis’ car, Martin crammed into the back with our ample bedmaker.

The accommodation had a generous balcony and cool shady rooms, and would be perfect for a week in the sun with a few mates. We showered, did our washing, and went back the airport, and sent off another **flight plan** to Tripoli in Libya.

Later Vangelis took us to his friend’s restaurant on the beach where we had a huge Greek dinner, with more beers, in the company of two very fit young things who he insisted were his nieces.

After a dream-like evening I went to sleep in a room that overlooked the peaceful moonlit sea. The sea that tomorrow we would cross to try to fly to Libya.

CHAPTER 8

Libya

Vangelis picked us up next morning as arranged, and we spent the morning in the control tower at Soudha trying to contact Tobruk. We had our clearance number, but no confirmation that our flight plan had been received.

We were about to step off the edge of Europe, and this was our first real insight into the running battle we were to have with paperwork and administration over the next six weeks.

Sanctions were over, but for 20 years the outside aviation world had not been in contact with Libya, and information about phone numbers or contact frequencies was either not available or were out of date. At the other end of the scale Martin had not heard back from Colonel Gadaffi. We tried Air Traffic Control in Athens, and we tried the British Embassy in Libya; in each case with no luck. We tried the Libyan Embassy in Athens to see if they had any phone numbers for either the Libyan Civil Aviation Authority or Air Traffic Control at Tobruk. After a long time on hold, they gave us several phone numbers, none of which worked. We tried British Airways in Athens, who gave us particulars of their handling agent in Tripoli. We tried the number, but couldn't get through. British Airways helped us again, this time with the Airport manager at Tripoli – and he gave us the frequencies.

This took nearly three hours. At that stage the situation was that our flight plan of yesterday had not been rejected. Given Libya's international reputation, we would have liked to be sure that it had been received, but perhaps we were asking too much. We filed another one, just in case. We had a good Cretan lunch, and decided to leave anyway.

We were out with the helicopter on the huge concrete apron when we saw the Duty Officer racing towards us in her red car. It was a message from Tobruk. This seemed to say that Tobruk was a domestic airport and we ought to contact Benghazi.

"At least it's a reaction of some sort" sighed Martin, who was clearly beginning to think we'd never get further than Crete.

"I suppose with these radio frequencies we've got a fair chance of hearing from the Libyans soon enough to be able to turn round and come back if they don't want us in their airspace," I said, trying to persuade us both.

We went back to the control tower, sent another flight plan for Tobruk, this time addressing it to Benghazi, and took off.

We had tried to keep calm and business-like over all this, but there was no denying that we were pushing our luck with one of the most unpredictable regimes in the world. Communications within Libya might not be effective in letting the air defences know that at most we were a pair of harmless civilians in a miniature aircraft that could do no harm to anyone. If the worst happened we might find ourselves pursued by a flight of MIG fighters, and on the hot end of an air to air missile. Everything depended on being able to make contact using the ordinary helicopter VHF radio.

“Plus it’s a very long sea crossing, and whatever happens, it would help if the outside world knew roughly where we are”, Martin had said, as we had tried to weigh everything up.

The mobile phone coverage extends only half way across the Med and using our satellite phone while airborne was still untried. In an emergency we would be relying on our personal locator beacon, and if that failed we’d be stuck with just the mayday signals from the nice Breitling watch lent to me by Mappin & Webb, which was short range only. So we were unusually nervous on the flight.

The weather was good, sunny with no cloud, next-to-no headwind; the sea calm with very little in the way of swell, and the temperature around 30 degrees at just over 1000 feet.

We passed over the island of Gardhas just 25 miles south of Crete, which is supposed to be the southernmost point of Europe, and Martin began to speculate that with his visit last year to Cap de Roc in Portugal, the most western point, he now only needed to look in on somewhere in Northern Norway, and somewhere in the east, to have done all four corners of the continent. This kept us occupied for a while as we headed towards the midway point.

We drank some more water.

Suddenly returning to reality, we realised we were indeed practically half way across, and on the point of entering Libyan airspace. We tried all the frequencies we’d been given, but without response. This was not good news, but not surprising, because the VHF, like light, works only line of sight, and at 1000 feet the curvature of the earth soon cuts you off both from anyone listening and from any transmissions.

We had seen no ships whatever since we left Crete.

We thought again that it might be an idea if someone could at least know where we were, so we began to send out signals that other aircraft might pick up. We used the international distress frequency on 121.5mhz, making clear that we weren’t in distress but were just sending a practice signal.

It worked. A German airliner, seven miles above us, called us back.

“Hello. This is Germania 409, calling on 121.5. Can I help you?” A really beautiful German-accented tenor voice, set against the soft background hiss of his radio.

“Good afternoon Germania 409. We are a helicopter on a VFR flight, Golf, Bravo, X- ray, Uniform, Kilo. We are heading from Crete to Libya Tobruk on a flightplan. Our current position is 87 miles south east of Soudha in Crete. We are seeking to establish radio contact with anybody else. Nice to hear you.”

There was a pause. They were probably asking each other if they could possibly have heard us right, I thought.

“Shall we transmit something to any place?”

“If you are able to contact Libyan airspace, 120.9, and tell them we have passed their Flight Information Region bound-

ary, and we are now in their airspace, that would be very useful”

“I will try Athens”.

He came back in a few minutes.

“Athene want you to contact 130.9, Cairo”

Athens, or Athene, obviously thought we were also an airliner at 37000 feet, to suggest that we call an airport 300 miles away. The higher you are, the further your radio reaches. There was no way we could get contact with Cairo from a height of 1000 feet. But we tried three times just to show willing.

We reported this back to Germania 409. He undertook to talk to Cairo, and then to Libya. No result.

I was by now distinctly worried at getting very close to Libyan territorial waters, where the prospect of being greeted by a hostile Libyan MIG fighter was looming large in my mind. Out of the blue we got a call from a Sabena airliner, whose pilot also got to work on the problem. He quickly succeeded, being much higher in the sky than we were.

“118.5 correct frequency, call them”.

Feeling rather self-conscious, I called “Libya, this is Golf, Bravo, X-ray, Uniform, Kilo” There was a slight pause, and we both jumped when we heard: “Ah, Uniform Kilo, we have been expecting you.”

We flew on as instructed, soon crossing the coastline where fingers of rocky yellow sand reached out into the bright blue sea, following the line on the GPS screen which we thought would take us to Tobruq Airport. Moments later, we saw the famous harbour in the distance. The GPS was telling us we were overhead the airfield, but there was nothing but sand beneath us.

“Hang on, I can see an outline of a taxy-way down there” said Martin suddenly as we circled round the dot on the GPS. “ It’s covered in sand. Call them and ask if they think we’re overhead”.

“Er, Tobruq, can you see us?” I suggested on the radio.
“Head for El Nasser, 25 miles south of you. You are cleared in.”

El Nasser? From the look of the map it’s a Libyan military base – surely there was some mistake? And what did “We have been expecting you” mean?

I checked that they really meant El Nasser, and they confirmed. They sounded businesslike, and comfortable with English. El Nasser it was. Tobruq Airport itself obviously had been abandoned to the desert some time ago, and no-one had updated the maps.

El Nasser is about 25 miles south of Tobruq in the yellow sand of the desert. We had maps to cover it, but they weren’t much help. They looked like sheets of sandpaper, as did the ground below us.

It's an operational military base, with long runways, buildings, aprons, the whole nine yards, all surrounded by a wall, a very long wall indeed, in the form of a square. The wall must be to keep out enemies and camels, or even the wind-blown sand.

I kept the camera filming for as long as I dared. This was the kind of thing I wanted to film, but it was the kind of place where it would get me into most trouble.

"Turn that frigging thing off and put it in your bag" snapped Martin as we turned onto final approach, no doubt remembering the trouble we'd had in Corfu "We're landing on a military base in a police state".

Reluctantly I did so, feeling that I was about to miss the best bit of action so far.

As Martin hover-taxied to the apron in front of the terminal, I looked around at the rusting corrugated iron hangars and the heaps of ageing military hardware decaying on the side of the taxy-way.

We followed the air traffic controller's instructions and he put us down not far from the tower.

The tower was modern and western in style, though incongruously attached to a small terminal building in the style of a mosque.

The whole place shimmered in the desert heat. I'd never seen a real desert before.

We took a last drink of Cretan bottled water, both wondering what we'd let ourselves in for. No-one had done this before, not since the conflict with the Americans, not since the UN sanctions, not since the Lockerbie bomb, not since the murder of the WPC shot in London.

We had naively come in peace and friendship, and suddenly felt a very long way from home and safety.

A white Toyota Landcruiser came racing out to us, gleaming in the brilliant sunshine, and I got out to meet it. A burly and authoritative figure in lightweight olive green battledress climbed down from the Landcruiser, and I was suddenly surrounded by heavily armed guards, their eyes dark and narrowed against the sun.

My mouth was dry, as I watched the big man straighten himself up, and turn in my direction.

He came forward towards me and suddenly greeted me with a broad smile. He shook my hand.

"Welcome to Libya. I am a personal friend of Colonel Gadaffi, and you are the welcome guests of the Libyan Government."

He was the officer commanding the airbase, Colonel Sagar, he told me.

I wanted to pinch myself, catching myself thinking, rather absurdly, how much like a James Bond film this must look like. Above all, I was very relieved to find that we were actually welcome.

Colonel Sagar said that this was a historic moment, as we were the first international pilots ever to land at El Nasser airbase (which wasn't strictly true, as the RAF had built it) and that we were the first civil aviation aircraft to cross from Crete in 40 years. Our arrival had been keenly anticipated and our journey had been followed on the radar ever since we left Crete. He introduced his two companions, Lieutenant Colonel Mufta and Major Jomah. They were both every inch secret policemen.

Engineers appeared, carrying a barrel of what looked like fuel, and a handpump. I hoped it was fresh and clean, but couldn't think of a polite way of asking. It was at least the right colour. The pump looked as though it could be the real threat to our helicopter, covered in rust, cobwebs, and flakey paint. Martin stood beside me, and together we watched the activity, both accepting the fuel in quiet gratitude, and wondering if our engine would feel the same.

The fuelling complete, the Landcruiser took us to the control tower, where the Colonel shook hands again, and left us. His armed bodyguards melted away with him.

Major Jomah took us to our hotel, and booked us in. He explained that our living expenses were to be met by the Libyan Government. The helicopter was to be guarded by his soldiers. The Avgas fuel was also to be free of charge. In fact, everything would be paid for by the Libyan Government.

"We pick you up after breakfast and take you on tour as guest of Colonel Sagar" he commanded. There didn't seem to be a choice, but it sounded great.

I was stunned, trying to take it all in. It was all such a complete shock. Such a contrast with what I had expected.

The hotel was ranked as five star. I left my bags by the unmanned Reception desk, and wandered around to get a feel for the place. It was huge, ugly, concrete, British-built in the late '70s, with a very generous reception area with lots of chrome fittings and smoked glass, a bar with no alcohol, a restaurant with a choice of one meal, a swimming pool with no water, a tourist office with no leaflets, and 300 rooms. It turned out that only about 20 rooms were occupied, mostly by European oil-workers.

We checked in, eventually, and made our way upstairs to our rooms, which were clean but scruffy.

Our first priority was to contact home.

There was no phone in the room, so I set up the satellite phone on the window sill of my room, turning the aerial slowly until I found a strong signal, aware that using one in Libya was probably punishable by death.

We called the office to let them know that we were in Libya, safe and sound, and that they could relax. Our friend James had agreed to help us out over the next few weeks, with anything which needed organising from the UK, and he was re-

lieved to hear from us, having spent several hours on the phone to the British Consulate in Tobruk trying to find us.

After a brief conversation, the signal on the sat-phone closed, as the satellite went over the horizon, and I was left feeling very bad that we had not been able to speak directly to our families.

The restaurant overlooked the harbour, and was full of western men. It was staffed by Libyan men. The waiter stood by us, pen poised over his little pad, just like he would at home. I studied the menu he'd given us, while he stood there waiting for me to choose. The choice, as offered to us by the menu, was a single line of Arabic.

I pointed to it, and nodded at him with a smile. He nodded back, as if to say "Good choice!" Waiters, like taxi drivers, seem to be the same the world over.

Martin did the same, and we waited to see what would arrive.

Looking around, I could see everyone eating a kind of soup, which gave me a clue as to what to expect.

The food was not nearly as Arabic as I'd imagined it would be. More Italian, as influenced by Libya's colonial past. The soup was a kind of ministrone with risoni.

"Whatever it is, it looks like maggots in tomato sauce", commented Martin, on his second bowl.

I thought back to Martin's family home environment, where, as a teenager I'd always been welcome to stay for meals as they arose. "There's a spare dinner in the oven if you want it" his Mum would always say kindly to me, as we came in from the garage, usually covered in oil from taking a bicycle or motorbike apart.

The food at the their family home was always very reliable, filling, and traditional British, meat and two veg, on a Denby plate.

His Dad, a family doctor, would occasionally indulge us with some of his home made beer, brewed in the basement of their spacious London home in Forest Hill.

All that seemed a long way away, as I sat twenty years later with Martin in a hotel in Libya, overlooking the harbour at Tobruq. But we were starving suddenly, as we relaxed from the tension of the day, and ate the maggots gratefully, trying to avoid spilling them on our white flightsuits.

I slept uneasily, grateful for the hospitality, but unable to believe it enough to relax, wondering what the next day would reveal.

Major Jomah was there at breakfast, dark, chic and athletic in his trainers, and somehow compact.

"Colonel Sagar send his regards, and orders me to make you enjoy day" he smiled, full of promise.

He suggested, for our morning tour, the English and German war cemeteries from World War II. Then he would give us lunch at his house. And afterwards he would take us on a tour of Tobruk town and its surroundings. Cemeteries weren't a usual passion of ours, but we accepted happily, and set out in Colonel Sagar's Landcruiser, loaned to us for the day.

Military cemeteries are not to everyone's taste, but these were beautiful and impressive, as well as distressing. Unimaginable numbers of young men killed in battle at ages between 18 and 22 lie buried here, in the immaculate British and Commonwealth cemeteries recorded by row upon row upon row of individual gravestones. The Cemeteries retain the name used by the British to identify areas of featureless sand; the one we visited had the name "Kensington" engraved on the elaborate sandstone archway over the entrance.

Impressively, the German cemetery was in the shape of a huge medieval castle, clearly designed to last forever, built on the ridge above Tobruq town, poignantly commanding the best view of the town in military terms. The remains of the German dead, collected from the surrounding desert in the 10 years after the war by German recovery teams, had been placed in a massive pit in the castle's courtyard. The owners' names were inscribed in granite, thousands of them, on arches around the great square stone courtyard.

Bizarrely, the key to the castle was held by a scruffy local who lived with dozens of similar families encamped in a dusty settlement at the foot of the castle walls. Overhead, a rusty pylon which buzzed and crackled through sheer lack of maintenance. The old key was huge and black and heavy. The door was reluctant to open, despite the efforts of Lt Col Muftah, the less cheerful of our escorts.

Martin couldn't help himself. Indicating with a sweep of his arm the castle and the Arab desert behind it, he advised cheerfully:

"You must say, Open Sesame!"

Lt Col Muftah, up till this point, had played things pretty cool with us. He had been making it clear that he had hard evidence that we were enemy spies and a threat to both public order and national security. Now he levelled his gaze at Martin. There was a tense moment, while he studied Martin's friendly smiling face.

Suddenly gave in to Martin's sense of humour, and laughed with him, reaching out with his hand to shake Martin's while they shared the joke. This was a turning point, and they relaxed their guard with us from that moment.

The rights and wrongs of war, and of the Libyan campaign in the Second World War in particular, formed a major topic of our hosts' conversation. I wasn't sure whether that was because they thought we were interested.

"Hundreds, thousands of people died and for what? For miles and miles of empty of sand! Desert lands that are not yours,

not the Italians' not the Germans' to fight over? And remember, lots of Libyans killed, too."

But this was not expressed as if there is continuing resentment, but there was an enduring exasperation.

Their other preoccupation was the Libyan belief that the West, by which they seemed to mean the USA, behaved as if they were the only ones who were ever in the right.

They thought it was time for some degree of Western openness to the values and ideas of other peoples. We said we'd try to persuade our friends in the West that the people of each country have a lot to contribute, and that the contribution of each country's people deserves to be valued.

Their assumption that we were paid by our Government to come to Libya was unshakeable, and probably accounted for their keenness to get us to lobby on their behalf with the Americans.

Libya

Coastal Libya.

Leaving the old key with its guardian, we drove back to the airbase to visit Major Joma's three small children at his home on the airbase, where we were given lunch. We enjoyed meeting them before they were hidden from view, and it set off a long talk about our own families, what they all liked and did and hoped to do; and passing round photographs. Lieutenant Colonel Muftah, with his eight children, claimed the prize for most man in the room with most children, easily beating both me and Martin.

The meal was formal Arabic, eaten sitting on the floor, and we were sorry that Major Joma's wife had kept herself out of sight. She did appear, though, for a brief instant when we asked, and we were able to offer her our thanks for the hospitality before she quickly vanished back behind the scenes. This was obviously a clear breach of etiquette, but in the privacy of Major Joma's home no-one seemed offended.

A tour in the Landcruiser of Tobruk town and the surroundings took up the afternoon, and this reinforced the strange-

ness to me of the role of women. The streets, with by our standards not much traffic, were an ideal playground. But for boys only. There was not a girl in sight. And women were not to be seen shopping; indeed the notion of recreational shopping whether by women or men did not seem part of the culture. I asked if we were allowed to go shopping in the rather thin looking bazaar.

“What you want?”

“Er, it’s not that I want anything, it’s just that I’d like to go shopping”.

There was an exchange in Arabic. This was either forbidden, or incomprehensible to them as men and as Arabs, or both. Without a further word, they sped off through the narrow streets, scattering as they did so shoppers, traders, produce, and goats, as the huge car dominated the narrow streets of the old town. We stopped a shop which had a government-run look about it. Concrete walls, and bars at the windows.

“Wait here!” commanded Lt Col Muftah.

Minutes later, he returned with a brown paper bag containing two bottles of Libyan aftershave. It took us a while to work out what it was.

“For our British guests!” he said.

We thanked him profusely, and didn’t repeat our request to go shopping.

Many of the actual buildings of Tobruk, a town of 100,000 inhabitants, are made of whitewashed concrete, usually three or four storeys high. Perhaps because of all the dust blowing in from the desert, they do not give an impression of prosperity, though of course internal courtyards may tell a different story. We saw no old buildings, no public telephones, no parks. Shops were open fronted, bazaar style. We went past a mosque and a friendly-looking school. There was no vandalism and no graffiti.

The town is a port for the export of oil, and sanctions must have had a severe effect. The only other economic activity seemed to be some subsistence farming. The airbase may perhaps have helped too, though Major Joma’s delightful home, with its shady well-watered courtyard, planted with lime trees and flowers, was situated in a development related to the airbase rather than to the town. The standard of living of the armed services, and senior officers in particular, may possibly be supported by some privileged system of distribution which would by-pass the shops in the town. We thought this was probably true at least of his elaborate satellite television and the rich fabrics and rugs.

The town had no roundabouts or traffic lights, and there seemed to be no rule about which side of the road to drive on. At junctions, whoever had the biggest car, the most stars on their shoulders, or the ability to stand on their horn for the longest, took priority. At the edge of the town we were stopped at a military checkpoint. Soldiers pointed Russian-made semi-automatic weapons at us. We were pleased as

Westerners to be accompanied by our minders, and were quickly waved through. It was hard though, to see what such a checkpoint was for, but there was a tangible feeling of political suppression.

Chapter 9

Egypt

Major Jomah was again with us at breakfast at the hotel. His aim was to ease our departure, but he was unable to divert the hotel's tourism adviser. This delayed us for half an hour, while this earnest man told us all about his country, the culture, and the warmth and friendliness of the Libyan nation.

"Please tell all your people to come here as holiday", he urged us with sincerity, elevating us to the status of some kind of popular leader.

Looking around me, I thought that for some people who had a compelling reason to come, such as relatives of servicemen buried in Libya, or people who see themselves as travellers rather than tourists, Libya had good stuff to offer, but for mass tourism it had a bit of a way to go. I tried to imagine Club 18-30 applying for planning permission, or Saga Holidays sending a luxury coach full of blue rinse ladies from Harrogate. Er, no.

At the airport, we went to the briefing room and found we had clearance for Alexandria. We checked the helicopter very carefully, including draining off some fuel to check it was clean. We shook hands all round, wished a special goodbye to Major Jomah and Lt Col Muftah, left our good wishes for Colonel Sagar, and took off heading east.

"You can't go into Libya" people had said beforehand. We'd done it.

I was personally very relieved, though, to be getting out of from Libya. Getting in had been very stressful; our stay there, accompanied all the time, was not much less so. The place seemed poor, and politically tense.

What we needed now was a calm and hassle-free day.

The direct route from El Nasser to Alexandria, into which we were cleared, runs more or less along the coast, so we followed that, monitoring our progress on the GPS.

To the Libyan border is around 70 or 80 miles; as far again inside Egypt is Sidi Barrani, followed by Mersa Matruh, and then Alexandria, another 150 miles or so altogether. In places the coast is ruggedly beautiful, with groups of narrow headlands and bays punctuating flat sandy beaches that stretch for

miles. The land looks uninhabited, though there are signs of cultivation as you move into Egypt, and roads. We did see one person who waved – and one small fishing boat on the intensely blue sea.

World War II fortifications, were scattered about, incongruous in the natural beauty.

At a place in the middle of nowhere, that the map referred to as Buk Buk we began to hear radio traffic from, we thought, Sidi Barrani. We could not raise them, probably as we were so low, skimming along just above the gentle waves as they met the baking sand of the beach. We tried Cairo, with no success there either. We were just too far from anywhere.

We saw very young soldiers patrolling the beach, armed with rifles. Most ignored us. One took cover as we shattered his peaceful morning. Suddenly, as we rounded a gentle sandy headland, one of these young soldiers raised his rifle aggressively and took aim. I threw the helicopter out to sea in a violent left turn, partly to put the solid block of the engine between me and his gun, and partly just to get away. It was a tense 30 seconds or so, especially with so much fuel on board. After that, we flew on, further out to sea, hoping for the best.

We made contact with Mersa Matruh when 30 miles to the west of it, and they cleared us through their airspace, no problem. They gave us 130.9 as the Alexandria frequency and said they'd report our position for us. The town itself looked prosperous, a contrast with Libya, and there were increasing signs of tourism as we moved farther along the coast. People swimming in the sea waved at us as we went by. The atmosphere changed. This was again a prosperous and free Western-style society.

We went on, looking for a place to land, take photos, and take a comfort break. After several attempts, we found a likely looking beach to put down on, desperate to relieve ourselves, and hoping no-one would see us.

"We need somewhere really isolated so I can take a leak without being shot in the back" said Martin, clearly also affected by the whole experience of the last few days.

I had just cut the engine, when Martin tapped me on the leg and pointed to a group of twenty or so figures running towards us up the beach. They were far enough away for us not to be able to tell whether or not they were armed.

"Sod it, this is Egypt, and you can come here for your holidays", I said. I got out hurriedly. If I was going to be arrested, at least I was going to have relieved myself first.

But we needn't have worried. We were quickly surrounded by friendly English-speaking Egyptian tourists shaking our hands, smiling, taking photos, and using camcorders on us. That helped wipe away the last traces of the militaristic cold war atmosphere that lingered on with us from Libya.

“Love your Robinson” they shouted in smiling approval, clearly no strangers to American luxury brands. One of them said he ran a casino in Cairo.

We took off within ten minutes, leaving a group of new friends.

Later as we approached Alexandria, we got into the air traffic control system, and asked for a particular course, one that would take us close to the pyramids for a bit of aerial tourism. This was firmly and repeatedly refused. They gave us headings to steer which took us left and right and all over the place. Suddenly we found ourselves directly over the pyramids.

It was a classic case of it being forbidden yet possible. I took some photos. The air pollution, a mixture of desert sand and exhaust fumes, gave the images a rather surreal appearance.

Egypt

On the beach for a comfort break

We stopped at Alexandria for fuel and formalities, and it took forever. The service was slow in spite of the enormous number of people involved at every stage. There were 37 people standing around our helicopter as it was refuelled, and only two of them were necessary to carry out the work. We could tell that we represented dollars for these people, and that they were all hoping for a cut. The handling agent, whose job it is to smooth our way through the airport and its procedures, was corrupt and greedy. Worse still, the food was dangerously unrefrigerated and expensive, and the bottled water had a suspiciously insecure lid.

Worst of all they stole precious time from us, our most irreplaceable commodity.

The whole area stank heavily of oil pollution from the nearby coastline, and we were pleased to leave.

I wondered whether this was all a sign of things to come, as we left Europe further behind us.

We took off hastily, to protect our wallets and nostrils from further damage. Our aim for the day was to reach Aqaba in southern Jordan, and if we could get there in this one hop we would have made up the time lost in staying in Libya.

On the way, though, as we flew south east towards Saudi Arabia, we stopped on the west coast of the Gulf of Suez, where a range of low mountains runs north-south along the Gulf. We took some photos of the harsh and impressive lunar landscape. The ground, made up of what looked like small pumice stones, burnt our feet through our shoes. We seemed to be the only living thing visible from horizon to horizon. Our helicopter, twinkling in the setting sun, looked like an Apollo landing craft on the moon.

Suddenly, we woke up to the significance of the fact that the sun was indeed touching the horizon behind us. We were going east, and we were more than 20 degrees farther south than when we started out from home, so it got dark much earlier than we were used to in the UK. And because we were much closer to the tropics the days were ending more suddenly, without much in the way of twilight. We should have taken all this into account, and kept going, rather than wasting time drinking Coca-Cola in the lonely desert.

Egypt

On the beach for a comfort break

Crossing the coast at El Rashid, on the Eastern side of the Gulf, studying the map on my knee, I summarised:

"We've really fluffed this. It's getting dark already, and we've got an hour and 10 minutes flying to do, across uninhabited desert and 3600 ft mountains. A forced landing in that kind of terrain in the dark would be impossible to do safely. Then we're looking at a night landing at Aqaba, which we could probably manage if we had a copy of the approach procedure to hand. On the approach path to Aqaba International Airport you have less than a mile to play with or you stray into Israeli airspace, and you can imagine what kind of firepower that would trigger."

"Yes, I see what you mean," said Martin. "Is there anywhere round here we could land instead?"

I looked down at the map.

"There's some kind of military airport on the coast marked here just south of the town, but I can't see anything at all that looks like a runway down on the ground. Other than that, there's no airport closer than the one we've just come from."

We didn’t fancy returning to Alexandria, and in any case, we had used more than half our fuel, so couldn’t get back there anywhere.

By now, lights were coming on in the town we'd just flown over, as darkness began to fall.

Martin suggested that perhaps we might land in the town somewhere.

"Yes," I said. "I thought I spotted a hotel on the coast back there, with parasols and stuff on the beach."

We turned round to go and find it, gagging for a cold beer in the hotel bar, not having had any kind of alcohol since Crete, which seemed a whole world ago.

Halfway back to the coast we saw a dusty compound, surrounded by what looked like whitewashed chalets and a high wall. From 1000 ft it looked like it could have been some kind of motel, so we thought we’d try it. Martin put the helicopter into a steep descending turn to the right for a closer look.

"Not sure that’ll do us," I said as we got really low, "er, it looks like a police station.” There was a guard house, armed guards, a flag-pole with the national flag, and even an armoured jeep.

“Better get out of here”. I suggested.

Martin pulled up sharply and headed back for the hotel on the coast that I had seen. It certainly looked more promising, with an elaborate sunshade over the front door, and sun-worship paraphernalia to the rear of the hotel on the beach. It had everything a hotel should have, but we felt there was something odd. Perhaps it was the location. The immediate neighbourhood, indeed the whole town, was a dusty staging post on the main road heading north-south along the coast. It might even have been partly military in origin. In the main square beneath us we could see ancient juggernauts, elaborately decorated by hand in traditional Arabic patterns. Most of the streets were just sandy trails leading down to the sea from the main road half-a-mile inland, edged with low concrete houses, their boundaries marked by what looked distinctly like discarded tank caterpillar tracks. These prompted another doubt; this part of Sinai not so long ago was a war-zone.

Not really tourist hotel territory at all.

"Beach clear of wires and people!" I confirmed, as Martin approached the beach flying low over the sea. This double check is one of the safety rituals we have developed over many years together in the cockpit to avoid the many simple mistakes which can spoil a nice day out in a helicopter.

"Thanks," said Martin, "I'll put it on the sand next to the beach entrance then. Watch the tail for me as we settle. The sand looks very soft so we might sink in."

I opened his door to watch the tail rotor at the far end of the helicopter. It's the most vulnerable part of the helicopter, being relatively close to the ground, and out of sight of the pilot, as well as the most threatening to onlookers for similar reasons. The **skids** settled far into the fine dusty sand of the

beach before we stopped finally. The **tail** was inches from the sand, but safe enough.

As we looked around us, waiting for the **engine** to cool, we could tell for sure that something was not right. At least a hundred young people, definitely not hotel tourists, were lined up along the back wall of the hotel to greet us.

"It looks more like a youth hostel gone mad," said Martin.

I opened the door to get out onto the hot beach. Dozens of flies poured in to check out our cockpit for food, stopping only briefly to land on our lips and in our eyes.

I got out to introduce myself.

It turned out that we'd landed at the Institute for Tourism and Hotel Studies, where hotel and tourism skills are taught to Egyptian teenagers.

We were welcomed by the people on the beach, and by the manager, and these welcomes were followed by visits from the police, the military, the plain clothes men and a few others, all of them wanting to photocopy just about every document we had, including our fuel receipt from Alexandria and Martin's Warranty Certificate for his water purifier. Once they had done all this they departed, friendly and content, and everyone chatted happily with us. Another squad, this time from the Navy, turned up just as we were half way through our meal. We exchanged friendly words and they too left happy.

After supper, a young tourism student called Hani took us round the town, El Rashid, showing us the shops, the bars for tourists, the cafes, and the neat but sandy gardens. An enthusiast for tourism in his country, he was a good guide. But he didn't want to talk about the tank tracks.

"I take you to restaurant, very nice" he promised "All your friends from England can come next time, you tell them" he implored, pausing in between every other word to brush away all the flies gathered around his mouth.

"I'll certainly tell them" I promised politely, doing the same.

The restaurant was Sinai roadside diner, which sold only coffee and cigarettes at that time of night. We bought some, and chatted as best we could with the lorry drivers, with Hani's help interpreting.

I slept really well, much better than in Libya, where there was always a more than slight feeling that we were being treated with suspicion, and that they were keen to control our every move.

Chapter 10

Jordan

Before we took off for Aqaba we needed to file a flight plan, and we did this without difficulty by calling Cairo airport on a mobile phone. But the local army began to take an interest, and a small well disciplined squad consisting of a Major, two heavily armed soldiers, and two civilians with guns, all marched up to ensure that everything was in order.

Cairo air traffic control assured us on the phone that no further permissions were required from an aviation point of view. The Major demanded to see a fax to that effect. Cairo refused to send one. I showed him a fax about Libya, which seemed to satisfy him.

More difficult to persuade were the plain clothes guys. Armed young men in plain clothes, designer ones, seemed to outrank the uniformed guys in these hot countries.

Delayed by an hour and a half, we climbed away towards Aqaba, 120 miles to the east.

The Sinai Peninsula, which we had to cross to get to Aqaba, has mountains, including Mt Sinai, that rise to 8500 feet. You can get across it, though, without flying much above 3000 feet f you choose to leave the peaks on your right, which we did, but we flew at 5000 feet anyway because of the heat. At that height, the temperature in the cockpit was just about bearable. The landscape is golden and rugged , sandstone and scrub, cut across north/south with dry water-courses. It was a flight we were happy not to have done in the dark, because if anything went wrong landing in the dark would definitely have killed us.

When we were within 10 miles or so of the Gulf of Aqaba we had to take care to fly well south of Eilat, because we had no clearance for Israeli airspace, and they'd be entitled to shoot us down.

We flew carefully along the edge of the Israeli zone, using the GPS.

Suddenly, we both jumped as we saw another aircraft flash passed us; a modern jet fighter. He was flying in the same direction as us, slightly above, on his side in a long turn around us, passing close enough for us to see the detail of his flightsuit, and to hear the roar of his engines. I spotted tiny blue Stars of David against the desert camouflage pattern on the stubby wings.

A second jet, partner to the first, passed us in the same way two seconds later.

I reported our position to the controller at Aqaba. He made no mention of our Israeli supervision.

Seconds later the jets made one more pass, this time further away and slightly below us.

I double checked our position, to check that we were legally outside Israel's airspace.

"It all looks ok", I confirmed to Martin. "They must be just checking us out just in case".

I supposed that it would look a bit unusual to them, to see a British registered civilian private helicopter passing their way.

We also wanted to avoid straying across the Saudi border, only 15 miles or so south of Aqaba. The air traffic controller's first question whenever we spoke to him was to ask if we were still in Jordanian airspace. In each case we were, and we made it into the airport without incident to be marshalled to land next to a gleaming British Airways Concorde. From our tiny little aircraft I looked out at it and reflected that it was really quite small as airliners go.

As the rotors were slowing to a stop, my door was suddenly opened from the outside.

"Hi, you're a long way from home!" It was the British Airways stewardess from Concorde, a fabulous 5 feet 10 in her flat shoes, and specially picked for her high- octane charisma. Martin made a huge fuss of her while she listened to his explanations of what all the complicated controls were for. She smiled, and wished us luck.

Once we'd refuelled, Dr Faisil, the Director of the SOS Children's Village at Aqaba, met us at the airport. The charity was becoming more and more interested in us as a tool for generating Press interest, and had been in touch with James to find out more about our route.

"Can we visit your Village?" I asked, keen to make the effort for anyone who had made an effort to welcome us "We've got a couple of hours to spare before we have to be in Amman".

It was just up the road. We met the children, and their adoptive "Mamas" who run each house, and admired the handsome stone domestic buildings set among orange trees and landscaped with neat bougainvillea, irises and succulents. We drank Turkish coffee. The children, and the Mamas, loved being filmed with my video camera, and the children loved watching themselves on the camera screen. They all waved us goodbye and we set off back to the airport.

We flew on to Amman, which took us about an hour and a half. SOS, now seriously interested in us, had a car waiting and had even booked a press conference.

All of those interviewing us for the press and TV were women, offering a stark and welcome contrast with the restricted role of women in Libya. We did our best for the charity, giving interviews to each of the TV, radio and press groups represented there. We explained, having been hastily briefed, why we were interested in SOS Children's Villages, our route from England to Australia, the record we hoped to achieve, and how we were aiming to raise the profile of the excellent work done for the orphans. We expressed our admiration for the Children's Village we'd just seen at Aqaba. The Jordan Director for SOS Villages, Lena Kopti, organised it, made it all run smoothly.

In the evening, Lena Kopti and her husband Owni, a sophisticated and metropolitan couple, generously took us out for dinner along with a group of friends connected with SOS.

It was an awesome party under the stars. The restaurant was a 100 year old merchant's house deep in the old part of the city

which tourists never get to, and we ate outside by candlelight under a liana-covered loggia, sensing warm aromas of spices and flowers, wafted around us by the warm breeze from the nearby desert.

The meal was one course after another of delicious Mediterranean food. Salad, vegetables, dips, lemons, spicy yoghurt, salsa and raw meats, including diced raw liver.

“Very good for your blood” insisted Owni, a medical consultant, as he saw me hesitate.

“Yes, but is it safe for a British helicopter pilot with no bathroom in his helicopter?” I very nearly said, before trying it. Getting ill was still my main fear, as I couldn’t imagine stopping every five minutes in the desert.

You spike the small cube of liver with a cocktail stick, dip it in a ground spice, which sticks to the glistening sheen of blood, and chew. Actually I loved it, fully expecting the next course to be sheep’s eyes, and completely certain that I’d be hideously ill all night and for weeks. And I’d left all the medicines in the helicopter.

Ramas, the Koptis’ son, was aiming to become a pilot and I talked to him about that. The meal finished with coffee, served by a man dressed as an Arab warrior, and brought in a tall coffee pot and poured out with stunning accuracy from a great height into a tiny cup.

Back at the hotel, Martin said he thought he’d see if he could find a late night chemist before turning in. He was walking oddly, and not looking at all well. I offered help, but Martin is not one to make a fuss.

“I’ll be fine, mate, you get some sleep”. He replied.

At breakfast the next day, we decided that this was a day for grabbing a bid of personal hygiene and laundry in the Marriott Hotel.

We spent part of the morning in the reception of the Marriott, with Ramas acting as interpreter, phoning ahead for fuel. We made no progress, other than vague hints that we might be able to get some Avgas when we got back to Aqaba, and then beyond that in Saudi Arabia. The real problem is that leisure flying in Saudi Arabia uses huge jets, and so there is little demand for pistol-engine fuel used in light aircraft in the way there is in the West.

“Too hot here for flying piston engine aircraft” declared one Saudi refuelling station.

Martin was pleased to have a day off in Amman, as he was feeling really unwell after the liver, so didn’t fancy six hours in a hot helicopter. He was really brave about it, and took loads of pills from the chemist, but his face was a rainbow of grey and red and yellow.

Later, Lena took us to the Children’s Village at Amman. We had lunch with a Mama and the nine children she cared for,

and with Lena. We played our fatherly tricks with the children and the camera, and made a great fuss of them and the Mama as we left their house.

An SOS educational worker told us about the SOS practice of looking after the children until they are 18 years of age, and have a vocational skill; whereas other agencies in Jordan did not look after them for nearly so long or so well. And she told of how the children, on leaving, kept up the relationship with their Mama, the girls often choosing to bring back their future husbands for approval.

We also met an engaging Jordanian medical doctor who taught street children English in his spare time. We sat in on a bit of his lesson. His English was humblingly good; as humbling as his selfless dedication to these street kids. “British Houses of Parliament” he said carefully to his boys, while holding a picture book aloft. They took notes and drew pictures. You could tell that the boys were keen to learn; they knew this was their only way out of the mess they’d been born into.

Jordan

Flight planning in the Marriott

1 of 11

We spent the evening being shown around the city by the SOS driver, Ibrahim, a Palestinian refugee, who had collected us at the airport.

He drove out of the parts of the city where Westerners congregate, and took us mainly through the bazaars. So what we saw was a mass of little lights, and alleys of shops crowded with wandering pedestrians enjoying their leisure. We were amazed to find a tiny shop in the middle of a vast bazaar that would take all our left-over money from every country we had been through, and swap it into dollars, the rate for each currency having to be haggled over in turn.

At the Roman Amphitheatre, we met a Bedouin, a professional tourist guide. He spoke immaculate English, with an accent combining Jordanian, home counties, Midlands, Welsh and British Army officer. He was a handsome man, tall, self- assured, comfortable in his own skin, and pleased to meet us.

He said he had been to the British Army military training college at Sandhurst. As with so much of what you hear in the Middle East, this seemed plausible, if unlikely, but the truth or otherwise of this claim was less important than the mystery it created.

We had promised Ramas that we would give him a circuit over the city in the helicopter, and next morning he was with us first thing. He and Ibrahim helped us find, on the way to the airport, some plastic canisters and a funnel, equipment we now knew we needed for airports not equipped with Avgas bowsers, so that we could fuel the helicopter manually.

Amman is a city of 5 million people, and we got some feel for the sheer size of it as we hunted for these canisters in one bazaar after another.

I took Ramas for his circuit round the airport perimeter. It was not, though, your average gentle first time circuit. With the heat and the altitude, the helicopter was operating very close to its limits, and moments before landing the rotor-speed warning horn shrilled in the cockpit. It's a warning that if you don't react urgently on the controls the rotors will stall and you'll crash. Ramas jumped visibly, but relaxed quickly as he saw my smile.

It gave me an early morning reminder that we were operating a machine in conditions which kept us very close to the dangerous edge of all the graphs in the pilots' handbook. These graphs show you the speeds, control settings, weights, balances, temperatures and a host of other variables which allow you to stay within the limits of the physics in which you are operating. Step outside the physics, and not even Sir Isaac Newton will save you. In fact Newton will probably be one of the few people who can explain to you why it was inevitable that you were going to crash. The limits we were operating close to were air temperature, take-off altitude, and, with all our gear and extra fuel, helicopter weight.

The further on we flew, the more grown up we needed to be about the flying. The safety margins were being gradually eroded.

Our aim for the day was to get as far south as Al Wehj, a little town on the Saudi coast of the Red Sea. This meant going the 125 miles south back to Aqaba, then out down the Gulf of Aqaba for 50 miles or so, and following the Red Sea for over 200 miles, to give a day's journey of around 400 miles.

To do it we needed maps. We had intended to fly down the pipeline which goes from northern Jordan south east across the desert to Bahrein, and the maps we had brought were for this route. But the Saudis had now refused permission, possibly because it was too near the no-fly zone in Iraq; and instead required us to enter at Al Wehj, on the west coast. We could then cross the mountains to Ha'il and continue to Riyadh, and from there to Bahrein from the west.

So we called the office and asked them to fax us some maps. Waiting for them to come through, and searching out the petrol canisters, meant we had a late start, but we still hoped to get to Al Wehj by 6 o'clock Jordan time, before the light went.

If we were lucky, we reckoned we could find Petra (the Rose-Red City cut from the rock, used in the Indiana Jones film) on the way down to Aqaba. It should have been visible up in the hills on the left as we flew down to the southern end of the Dead Sea. We flew over where it should have been, but the light must have been wrong, or it just wasn't visible from the air, and we just couldn't find it. Eventually we thought we'd better carry on before we ran short of fuel.

What we did find, though, while circling high over the baking desert, was what turned out to be a Bedouin camp, in the hills a few miles west of the romantically named 'Kings Road', which runs north–south across the desert from Amman to Aqaba. In amongst the stunning mountain ranges and desert scenery, the only people who seem to have the wit to withstand the extremes of temperature and aridity here, are Bedouins. Formerly nomadic herdsmen they now tend to move around less frequently but still maintain much of their traditional lifestyle, grazing their goats on the desert's meagre vegetation.

"Hey, there's a Bedouin tent down there, and a load of camels!" I said pointing.

"Let's go and ask them for a coffee", suggested Martin, a suggestion of flippancy in his voice.

I circled down, with the engine idling to cool it, coming down using only the spinning main rotor blades to slow our descent, like an Autumn leaf falling from a maple tree. Landing on the red sand, a respectful distance from the low block of tents which flapped about idly in our downwash. No-one stirred from the camp.

We walked across in the leaden heat, our shoes filling with scorching desert sand, and our flightsuits immediately soaked by our sweat. It was much hotter on the ground than it had been in the air, as the ground, heated by centuries of sunshine, radiated its stored energy into our shoes and bodies. The lazy desert breeze was hotter than we were.

As we approached the tents, we saw a flash of smiling white eyes and teeth in the shady gloom, welcoming us. A tall middle aged Bedouin man, in robes and head-dress, held his hand out towards us in welcome. A modern-looking assault rifle stood against one of the rough-hewn poles of the door frame, its butt sunken in the soft sand blown in from the surrounding desert.

He told us he was a guide, who did desert tours for tourists, whom he took out into the desert for a couple of days with a jeep and a tent, and showed them how to survive. He was today between bookings, and alone, so we were especially welcome, he said.

He spoke immaculate English, with an accent combining British Army officer and Arabic. He was a splendid figure of a man, and he too said he had been to Sandhurst.

"Marhaba" he announced in Arabic, "or 'Welcome'. Come in to my Majlis, my best room, especially for visitors!" He indicated that we should go first, and we entered the cool darkness of a

room thick with carpets and woven fabrics. We slipped our shoes off, and entered reverently.

He gestured that we should make ourselves comfortable on the mattress-like seats. Taking our lead from him, we sat cross-legged, and held out the small cup he gave each of us in our right hand.

“Coffee?” He asked us, but the question seemed like a formality, as soon he was pouring us some steaming 'qahwa' the traditional Arabic coffee black, without sugar, that had stood bubbling on a stove powered by bottled gas.

It was flavoured with cardamom , and he served it to us with agility and grace, together with dates which easily beat the ones which for some reason we always eat at Christmas.

Martin finished his quickly, clearly enjoying it. “The cup is refilled until you tell me that you have had enough by shaking the cup from side to side”. He instructed us gently, with a smile. “If I were here with my family, my youngest son would serve you”.

“Arab hospitality is renowned for its warmth and is an integral part of our culture,” he continued, “this can be traced back to the days of conflict and struggle in the desert, where every visitor to an oasis was greeted with unquestioning hospitality for the first three days, be they friend or enemy. 'Diyafa' or hospitality, has always been at the heart of Bedouin lifestyle and we considered it sacred and revere it as a tradition. We Arabs consider that religious belief and honouring one's guests go hand in hand”. He was in tour-guide mode now, but it was interesting to learn.

He poured us more coffee. I was getting nice and comfortable now, the extremity of the desert just outside seemed miles away.

"Hospitality is in our blood”, he said, warming to his theme, “It forms one of the cornerstones of our lifestyle and runs in our veins”.

I reflected for a moment on how this compared with the rather edgy insularity of much of modern urban Britain, where you could live for years sometimes without getting to know your closest neighbours, and where it has been known to find suicide victims who’d lain dead in their beds for weeks.

"Life in the desert was an equal challenge for everyone, and the only way to survive was to depend on each other, and to support each other. So a guest was to be welcomed and made comfortable even in the face of extreme hardship".

It was odd, I thought, that he didn’t appear to question our presence there, in his desert, or our abrupt arrival.

”Are you here for lunch?” he asked.
“That’s very generous of you” I said “ but we just popped in to say hello, really”.

“That will come as a relief to my goats” he smiled. I wasn’t sure if he was being serious.

Outside, the goats grazed quietly and unsuspecting, at the feet of his camel, who was a majestic beast dressed impressively in woven cloths of red, blue, black and white, including a rather spectacular head-dress with tassles against the flies.

Our host was clearly drawn to Uniform Kilo, comparing various points knowledgably with those of machines he'd sat in during his time with the British Army.

The encounter over, he gave us his card, and invited us back for a week-long tour when we were next passing. I thought I might just do that.

Back in the air, Aqaba air traffic control seemed jumpy, and wanted us to approach their field by way of a point fifteen miles to the east of it. We told him we were doing this, but flew at six feet above the desert so his radar wouldn't see us, and cut the corner, as we were very hot and dangerously short of drinking water. It showed forty five degrees centigrade on Uniform Kilo's outside air temperature gauge. In spite of our hurry, we were careful to keep well away from Israel's wary guns on the western side of the valley.

There was no Concorde waiting on the apron at Aqaba this time, only a heavy, dusty military helicopter. It chose to take off just as we came in. We hoped it knew we were there. We had one delay after another getting Avgas, and when that had been achieved, and the formalities completed, we had no chance whatever of getting to Al Wehj in daylight.

So we stayed the night in Aqaba.

CHAPTER 11

Saudi Arabia

We were planning to fly south to Al Wehj down the Saudi west coast, which is about 250 miles from Aqaba in a straight line, but 350 miles if you are routed to follow the coast. Saudi air traffic control insisted that we stayed over the coastline, which meant that we would need more fuel before we reached Al Wehj. But even if we could find some along the route it would mean landing in Saudi Arabia at an airport which was not a port of entry, and that was not going to be allowed. So we crossed the southern end of the Gulf of Suez towards Hurghada in Egypt.

“Giv me 30 min 2 find out whthr ne avgas at Hurg”, James had texted me.

The message came back to us within ten minutes that there wasn’t any, so we flew on to Luxor, a journey which is about fifty miles shorter than going to Al Wehj, and, better still, is across land.

When you aren’t worrying about fuel, the Valley of Kings around Luxor is an enthralling sight, along with the Nile itself. On the way back, once we had collected fuel at Luxor airport and taken off again, we relaxed and I enjoyed a few minutes contemplating all those Pharoahs lying buried for thousands of years in the magnificently monumental temples in the Valley. Then we turned east and headed for the coast. The hop to Al Wehj is first of all 100 miles back across Egypt to the Red Sea, followed by a 125 mile sea crossing, which carried with it the risk of drowning if the engine failed, as there was unlikely to be much Search and Rescue. Also, we didn’t know how clean the fuel was in this part of the world. But it was a nice day, the sea was calm, and there was a following wind. So we put the risk of engine failure to one side and instead counted the occasional ships going up and down the Red Sea as we crossed.

As we crossed the coastline, surrounded by nothing but sea, ships, sand, sun and sky, something occurred to Martin, and he broke the silence.

“I spy with my little eye, something beginning with S” he announced firmly. There was nothing else visible whatsoever.

We arrived at Al Wehj at around 2.30pm. Allowing for eating and refuelling, we would not have time to complete the 300 plus miles to Ha'il, the next stop, before nightfall, so we decided to make Al Wehj our stop for the night.

We were looked after by Abdullah, the airport manager, who went with us to get motor fuel from the local garage, and local currency to pay for it from an ATM cashpoint, which gave instructions in Arabic.

He then fixed us up for the night in some sort of airport barracks, a somewhat spartan place in crumbling concrete. There were five rooms, all empty, and a shower block at the end of the hall. It was clean, in a very male sense of the word, and the whole structure was hot to the touch from fifty years of unremitting sunshine. I tried the aircon unit, a large brown device which looked like the inside of a 1950’s Cadillac, and which replaced one of the panes of glass in the window. It had three

settings, tediously noisy, hideously noisy, and unbearably noisy, and each setting made no difference to the temperature of the air coming out of it. The shower was fantastic; a huge gush of cold water.

Abdullah later took us out for a meal of fish and rice at, bizarrely, a roadside Vietnamese diner, and then on to a coffee shop which he himself had started, to serve as a youth club for teenage boys.

We watched while these young boys, indistinguishable in attitude and behaviour from our own children, played noisily on the table football and pool tables he'd provided for them. A little bar in one corner served us Saudi coffee in tiny cups arranged on a tiny tray. He told us with quiet passion how he could see that for these boys to be the future of Saudi Arabia, they had to be given an outlet for their enthusiasms.

Most of these boys' enthusiasms appeared to be made in the West, I reflected to myself. Table football, pingpong, personal stereos, games consoles, and Nike trainers. Looking out of the window at the dusty concrete structures of the quiet desert town of Al Wehj in the evening sunshine, three hundred miles of desert from anywhere, I could imagine that teenage disaffection could be a problem. Nothing other than Abdullah's café appeared to be devoted to fun. There was beauty, serenity, and cultural identity, but there was no other teenage fun.

My reverie was interrupted by the sudden mass thudding of fifty pairs of designer trainers running for the front door. I looked around for the trigger for this stampede, expecting to see at least a poisonous snake on the pool table, and could find none. Abdullah picked up the tiny tray, holding with his thumb the neatly embroidered cloth doily, and, grabbing the sugar bowl, commanded to me and Martin: "Come!".

Wondering what the panic was, we grabbed our stuff and followed him out of the door, across the pavement, to his car. Looking back, I could see that the café was suddenly empty and locked up, with the curtains drawn and the lights off.

We got into Abdullah's huge luxury 4x4 at his urgent signal to do so. Inside, there were some pretty fabulous looking miniature rugs spread out, giving it the atmosphere of a fortune . Abdullah laid the tray down, still complete with coffees, on top of a lovely rich red rug spread out on the central armrest, gestured for us to continue to enjoy, and took another sip of his.

Sitting in the back, I asked "Er, is everything ok?" as I reached for my coffee on the rug between the two front seats.

"Didn't you hear the siren?" he asked? "It calls us all to prayer, and even if you don't want to pray, you must close all shops and cafes and stuff, or the religious police close you down".

I reflected to myself that the last time we'd had religious police in England they'd been dunking witches in village ponds.

He completed his kindness by phoning through to Ha'il, to let former colleagues know that we were coming.

We wanted to get from Al Wehj on the east coast to Riyadh in the course of today, which is about 650 miles, and something like seven hours' flying.

We took off at 6.30am. Even at 1000 feet above the coast it was 36 degrees, and we were forced up to a height of 8000 feet as much by the heat as by the mountains below us. The raw beauty of the desert landscape, red and yellow rocks and sand mingled with scrub, distracted us from anxieties about the fuel – for the fuel we were using was motor fuel, not Avgas, and you never feel quite so confident about its octane rating or whether it has been properly filtered.

Saudi Arabia

Sun baked desert East of the Gulf of Suez

Ha'il, our staging stop, is at an altitude of 3000 feet, a city white against the surrounding desert colours, and emerging abruptly from the brilliant shimmering sunny haze. Ha'il airport is the size of London's Stansted, but has no specific arrangements for getting Avgas into the tanks of small aircraft. There are pumps, but we had to put the fuel first into our green canisters, and from these pour it into the helicopter using our plastic funnel. In the desert heat, the effort is pretty uncomfortable.

Martin stood on one of our plastic fuel containers, to pour the fuel into the filler high on the roof of Uniform Kilo. I stood on the ground holding the funnel, to stop it tipping over when Martin filled it. The fuel vapour was heavy in the air around us.

While we were doing this, I gradually became aware of a tick...tick...tick noise, like the noise a gas cooker makes when you light it. I assumed was the plastic funnel expanding in the heat. I suddenly realised that the ticking was coming from a line of sparks leaping from the sharp point of my elbow to the nearest metal of the helicopter!

"Hang on a minute, Mart, I think we're just about to die", I said as calmly as I could. Martin, struggling with the awkward weight of 10 gallons of fuel, some of which was slopping onto his flightsuit, on the top of the wobbling container, needed it to be a pretty good reason why he should stop.

"What's up?"

He stopped pouring, for me to explain.

“More static electricity than I’ve ever seen before, probably from the hot fuel passing through the plastic funnel”, was what I wanted to say, but what I actually said was “MASSIVE STATIC! Can you hear the clicking?”.

We put everything down, and tip-toed away carefully to let everything evaporate so the situation wasn’t so immediately combustible.

I poured bottled drinking water onto my hands and feet to improve conductivity, and we poured the rest of the fuel in with me holding the funnel with my left hand, Martin’s ankle with my right hand, and with my bare toes curled round a metal fitting embedded into the concrete apron. This seemed to work, allowing the static to earth itself harmlessly.

“Better get a metal funnel when we can”, I said.

Our Arab spectators very politely did not laugh at our efforts, but we did later laugh at the situation ourselves, a bit hysterically when we came to think about how close we had come to being blown up. Almost as bad was spending the rest of the day smelling of fuel. We poured more drinking water over our flight suits, to wash out the fuel. In the dry heat, our suits were dry again almost immediately.

Abdul Samir, the station manager, showed us great courtesy and chased everyone else up to look after us. He spoke brilliant English, having spent a lot of his youth in the Knightsbridge area of London. He had started as a flight attendant and of course had flown widely round the world. He now took evident pride in the impressive status of his current position.

After our long spell in the baking sun fuelling the helicopter, he invited us into his office for cinnamon tea. This tea, or whatever it was, had the effect, perhaps assisted by the extreme heat and brilliance of the desert sunshine and the sudden darkness on entering his office, of making me hallucinate. I floated round the room at ceiling height, still drinking my cinnamon tea and listening to Martin conversing with our host below me.

I heard Martin say: "I see your women cover themselves here!", never slow to explore other people’s cultural differences.

Abdul: "Yes! And I tell you why!"

Martin, now really curious: "Go on...."

Abdul: "Because if they leave themselves uncovered, such is their beauty, they drive you CRAZY with desire." His dark eyes blazed with conviction.

The effects of the tea, the sunshine and heat and the darkness ebbed gently away, and I found myself back on the sofa, my trip unnoticed either by Abdul or by Martin.

Abdul gave us a richly woven Saudi flag as a parting gift. Fuelled, started and ready to go, Uniform Kilo didn’t want to play.

As part of my usual pre-flight checks, my calculation of available power at our current temperature and altitude suggested that I was being a little optimistic. I opted for a limited power take-off, even though these were most suited to departures from grass. I lifted it into the hover and tried to move away. It lurched, and landed back on the concrete again, the warning horn blaring out a declaration that the rotors were stalling in the thin hot air. The air was too hot, the atmospheric pressure at 3000 feet was too low for the rotors to get hold of, and the aircraft was too heavy from all that fuel. I put it back down again, checked all the instruments in case I'd missed something basic. No, we were just asking nature to do something she wasn't programmed to do. I tried again, more gently this time, and got the same result. I could lift it only as far as the point where the rotors and the undercarriage were sharing the weight of the helicopter and its crew and contents.

I knew that it would have helped to have a useable breeze, which helps on take-off, but the only breath of air came from the direction of the control tower immediately in front of us. I coaxed the helicopter along the taxyway, huge sparks flying as the landing gear scraped on the concrete, the helicopter rising at most a couple of inches off the ground momentarily, before crashing back down. It sounded and felt awful, and was wearing out the sacrificial pads beneath the undercarriage.

I did this three times, stopping each time only when my instincts were screaming loudly enough to tell me this was a real abuse of the machine.

I considered postponing departure till the relative cool of the night. On the fourth attempt, scraping and shuddering past the point of absurdity, Uniform Kilo began to rise, to fifteen feet, and, shuddering into translational lift, stayed airborne. But it had taken a hammering, and I took it round the perimeter track for a mile or so in case it became unstable. I wanted to stay near a fire truck in case it fell out of the sky. I got the hang of it eventually, having burned a little fuel off while circling over the airfield, and I set course for Riyadh to the east. All the same, at that weight, and with that temperature and pressure, for a while I could initially only get Uniform Kilo up to a cruise speed of 65 knots compared with the usual 100 or so.

The first hour was an anxious one, but as the machine continued to behave itself and gradually gain in speed we relaxed and resumed our usual mood of optimistic anticipation, looking forward to arriving at Riyadh.

Deserts are not easy places for human beings, and flying above the desert in that heat is physically demanding. One problem is turbulence: the air behaves as if it is a thick boiling liquid in some vast saucepan, with the heat of the desert generating violent convection currents which rise up into the atmosphere. We were thrown as much as 500 feet up, or down, without warning: and whereas normally a light touch on the controls is sufficient, in conditions such as these nothing will suffice but a strong and unremitting two handed grip, like steering a sailing ship in a storm. And if you don't keep it up, the controls can at any moment be whipped out of your hands,

with the helicopter upside down and out of control within seconds. I kept the power setting low, and the control inputs gentle.

We did fifteen minutes each, and climbed higher and higher to try to reach cooler and more stable air.

I was just getting used to it all, and hating the dizzy height of 6000ft or more, when I noticed what seemed to be a curtain of sand-coloured pillars in front of us. It was a huge storm of dust devils, vortices, twisting columns of air, their tips in the desert sand and over seven thousand feet tall, racing erratically about, faster than the 100 mph or so that the R44 can do in those conditions. One of these columns must carry hundreds of tons of sand, and would break us into pieces on impact if it hit us.

The moment we saw these things in the distance and heading our way, Martin suggested: “Max possible climb right now would be good.”

The natural horizon was out of sight in the blinding haze, but I still knew roughly which way was up, and how to make the helicopter get there. I pulled the **cyclic** stick back, pulled full full power on the collective, and concentrated on keeping the helicopter stable at “best rate of climb” speed using the artificial horizon and the airspeed indicator. Martin kept a lookout all round, suggesting "left" or "right" or "climb higher" at the approach of a vortex, so I could respond with an immediate banked turn away from the danger.

We climbed to 8000 feet, over a mile above the high shimmering desert, blinded by the glare. At this height we seemed to be at a standstill, with no outside visual references to tell our brains that we were still moving, but at least we were just above the tops of the battling dust devils.

The paths of these vortices across the sky were random. We had dealt with about twenty of them altogether, before we had gained enough altitude to escape them. It was a truly terrifying experience, and the return to the routine of flying on instruments in more gentle convection currents felt something like peace by comparison.

“One of those things, though a lot smaller, once picked up my hang-glider from the top of a Spanish mountain and dumped it in the valley below” remembered Martin. “Fortunately I’d left it there while I had some lunch, so I wasn’t attached to it at the time”.

“Nice” I said, still trying to relax.

“The Spanish one didn’t have any sand in it, though, so you couldn’t even see it coming”.

We were pretty tired when we got to Riyadh. King Khalid airport is huge; some say the largest in the world, and very modern, Arabic style with American influence. They would not let us land at the neighbouring military airport, where there is Avgas, and it had to be sent for. They were strangely contemptuous in all their dealings with us.

“I suppose we’re unusual, neither a commercial liner nor a private jet with en-suite bathrooms, and so they despise us for some weird reason”, I reflected.

We were charged navigation and landing fees totalling US$1000 for one night’s parking for the helicopter. I queried the bill with the cashier.

“It says here US$950 for navigation services, but we didn’t get any”, I said with a smile.

Stony faced, the man replied “We cleared you to land didn’t we?”

“Yes but if I’d landed without clearance, I’d have been arrested”.

“So better to shut up and pay $950, I think you agree”. He said, not returning my smile.

I took the hint, and paid up in cash.

The immigration officials showed the same cast of mind. Because we couldn’t persuade them that we had a visa, we were allowed only a 12-hour pass despite our protests that this meant we could only get a few hours sleep after an exhausting day; and our request for 3 hours longer was turned down flat, without either courtesy or consideration, nor reasons given.

There was an institutionalised arrogance, with an edge of menace, that we found personally very threatening.

It was all very odd, because in the rest of Saudi we had been treated with the utmost kindness and courtesy, entirely in line with the traditions of Arab hospitality.

A taxi shuttled us about between the airport, the Sahara Hotel, the cash machines, and the airport again because the Avgas had arrived, cash machines again and back to the Hotel, swerving often to avoid piles of the dispossessed just lying without apparent hope in the middle of the road.

We ate in an icy airconditioned atmosphere of segregated families and crowds of obnoxious teenage boys shouting into mobile phones. It was like one of those hideous future-fantasy films, where positive human values had been crushed by desperation and corrupted by the corrosive influence of unimaginable, unearned and inexplicable wealth.

Chapter 12

Bahrein

We woke at 5.40am, still absolutely knackered. We returned to the airport, cleared formalities and immigration, and left King Khalid airport as fast as we could. We had one last go at smiling warmly at everyone there, but there was no point in trying to change their world single-handedly.

“Thanks for having us and see you next time”, I tried with a smile. Not a flicker.

Bahrein lay 250 plus miles ahead of us, in the same kind of heat that we had been experiencing in recent days. So again we flew high. Midway we made VHF radio contact with Dhahran International, close to the Gulf Coast. At 4000 feet the cockpit temperature was still 26 degrees, with the ground for a time under a light haze of dust, but every now and again you could see huge cultivated circles lying green in the desert, and no doubt depending on a deep well and mechanical irrigation.

Nearly at the end of the trip we flew close by Dhahran International, leaving King Fahd International 30 miles to the North East, and followed the 15 mile road causeway across the sea separating Saudi from the independent emirate of Bahrein. The airport for Bahrein itself has been built on the island of Muharraq, at the north eastern corner of the territory.

We switched to Muharraq air traffic control, and they landed us in the general aviation section of the apron, with instructions to wait for the Follow Me Truck. We waited in the sun, sweating profusely, for 15 minutes for the truck to travel the half mile or so from the terminal building. When this arrived it took us 50 yards to the left of where we were, and then we were required to turn round, for reasons of neatly arranging ourselves with the handful of other aircraft already there. This meant taking the full blast of the sun into the cockpit, which was already at 44 degrees. But our priority was not to park neatly. We were here for maintenance.

“Uniform Kilo, Muharraq, can we taxy to a hangar for maintenance, please?” I tried one last time.

“Bus is coming for passengers” came the reply.

“Uniform Kilo, request taxy to Maintenance”.

“It arrive 5 minutes”.

“Uniform Kilo, request taxy to hangar one” I guessed desperately.

“Negative, passengers must disembark”.

“Uniform Kilo, negative passengers”.

“Bus gone already? Why you not go too?”

“Uniform Kilo, no passengers, no bus, request immediate bus for aircrew”.

As I spoke, the bus arrived, parking so close it nearly shortened our main rotor.

I switched off the radio, grabbed my bag, locked the helicopter and followed Martin up the steps into the cool of the bus. I tried Simon from Heli Air on his mobile. He responded; he

was at Gate 16, where the bus was, as I spoke, slowing to a stop.

Doing maintenance work in the full sun outside would not be possible. The tools and equipment would quickly become too hot to touch, and it would be inviting almost immediate lethal sunstroke and dehydration, even with a sunhat and loads of water.

Driving around the massive airport in a handling agent's old Toyota, we found that the only available possibility was a large hangar housing the US Navy Search and Rescue presence on the airfield, and we made for that. Huge helicopters stood parked around it. Would there be our kind of people inside?

There certainly would.

We walked in and introduced ourselves. Astonished, they gave us a warm and interested welcome. They gave us hangar space, and every facility. They gave us access to their iced-water supply, their shower room, their washing machines, their internet connection and their air-conditioned burger restaurant.

In the US Navy hangar at Bahrein.

They clearly thought we were nuts

All 80 of them, looking after their eight huge OH 53 McDonnell Douglas 3-engine machines, would stop by individually to chat, and to rib us about our tiny machine. Their OH 53 is the biggest helicopter in the world. It will take 50 people. It can take an R44 inside its cargo bay. Its engines develop 15,000 bhp. The range is five hours. It can be refuelled in the air. But our R44 is American, too, and one of the US engineers had owned and flown one; so there was a limit to the amusement and the scepticism, and comparing our 250 bhp engine to a rubber band was as far as it went. We could sense, though, that they were also concerned about us; that with their own vast technological back up they thought us more than a bit crazy to be making a journey of this length in what they saw as a fragile machine and with such minimal specialist support along the way.

With all this hospitality, Simon got on with the 50-hour service. Although the 50-hour is usually quite a light-touch affair, required by the UK authorities but not by the Americans, this

one would include a meticulous examination of every component and every bearing in addition to the usual list. The plugs get changed. The magnetos are tested. The electrics are examined and tested. The fuel filters, lines and pumps are checked. The oil, of course, is changed as well. Simon looked at the minor oil leak from one of the seals, but it did not seem to us to be getting worse, and the engineering involved in fixing it would have been quite disproportionate this far from home.

The availability of the right oil was increasingly a problem. Here we were, on top of some of the largest oil deposits in the world, and we were short of oil. But this is not just ordinary motor oil. The R44 burns a litre of it every three or four hours, and you therefore need to carry some with you for topping up. Because of the airline restrictions on flammable items, and limits on personal baggage, Simon had been able to bring with him only enough of the specialist oil required for the oil change itself, but for the top up we had to re-bottle some of the used oil. Not good, but the best we could do.

We did yet another careful sort through all the stuff we were still carrying in the helicopter. With the increasing heat as we went south making take off more difficult in the thin air, our load weight was increasingly in need of scrutiny.

“We need to get this thing light enough to take off even in places like Ha’il” said Martin, wistfully packing the dreaded water purifier in the box bound for home, alongside all our spare clothes and shoes, our towels, our swimming trunks, my pencil case, and half of everything else, including half of my face towel, the other half torn off and repacked.

After a lot of thought and selection we managed to get rid of nearly 50lbs weight, the equivalent of nearly nine gallons of AVGAS, which we again sent back home by DHL.

Bit by bit we were reducing our equipment to the minimum required for survival. Every luxury, everything which might just come in handy, everything not yet actually yet used, other than survival gear, was being stripped away and rejected. In a way this was what was happening to us as human beings. Our entire focus was being narrowed to the issues directly associated with getting to our destination, and in one piece. Helicopter, fuel, oil, water, food, sleep, maps, flightplans, teamwork; these were our world for the time being. Everything else, all the preoccupations of the modern world, were now nothing but vanity, and we were now almost completely purged of them.

Simon, suddenly jetting into all this from Home Counties normality, and seeing a two-day snapshot of our survival mindset, obviously thought we were completely off our heads. He was probably right.

The Hotel Ramada in Bahrein is a very serene place. We enjoyed our stay there and especially the clean sheets and the cool marble bathrooms.

The evening social life in Bahrein is of course entirely masculine, and a bit rough. A Chinese restaurant was nothing spe-

cial. An Irish pub, called, inevitably, Murphy's, was full of men, 90% of them Saudis escaping their home country's ban on alcohol, and the rest expats. One of the expats, an Irishman, was a Porsche dealer. Another, a Norwegian, said he was selling fish hooks. The whole expat community seemed to be running away from something back home. They knew how to party, though, especially when some fresh blood was injected into their social life for a night or two.

Once Simon had come to the end of his work on the helicopter, two tests had to be carried out. The first was to check that the engine worked ok. This test was done on the ground. We got it out of the shade of their huge hangar with the help of some American friends, and fifty yards away we started the engine, and checked it made all the right noises, and showed all the right signs on the gauges. It worked fine, without vibrations or apparent leaks of oil or fuel.

The second was a flight test. Martin took it up with Simon as passenger. This was an experience for Simon, who had not previously flown in a helicopter over the sea. This test, given the shoreline location of the airport, was entirely over the sea. Simon did a great job, listening for vibrations, checking instruments, and watching how the aircraft responded to the controls. The flight was over in a few minutes and Martin and Simon both declared Uniform Kilo serviceable. Simon checked everything for leaks or other signs of danger, once more before leaving us.

We gratefully put him on his scheduled flight home, and he took with him our congratulations for a job well done, and a small bag of my videotapes.

CHAPTER 13

Fujairah, U.A.E.

We had arrived in Bahrein on the evening of Thursday 7th October, and spent the Friday, Saturday and Sunday there, leaving on the Monday morning. There were indeed things we had to do or get done – the servicing, the laundry, the sorting out of surplus kit, and the slower less perceptible business of recovering from lack of sleep; but between all this past and present activity was needed attention to the future.

We were trying to get the Iranian authorities in Tehran to let us land at the Bandaras Abbas, just across the Gulf of Hormuz; or even simply to use their airspace on the way to Pakistan. Mike Gray, James and Martin all applied to them. The three of them used email, fax and phone. They all pestered different levels of the government hierarchy. They responded to requests for faxes against promises of faxing back a response in ten minutes. Nothing ever happened.

“Do these people live in fear of saying yes?” Martin cried out at one point after a particularly circuitous phone call to an official in the Iranian civil aviation authority. The reality may have been that the southern coastal strip of Iran is to some extent in rebel hands, and they did not want to admit it. Or perhaps they thought that people using US Navy facilities must really be agents of the CIA.

We found another way. We had been keen to use Iran only because it kept sea crossings to a minimum; the Gulf of Hormuz crossing is not much more than 50 miles from the northern tip of Oman whether you fly north or on any course through to east.

However, with so many incident-free miles behind us, we were now developing an intimate trust in the machine that had brought us all this way.

“Why bother with Iran, if they don’t want us?” I suggested. “Why don’t we fly east to UAE, and then along the Iranian coast all the way to Pakistan?”

Having measured out the route, we decide to take off for Dubai in UAE, with the idea of reassessing the situation when we got there.

We got clearance to take off, and then, ignominiously, the helicopter would not start.

The starter electrics were dead, and there was no response when I turned the key. I tried pushing and pulling a few buttons and switches, and reflected edgily that we had just put our engineer on the plane home.

“So much for trusting you all the way to Pakistan” I said to Uniform Kilo under my breath, and feeling immediately ridiculous for talking to a helicopter.

I checked all the circuit breakers in case they have glazed over in the coastal humidity. I recycled them all, and tried the starter again. It worked, and the engine ran beautifully. We were off. Taxy way B. Course for Dubai, 095 degrees.

To Dubai is a sea crossing of around 250 miles. We flew over oil installations, oil slicks, tankers, smells of petroleum, and banks of steam coming off the sea. But there were also schools

of porpoises, and fleets of turtle doing their elegant breast-stroke, in all the pollution.

As we approached the city, high above the coastal clouds, a trick of refraction of sunlight on the pollution seemed to lift the dazzling silver skyscrapers from their desert foundations, and place them, floating, on the evening clouds 2000 feet above us.

In the air over Dubai we descended enough to be in the mobile phone coverage so we could text James back home to tell him that, having still heard nothing, we were abandoning the idea of landing in Iran, and instead were planning to overfly Dubai, and aiming to land at Fujairah on the east coast of the United Arab Emirates.

Dubai passed us through its airspace: Fujairah, 80 miles on, beckoned us in. I climbed up over the clouds covering the intervening mountain range, with the peaks showing through, and descended again into the clear coastal air above Fujairah; and down to land.

Chapter 14

Pakistan

Being at Fujairah meant that we now had a shorter journey to get to Pakistan. It was by now clear that whatever we did the Iranians were not going to give us clearance, so we gave up on them. The alternative was to make directly for Gwadar, just inside Pakistan, a stage of 350 miles or so, all of it over sea. We reckoned that was just about ok, as experience was showing that 350 miles was within range, and the sea route was anyway very close to land, even if it was Iranian land.

We had clearance into Pakistan, though when James phoned ahead to confirm the pre-arranged Avgas supply at Gwadar he found that the military had raised a query about the flight. What this query was they wouldn't say. On the other hand, what James was hearing did not amount to refusal, or to a withdrawal of the clearance. We could always apologise later if there was a problem, we decided.

We spent some time in the pleasant atmosphere of the Fujaira tower offices, searching for the best met information. A lot of it in that part of the world is based on Dubai, 300 miles to the east. As a special request we were able to get information for our route and at a low level, and it showed a 15 knot wind from the north west, which was not far off a tail wind for our intended course going more or less due east. So it looked good. An unfavourable wind could have taken our destination Gwadar out of range. We just had to hope that the forecast was right.

Fujaira International, on the Eastern coast of UAE

Panels open for a good preflight check

It looked as if it would be a mistake to take the military query about the flight too seriously, so we filed a flight plan by fax, and we got a fax back accepting it.

We had refuelled the previous day, and all we had to do now was leave.

The Hotel Plaza had been welcoming and entertaining, with the manager dining with us, and enjoying with us in an otherwise empty hotel restaurant a passionate performance by an Abba tribute band. The airport staff had been kind to us and helpful; they had charged us no landing fees, and we had received warm hospitality and gifts. And we had met Captain Khaled, a private pilot who owned an

air- conditioned four-seat Cessna, who gave us two litres of precious oil of just the right type.

“Heading east over the sea? Make sure your fuel filters are in good shape” he warned, clearly not wanting to elaborate.

It seemed to me to be a peculiarly specific warning, and I wondered what he meant exactly. I did as he said, and gave the fuel system a very careful pre-flight check.

We sent our warm thanks over the airfield radio, and flew out over the sea. The day before we had approached Fujaira from the landward side, so hadn’t appreciated the full magnificence of the sea-port. We could now see the extent of the harbour, crowded with around 30 ships. The hotel porter had told us that Fujaira is a good international shipping destination, because the insurance is less than if you go into Dubai or points beyond.

Any further west than Fujaira involves going go closer to Iran as you pass through the Straits of Hormuz, with a risk of piracy, and there is also a greater danger of uncharted magnetic mines, which make a mess of your ship. The sight of all those ships at anchor was impressive.

We set course, due East, for Pakistan. Soon we were out of radio range of Fujaira, and were alone in the hazy blue sky. Below us the sea was mirror calm, above us the sky was a blur of salty haze, and ten miles to our left was an unbroken red Iranian cliff. With no features to measure our progress by, the visual monotony created an illusion of hanging stationary in the sky. The only thing that seemed to be moving was the fuel gauge. Occasionally a coastal freighter would appear below us, and we would be jolted into an appreciation of our speed, like stepping onto an unseen escalator.

At our half way point, we called up the coastal military airbase half way along the coast, who did not answer. We headed out to sea in deference to their airspace marked on our American chart, and described a 30 mile radial arc around them until back within sight of the cliffs on the far side.

As far as we knew, no-one knew we were there.

We flew on, listening unconsciously to the monotony.

After another ten minutes, and well past our half-way point, we found ourselves looking at each other. Nothing you could put your finger on, but we had both noticed something. Something that our survival instincts had alerted us to. Listening hard for a few minutes revealed nothing, and as we flew on, our eyes wandered over the instruments, looking for clues as to what had spooked us.

Just as we were both relaxing, the engine gave a cough that neither of us could ignore. All the engine guages showed normal, so it was likely to be fuel. Dirty fuel. Not good, off the coast of Iran, out of radio range of anywhere, too far from friendly Fujaira to turn back, a day’s walk from a military base who hadn’t answered us, and with no shipping in sight.

The cough became a feature of the engine's rhythm, and the rotor speed decayed slightly as the engine's power output reduced.

Martin turned left gently, heading for the coast. "Let's go and clean those filters" he whispered, as if trying to avoid alarming anyone.

"Better get low in case there's radar", I suggested. Although this would reduce our gliding distance if the engine quit completely, it might make our two-man invasion of Iranian territory less immediately noticeable.

Fifteen minutes later, we landed amid the swirling red dust of the clifftop. A straight military road stretched off into the desert haze in both directions, and the desert shimmered. A sea breeze climbed lazily up the cliff.

On opening the door, the heat was like an industrial process.

With the rotors slowing , we got out and had a look. On each side of the machine there are drainage points for the pilot to check the fuel system for contamination before each flight. We checked all of these, and there was some water in these traps, and some really serious rusty-looking grit. There was nothing for it; we were going to have to get the tools out and check the main fuel filters. Looking anxiously up and down the road for any approaching vehicle, we started unpacking.

As we had not expected to use our tools, and as they were heavy, we had packed them underneath absolutely everything else. On the side of a lonely Iranian road, 50 yards from the clifftop, I unpacked item by item, until I found the screwdriver to take the panels off. I unscrewed each panel in turn, handing Martin the precious screws one by one.

"Keep an eye on the road" he said quietly.

He piled up the panels carefully, putting them on a pile of maps so they weren't damaged, and putting the sat-phone on top of them to stop them blowing away in the wind.

Finally I could see the fuel filter. I unscrewed the anodised trap bowl, using a mole wrench, having first untied the stainless steel wire which was there to stop it coming undone in flight. I handed it to Martin to clean, while I held my thumb over the end of the pipe to stop the fuel pouring out.

"Turn the fuel off, would you?" I asked him.

The trap bowl was full of some kind of smooth grit, which had clogged the gauze. It was amazing that the engine had run at all. Martin cleaned it as well as he could using his toothbrush.

He handed it back to me.

"Hurry up!" he urged.

"OK, OK" I muttered. I blew into it one last time.

With the trap back together, the wire threaded back around it, the panels on, we were just starting to repack the helicopter, when distant movement caught my eye. It was a tiny bolus of

white dust, shimmering at the edge of visual range on the road in the direction of the military base we'd flown past an hour ago. Probably a truck, and heading our way.

"Time to go" I suggested, pointing over Martin's shoulder.

"Get in and start up, while I look round".

I threw the rest of our stuff onto the back seats, climbed in, and tried to start the engine. It turned over, but didn't fire.

"The fuel lines must be full of air!" yelled Martin, above the grinding noise of the starter, as I checked around the fuselage for obvious problems. He got out, and ran round trying to drain some fuel through from the draining points. None came.

I looked around for what might be wrong. Suddenly I remembered that the fuel master switch was off. It's a switch you never usually use as a pilot, except if there's a fire in flight, so it doesn't usually come to mind in the engine start procedure. Especially when you've got a truck full of Iranian militia bouncing along a dusty desert road towards you.

Ten seconds later then engine was running and warming up. This normally took about 5 minutes, including various engine checks you were supposed to do.

"Just get on with it", Martin urged. I could almost see detail on the approaching truck. Martin ran round Uniform Kilo one last time to check we hadn't left anything undone or hanging off. Satisfied, he climbed in and strapped himself in.

"Today would be good", he said with a smile into the headset.

Against all my pilot instincts, before the engine was warm and tested, I engaged the clutch which engages the rotors. They remained still, sullenly, for a second or two, then started their lumbering turning.

Before we could fly away, the rotor clutch had to be completely engaged, and then the engine and rotors had to be wound up to full revs. Anything less than that, and you were gambling at the edge of the physics.

Martin said nothing, but looked out at the approaching truck. By now we could now see there were two of them, with canvas covers flapping.

"Hang on to something", I muttered into my headset microphone.

Martin said nothing, checked that both our straps were tight and secure, and grabbed the doorframe to steady himself.

I could tell that Uniform Kilo was critically unready for flight, but we couldn't wait.

I heaved a handful of lever to take off into the hover, just as the clutch was finishing it's work. The rotors still weren't turning quite fast enough. For a few moments the stall warning horn screamed at us, and the yellow light came on, dim in the blinding desert sunshine. But Uniform Kilo rose uncertainly in a cloud of red dust, hiding our detailed outline from the approaching trucks. The effort of lifting us slowed the already

slow rotors, and for a moment I thought physics might defeat me.

Stamping on the left pedal to bring the long tail away from the cliff edge and out to sea, I flung Uniform Kilo sideways over the cliff, and lowered the lever very sharply to put the unsteady helicopter into a fast spiralling descent. The upward rush of air through the rotors in the glide helped the engine get them up to the right speed for the first time since we had taken off. We were flying, but we were dropping nose first towards the sea, with the cliff only 10 feet from the tips of our rotors. As the surf at the bottom of the cliff rushed up towards us, I pulled us out of the dive, as hard as I dared, while Uniform Kilo shuddered with the effort. It was definitely a fabulous helicopter, I decided.

I tried to get my bearings.

“Head off that way close to the cliff” Martin said, pointing towards distant Pakistan. “It looks like it curves around out of sight in about half a mile”.

Martin looked back through his side window as we hugged the cliff. “The trucks have stopped at our landing site”, he said Uniform Kilo’s engine ran sweetly on.

In the last half hour we were fascinated by the moonscape nature of the coast below us as we moved in from over the sea, which we did after passing the Iran/Pakistan border still very low level. The massive rocky cliffs plunged straight down into the sea, now fronting a range of mountain peaks of much the same height, all of it riven with valleys that led nowhere. And it was all a dark red-brown. This unusual rock formation began to transform into a more familiar sandy orange scrubland as we approached the desert airfield at Gwadar.

Our fuel gauges sank slowly towards zero, as we approached the runway, and once again, we landed with the light on. I checked the distance calculations again, and worked out that it was unlikely that we were losing fuel.

We landed at Gwadar at 2.30 in the afternoon.

It was a dusty place with a rather edge-of-Empire feel to it. Everything was covered in dust, and in need of maintenance. There was no Avgas, and no Mogas either.

We closed down, and walked over to the tiny concrete office at the foot of the control tower.

As my eyes adjusted to the interior darkness after the sunshine outside, I saw a little man behind an old wooden desk with a faded green leather top, and an inkwell. He stood up to greet us, sliding back as he did so his old wooden chair. It banged into his filing cabinet. There was hardly room for the three of us in the room, let alone for the colonial furniture. Telling us proudly that he was the Clerk, he sat us down, and started the process of taking money and information off us.

Sullenly, he made us pay the landing fee in US dollar bills dated no earlier than 1992. He checked each one carefully,

and recorded the serial numbers on each of the bills. The hand-written receipt he handed us was yellow with age.

He told us we now had to be vetted by an Immigration Official. But he was on some kind of siesta, and some distance away.

More officials arrived, and squeezed themselves into the office.

There was an atmosphere of suppressed hostility which we could not get to the root of. We seemed to be a problem for them. They seemed threatened by us, and suspicious. I didn't like the way things seemed to be heading, and wondered if they had been talking to the Iranians. No-one but the Clerk seemed to speak English, and they all had a sun-baked, definitely unexpectedly Arabic look about them.

Two soldiers led us from the Clerk's office to the sun-baked, crumbling concrete tower. We climbed the rough steps up to the glass control room at the top. I was getting seriously dehydrated, and was feeling unsteady on my feet. I asked if there was an airport café, where I could get a coca-cola or some bottled water. This was obviously a silly question, not only because there wasn't a café for miles around, but because we clearly weren't going to be allowed to leave the tower until they'd been given permission to release us. Permission would come from whoever it was at the other end of their old Pye shortwave radio. The controller screamed into it above the interference. There seemed to be at least ten separate conversations being held per channel on this ancient set, and each operator shouting at the top of his voice to compensate for the lack of clarity. None of it was in English. There was no phone line.

I asked again for some water, and after what sounded like a short hostile squabble between them, one of the officials shrugged and disappeared down the staircase from the tower. I made to follow him, but was blocked by the soldier. The man returned, carrying a chunky tall glass with water in it. I thanked him with a smile, trying to establish a common human bond with him, and raised it to my lips. They all watched. My eyes focused on what I was about to drink. I knew it was a risk as it wasn't from a sealed bottle. I remembered my one real fear about this whole trip; getting ill somewhere really filthy. I looked into the glass. The water looked clear enough, but small translucent items were swimming in it. Whatever they were, they we propelling themselves around the glass. I looked up, to see a ring of brown faces who, it seemed to me were almost beginning to warm to us. My head filled with the competing issues of getting ill from dirty water, getting ill from dehydration, or offending these desert people by refusing their water. I emptied the glass down my throat, and smiled at my captors.

It took an hour for this local armed bureaucracy to be certain that the Immigration Official was not to be found: and another hour for everyone to arrive at the conclusion that it was all too much hassle, and all the while I tried not to think about how ill I was just about to be.

Eventually the shortwave radio issued instructions for us to be sent along the coast to the next airport at a place called Pasni.

We had just enough fuel.

On arrival in the last few minutes of daylight, we were greeted there, after the half hour flight, by well armed and organised soldiers. They were from the nearby barracks, which looks after the airstrip. They took us into the Manager's office, and there the mood worsened again. He sent for the magistrate, and half an hour later the magistrate turned up with eight other people, including the harbour director and the commissioner of police. There were lots of questions, polite and reasonable, to establish our credentials and the credibility of our story. After each question they had a long discussion in their own language. It was like some kind of impromptu court or council, and it took an hour and a half for them cautiously to conclude apparently that we were safe enough, but we sensed that we were still nevertheless an embarrassment, and we felt we didn't yet have the full picture.

To our alarm, an armed guard of three soldiers was summoned up. By this time it was completely dark outside and we were bundled into a pick-up truck with these soldiers. We had absolutely no idea where we were being taken. No one with us in the truck could speak English and we were out of touch with the real world, clattering along this pot-holed dust road to an unknown destination. We were feeling distinctly apprehensive. Had we been taken hostage? Were we the next "Middle East Hostages"? Was all this just local, or was the area still under control from the distant capital, Islamabad?

I tried to assess the prospects of escape. The truck was moving quite slowly, as the track was narrow and in very poor condition, so we could have jumped out. But the soldier in front of me was young and fit looking, and armed with an old but clean- looking rifle. From the way he held it, he looked as though he knew how to use it. And he had two colleagues, so they would probably shoot at least one of us, even if we both ran in different directions. I didn't suppose they'd leave Uniform Kilo unguarded, so it was unlikely that we'd be able to sneak out of the country even if we made it back to the airport. And Uniform Kilo was almost out of fuel after its long flight from Fujaira, so wasn't much use for escaping anyway.

All we could do was to stick with these people, and try to make friends with them.

The hotel in Pasni, when we got there, was rough, with basic air-conditioning, and we were given a dark room, with an en-suite shower, which comprised a rusty tap set in a breeze block wall, together with a dented jug. There was no phone. Our mobiles would not work. I checked out the window, to see if I could set up the sat-phone. The window was the size of one breeze block, and had a rusty grille on it. So there was no chance of getting the kind of clear view of the starry sky you need to get a satellite signal.

So we were imprisoned in the wilds of Pakistan, and no-one knew where we were.

We showered and opened the room door, heading for the sociable, though entirely masculine, noises coming from the restaurant, and hoping to use the sat-phone on the front steps. But no. Outside was an armed sentry, grim, alert, and barring the way with his rifle. We were under room arrest. I smiled at him, and gave him a cigarette, which helped him smile with me in apparent sympathy at our situation, but he wasn't going to let us out.

We were just wondering what would happen next, and how to get ourselves fed, when a meal was produced for us to eat in our room. Rice with prawns and several other fish tasting fresh from the harbour, cucumber, dips and fried cup mushrooms. It took two white-coated waiters to bring in, on eight separate plates. They also brought us a box of Rose Petal tissues, and two large bottles of chilled Nestle water. The manager came in to speak to us. Like everyone in authority here, he was an educated man, and immediately likeable.

He asked if we were comfortable, and whether he could get us anything.

"Whisky and lots of cigarettes, please", I said with a smile. I didn't want either, but it was a way of getting what I did want which was dialogue. He was ok, but I could tell he was on the make. On the make is ok, though. I'd be on the make if I were stuck in this muddy little place in the middle of nowhere.

"Hundred dollar". We settled at seventy, as a hundred was his starting price so had to come down for him to respect me, but seventy was enough to make him want to be my friend. He went off to see what he could find.

He came back shortly with a bottle of something that said it was Highland Queen Whisky, complete with cut-glass tumblers, and some packets of red Marlboro. These would be useful for making friends in awkward places.

We ate gratefully, and it was fantastic.

But we still had no idea what was going on, and what was going to happen to us. So far, though, I hadn't become ill from Gwadar's water, which was a huge relief.

When all the food was inside us, Martin poured us both a large Highland Queen, while I lit a Marboro for both of us.

Neither of us smoked as a rule, but we were in prison in Pakistan, so it seemed appropriate.

"Well the food's ok" I said, leaving unsaid the end of the sentence "if we've got to be here for a while".

We discussed our options. It didn't take long. Escape, no, sleep, definitely, more whisky, within reason, more cigarettes, inevitably, negotiate our release in the morning, possibly.

As I waited for sleep, I lay in narrow bed trying to find some reasons to be cheerful. No freedom, no fuel, no sat-phone. I sighed and fell asleep, hoping everyone at home wouldn't worry too much.

The next day dawned early, with the sound of street life drifting in through the grille at the window.

I leapt out of bed, pulled just my flightsuit on, and tried the room door. No guard.

I crept down the hall, still with no shoes on, and peered round the front door into the morning sunshine. It was still first thing in the morning, and my cautious gaze was met by the local atmosphere in the dusty road outside; dogs, cattle, trucks, bikes, heat, flies, dust and sweat. As I stood assessing prospects for escape I was hussled back in with a rifle gesture by the guard, who tapped me silently on the shoulder from behind. He'd been taking tea with the manager.

They gave us breakfast in our room, locking the door behind us. Even the tea and dried fruit they gave us didn't cheer me up.

"Not looking good then" said Martin, when I told him.

Suddenly, without notice, the manager burst into the room, followed by the guard. We stood up to greet their arrival, and to hear our fate.

"You must leave now" he smiled.

He told us he was no longer under orders to confine us to the hotel. I decided it was best not to ask for details. We packed, paid, and presented ourselves for transportation back to the airport.

The guard came with us in the pick up truck while we visited four different fuel stations. These were open-fronted shacks built with rough sticks and corrugated iron sheets housing battered rusty barrels, each attended by a dirty man with a funnel. No chance, I thought. We can't trust this stuff. The fifth was run by Pakistan State Oil, and the manager said that this curious kind of petrol was Iranian, and while it was just about sufficiently refined for cars it simply would not do for an aircraft piston engine. He said even car engines only last two years on it. He showed us some and we saw what he meant: it seemed close to diesel. I threw some on the hot concrete to check its volatility. To be able to use it in the Robinson, I needed to see it evaporate quickly, leaving little trace. It lay there obstinately, congealing to a dark stain.

"Not sure what it is, but it's not petrol", I concluded. "More like tar, I reckon".

Back at the airport, still with our escort, we used the satellite phone to ring James at home to see if he could help, and he gave us startling news. Reuters News Agency had just announced that there had been a military coup, overthrowing the civilian government. A real-tanks-on-the-lawn job. No wonder our reception had been so edgy. No wonder we had had an armed guard. But at least we were no longer being held as hostages.

Getting out of Pakistan was now our urgent priority, before events caught up with us. And that meant fuel. We asked the airport manager if we could get some from Karachi and bring

it back on a scheduled flight. If we had the right papers, perhaps, could we get it flown in from Fujaira? Well perhaps, but with the coup, the diplomatic channels would be closed. With so much domestic political tension the last thing we could expect him to do was stick his neck out for us. He had his pension to think of, which was fair enough.

We rang Mike Gray to see if any of his local agents could help. He said, ring back in two hours.

We sat around awaiting developments. The airport was filling up with army, police and officials. Our aircraft was the only one there. There was no café, and no shop, so we were thirsty and hungry. We knew that even if we did get some fuel, there would be a dozen officials to settle with before we could fly off. Doing nothing was your natural role if you worked here. We put a lot of effort into keeping our cool, while trying to get the result we needed.

Every time we used the sat-phone, James said his phone was red-hot with media people. Because we were in Pakistan at the time of the coup, we became suddenly newsworthy back home. Suddenly the UK news networks were in contact saying, “There you are in the middle of this coup, can’t we have an interview?” In the course of the day we were hooked up to talk live to Sky, Anglia and Central Television as well as to local commercial and BBC radio.

Pakistan

Fuel at Pasni

But we still needed fuel.

James rang us. There is fuel at Pasni somewhere, he said, left over from some previous consignment arranged by Shell, he told us.

Martin, tense, was a little short with him:

“I can tell you, James, we’ve looked in every store cupboard, every office, and every dusty little hut on this airfield, and there isn’t a drop of Shell fuel anywhere!”.

“Well the man from Shell insists that there is”, said James, six thousand miles away. A further search of the airport itself didn’t take us long, and the result was negative. “We’re assuming they mean Pasni Airport; maybe it’s somewhere else in Pasni, like at the harbour”, I suggested. “I should think it’s

quite a small place to search". Pasni in general seemed like a tiny and intimate community, held together by fishing.

Martin cut a deal for dollars with the driver of an ancient dusty taxi to go and look, while I kept an eye on Uniform Kilo. It turned out that the port had only one warehouse, on a quay used by the local fishing boats, and he quickly located the fuel. It was a shiny new unopened barrel of Shell Avgas.

He bought the barrel for an absurdly high price in dollars, from someone he didn't think actually owned it, and got transport back to the airport included in the price. I saw him turn up two hours later with the barrel in a funny little pickup truck with "Welcome" embroidered into its canvas cover.

It took us over an hour to fill up the helicopter as there was no manual pump, and we had to pour it all in using canisters; surrounded all the time by a ring of armed sentries. We had to keep asking them not to smoke. By the time it was done it was 5.30 in the afternoon, close to getting dark.

Finally, I could put an end to my growing worries about whether we would have to get the helicopter crated up and sent on by land, with ourselves in the cab of the transporter.

With no daylight left, we returned reluctantly to the hotel, and had the same meal, in the same room. The guards were still edgy, but let us out onto the front steps of the hotel, where we could use the satellite phone. The village children were fascinated by the piece of shiny technology, and I had to invent a game of boules with stones in the dust to keep them far enough away from the device to prevent them being fried by the aerial signals. They shrieked with delight at the game, just like my own children back at home.

Autorotation

For a helicopter, "autorotation" is the mode of flight, where the helicopter is descending, in which the engine is disengaged from the main rotor system and the rotor blades are driven solely by the upward flow of air through the rotor.

The most common reason for autorotation is a full or partial engine failure, a complete tail rotor failure, or following loss of tail-rotor effectiveness, (as there is virtually no torque produced in an autorotation).

The freewheel unit is a special clutch mechanism (a “sprag” clutch in the Robinson) that disengages anytime the engine drive speed is less than the main rotor speed. This might happen if the engine fails, or if commanded by the pilot by rolling off the throttle and lowering the lever, and the freewheeling unit will automatically disengage the engine from the main rotor allowing the main rotor to rotate freely.

At the instant of engine failure, which is rare in a piston engine helicopter, the main rotor blades are producing lift and thrust from their angle of attack and rotational speed. By immediately lowering collective lever, and thereby reducing main rotor blade pitch, which must be done immediately, the pilot reduces lift and drag and the helicopter begins an immediate descent, under the influence of gravity, producing an upward flow of air through the rotor system. This upward flow of air through the rotor provides sufficient thrust to maintain rotor rotational speed throughout the descent, provided it is managed correctly by the pilot.

The blades will turn under the influence of the upward flow of air, and will also produce sufficient lift to enable the helicopter’s descent to be slow enough to be survivable.

Entry into autorotation, and flight in autorotation, and exit from it, especially a flare to reduce forward and descent speed to enable a safe landing with no engine, are all manoeuvres practised extensively by sensible pilots.

Related Glossary Terms

Engine failure

Index Find Term

Chapter 3 - England

Beckenham

A comfortable suburb of South East London, in the county of Kent, mainly occupied by commuters. Once the home of singer David Bowie.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Biggin Hill

Former RAF station made famous by the Battle of Britain in 1940.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Cambridge Airport

EGSC. Opened in 1938, when it replaced the old airfield at Fen Ditton, whose runways can just be made out among the fields at “point Echo” East of Cambridge Airport.

It is owned and operated by Marshall Aerospace, a Cambridge-based company with many years' history of civilian and military contracts, including a lot of work on Hercules aircraft.

The main terminal building, which is Grade II listed, was designed by the architect Harold Tomlinson of the University of Cambridge and constructed in 1936–37.

For many years it was the base for the Cambridge University Air Squadron. Although it looks and feels like a military airfield, it has always been in civilian ownership.

Aeromega, the excellent helicopter training school, where the author has been an instructor, is based there.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Collective

There are three basic controls in a helicopter. The collective (left hand), the cyclic stick (right hand), and the yaw pedals (feet).

The collective lever hinges up and down like a handbrake in a car. It has a twist-grip throttle at the end where your hand goes.

Pulling up on the collective lever in the R44 increases the angle of attack of both blades, and opens the throttle automatically.

In the hover or on the ground, this makes the helicopter rise into the air.

In the cruise, the collective is used to adjust the speed of straight and level flight.

In a decent, it is used to control the rate of descent.

In a climb, it is used to control the rate of climb.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Cyclic

There are three basic controls in a helicopter. Cyclic stick (right hand), collective lever (left hand), and yaw pedals (feet).

The cyclic stick moves around in all directions like a joystick in an aeroplane. On the R44 it is made up of a cantilever arrangement useable from either seat, attached to a central stick between the two front seats.

Pushing it in any direction changes the angle of attack of the blades differentially, such that the disc formed by the rotating blades is tilted. This makes the helicopter move in the direction in which the stick is pushed.

The pushing needs to be made using small and gentle movements. The greater the rate of push, the greater the rate of tilt of the disc, and therefore the more aggressive the movement of the helicopter.

In the hover, pushing it in any direction, makes the helicopter go in that direction.

In the cruise, the cyclic stick is used both to adjust the attitude of the nose of the helicopter (stick back, nose rises, helicopter slows down), and to turn the helicopter (stick left, helicopter banks left and changes direction to the left).

In a descent, the cyclic stick is used to control the speed of the helicopter through the air, while the rate of descent is controlled by the collective lever.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 11 - Saudi Arabia

Endurance

This is the amount of time that the helicopter will fly for before running out of fuel.

To give a margin of safety, 30 minutes is usually subtracted from the theoretical maximum time, so we aim to land with 30 minutes flying time still in the tank.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Engine

In the Robinson R44 Astro, the model used to fly this trip, it’s a six cylinder aircooled petrol piston engine, made by Lycoming, and used in many fixed wing aeroplanes.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 9 - Egypt

Engine failure

Quite rare in a piston engine helicopter. Widely assumed to be the end for the machine and its occupants, this is not the case if the pilot handles the event with skill.

The author has survived one such incident, as described in the book.

Related Glossary Terms

Autorotation

Index Find Term

Chapter 3 - England

Flight clearances

Many countries in the world require a clearance to be booked in advance, with “port of entry”, “port of exit”, aircraft type, dates, purpose of trip, and other data.

Generally, the more third world the country, the more difficult and expensive the clearance is to obtain.

They expire, with a few days’ margin, and often take weeks to obtain, so adding pressure to keep to the timetable.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 6 - Greece

Flight plan

Crossing international boundaries, one is obliged to file a flight plan with the destination airport, to let the know to expect you, and when.

Information required includes safety/rescue/survival gear carried, number of crew/passengers, aircraft type, speed, ETA, and so on.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 7 - Crete

GPS

Like in a car, but showing airspace and restrictions.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 5 - Italy

Groundspeed

Your groundspeed is your airspeed adjusted for any movement of the air in which you're travelling.

If you have a tail wind, your groundspeed is higher than your airspeed, and vice versa.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

JetRanger

A popular and successful 5 seat civilian helicopter, with a turbine engine, two main rotors, and a teetering head.

Originally a military design.

Related Glossary Terms

Drag related terms here

Index Find Term

Low fuel warning light

This is your final warning before running out of fuel.

Definitely not good practise to see it light up, as it suggests poor flight/fuel planning, or a mechanical failure or problem, such as a leak.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 4 - Germany

Meteorology

Pilots learn about weather, or meteorology, and there is a worldwide system of channeling forecast information to pilots at airports, so they can make good judgements about whether to fly or not.

Some kinds of weather make flight impossible, illegal, or simply unwise.

See
http://www.timgilbert.com/should-i-go-flying-today-helicopter-weather-judgements/

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 4 - Germany

Port of entry

Almost always a proper international airport, these are the airports through which it is legal to enter and exit a country.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 6 - Greece

R22

Two seater Robinson helicopter.

Widely adopted as a trainer, although the inventor Frank Robinson said it was never intended as a trainer.

Related Glossary Terms

Drag related terms here

Index Find Term

R44

Four seat civilian helicopter.

More details here: www.robinsonheli.com

Related Glossary Terms

Drag related terms here

Index Find Term

Skids

Fixed landing gear on a helicopter.

Stressed to accept loads including emergency landings.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 9 - Egypt

SOS Childrens Villages

A worldwide charity housing orphans in specially built villages.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 3 - England

Tail

The boom on the back of the fuselage of a helicopter, equipped with an anti-torque device, designed to stopped the fuselage from spinning round at the same speed and in the opposite direction to the main rotors, after take-off once the friction of the skids on the ground is no longer present to prevent this.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 9 - Egypt

Turbulence

One of the key skills of a helicopter pilot is knowing when to fly, when not to, and when to turn back.

The generally excellent weather forecasting available to pilots is obviously a big help in the decision whether to lift off or not. But to get the benefit, you have to use it, understand it, and make the right judgements from it. One of the many good reasons for maintaining your relationship with your flight school, is that you can ask for help and advice in interpreting the suitability of the weather for the safe enjoyment of your planned mission.

As time goes by, and the excellence of your theoretical knowledge on the day of your final handling test fades a little, it's easy for helicopter pilots to slip into the mentality that suggests that if you like what you see out of the window, it's ok to fly. This can be risky, especially if you are going on a long trip, where the weather may be different on arrival from that on departure. The universal accessibility of aviation met services can help with this, as products like SkyDemon can show the weather en route on an iPad, and the Met Office aviation briefing service is legible on something as handy as a smartphone.

When we're using the Met Office services, just looking at the TAFs, though quick and convenient, does not give the complete picture. The information about turbulence, for example, one of the real hazards in a light two bladed helicopter, is shown not in the TAF but on the F215 chart. It's in the right hand column. The F215 takes a little more effort than the TAFs to decode, but the extra info is definitely worth the effort. There's a guide to decoding them at the end of this article. It's well worth becoming quite an expert at it. While you're there, the F214 will give you the wind strength aloft. If the winds seem unusually strong to you, try checking some of the TAFs of the en route airfields, looking for winds over, say, 15kts, high gust spreads and big swings in wind direction. It can all add up to an unsuitable day.

The Robinson Helicopter Company's own Safety Notice No SN-32 strongly urges avoidance of flight in high winds or turbulence. This is because in the severe down-draughts experienced in turbulence, the loading of the main rotor disc can become negative. In other words, instead of the weight of the fuselage and its contents pulling down on the centre of the main rotor disc, resulting in good disc stability, the fuselage can become weightless or even effectively push up on the main rotor disc, both resulting quickly in the main rotor disc becoming unstable. Co-inciding with this instability, the tail rotor thrust, which is now the biggest or only influence on the fuselage's orientation, pushes the fuselage so it rolls to the right. It does this because it is above the centre of gravity of the fuselage. Think of it as being the same effect as if the tail rotor was placed at the top of the main rotor mast, still pushing the same way as normal. It would try to push the fuselage over to the right. This fuselage roll is independent of the main rotor disc, which is busy doing its own thing without reference to the pilot's inputs or to the position of the fuselage. So as the fuselage rolls right, pushed over by the TR thrust, the main rotor disc, which has no reason to follow it immediately, is effectively now tilted to the left, relative to the fuselage. What do we helicopter pilots usually do to correct a roll to the right? Input left stick! This input, in these circumstances totally inappropriate, can be the straw that breaks the camel's back. It tilts the main rotor disc even further to the left, often within reach of the front left skid, the front left door, or the tail boom.

Appropriate control inputs in turbulence recommended by Robinson can be summarised as slow down, reduce power, don't over control, allow the helicopter to go with the turbulence, and restore straight and level flight with gentle inputs. It's worth reading the Robinson Safety notice on turbulence, on the Robinson website.

This is pretty extreme stuff, which happens in pretty extreme conditions, and can be avoided with the right pre-flight preparation.

Pre flight, check your route on your chart for turbulence inducing terrain, ask for local advice if possible, and in flight keep your eyes out of the window. Nearby ridges, hills, or even tall buildings upwind of you can all cause severe down draughts even on a cloudless sunny day. Distant mountains can cause the same effect. A mountain wave is a powerful air mass downstream of a mountain range across the path of the wind, rotating about a horizontal axis. Think of a stream encountering a fallen tree across its path. The water rises up to cross the tree, rolls turbulently down the far side, continues to roll over and over for a bit, and eventually resolves into a pattern of waves up and down, until finally it smoothes out. Similarly, with wind downwind of mountains, there can be a succession of such waves, starting immediately downwind of the mountain where the turbulence can be at its most violent, and continuing for some distance in a succession of gradually decreasing waves. You may see lenticular clouds forming where the wave takes the airflow into colder air above then down again. The key safety point here is that all of this can be present even on the clearest of blue sky days, so you need to consult the F215, and study the enroute TAFs. This is pretty extreme weather, so it will jump out at you from the F215, but you have to look.

Other possible turbulence risks: Heavy aircraft landing, taking off or even passing nearby can produce enough disturbance of the air in their wake to pose a threat to lighter aircraft nearby. Both fixed-wing aircraft and helicopters create vortices at the wingtips or rotor tips as a direct result of producing lift. The most powerful vortices are generated by heavy aircraft flying slowly, and these pose the greatest risk to nearby light aircraft. These vortices can be strong enough to result in complete loss of control, for up to several minutes after the heavier aircraft has passed.

Summary: to stay safe, go the extra mile and read the F215 for the turbulence information, check the enroute TAFs and the F214 for unusually high wind speeds and gust spreads, don't assume that just because it looks like a lovely day out there that it's safe to fly, ask experienced pilots for their local knowledge if possible, stay away from the lee side of mountains and other turbulence-inducing terrain in high winds, and be prepared without hesitation to make a diversion as in the video above. Know the safe recovery control inputs from weightlessness and from tail rotor induced roll.

Related Glossary Terms

Drag related terms here

Index Find Term