

64. A Movie for IBM

Iraq's invasion of Kuwait in early 1991 creates a bizarre twist. ASML's fate seems sealed, but Evert Polak thinks up a trick.

ASML's first stepper of its own, the PAS 2500, wasn't enough to interest high-caliber chip makers. The PAS 5500 is supposed to change that. But the machine contains a lens that's extremely critical and appreciably more complex than anything that's been made for wafer steppers so far. Lead customer IBM also views the lens as a potential showstopper. So everyone in Veldhoven breathes a sigh of relief when Zeiss says the optics are moving in the right direction.

If Zeiss can prove the optical column is of good quality, we'll win Big Blue: that's the steadfast conviction in Veldhoven. That means the November 1990 review meeting with the Americans in Oberkochen is crucial.

That month, ten people from ASML and IBM zoom to Brussels by taxi. John Kelly and his team have inspected the assembly activities in Veldhoven with representatives from Zeiss, and now Martin van den Brink and IBM account manager Ken Pynn are flying on to the actual goal: the optics in Oberkochen. Van den Brink is fully convinced that if IBM gives these lenses the green light, then the starting gun will have been fired and the orders will start coming in.

When the two taxis arrive at Zaventem Airport, it's a madhouse. Air traffic has been shut down. IBM's Boris Lipkin keeps insisting, "Call Willem Maris." Van den Brink starts to get annoyed. What's Maris supposed to do about it? Lipkin says Maris needs to wrangle them one of Philips' private jets: "This is mission-critical."

Van den Brink ignores Lipkin's request and takes Pynn to see if he can arrange two rental cars, but everything's gone. They finally find an obscure company that can give them a BMW 7 Series and a Jaguar X-Type. That little joke costs a few thousand dollars, but landing an order from IBM has priority. They pull out their credit cards.

By then it's nine p.m. They have a meeting at Zeiss the next morning. "Do you mind if I lean on the gas?" Van den Brink asks as Kelly gets in beside him, with Boris Lipkin and another colleague in the back. Once they're on the highway Van den Brink puts the pedal to the metal. His own car is a creaky Ford Sierra that runs on natural gas, and he happily cranks the BMW 7 past 125 miles per hour. The Jaguar, with Richard George at the wheel, is right behind him with the rest of the crew.

Van den Brink doesn't notice how his passengers blanch. Kelly points out to him that he's passing eighteen wheelers at twice their speed and notes that he'd pay a hefty fine for that in the US. Sweating, the IBM manager says it looks like the cars in the right-hand lanes are parked there. Van den Brink doesn't pick up the hint.

It's not until breakfast the next day that Van den Brink realizes his passengers were pissing themselves the previous evening: they discuss his driving style with visible relief. "Based on how fast you drive, you guys are going to build those machines in record time," Kelly jokes.

After Oberkochen the American visitors fly on to Japan, where they have another stepper review meeting in Tokyo. News of the drive precedes them. The Canon employees who pick them up at the airport apologize for not having a BMW or Jaguar, and for having a lower speed limit on the drive to Tokyo.

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Kelly is the man who writes the checks. His is the final vote and he's getting better and better at convincing his management team that they should buy their lithography equipment in Holland.

But all eyes at IBM are trained on him, so Kelly moves with extreme caution. Even after his visit to Zeiss Big Blue doesn't place an order, though the Americans are still interested in evaluating the PAS 5500 that ASML originally promised to send them on April 1, 1991. The deadline has since been adjusted, but it's now firmly set for April 30. Van den Brink knows how hard it is to get a chip maker to open its wallet that first time for machines from an

unknown supplier. Purchasers aren't eager to lay out a few million if they're not sure a completely new wafer stepper is going to work.

Van den Brink also knows that development is running behind, but there's a growing need to convince IBM that ASML has a very promising stepper to offer—and on time, to boot. So he's thought up a plan. He wants to show Kelly that the system's almost finished and that everything's on schedule. To that end, he's invited IBM to come see it all with their own eyes in mid-January 1991.

Van den Brink has given all the project leaders clear instructions. When IBM arrives, each of them will demonstrate their own piece of the machine, one by one. All together there are ten or so subsystems: lens, reticle handler, wafer handler, wafer stage, and so on. It's a full day of programming that's been scheduled down to the minute, and the assembly teams will also get their moment in the sun. In just a few hours they'll connect up all the modules. It's a feat that's never been done before. Van den Brink is certain his modular approach will make a big impression, because there's no stepper in the world that can be whipped together and taken apart like a model kit. When service engineers have to replace a lens at a chip fab, it usually takes weeks and costs buckets of money.

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ASML's engineering effort has been a pressure cooker for months. Employees are starting to push back. Their wives complain they're never home. But in that fated weekend before IBM's visit, everyone absolutely has to be there to dot the i's and cross the t's. Van den Brink even goes so far as to call one of the company's partners. "Sorry for the late notice, but we desperately need your guy this weekend."

On Friday, January 11, 1991 Van den Brink gets a call from IBM. Kelly and Lipkin aren't coming. They aren't allowed to fly. The US Congress has given President Bush permission to take military action in the Middle East conflict and IBM has forbidden all its employees from traveling eastward. Van den Brink loses it. He doesn't give a crap about Iraq, Kuwait, or anything else. In his head there's only room for one thing: meeting the deadline for the PAS 5500.

Van den Brink carefully puts down the phone, and then he explodes. He knows damned well that ASML has hit rock bottom. Everything stands or falls with an order from East Fishkill. "We're not coming? We're not coming? They can't do that!" He stomps over to Evert Polak's office and storms in cursing. "We're fucked. Those bureaucrats aren't allowed to travel." Polak doesn't respond. "Evert, they're not coming and if they don't come, we won't get the order."

"Take a seat," says Polak. He's a man of few words. He lights a cigarette and doesn't say a thing while Van den Brink spits it all out. On that fated Friday, everything seems to be falling apart because of a war that isn't even theirs. Years of work for nothing. Game over.

Polak takes another drag on his cigarette. Then he suddenly says, "You know what? We'll just go to IBM!" Van den Brink is stunned. To IBM? But they don't have a machine, do they? "What can we do there?" Polak suggests they set up a video crew. "We'll run the whole show just the way we've planned," he says. "But we won't tell anyone. We'll make sure everything's ready Monday morning. Everyone will show up as planned. We'll run the scheduled program and record the whole thing. On Tuesday we'll fly to IBM and on Wednesday we'll show them the tape." Polak's thought up the whole solution on the spot. Van den Brink is ecstatic.

Polak hires a video production company. On Monday, a film crew records the entire demonstration. That evening Richard George takes the tapes and a video editor to an editing studio in Den Bosch, where he spends the whole night cutting and splicing.

The next morning Maris, Van den Brink, and Polak drive to Schiphol Airport, tape in hand. Only after they've boarded the plane do they leave behind their own cocoon of cleanrooms and deadlines. There, in economy class, they're suddenly plunged into the real world. You could cut the tension with a knife. Half the plane is filled with Jews flying through Amsterdam on their way from Israel to New York.

In New York they join up with ASML's sales director, Doug Marsh, who's flown from the West Coast to the East. The review meeting

with Kelly and his team starts on Wednesday. They fall out of their chairs as they watch the film. They've never seen anything like it. The whole room is emotional. The teams from ASML and IBM have been talking for a long time now and both sides have been fighting to make this project a reality. Kelly's team needs to meet its deadlines, and those depend on the PAS 5500. They've been fighting a long, often political battle over it in their own company. But now they can see they're going to meet their goals. Some of them have tears in their eyes.

Kelly invites his visitors to dine that evening at the Culinary Institute of America, the international cooking school in Hyde Park, near Poughkeepsie. It's an extraordinary gesture. IBM employees occasionally take their suppliers out to dinner, but never to such an upscale establishment. "You guys are special," Kelly says during the meal. "You're not just our partners; you're also our friends."

A little before eight p.m. the waiter tells them that George Bush will shortly be making a televised address. Kelly and his guests rush into the kitchen, where the chef has installed a tiny TV. They watch as the president announces live that the US has started bombing Iraq. The next day the ASML men fly home. Once again in economy class, but this time they can stretch out on a whole row of seats. No one's brave enough to fly east.

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ASML delivers the first PAS 5500 on exactly May 1, 1991. Subsequent benchmark testing in East Fishkill proves that ASML has the best technology. What's more, Kelly is convinced that the Dutch lithography firm has the best road map. It's an extremely risky decision: ASML is, certainly by IBM's standards, a very tiny company with barely a track record to speak of.

Kelly is willing to put his career on the line because of one person: Martin van den Brink. He's never met a better engineering manager who can combine such depth of technical insight with effective leadership.