Chapter 4

THE WORLD AT HER FIT

Scale-Making, Uniqueness, and Standardization

INTRODUCTION: BRIBERY AT THE FACTORY?

If you are a foreigner and spend a few days in Dongguan, there is a strong chance local folks and expats will take you out for dinner on Bar Street, an area where you can find all kinds of food, from stylized versions of Cantonese dishes to the regular menus of cosmopolitan kitchens (Indian, sushi, Italian, Contemporary American, French) that can be found in most international centers. Located in Dongcheng District, the area runs for some six large blocks on Dongcheng South Road, and spills over onto the first block of the adjacent streets. It is close to the offices of well-established developers and to some of the trendy hotels where designers stay.

OM's team regularly stays at the Pullman Hotel, which caters to local customers, offering large shrimp or crabs grilled on the street on large, improvised charcoal containers. If you pass by in the afternoon, you can see the crabs still alive, slowly being sorted and prepared on the sidewalk. As you walk further north along Bar Street, the wording on the signs and awnings progressively change from Mandarin to English—albeit with a few typos or plain linguistic mistakes. The restaurants become more secluded, divided

more starkly from a sidewalk that is now noticeably cleaner than it was on the first couple of blocks. Some newer locales have opened at the end of Bar Street, near its intersection with Dongcheng East Road. If you make it all the way to where Bar Street takes an inverted, L-shaped turn, you'll find an Italian restaurant, Maccheroni by Salvatore, which has been a staple of the area for the last ten years. It's not uncommon to see multiple tables with foreigners (Italians, Spaniards, Germans, Americans) who are either eating on their own as part of their weekly rotation of dinner options while they work in Dongguan or as the guests of locals. In those cases, reunions are frequently to do business, where groups made up of both foreigners, expats, and locals discuss potential work collaborations or blow off steam after a long workday. The restaurant has recently expanded, taking over two adjacent shops, and customers flock to it not only because it is a well-known and reliable purveyor of good-quality Italian meals (and wine) but also because of its outdoor seating.

On a night in December 2015, I dined at Maccheroni by Salvatore with a couple of American designers and the managers (a married couple in their thirties) of a Taiwanese trading company, which produces shoes for the European and US markets. A small trading company, it had recently scaled down its family-owned factory into a smaller operation. Instead of running two full assembly lines, the company was now composed mostly of a fully operating sample room, and a relatively large quality-control division with a dozen employees. For production, they used the factory floor of a business partner: the son of a good friend of the woman's father. But sometimes, if they were expecting larger orders, they used production space in the behemoth factories run by agents in charge of the final production of shoes developed by other trading companies and smaller factories. As the couple explained how happy they were that they had been able to secure a large order from a West Coast US company, they tried to explain to me the difficulties they encountered when trying to place some of their orders with this kind of massive factory. Some of the issues would be obvious to scholars studying the coordination of complex systems, such as social networks determining access to production space: orders are prioritized (i.e., in hierarchies dominated by foreign brands), production quality varying by type of machine available, and quality control varies depending on the extent of access provided by the plant. But there was one issue that was certainly unexpected: in order for the samples to get approval—a necessary step for the factory to produce your shoes—she contented you have to bribe the fit model.

When she saw the surprise on my face, Grace—the Taiwanese woman who had inherited the role of manager of the trading-company from her father,

Simon—unpacked how this happened. She explained: "Think of it as if you were thinking of something like Steve Madden—but without the designers." The image captured not only the scale, scope, and importance of the operation (Steve Madden is one of the largest brands in the US) but also its transnational ownership: originally from Seattle, the factory had recently moved its headquarters from Taiwan to Dongguan, where it operates in Houjie, the shoe district in the "world's factory." Grace's analogy also made explicit the fact that, without designers, those in charge of authorizing that the shoes meet the standards of quality for mass production are not the technicians, the sample room managers, or the inspectors but, rather, the female fit models. *They* get to say whether shoes are comfortable and good enough to meet the technical specifications for large orders.

In her dealings with large factories, Grace explained the problems she had encountered in getting her shoes approved. After a series of rejections, Grace noticed that other similar companies made it through, and that sometimes she would see how representatives from the factory engage in long conversations with the models before they did the fitting. In all of those cases, the fit models would approve the samples, which would move forward for development and production. Given her knowledge of the players in the shoe market and the quality of what they produced, she was surprised to see these approvals when her own shoes were being rejected. Though her company decided in the end not to place orders with that large factory, she came out convinced that the decision to approve shoes as fit for large production had to do with the fit models' inordinate amount of power.

Although I do not have any way to know if Grace's story is true, I had heard similar rumors from other managers and fit models. These rumors were supported by the prevalence of the *guanxi* economy, which certainly infuses all orders of Chinese social life (see Guthrie 1999; Wang 2009; and Yang 2011, among many others). Yet there was something in Grace's account that captured my imagination beyond the anecdote itself: the power of a female foot to dictate how shoes are to be produced.

In other chapters, I emphasize how the process is seen differently according to what is being prioritized: for example, whether shoe making starts with a design idea (for designers), with a line (for agents and traders), or with a last (for technicians). In this chapter, I show what happens if we take Grace's story seriously and center the production process on the shoe fitting. By examining what appears and what does not appear when we think of a finalized object like a shoe, the fitting process offers a fantastic entry point

for tracing not only issues of visibility and recognition but also the invisible careers (Shapin 1989) that support designers' work.

MODELING THE SHOE

Among the manifold definitions of modeling, there are four that help us to understand the conceptual and semantic network around the activity of fitting: (1) fashioning or shaping a three-dimensional figure or object in a malleable material; (2) displaying clothes by wearing them; (3) use (especially as a system of procedure) as an example to follow or imitate; and (4) a person or thing regarded as an excellent example of a specified quality.

The meaning of the first two are obvious: fit models in both China and the US are used to helping in the development and design of shoes, as well as displaying them to clients during the commercialization period. The third definition best encompasses fit models' central role in the making of standards, signaling where their power lies. To preview the main argument of this chapter, the "foot stabilization" that results in brands always working with the same model—whether face-to-face or online—allows for designers, technicians, and production managers to understand what they are looking at, whether it be a sheet of measurements, an image with a prototype, or a sample to try on. This a less-obvious technical device through which procedures are simplified and settled from a distance. It is also the kind of work that STS scholars have conceptualized as *invisible work* (Shapin 1989; Star and Strauss 1999).

As I will show in the next two chapters, fit models allow for the production of standardized shoes. They are an obligatory point of passage for design ideas, materials, and sketches, as well as central players in a larger infrastructure of scale-making. In previous chapters, I have shown how a world was made to travel toward designers via images of other designs, products, shops, and customers. In this chapter, we'll see another procedure of miniaturization in a double sense—of the comparative scope of a foot, usually the smallest female shoe size, versus the whole range of size variation in multiple locales—for making the world flat. This results in a foot that becomes an immutable mobile (Latour 1986; Law 1986), moving from China to the US, or from the US to China, without distortion. Moreover, through the fit model's foot, we see all the translation between multiple cultural standards—sometimes across size conventions in different regions, other times according to gendered expectations—and how both sets of standards are intertwined

with imputed racial and national bodily characteristics. I focus the final part of this chapter on the many consequences of this translation.

WHAT'S IN A FOOT? (AND HOW TO WORK WITH IT)

Arlene puts her right foot on the table.

We are on the penthouse of a building in New York's Midtown, where a small shoe brand has its showroom. Both Marcia, the former designer, and Pepi, the current designer, define the brand as marketed to "Brooklyn-like" women in their mid- and late 20s. Arlene has been standing for a couple of hours, working closely to correct the lasts—a mechanical form with a shape similar to that of a human foot, used by shoemakers in manufacturing—for the shoes of the fall collection. The designers have been preparing for a trip to MAGIC, a trade show in Vegas, so this is a good time for the fit model and the technician to work intensely on fixing some of the lasting and fit issues on samples they recently received from China. Clint, a veteran technician in his 70s who has been working in the industry for over fifty years, sits next to Arlene. My presence gives them an excuse to take a break, and for Clint to explain why a foot matters in shoemaking. He focuses on the particularities of Arlene's right foot (see figure 4.1) to explain why technicians use a live foot, as well as how they work around the tension between one foot's peculiarities and its role as a standard. And I say one foot because they mostly go by her right foot; as Arlene explained, her "left foot is a bit fuller."

For outsiders like me, it is unclear why the industry does not utilize wooden or rubber mannequins or the last itself to measure how the shoe is coming out. For "shoe people," the answer is obvious: while the last manages to give you volume, Clint said, it's a rigid object. Yet, as he noted, "the foot is malleable," which presents all kinds of challenges. How do you account for the quirks of a foot that is supposed to be standard? And how do you use the information a malleable foot gives back to you?

The malleability of the foot, along with the fact that it is a part of a person treated (and produced) as an object, point us toward the idea of *affordance*. This concept was first coined to study perceptual relationships between animals and their environments, focusing on how the properties of a landscape impact animal behavior (Gibson 1979. The concept arrived to the study of cultural production via scholars of cognition and became an important part of the cultural-sociology toolkit after Tia DeNora (2000) employed it to study

how people use music. The term points toward the possibilities of an object at hand and how these depend not only on the morphology of the object but also on previous meaning-making and uses, as well as on other qualities and contexts associated with it (Keane 2003).

What's more, it makes sure that we understand social semiosis (Peirce 1894; Veron 1998) not as a process where the meaning attributed to objects is open ended but in which "thinking with things" (Daston 2004; Henare, Holbraad, and Wastell 2007) results in an understanding of objects as constraining the possibilities of both meaning and use. Using the foot of an actual woman as the modeling object to render volume instructions to make a shoe allows information that would be otherwise rendered mute (or only revealed by the technician) to be voiced out loud by an authorized agent. Yet this process constrains other ways of measuring fit. For example, to measure across the volume of the last, the feet would have to be cut. This results in the need to develop ways of bracketing what is subjective about each foot from "spilling" over the objectivity of the standards (Galison 2004), as well in ways of training the modeling woman to become the standardized foot. They also open up, as I'll develop later in the chapter, a field of struggle, as it is unclear who gets to talk about the fitting foot qua object and who has the ultimate authority over fit: is it the technician, the fit model, or the designer?

While the model foot is supposed to be a stand-in for every foot, and for a base and last to generate a design, it is actually an object of its own that renders through its imperfections more useful information than a solid and perfect three-dimensional representation of what designers imagined. Unlike the metal bars under which most measurement devices have managed to disembody and leave the flesh behind (Crease 2011; Alder 2002)—as when a foot is measured at 30.48 centimeters and not an actual foot—what we encounter here is the establishment of standards working from one body to another. In the fit process, a whole metrological system plays around the knowledge of how one trained person's actual foot responds to the varying states of the object: What are the necessary changes to the last depth to adjust the shank curve when changing the height of a heel? As the curve augments, it changes the weight distribution and the length that the base of the shoe needs. How does the technician account for those differences if—when measured on a table—the flat and the high-heel base are the same? When working on a pump versus a sandal, how does he (all technicians I met during fieldwork were men) account for the fact that an actual foot spreads out in a sandal? Does the base need extra width, even if the difference is one or two millimeters? And relatedly, how much lighter should he advise the insole be made to account for this extra width?

Figure 4.1. Arlene's right foot on the table.

When working with Arlene's foot, Clint is constantly on the lookout for two different things: first, that her foot overpronates, so the weight of her foot rolls inward and she tends to push off almost completely from her first two toes; second, that her second toe is actually longer than her big toe. This throw off the toe sweep—how toes are expected to align—as molds are made with a particular sweep in mind. This is a particular problem when the they have to model pumps on her, much as having a small fifth toe is a nuisance when fitting a sandal. Of course, these are just two peculiarities of one fit model. In some of the other fitting sessions I witnessed, OM designers worked around Anna's low instep, so if something fit well but was gaping over her feet then designers usually ignored it, as they knew how to account for her right foot. Connie—a model for a large factory—self-reported that her

technician always had to know how to work around her very delicate calf—which was less "strong" than that of the confirmation model in the US—and skinny foot, understanding that if there is some extra side space it should not be an issue. In the case of another US freelance fit model, Brace, she has already incorporated the knowledge that her past as a dancer comes to haunt designers working on her, in the form of a high arch.

In all of these cases, "perfect" feet are called "golden standards" within their own companies and are selected with careful scrutiny. Fit models embody a contradiction: each has a "perfect" foot that follows or is close to twelve different standard measurements, and yet technicians and designers have to learn how to work around the peculiarities of each "perfect" foot. Technicians and designers have a series of "tricks of the trade" for fitting and adjusting what does not seem aligned with the standard that they imagine for the product and market. Sometimes this means allowing for more space between foot and shoe or leaving a gap or disregarding how tight the upper feels on the fit model if she has a high arch. Other times, this entails cutting around the insole at the ball area circumference to make the shoes more flexible, stretching the leather or cutting the lining in the ball and ankle area to make sure to account for the wrinkles in the material that would unnecessarily harden the shoe and make it uncomfortable or too tight, even for a skinny foot.

Arlene is one of a kind, Clint explains. She was selected in a casting call over twenty years ago because of her foot measurements (even though, as we've already seen, her feet are far from perfect or standard). But over time she has developed a full vocabulary to describe the things about shoes that don't work properly. Technicians and fit models develop a work dynamic that turns them into a unit: as much as the model knows the peculiarities of her feet (or foot), the technicians know to make calculations based on how feet conform *and* depart from the standard measurements. Experimental information that would be considered "noise" in other metrological contexts—for instance, the various imperfections of the model in replicating the standard—is in this case incorporated as vital data. The more that technicians and models work together, the more designers get used to a particular foot, and the more they transform that noise into how they manage the standard. While the technician-designer pair works in tandem, over time they develop into a metrological unit. The more they get used to the peculiar and subjective character of the working object, the better they can actually render it as a standard and contain the particularities from corroding the generalizable.

This chapter underscores the importance of the foot through a study of cultural production, and by using conceptual tools developed to understand

the construction of scientific knowledge, much like the role of "nature" in STS-inspired literatures. This is not a capricious choice. The foot of the model, as I will show in the following pages, is hard to domesticate, and as such, to quote Latour (1988, 158) again, it is what stands for reality, since "reality is that which resists." It works as the referent toward which the whole infrastructure is oriented. It is the anchor that allows for and yet limits the work of actors. A key to this—and to all labors of adaptation—has to do with the fact that in the case of the foot, actors *cannot* move beyond it, it actually can't be taken out of the body! The foot works as an a priori presence around which a whole system of reference is built.

The following two short exchanges allow us to see how the organizing presence of the foot operates even in absentia (either when one of the actors—in this case the usual fit model—is not physically present, or when one the people involved is not part of the designer-technician-model triad). Nicole, the OM designer, had to explain to one of the US-based managers overseeing production in Dongguan that if there was a gap between the shoe and Anna's foot, it was OK. The manager was concerned: "How come there is a gap!? How can you send us a boot that was done in a proto having a gap?"

Nicole responded, "Don't worry! We all know about it and have learned how to fix it and calculate around it."

In the second exchange, Ashley, an associate designer at OM in New York, explained to me how she could still work around and account for the differences. After receiving an email from the sample room featuring a different fit model than the usual one, she explained, "I look at the kind of measurements and key places—the instep, the ball, the calf . . . because in this case this is a boot—[to] see if it pinches her, where it looks like it might be too tight or too loose, and compare it mentally to what I know from Anna's foot. I sort of calculate mentally the difference between the two and go from there." Once again, while both fit models are supposed to be "standards," there is an interplay between the internalized standard, which Ashley articulates as developed and learned through both physical and visual interaction with the fit model, and its relationship to the putative industry standard, which serves as the base by which technician and designers adjust their measurements.

When examined from the outside, a fit model's work seems tedious. Not much happens daily. Sometimes she stands so the technician can see the difference between static and weight-bearing fit; on other occasions, she sits (and when she does she might be checking her cell phone).[1] Regardless of her position, the technician works like a detective, trying to read, in the traces of how the shoe reacts to being worn, a more "real" reality about how well

fit works and what problems are in need of correction.[2] In this dynamic, the relationship between causes and effects is inverted, since the technician can never definitively pinpoint the source of what looks (or feels) "wrong." What the technicians conjecture about is a set of outward signs that need to be assigned causes, and, as I make evident in the rest of this chapter, how to bracket issues related to the peculiarities of the actual foot.

For long periods of time, the fit model can look absent-minded, even passive; at others, she engages with the technician or designer and offers feedback: "I'd move the strap a bit, or it hits the anklebone." With more experience, models gain confidence and knowledge, and can point out what does not work (sometimes even aesthetically, as they have a different viewpoint of the shoe). But I was struck by two characteristics of the encounter: first, the seemingly unfocused character of what goes on; and second, how the more time the technician and model spend together, the less they talk about what they are doing, instead engaging in seemingly random conversation about daily life, peppered with comments about the shoe. This dynamic is even more apparent in larger companies, where technicians and models interact face-to-face for longer periods, and in China, where most of the initial fitting and sampling work is done. For a company that works with six to eight fashion seasons a year, with a few lines per season and two rounds of fitting and confirmation, one can imagine that fit models and technicians effectively meet face-to-face year round.

A similar effect takes place in the US: although designers and technicians only meet in person every other month when there is a new line, they do so for two full and furious days, fitting nearly sixty shoes per day. The fitting session is as much an occasion to provide feedback and correct the shoes as to catch up with each other's lives. Either because of the long-term temporal arc of production or because of its concentrated character, in both cases, work is conducted at a tacit level, allowing the interaction between fit and standard to be worked out in minute detail amid discussion of the many other things happening in actors' personal lives.

OF MEASURABLE, IMMUTABLE, TRANSLATABLE, AND MOBILE FEET

The transmutation of all the little changes into standards is another avenue to observe one of the main themes of this book: how a projected object slowly becomes one, so that designers, technicians, and production managers across the globe can interpret a sheet with measurements or an image of a prototype

or a sample being tried on (as we described in chapter 3). But what are those elusive standards? And more importantly, how do feet get matched to sizes?

Most producers for the US market fit shoes with either a 6B or 7B female size as their reference (the letter refers to the width).[3] It is unclear why these sizes are the norm, but is likely related to a long history of this infrastructure. For instance, it may reflect the most common women's shoe sizes in the 1970s, which were 7 and 7.5 for everyday shoes and 7 for "fashion" shoes. The growth of Americans over a generation has also resulted in changes to average fit for female shoes, which is now something closer to 8.5 or 9.

When asked about the convention, designers and technicians seemed unsure of its origin and rather referred to the functional possibilities of starting at 6 for fashion and 7 for comfort shoes. In the words of Josemir, the Brazilian sample-room technician who produces Arlene and Clint's shoes in Dongguan:

> It makes it easier to grade. Once you establish everything on 6, the only calculation you have to do is how to grow things proportionally for the other sizes. Besides that, most things are now calibrated as we start working either with 6 or 7—in their [Arlene and Clint's] case, 6. When you have to work on "mama" brands [comfort brands], things are harder to calibrate because you don't have fit models for every potential size. It's a lot of work to calculate the new width and weight, but that's why I am here, to calculate those things.

Josemir has a fit model in his office, though like many other "fit girls" in China who are not employed by a large company or factory, she also does office work, be it following up on samples or entering inventory numbers for invoices to suppliers. He uses his fit model–cum–administrative assistant for many of the non-designer brands that his trading company produces. Josemir's company produces shoes for the US, but also for the northern European, South African, and Australian markets, which creates added headaches in terms of conforming to different national standards. He can't use his fit model for the brand Clint is a technician for. The way their system works calls for all of the fitting and measuring decisions to be made in New York.

Recently, Josemir's office tried to do a casting to reproduce Arlene's feet in China. As told by Pepi—the brand's US designer, who had worked previously for OM—the office received measurements from at least forty potential models in Dongguan, but none matched Arlene's exact measurements. These casting procedures are common in larger factories in need of a single fit girl

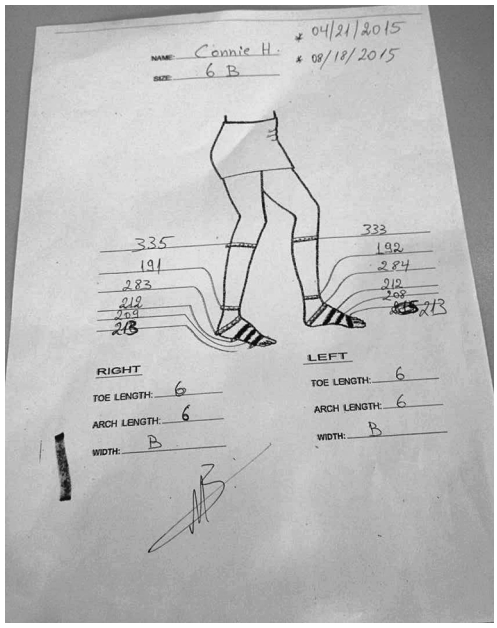


Figure 4.2. Measurements for Connie H., a fit model at a large shoe factory in Dongguan.

to try out most of the products for a given market. But this is sometimes supplemented by attempts to render a model's foot. Women are asked to powder their feet and then stand on a sheet to imprint the exact way their body weight impacts their step. This is also a way to "read" the foot's arch, ball, and waist to help technicians not only to understand the foot in nonstatic situations but also to predict how the quirks they need to correct relate to their current fit models.[4]

Pictures depicting the measurements of a fit model to be are a regular and repeated procedure (figure 4.2). To understand how volume relates to form, candidates put their feet into a machine that measures the girth (in millimeters) of six different areas: the top, the ball, the waist, the instep between dorsal and plantar joints, the heel instep, and the ankle—plus the calf, which is of central importance for boots, the most important item in the US winter market. In some specialized places, for instance, the SENAI center in Novo Hamburgo, Brazil, experts help local businesses develop measurements. I was able to witness not only the first machine I described but also a second

device that models would stand on to record the weight distribution of their feet, in a more precise and updated version of the "powder on the foot" trick.

While in Novo Hamburgo I also collected more varied information about the operation of fitting standards for the US market; which markets higher-end shoes than those made for the American market in Dongguan. Figure 4.3 illustrates the multiple logics that are inscribed in the foot-measurement chart. As on every other form, the ability to inscribe measurements to make them become disembodied, reproducible, and translatable in other locales is essential. The form depicted is identical to Connie, the Chinese fit model, showing the standardization of forms and techniques across the industry. But we can witness one difference in its use: the separation between fit models

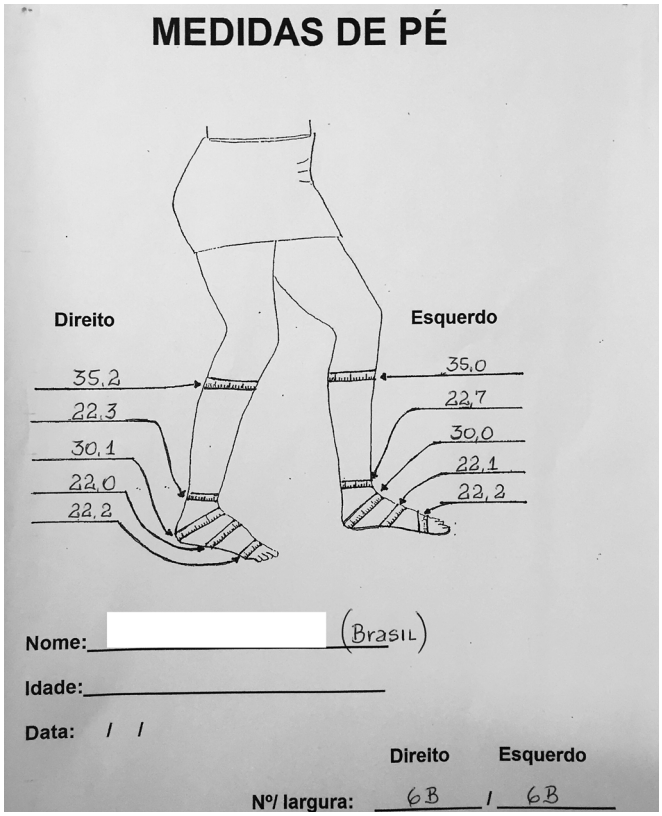


Figure 4.3. Measurements for Carmen, a fit model for the domestic market at a shoe-trading company in Novo Hamburgo.

for the local and export markets; for example, development companies have to recruit different fit models for different markets, as evidenced by the name section that explicitly references a Brazilian company. Notice that while the second form (figure 4.3) is also from a model who stands at a size 6B, the measurements are very different. The "Brazilian" 6B is larger in every measurement by between one and two centimeters. This is a meaningful difference that results in technicians having to navigate multiple embodied standards within the same company; it also sorts models from the beginning as serving one market or the other. Yet another form of control segregates models by market: the ability to replicate standards and avoid translation issues by making explicit *what* belongs *where*. As I will show later on, one of the key issues brought up in the attempt to replicate a set of measurements on actual human bodies is the problem of coordinating and translating across millimetric differences.

But as much as focusing on measurements may give the impression that the fit between feet and standard is a miraculous and natural occurrence, models have to train their modeling feet and eventually become spokespersons for them in the fitting process.

PRODUCING FEET AS WORKING OBJECTS

In a beautiful meditation on the relationship between the techniques involved in shoemaking and the way a shoemaker inhabits that world, Heidegger (1982, 240) highlights how an environment is made out of tools: shoes and leather can only be uncovered by those with the necessary skills to decipher what is going on. In line with that reflection on how uncovering an entity demands something from us, I would like to point here at the necessary skills for someone to become a fit model, and the tension between the fit model herself and her technician as to who gets to uncover the intra-world subtleties about measurement, comfort, and fit. So I ask, to speak in the Heideggerian parlance: what is concealed in a foot, and how do we best make it transparent?

One could imagine a scene where technicians like Clint (in New York) and Simon (Grace's father, who has worked as a technician since starting his business in Taiwan some forty years ago) scream in unison across eight thousand miles: "If I could try out the shoe on myself, I wouldn't need a fit model." Clint said this verbatim, while Simon demonstrated the sentiment by describing how he would sometimes try on a larger women's size (usually a 9 or bigger) and work on it if the fit model was gone. A key part of what a fit

model learns is knowledge well within the technician's lore: describing what she feels when trying on a shoe, identifying issues and considering how to correct the issues that might arise, and properly delivering these comments. It is kinesthetic: part of it is about the relationship between the singular and the general and another part is about how to develop a proper vocabulary to articulate this.

Technicians (and, to a lesser extent, fit models) call this "developing a feeling" and see this as the threshold that indicates when a model goes beyond being "just a foot" and becomes a full professional. Josemir explained this to me as the moment in which models move beyond feedback that could easily fit within binary distinctions of loose/tight or ugly/beautiful and can articulate a more complete understanding of the relationship between problems and potential solutions. Part of this requires technical knowledge. For instance, understanding why a shoe might be tight around the toe might require knowledge not only about the proximate cause (the front) but also about the heel construction causing the tension. As Josemir explained, having a knowledgeable fit model meant that a shoe that had been rejected six times could finally be approved. In addition to this technical know-how, "developing a feeling" also requires a particular kind of subjectivity, one that can not only comprehend the reaction of its own foot to a particular material but that is also cognizant of creating the standard and being attentive to a consumer who may have very different tastes and biographical contexts.

Annette works as a manager for a trading company. She started in Brazil but has worked in Dongguan for the past five years. She emphasizes that the process of moving past being "just a foot" takes at least a couple of seasons. To become acquainted with a particular brand, fit models have work for at least two seasons to experience the whole range of products, from sandals to boots. Connie diligently makes this evident when saying, "After working for three months at the factory [even after having had a previous job fitting], I was not good yet, I needed to relearn how to work for a different brand, to give different comments, to feel a different fit according to the market." This process becomes even more complicated when models work with multiple brands in a sample room, at a trading company, or even at a factory, where they have to be able to understand a range of brands and, in consequence, consumers and markets.

There is something like a global agreement about how long it takes to learn how to feel and talk about the necessary corrections both *in foro interno* and *in foro externo*. Connie in Dongguan agreed with Brace in New

York and Lorena, Carmen, and Jackie in Novo Hamburgo: it takes up to a year to develop the necessary skills and vocabulary to give useful comments to the technicians and designers. Learning what kinds of details are worthy of feedback is mostly a matter of "forces and intensities," as Lorena, one of the Brazilian fit models, explained. How much does the material press on the foot? Does it impinge in every position? And what *is* the material, and how much can it mold itself to the foot without hurting it? Moreover, sources of discomfort often come from body parts that depart from the standard for a particular market. Brace referred before to how her history as a dancer made her self-conscious of her instep and arch as compared to those of the "regular" consumer; on a different occasion, she noticed that she has to take into account that if something barely fits her calf, "it won't be of use to a customer in Indiana."

Fit models are asked to learn how to explain sources of discomfort on their own feet, as well as to bracket those issues that make their feet singular or that depart from the expected measurements. Though there is variance among the parts of the foot that need to be accounted for, there are two areas that are consistently signaled as significant by technicians and models: the instep and the ball. The latter is of particular importance for models working with heels, as it is where most of the weight resides. Learning how to distribute the weight properly—especially during marathon-like sessions of fitting fifty to sixty pairs of shoes in one working day—and how to account for (or discount) the pain that develops in the area is one of the most important demands on a fit model.

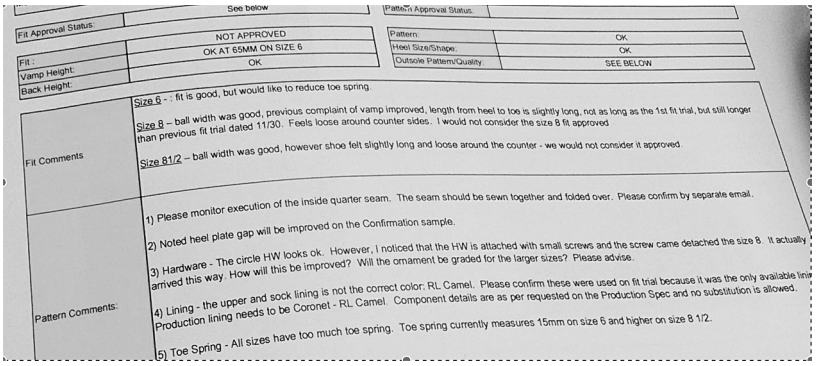
Trust is a critical element in the relationships between fit models, designers, and technicians. When designers and technicians trust the comments provided by models, they implement those corrections and then ask models whether they can feel the changes made. In other words, technicians use fit models as both their source of information and as credible experts with an experiential knowledge they cannot access. This distributed model of knowledge involves a "trial of worth" (Boltanski and Thevenot 2006) in which the fit model's knowledge is validated with each incremental step, and in which her worth becomes solidified as well.

We can see this as we revisit Clint's testimony about how Arlene was, in retrospect, one of a kind, not only because her foot had the desired measurements but also because of her ability and vocabulary to talk about her feet and shoes. We can also see this in Grace's testimony about her own fit: "My foot is not perfect. I can fit maybe for some wider stuff, but I know the technical

Figure 4.4. Technicians working with a model at a trading company.

stuff and how to talk about it. Some models have the perfect feet but they don't know how to communicate; they are bad at it." Despite expectations for models to be equivalent to the other models within the infrastructure, and for them and their feet to be transmuted into tools, fit models are also expected to be sources of knowledge. This is so important that many fit models who work for large companies develop consulting careers over time, giving independent specifications to factories, meeting face-to-face with factory technicians and production managers, without the intermediation of sample-room or development-office technicians.

Figure 4.4 shows a preamble to one of these occasions. The image depicts a model pointing at the strap and describing its problem to ensure that the technician's assistant takes a proper picture of the fit. Later on, she takes notes on what she verbally communicated to the technician and elaborates a small report with specifications of the things that did not work for the shoe. If she decides that the shoe does not work properly, the sample will be sent to the factory to be reworked. If she approves it, the pictures, her report (seen in figure 4.5), comments from the technicians, and the sample itself will all be sent to the offices in the US. From that point, the company begins its own fit and approval procedures, relying on its own fit models to produce a similar document, which is usually attached to comments by the production manager, with issues beyond standards and fit, focused on patterns.



Fit Approval Status:	See below	Pattern Approval Status:	
Fit :	NOT APPROVED	Pattern:	OK
Vamp Height:	OK AT 65MM ON SIZE 6	Heel Size/Shape:	OK
Back Height:	OK	Outsole Pattern/Quality:	SEE BELOW

Fit Comments	Size 6 - : fit is good, but would like to reduce toe spring. Size 8 – ball width was good, previous complaint of vamp improved, length from heel to toe is slightly long, not as long as the 1st fit trial, but still longer than previous fit trial dated 11/30. Feels loose around counter sides. I would not consider the size 8 fit approved. Size 81/2 – ball width was good, however shoe felt slightly long and loose around the counter - we would not consider it approved.
Pattern Comments:	1) Please monitor execution of the inside quarter seam. The seam should be sewn together and folded over. Please confirm by separate email. 2) Noted heel plate gap will be improved on the Confirmation sample. 3) Hardware - The circle HW looks ok. However, I noticed that the HW is attached with small screws and the screw came detached the size 8. It actually arrived this way. How will this be improved? Will the ornament be graded for the larger sizes? Please advise. 4) Lining - the upper and sock lining is not the correct color: RL Camel. Please confirm these were used on fit trial because it was the only available lining Production lining needs to be Coronet - RL Camel. Component details are as per requested on the Production Spec and no substitution is allowed. 5) Toe Spring - All sizes have too much toe spring. Toe spring currently measures 15mm on size 6 and higher on size 8 1/2.

Figure 4.5. The report written by the fit model after the session shown in figure 4.4.

HOW TO SUSTAIN REPLICATION?

Given that fit models are counted on as one of the few expected constant factors in what is an otherwise precarious stability-seeking process, the production of feet as standardized working objects, docile items that lend themselves to comparison and generalization (Daston and Galison 1992; Epstein 2007, 31), involves also taking the necessary steps to maintain the feet as identical to themselves for as long as possible. In the words of Jackie, a Brazilian model who usually works for high-end US brands:

> You have to be careful not to gain weight, since in gaining weight, the shape of your foot might get altered too; but I've never had any issues with that. The thing I'm on the lookout for is wearing too much low-heel or no-heel shoes. It's not forbidden, but your foot gets wider and your ball adapts differently if you do that too much; it sort of 'rests' too much. It can affect the fit. . . . You actually have to be careful about working out too much, you have to be careful not to be too muscular, have to do it moderately because you do not want to do anything that will alter your arch or your calves!

As Jackie explains, fit models observe how their weight, shape, and exercise impact variation over time, and they generate strategies for controlling it. Echo, a Chinese sourcing agent who moved out of the factory into the office through her work as a fit model, adds another factor: motherhood. Pregnancy and childbirth often transform a woman's distribution of body weight by altering hips, and her feet react accordingly. In her case, motherhood

transformed her foot from the 6B size of most of the models for the US market to a 6W, a wider standard used mostly for cheaper shoes and comfort brands.

To ensure that standards remain stable, models in large companies are measured every six months. This is partially to make sure that the measurements being mobilized while fitting the shoe are the same as before. But there is a second (and perhaps more important) reason related to the coordination of fit across multiple sites: to verify periodically that the primary standards do not drift. This is done by comparing the relative values of the standards maintained in separate locations. For companies that work with many feet in several locales instead of relying on just one model, the problem is how to make all these feet comparable. Companies use each minimal transformation that results in an adjustment to provide instructions about how to compare fit across the now-differing units and adapt to the new measurements. Or, if the changes are dramatic, they provide a catalyst to hold a new casting call to hire someone who better replicates the preexisting size.

This points to an issue that is central to all standardization-making projects but may be unique to this one: how to coordinate replication and transposability in nonexperimentally-controlled settings when all of the standard-holders are bodies instead of materials, forms, or measuring devices. I found the image in figure 5 tacked to the cardboard wall of a trading company, which distributes shoes to the US, the UK, and Australia. The figure simplifies, disembodies, and inscribes reference information about the fit models

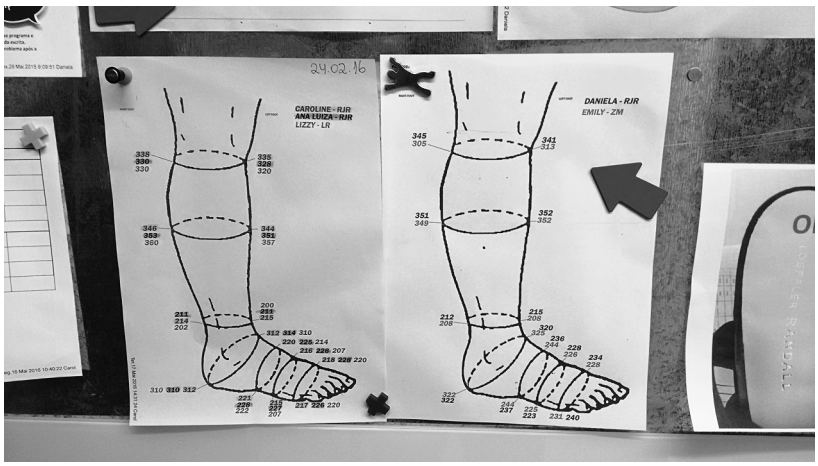


Figure 4.6. Comparative drawings of fit models from multiple companies.

the company has working for each brand. It also provides an immediate comparison between the models for the trading company and those who work for the brands themselves. The image shows reference information for a US and a UK brand. The information gives us the seven measurements used to classify fit models (including the extra one higher on the calves, for boots) but fails to provide information about particular quirks in important areas like the arch, ankle, and toe sweep, or about how the foot pronates. Because these data are harder to disembody graphically, technicians need to know how to work with and around coordinating feet.

When simplification is not enough to produce replication, companies dispose of bodies that are "matter out of place" (Douglas 1966) in facilitating standardization. During my fieldwork for this project, I saw multiple instances of shoes being readjusted by replacing not just the samples but the actual fit model in China. When a US technician complains that shoes are either too big or too clunky, the company often hires a new fit model with measurements that almost match those of the US fit model. I also observed a US-based model (where approval happens) complain that the shoes from China were too wide—because the reference model from the sample room had recently changed.

Christine's reflects this pattern in the industry. Christine is a freelance fit model in Dongguan who has vast experience in the industry. Her measurements are exactly identical to those of a US-based freelancer the company employs, which allows Marius, the Brazilian technician, to have final approval of samples in Dongguan without circling back with the New York office. When all of that does not work, I observed the technical office in China take advantage of a visit from European fit models, to have them and the local counterpart go to the office of NOVI, a German company in Dongguan specializing in secondary services, for a complete scan of the models' feet, ankle, and calves. They did this to coordinate to the millimeter between the multiple bodies that globally and collectively make up the standard for the brand.

If the preceding paragraphs give us a sense of how stability can be provided to this process, the following section, on the other hand, shows the extensive range of internal variation within fitting itself, and the contexts under which each one becomes meaningful.

WHAT (AND WHEN) IS SHE TRYING ON?

According to Echo, Chinese people have a beautiful saying to refer to a fit model's body: her left foot is called the father's foot, while the right one is the mother's. The difference in measurements between the two has resulted

in the international (and unspoken) convention of using the right foot for measurements and fit. This poetic way to refer to a more permanent variation encapsulates the micro level of difference I will underscore in the next few pages. Since the devil is in the details, it is not my intention to take the reader into an inferno of minutiae, but to show the disparate kinds of information that get translated and simplified over time to make standard sizes. In the previous section, I wrote in passing that most of the fit models I interviewed claimed to have needed one year to learn the technical vocabulary, knowledge that goes together with the embodied sensations provoked by the shoes. The temporality of this somatic relationship, which ties bodily sensations to a particular vocabulary to express them, is best explained by the fact that models have to learn how to evaluate different kinds of shoes in terms of fit (flats, sandals, pumps, boots); materials (leather, polyurethane, cow suede); the combination of materials used for the internal lining (how much they "sweat"); and with reference to the market for the shoe (style, comfort, etc.).

Divergences in how leather reacts offer a strategic entry point to illustrate the variability of the fit process, and open a window to the manifold roles that time plays in said mutation. The first divergence comes from whether fitting takes place in the morning or in the afternoon. If the latter, suede may have expanded and thus be too loose. The second divergence relates to a different temporal arch, one having to do with the reaction of the leather as the sample is inserted on the last. The leather expands immediately but will return to its original form once the last is removed. This time sensitivity is countered by machinery that cools the leather, allowing them to see how it will look on its final form. The third divergence has to do with when shoes were brought into the fitting room by the trading company to have their models and technicians work on them. When leather shoes have just arrived from production, they are stiff and have not had time to accommodate. According to Clint, "shoes have memory" and so "it's a matter of time, if you let them rest a bit, to become looser on their own, go back to their regular form." Leather seems to be perceived as a capricious material with an exact turning point. If technicians work on it too early in the day, the material might be too hard to manipulate. But if they wait too long, the material might become too loose. Technicians keep this in mind. So, in addition to the fitting tests I described, they also add a "thermal" test to see how the materials react to particular temperature and humidity conditions.

This attention to one particular material—albeit central for the market segment I've studied—and the demands it imposes on the temporality of work routines is complicated by the fact that feet are also materials that

change over time. All fittings for production are done in the morning, when feet are considered to be at their best. While less-precise fitting for prototypes and early samples can be done at any point of the day, fitting for production is done only in the morning. (This was true of all sites I observed in both Dongguan and Novo Hamburgo.) Indeed, a factory fit model like Connie, who works only for production, never works in the afternoon.

Models are also asked to walk to see how the shoe reacts to different movements. In some cases, models are even asked to take shoes home and wear them over a weekend (or sometimes longer) to see how they react to usage; doing so also better enables the models to give instructions about what is working and what isn't from the sample. Marius, one of the Brazilian technicians whose work I observed, confided that he found the restricted timing of fittings a bit absurd. Despite being a perfectionist about shoes, Marius acknowledged that the "real" women who will wear the shoe actually have to walk in it the whole day, and by the end of it will have the foot at its widest.

The differences between fitting for samples, corrections, and confirmation are not only about the time of the day but also in the level of rigor that is exercised while evaluating correspondence in each case. For the latter the correspondence has to be absolutely perfect, so much that shoes are not approved for production if there is a millimetric difference with what was expected and how the fit model feels but will be sent back to the factory—even multiple times. The fit for samples and corrections involves guesswork that serves to steer those involved in moving the sample into production closer to what the measurements of the confirmed sample should be.[5]

Fit models also learn how to account for size differently depending whether shoes are for the domestic or international market. For domestic products, they learn to make the fit looser (*fofinho*, in Brazilian Portuguese). They also learn to account for materials differently if they are for lower-tier brands, which generally use cheaper materials that are less receptive to the contours of the foot (for instance, polyurethane in comparison to leather). As a result, the instructions that models learn to give are different from comments they would make for shoes made with higher-end components.

LASTING FEET

In the preceding pages, I have discussed how feet become the objects and subjects of measurement, and how they are trained to become an immutable entity, as models learn to transform their feet into the standard for a shoe

size. In the next section, I explain how feet are produced as translatable and mobile objects. This boldly happens, in two different yet intertwined ways: (a) as world-making around the foot, via the generation of an infrastructure; and (b) by bringing the world to the feet, adjusting said infrastructure to take the geographic location of the fitting foot as a key node for shoe development and approval.

What is the infrastructure that develops around a foot? As we have established, feet are not alone when working during a fitting. The immediate ecology of tools and the tensions between the fit model and the technician (and even the designer) offer interesting lessons to those who study the how knowledge is distributed, and the tension between embodied and disembodied forms of knowledge (see Fourcade 2010). The fitting is a scenario in which there is a struggle over which kind of knowledge is privileged. The knowledge of the fit model draws authority from disciplining the body and from working the body from within to establish the object of knowledge. On the other hand, the work of technicians reveals a kind of knowledge that is actually based on the constant effort to distance it from the body and to move away from the corporeal the object of knowledge. This is a discipline that works from the outside in, attempting to extract and circulate what has been known while leaving the body (or, more precisely, the body part) behind. To quote Steven Shapin: "The historical trajectory of standards . . . is often described as disembodiment, as in the detachment of the body from A BODY. But under another description that process is a different kind of embodiment, the transference of standards from flesh to metal." What are the metal-like tools that allow this codification to happen?

A fit model always works on top of a table. This is something that can be improvised almost anywhere, as evidenced in the multiple pictures in chapter 3 that depict tables in showrooms or at OM's offices in Dongguan. The fitting table is not an ad hoc arrangement between tables and chairs but a device of its own, made up of flat surface; a stepladder; a small, built-in padded wooden bench for the model to sit on; shelves for the technician to store his tools; and a hollow foundation to accommodate multiple chairs (figure 4.7). When confirming a shoe for production, there are usually three or four people working around the table: designers and technicians sit literally at the feet of the model to look at the shoes she tries on. Most development offices I visited in both Dongguan and Novo Hamburgo had very similar fitting tables.

Technicians carry a series of tools with them. These include rulers and tape measures (with inches and centimeters, something less usual in non-US

Figure 4.7. A fitting table at a large development office in Dongguan.

contexts but of central importance within offices that produce for the American markets), templates or calipers for measurement, scissors and a blade (used to make small incisions around the ankle or ball of boots), and a base to make sense of how the shoe and the last react to different constructions and heights. In all cases, they a fixed wrench next to the table allows them to mount and dismount the shoe from the last, as well as helps them in opening a last to better work on the shoe. In some cases, depending on whether they work in adjusting the surface and volume of the last, technicians will have

rasps and standard and circular surform tools on hand in case the wood on the last needs to be corrected.

Designers and technicians use silver markers to make corrections on most shoes, although they sometimes use a white pen for black and gray leathers.[6] While this may seem insignificant, I have yet to see technicians use different markers in a fitting session (and I have observed them at seven different sites).

Details like these offer insights into how ingrained the conventions of an infrastructure can become. Designers, technicians, and fit models expect corrections to be made with those markers regardless of the company they work for, and even if the context does not collaborate with it. In some cases, they do not write directly on the material, but rather on paper to indicate changes that are then superimposed and glued on the shoe. In one case—according to Connie, who works for a large factory similar to the one described by Grace in the first pages of the chapter—the fitting team even used the silver marker to document the changes to be made directly on her foot. Technicians work on the last and the fit, while designers correct the upper. This division of labor reflects the interest of one group on fit and functionality and the other on aesthetics.

Even more important than the immediate ecology of fit and correction is how this early fitting information becomes objectified as a last and how it returns to the model's feet. Two things that happen with the proportions that the designer imagines for a particular shoe point to different articulations of infrastructure. First, as I've shown in chapter 3, the numbers on the upper start as a paper pattern, and then are developed into an upper for a prototype with a material that vaguely resembles what the final shoe will be made of. Second, the numbers for volume are worked on a fit model, adjusted, then sent as precise specifications to a last-making facility, which produces a wooden last with a machine—though lasts are made of wood by a machine, there are more artisanal procedures to shed off details later on. The last is then sent to the technician for corrections and approval. It is only after the two rounds of fitting and correction that the last will be mass-produced, as it is a key component of how shoes are put together on the assembly line, where it is used to give volume to the shoe by gluing it on the upper. By that point, the transformation of what was at first a foot with its own quirks into a size 6 (238 mm or 240 mm in length) or 7 (248 mm) is official. This is a highly contingent process, full of small procedures, adjustments, and working through the knowledge of the deviation from the standard to establish a number.

In adopting a numeric form, a last becomes an immutable object produced by inscription. As such, it can be easily transported back to the center,

Figure 4.8. At a last-making facility in Houjie, December 2015.

where it will then be combined with other similar objects. Much as Latour (1999, 32) reminds us in *Pandora's Hope*, to create and inscribe a reference is—following its Latin root—to bring it back with us. Fit models, technicians, and designers work around variations that would compromise the object as a heterogeneity and turn it, instead, into an objective standard to be followed by large swaths of the female population. To paraphrase the classic work of Theodore Porter (1995): the use of numbers, perhaps the most rule-bound of abstractions, results in the appearance of the exclusion of personal judgment.

In figure 8, we can see both the machine by which all the specifications finally become a last, as well as a coded last in the hands of Josemir, who will take it back to his office to compare it to the foot of the fit model and to the measurements he sent.

BRINGING THE WORLD TO THE FEET

Josemir's trip from the last-making shop to the trading company where he works is a short, five-minute drive through the Houjie area. Most of the buildings house small factories that provide services to shoemaking enterprises: from full sample rooms to smaller operations that only glue or stitch; from technologically-driven shops like the last-making factory to labor-intensive tanneries for polyurethane instead of leather. Compared to Josemir's sojourn, other shoe companies have longer distances to travel, depending on where their correcting and approval feet are located. For instance, in the case of Clint and Arlene, the approved samples have to be air-shipped twice: the first time for the fitting, and the second when products are confirmed. On the first trip, after having worked with the designer's specifications on correcting the shoe, Clint sends one shoe to China, so the last-maker can compare what he is working on with what Clint approved for fitting (not for styling yet). "After China works on it," as he explains, a pair of corrected samples will be returned with the previous fit shoe he had sent. If that works after trying it on Arlene—and most likely after a few more corrections—he'll send them back to Dongguan as the fit- and design-approved samples, to be then sent to the factory for production.

If everything goes perfectly, Clint finally destroys the first half-pair. He used to sign the shoes and mark them with a red dot to monitor the measurements in the global back-and-forth (figure 4.9). In email messages, he used to call it the "go-by shoe," meaning what they are using in the meanwhile. He tells with comic gusto an anecdote where the China office was asking him constantly for the *Gobi* (spelled like the desert) shoe. He asked around if anyone knew a shoe with that name—as shoes are internally given monikers like *Stephanie* or *Verona*—until they realized what the sample-room people in Dongguan wanted was the signed and approved sample.

Perhaps the clearest exemplar of the centrality of the approval process is the routine of a Brazilian-Chinese company that coordinates design by having the line-builders who work daily in Dongguan and Campo Bom meet in the company's New York office four times a year. In those meetings, held in

Figure 4.9. Clint and his lasts for pumps and sandals; observe the signature on the right one.

the office of what used to be a shoe factory, they fit every shoe on the feet of the owner's wife. And I say "feet" because they take advantage of the size difference between her left and right feet (almost half a size). Thus, she is used as the final reference for both markets the company works with: Europe (her left foot), and the US (her right). In their approval routine, two technicians—one for each market—work the shoes first with fit models in China. If they approve fit, the confirmation samples are sent weekly to Brazil, where they are worked on a conference call via Skype with the owner's wife. She then enters the technical specifications and approves whether the samples should go into production (or not). This example highlights fit models' central role in the correcting process, the importance of having fit models with the technical capabilities to understand the issues and how to correct them, and the ability to identify whether problems indicated on a first round have been adjusted. When one foot has approval power, fitting is a hydra-like endeavor, with multiple nodes around the world.

Larger companies have fit models in both New York and Dongguan, which adds a layer of complexity in terms of producing standards. While they use Chinese fit models for brands targeting younger and more fashionable consumers (who are usually expected to have narrower feet), they rely on US models to do fitting at the development offices and factories for more "casual" brands. These are brands that need to take into account wider widths, the

needs of older women's feet, and a fuller foot volume overall. As much as they need that second, fuller foot to travel, they also have technicians (usually Brazilian, Taiwanese, and sometimes Italian men) who travel from Dongguan to New York at least four times a year to assist in the development and correction of prototypes. If designers stay put, technicians also physically bring the prototypes with them.

Travel takes place when delegation at a distance becomes impossible and some things become untranslatable without co-presence. During key confirmation moments (i.e., finalizing the prototypes, producing and confirming samples), technicians, models, and designers all have to meet face-to-face. Prototypes, samples, and lasts all have to be tried on, and that process is dictated by where fit models are (especially during sample making and confirming). Traveling fit models report that they prefer moving and working in China directly. As Melissa, a model for an American comfort brand, put it: "It's easier to work with the brand technician in China, but especially with the factory one, I feel like things do not get *lost in translation*" (my emphasis).

The traffic in designers, technicians, prototypes, and samples is dictated by where the fit models are located, as well as by whether the "feet" can be matched and coordinated across multiple locations. In the case of the OM, it means that the US-based designers not only travel five to eight times a year (once for every collection) to work with Anna, their fit model in Dongguan, but they also develop a cutout of her right foot to work with as a reference in the New York office.

The most extreme example of this was narrated to me by a former production manager for Clarks, who had to coordinate the five feet the company had in the world, across sites in London and New York—where the designers worked—as well as in northeast Brazil, Nicaragua, and Dongguan—where the company had its development and production facilities. His work involved measuring the different feet every six months and casting when one of the women resigned or needed to be replaced. In fact, one of the major nuisances I observed in fieldwork for those involved in producing reliable standards was the agony of replacing a foot that was already fully accounted for within the development infrastructure. This was such an issue that most of the models I spoke with are often called by companies they used to work for to see if they would be interested in returning to work full-time; and, if not, whether they would be willing to work as freelancers during confirmation and production, given that they already knew the brand and its quirks were fully integrated into their work routines.

CONCLUSION: FEET AS OBLIGATORY PASSAGE POINTS

This travel through a few cases gives us a comprehensive list of the requisite humans, tools, and tacit kinds of knowledge that help us elucidate the range of activities needed to make standardization techniques work in different, highly localized settings. What all cases share (captured in the dictum "Never approve a shoe fit on a picture," to quote Venus, a designer and former technician who was developing her own shoe line) is the centrality and indispensability of the fitting feet within this particular part of the shoe-producing infrastructure.

In other cases (Sterne 2003), the search for something that can reproduce an embodied function outside the body—as in the early technology of sound reproduction—resulted in one element taken out of the body (e.g., the eardrum dissected from a dead person) as an attempt to produce through it a replica of how the human ear transduces sound. Though there are numerous parallels between early sound reproduction and the attempts to disembody standards from the body of the fit model—including the idea that there are isolated mechanisms that can be separated, reproduced, and operationalized; and even if they are part and parcel of the same history of the senses, in which the ear stood in for a particular part of the body as much as the foot stands for the female body both real and symbolic—the builders of early sound-reproduction technology were more interested in reproducing the effects than in searching for the causes of what was being heard. On the other hand, although it shares the abstracted character of the enterprise, in which abstracting the foot from the body is a prelude to abstracting inscribable measurements of the former into paper, the production of standard shoes focuses instead on an element impossible to disembody. Thus, the technician (and sometime the fit model) plays the role of investigator while working to find out what causes a particular effect on a shoe.

That feet act as an obligatory "passage point" (Callon 1986) underscores the paradoxical centrality of a minor and invisible kind of labor, as well as a particular dance of expertise between technicians and fit models. We have seen this in some cases by understanding how and where prototypes and samples are mobilized; in others, by looking at how the models are actually mobilized as to have development pass through them; and still in others by looking at the veto power models like Connie have at large factories. This point serves to support once again one of the key story lines of *The Perfect*

Fit, to see the paradoxical constitution of the global, as a scale that can only be rendered globalized through localized practices and objects; in this case, feet. To be blunt about it, the biggest possible thing—the global—ultimately depends here on the smallest of things: a human foot.

This chapter—and to a certain extent, the one that follows—wages a bet in the form of a question: what would happen if we were to do an infrastructural inversion and foreground what usually appears in the background? Or, to put it more bluntly, what would happen if we put women's feet at the center of a fashion-making infrastructure made up of heterogeneous and disparate elements (Thevenot 1984, 9) such as tacit knowledge, shipment forms, confirmation samples, lasts, measurements, technicians and designers, and sketches? Putting the foot at the center of this infrastructure ends up being not just an analytical exercise, but also a better way to understand some of the processes I witnessed that were unclear if looking at it only from the point of view of the designer, the heroic figure of creation and imagination. Moreover, throughout the chapter, I have borrowed from the constructionist toolkit of social studies of science and technology to explain the development of a cultural commodity. In this regard, thinking through how something is put together and works like an assemblage is not a capricious choice where anything goes, but rather an entry point to see where construction stops and where it can't go beyond: in this case, the presence of a foot that anchors and organizes the circulation of prototypes and samples until approved for production.

To put it simply, feet work as an essential circulation node, underscoring fit models' unexpected centrality and power from that fundamental circulation point. But we know very little about what things *look* like from that vantage point. Who gets to talk *about* and *for* those feet? In the chapter that follows I explore what are, for a fit model, the consequences of having "the world at her fit."