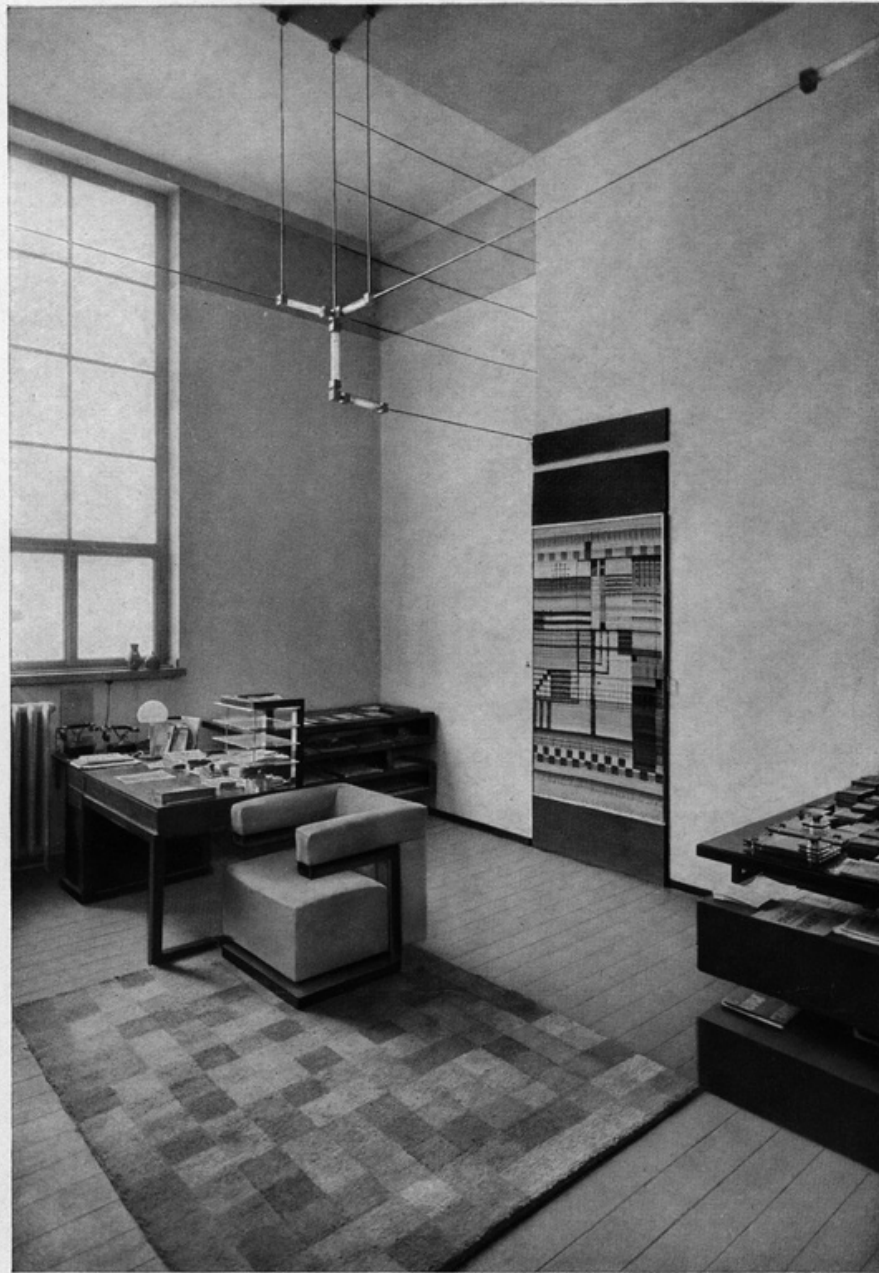


Without a theoretical armature—a group of texts specifying weaving’s dimensions and goals—the workshop’s production of tapestries and carpets remained, for the first few years of the Bauhaus, a medium without ends. This state of practice without theory changed dramatically when several weavers, between 1924 and 1926, stopped focusing on pictorial objectives, began thinking through the requirements of the loom and malleable threads, and spelled out their aims using choice words. Through woven experiments and essays that considered the particular dimensions of their practice, the workshop embraced the rhetorical strategies of architectural criticism.

The vocabulary of *function*, *purpose*, and *utility*, promoted through pamphlets and speeches by Neues Bauen architects and critics, began seeping into the Bauhaus after 1923. This was when Johannes Itten left, having lost support for his esoteric curricular ideas, and when Gropius reassessed the school’s curriculum with his opening lecture for the 1923 exhibition. “Art and Technology” together, he declared, must create a “New Unity.”¹ Recognizing that economic development in the manner of production was necessary for the institution’s survival, the director called on the workshops to begin integrating artistic with business requirements—“to industrialize” their practice in the creation of *Normenstücke* (standard products).² Gropius recruited László Moholy-Nagy, who would shift the curricular focus toward modern media like typography and photography; and he hired Emil Lange as the Bauhaus *Syndikus* (manager) to help broker deals between the workshops and buyers, and to ensure the timely production of goods for sale. Turning away from a model that joined art and craft in dwellings like the Sommerfeld House (1920–22), which showcased finely carved interior walls by student Joost Schmidt and stained-glass windows



W. GROPIUS:
Direktionszimmer im Weimarer Bauhaus. 1923

Page from Walter Gropius, *Neue Arbeiten der Bauhauswerkstätten, Bauhausbücher, Nr. 7* (Albert Langen Verlag, 1925), 13. Director's room in the Weimar Bauhaus, 1923. Floor carpet by Gertrud Arndt; wall hanging by Else Mögelin; ceiling lighting by Walter Gropius. Photograph by Lucia Moholy.

by Josef Albers, in 1923 Gropius backed the ascetic white box called the Haus am Horn. The first house sponsored by the building contractor Adolf Sommerfeld had been conceived as “an experimental worksite” (*Versuchsplatz*) for creating a “patented system of precut interlocking timbers” made from salvaged ships.³ But Gropius soon determined that Georg Muche’s sparsely white *am Horn* design—a look he had already deployed, for example, as architect of Jena’s Municipal Theater (1921–22)—was far more consistent with the look of technological progress and the functional housing economy. The ideal was now to conceive well-designed *Baukasten* (modular prefabricated building systems) and prototypes for industrially fabricated household items like upholstery and curtain fabric or metal teapots and lamps.⁴

Yet if measured in monetary terms, this initial phase of Bauhaus functionalism between 1923 and 1926 was hardly successful. The school continued to struggle financially for several more years. Gropius’s 1923 lecture envisioned the Bauhaus’s future somewhat accurately, but as a theoretically inspired plan his new program took several years to take root. The workshops still employed a handicraft approach better suited to creating unique (and expensive) applied-art objects for wealthy patrons rather than industrially manufactured items for the masses.⁵ Despite Moholy-Nagy’s espousal of technology and promotion of new materials like nickel and chromium for the metal workshop, the objects produced there were still crafted with traditional hand tools used by copper- or silversmiths.

The functionalist rhetoric did, nevertheless, change the workshops’ ambitions. The new ethos found its way into the 1923 exhibition *Internationale Architektur*, organized by Gropius with the help of architectural critic Adolf Behne, the leading advocate of the *moderne Zweckbau* (modern functional building).⁶ And following commissions from individuals and distributors after the 1923 exhibition, the weaving workshop was “particularly quick off the mark in finding representatives to handle its retailing,” as historian Anna Rowland has observed.⁷ As the weavers embarked on the next phase of their practice—creating *Meterwaren* (fabric sold by the meter) for 1924 Leipzig trades fairs held in the spring and fall, and for the Werkbund exhibition that September—they began writing on the basic elements of their craft, appropriating the

language of utility. But in order to make industrial textile “types,” they first had to comprehend their field’s constituent parts: its materials, techniques, and functional applications.⁸

By replacing compositional questions with functional ones, the earliest writings on weaving grasped the importance of having a theoretical plan, a discursive frame. The new language of the modern functional building borrowed from Behne and Gropius served them well. But in applying *Sachlichkeit* theories to their “adaptable” textile objects, they also invoked another discourse, seemingly outside the purview of architecture: the Weimar *Frauenbewegung* (women’s movement). As manifestos and marketing material found in the hippest journals of the day, the texts on Bauhaus weaving by Anni Albers, Gunta Stölzl, and Helene Schmidt-Nonné aimed to give their workshop a voice by arguing for what was called the “woman’s field at the Bauhaus.”⁹ Indeed, these texts functioned doubly: drawing on the language of architectural functionalism, the weavers attempted to define weaving as an internally defined medium so that it could be *specific*—so they could specify their practice and their textiles’ functions—but this language was also harnessed to justify their craft and methods of production to the school’s business manager and to an audience of potential users.¹⁰ In order to be specific, it turns out, the woven object (whether a prototype for curtain fabric or a one-of-a-kind blanket) had to be imagined as useful for something or, rather, someone else—i.e., a largely female clientele or dweller who uses and cleans that piece of fabric. At once modernist, or insistent on the distinctness of this thing and its space of practice, and acknowledging a specifically modern civic identity (perhaps the German *Neue Frau* who had only recently received the right to vote but was still, nevertheless, a *Hausfrau*), early weaving theory joined together the rhetoric of functionalism, modern marketing, and the new women’s movement.

Nascent Theory

In the convoluted territory between the school’s expressionist past and its architecturally oriented, functionalist future, a modernist theory of weaving was born. Soon after returning from the Leipzig trades fair that fall, the young student Annelise Fleischmann (later called Anni Albers, upon marrying Josef) published her first essay,

“Bauhausweberei” (Bauhaus Weaving), in *Junge Menschen*, a Weimar magazine that billed itself as speaking to “the spirit of the young generation.”¹¹ Through her carefully crafted text—the first of its kind on weaving—Albers proposed a future of mass textile production even as she advocated for experimentation and a renewed approach to design through handloom weaving. She was quick off the mark to apprehend Gropius’s suggestion at the September Werkbund exhibition: swaths of bolt fabric should be displayed next to one another “in rows,” not set off in a “pretty arts and crafts arrangement, i.e., a higgledypiggledy scattering of the individual products according to a purely visual point of view.”¹² Nevertheless, Albers declared that the way toward mass production must come through an understanding of the craft.¹³ Progress can only be made through the convergence of handicraft and mechanical production.

Important to understanding Albers’s first essay is that she came to the Bauhaus at the beginning of the curricular shift. She began her education there in 1923, occupying a generation of students younger than Stölzl or Benita Koch-Otte, who arrived in 1919 and obtained their basic training under the influence of expressionism and the postwar *Wandervogel* movement that permeated the school under Itten.¹⁴ Although the two older students would later concede that the pictorial approach was limiting, they remained committed to explorations with color and dyeing.¹⁵ Albers, more inclined to use threads in neutral tones, ultimately favored an investigation of materials, experimentation in woven structure, complex methods for double-weaving on an eight-harness loom, and using industrial technology, like the Jacquard.

Still, the young weaver was not necessarily gung-ho about industry. The younger student came to the Bauhaus the year that Gropius and Lange decided it would be necessary to pursue the creation of a limited liability company separate from the school (Bauhaus GmbH) to help sell and market the school’s designs to industry. Anxious about dilettantism and confronted with complaints about the workshop’s slow production schedule and inability to meet orders, Lange and Gropius tried to establish a system for preventing waste and meeting deadlines for production.¹⁶ So while weavers like Albers must have seen the benefits of such a system (she was able to earn her keep while a student), it surely frustrated



8. VORRATSTÖPFE: DOGLER

KANNE UND TASSE: LINDIG

Wohnökonomie

Von Annelise Fleischmann

Ökonomie ist heute im ganzen Wirtschaftsleben Förderung. Die Wohnökonomie (nicht Beschränkung) ist erst wenig bedacht. 4 Stunden Gewinn an Freiheit durch ökonomische Hausgestaltung bedeuten eine wesentliche Änderung des jetzigen Lebensbildes.

Wohnökonomie muß zunächst Ökonomie der Kraft sein. Jeder Handgriff muß auf ein Minimum an Energieverbrauch herabgedrückt werden. Die herkömmliche Wohnform ist eine verbrauchte Maschinerie, die die Frau zum Sklavendes Hauses macht. Schlechte Anordnung der Räume, der inneren Einrichtung (Polsterstühle, Gardinen) nehmen ihr Freiheit, schaffen damit Entwicklungsbeengung und Nervosität. Die Frau ist heute das Opfer falscher Wohnform. Daß eine völlige Umformung nohtut, ist offenbar.

Neue Dinge (Auto, Flugzeug, Telefon) sind vor allem auf knappe Handhabung und beste Leistung berechnet. Sie erfüllen heute ihren Zweck gut. Andere, seit Jahrhunderten im Gebrauch (Haus, Tisch, Stuhl) waren gut, aber erfüllen jetzt nicht mehr rest-

los ihre Aufgabe. Um sie unserem Bedürfnis anzugleichen, müssen wir sie frei vom historischen Ballast gestalten.

Es genügt nicht, Teilverbesserungen (z. B. Wasserleitung, Zentralheizung, elektrisches Licht) der alten Form zu amalgamieren. Das gäbe altes Kleid mit neuem Besatz.

Der Vergleich weist den Weg: Unsere Kleidung entspricht den Anforderungen, die Verkehrstechnik, Hygiene und Ökonomie an sie stellen. (Im Reifrock kann man nicht Eisenbahn fahren.)

Die einfache, funktionelle, hygienische, also die für uns zweckmäßige Form ist heute Bedürfnis.

Diesem muß der Wohnbau entsprechen.

Das Bauhaus versucht dem Haus wie dem einfachsten Gebrauchsding die funktionelle Form zu geben, die es notwendig heute haben muß. Es will klaren Aufbau der Dinge, es will zweckgemäßes Material, es will diese neue Schönheit.

Diese neue Schönheit ist nicht Stil, der Ding mit Ding durch gleiche Außenformen (Fassade, Motiv, Ornament) ästhetisch verbindet. Ein Ding ist heute schön,



9. METALLAMPE

W. WAGENFELD

her early interest in experimentation with techniques. Following a summer in which Gropius canceled “all experimental work in the workshops” and insisted that everyone “work productively, replicating Bauhaus models” in advance of the fall fair, Albers’s November 1924 essay sought to remind herself, fellow workshop members, and perhaps Gropius himself of the benefits of experimental craft-work in the creation of good design.¹⁷

Indeed, expressed in Albers’s nascent theory of weaving were the contradictions generated by the “state of flux,” circa 1924, between the Bauhaus’s early adoption of a medieval handicraft approach and its fantasy of a future mode of assembly line–ready design, ready for business.¹⁸ Considering the reality of her workshop—the fact that its best-selling products were pretty shawls and unique blankets for bourgeois female patrons—the young student crafted a flexible text that addressed, all at once, weaving’s past, present, and future.¹⁹ On the one hand, traditional handwork is projected as the best means to gain contact with the material and process of weaving. On the other, machine work and mass production are understood as tools belonging to the textile’s inevitable future. The goal is to exploit the limits of the craft in this experimental phase in order to yield better products for industry. Making a case for experimentation in an environment that otherwise insisted on furthering an industrial image for the school (Gropius) or simply selling well-crafted items to a wealthy, largely female, clientele (Lange), Albers attempted to bridge two modes—to change the minds of traditional buyers of applied-art items and industrialists alike.²⁰

Albers begins her essay by noting that weaving is an “ancient craft” whose basic structure (the intersection of vertical and horizontal threads) changed little with modern tools of mechanization. What these new modes brought about, however, was an essential estrangement from the material and the means. Addressing the fundamental question of process and practice, the different relationships between weavers and apparatuses—bodily operated floor looms and industrially sized machines—and the implications for the practitioner’s sense of the material or the fabric with all of its tactile specificity, Albers’s text seems at first to idealize older working methods. There is an appreciation for a now-lost method, once performed by the broad, nonbourgeois population (*Volksschicht*)

of weavers, who had a “more direct connection to their material” through their ethnic identity (*Rasse*). But a romantic vision of the *Volk* and their weaving practices seen at the start of her essay gives way to a different story—one that expresses the fantasy of a new, improved method of design for industrial manufacture. The vision of a future functionalist method of fabric production is, according to the essay’s conclusion, rooted in a history of experimental handicraft.²¹

This is not to say that the utopian relationship between craft and industry projected by Albers’s essay was entirely uncritical. At the middle of her narrative comes the discussion of the sociological and physical conditions that hang over the proliferation of poorly designed products. Albers comments on the division of labor between design and craft in the textile industry—the fact that the draughtsman (*Zeichner*), who stands as “the isolated intellectual,” has taken over the design process from weavers. And of the weavers she expresses concern that they have lost a connection to their technique as well as a “feel” for the material. The first modern theory of weaving thus engages critically with the apparatus—the loom and a mode of production—that distinguishes weaving from drawing as a means to design. In this way, the essay significantly confronts the division of labor, the modern means of industrial production. Her critique of a society that values efficiency and speed over slow but more variable handwork reminds one of earlier critiques by John Ruskin and William Morris, except that in Albers’s text the focus turns toward the problem of intellectual design (pattern making) usurping the design process from the craftsman or laborer. The goal of the Bauhaus weaving workshop, in Albers’s mind, was an “attempt . . . once again to produce [textiles] through a holistic contact with the material,” to “try anew to teach this feeling,” in order to arrive at “[all] hand and technical possibilities.”²² But also, echoing Marx, Albers advocates for a reorganization of weaving labor, to make room for fabric things that might better connect makers and users with their environment and others. What her text outlines is a future for modern Bauhaus hand weaving in a technical world—one whereby the weaver’s handwork and experimentation at the loom would generate formal, technical, and material developments in design, but also by implication new and improved relations between human subjects and woven things.

The text was not uncritical, yet her essay functioned to convince and educate its audience—of (female) buyers who asked for slight variations in color on the patterns offered, and (male) industrialists who sought replicable prototypes—in the benefits of modern design emerging out of good craft. Albers's first theory of weaving was thus generated as something of a marketing campaign—a practice, as we shall see, that she learned from the school's director and that would become common to the workshop's theoretical writings on weaving.

Speculative Weaves

Following Albers's essay and a budding interest from textile manufacturers in their designs, a kind of excitement in thinking through the basic elements of the craft yielded experimental samples and books of notes on them. The weavers attempted to arrive at a model of utility fabrics, as a young design student might, through hit-or-miss research on the loom. These laboratory experiments often lacked a direct application to architectural space and were definitely not useful for industry, but they did serve another function: they gave rise to further developments in weaving theory.

A box of textiles containing ten or more samples made circa 1925–26, located at the Bauhaus Archive in Berlin, can be read against the terms of Albers's nascent theory. In these small squares of cloth, the students combined different thread materials, colors, formal treatments, and a variety of different weaves, often within a single item; thus one might accurately call these experimental samples “speculative weaves.” Just as Albers imagined a future practice for Bauhaus weaving, a fantasy in which craft and industry could come together, these objects picture a future state of textile prototypes, still unachieved. Taking seriously Albers's critique of the design intellectual, who creates patterns on paper but has no contact with the material, students instead drafted the samples on a common floor loom, through a manual exploration of the conditions of that apparatus and various materials in thread.

Many items in this and a related archival carton are attributed to the weaving student Gertrud Arndt (born Hantschk), who entered the weaving workshop reluctantly in 1924 after coming to the Bauhaus in 1923 (the same year as Anni Albers) with the hope

of pursuing architectural training under Gropius. But given that the Bauhaus only advanced a small clique of men through the construction course, that there was no architectural workshop until 1927, and that she was a woman all thwarted her initial ambitions.²³ Thus her interest in structure found expression in investigations of a different medium, which she studied until 1927.

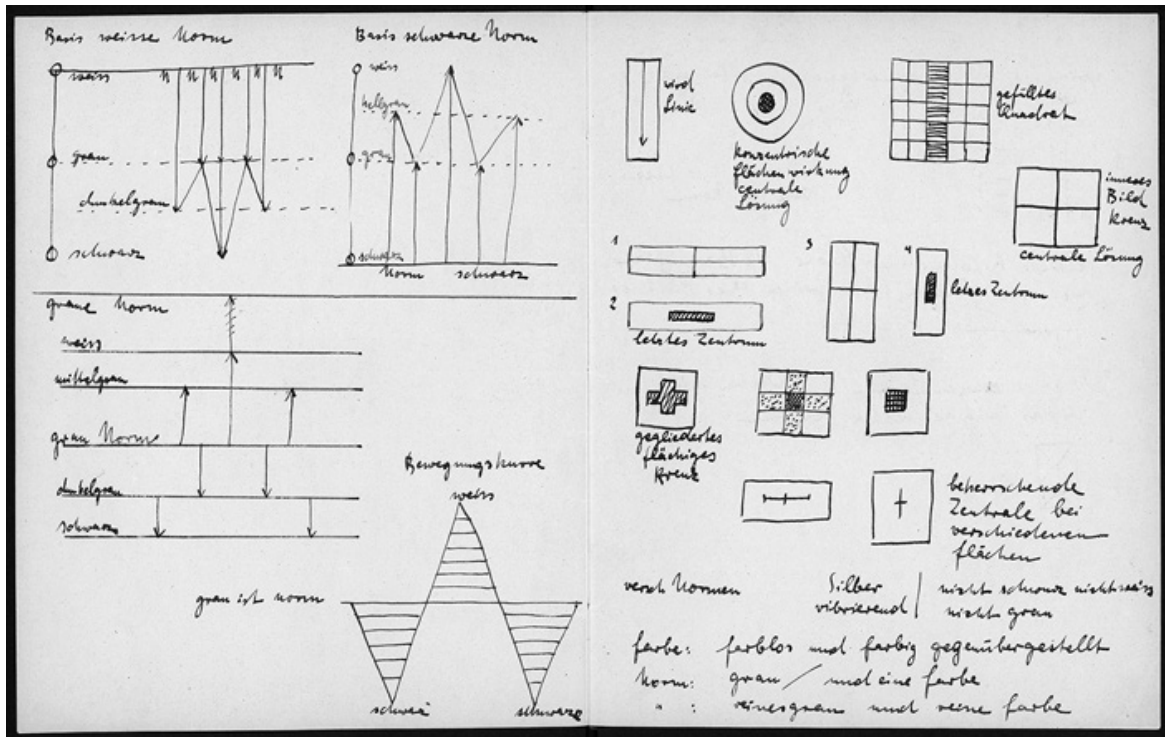
Somewhere between the pictorial work that characterized the school's early years and the more functional, though achromatic textile prototypes of the late twenties and early thirties, the small, experimental weaves found here approximate well the still-experimental direction of the late-Weimar and early-Dessau moment.²⁴ Compare, for instance, a Gobelin cover from 1924 by Martha Erps-Breuer with Arndt's fabric samples (see Plates 4 and 5). Each is woven using the simplest materials: cotton and wool in the Erps-Breuer cover, cotton in the sample, and each takes advantage of the layering of weft and the juxtaposition of thickness among the threads to achieve a complex pattern of contrasting tones and texture. While the cover's scale and compositional variety is a bit more impressive, and the samples do include the larger weave's subtle detail of embedded patterning, the little prototypes nevertheless yield a distinctly balanced arrangement in stripes.

In one of these experimental objects from the workshop's first year in Dessau, the interlacing of viscose and mercerized cotton threads (which absorb brilliantly colored dyes) with the raw colors of natural fibers yields a sumptuous composition of color and texture. Still largely determined by a formal interest in compositional arrangement, the resulting experiment remains a contained spatial-color field, a thing framed by its four sides. And just as pictorial weaving continued to influence the weavers' experiments at the loom, the Bauhaus's form and color theory instruction, taught primarily by Klee and Kandinsky, greatly influenced this student's formal play. So a luminous array of blue stripes in this sample's upper half is juxtaposed with a field of yellow on the lower, as though repeating the diagrammatic and dynamic layouts of Klee's pedagogical sketches. Even before he was assigned to provide a course dedicated to the weavers in 1927, Klee's teaching and theories influenced his enthusiastic protégés, who took fastidious notes in his courses, and whose notebooks reveal page after page



Martha Erps-Breuer, cover, 1924. Wool and cotton. 230 x 113 cm. Bauhaus-Archiv Berlin.

of diagrams informing their workshop experiments with fiber.²⁵ “Artistically,” Arndt relayed to interviewers years later, “we were with Klee and Kandinsky. They were our heroes.”²⁶ So in these speculative weaves, the study of compositional properties and materials, Klee’s ideas about *Bewegung und Gegenbewegung* (movement and countermovement) continue to outweigh any interest in the final product.²⁷ It is not surprising that Arndt recalled her education in weaving with a bit of disdain: “I never wanted to



Gunta Stözl, page from notebook for Paul Klee's course, n.d. Bauhaus-Archiv Berlin. Copyright 2013 Artists Rights Society (ARS), New York / VG Bild-Kunst, Bonn.

weave. . . . No, not at all. All those threads, I didn't want that. No, that was not my thing." Among these samples we find threads handled carelessly, with evidence of hastily introduced weft and selvages that are uneven.

Nevertheless, the weaver's "free" (if also hasty) experimentations on the loom supported, and were supported by, a new theoretical program, which designated the workshop's woven work—quite unlike their watercolors, drawings, or notes from the theory classes—as experiments working toward a function. With descriptors like *Vorhangstoff* (curtain fabric) and *Möbelstoff* (furniture fabric) added later, the workshop's objects would meet their application; the end use or purpose (*Zweck*) would come into the object equation. Thus the designation of *experimental* used here to describe these prototypes implies the scientific objective of their work, as typically defined: "An operation carried out under controlled conditions in order to discover an unknown effect or law, to test or establish a hypothesis." In the case of these woven things, any free exploration of the "pure" means of color or form is to some degree driven by the fabric's hypothetical utility, its future

status as an entity that incorporates and adjusts to the architectural environment.

But again, these samples are not quite functional, at least insofar as they imply a future—a possibility of use after the kinks have been worked out and finished samples have been formed—but little use in the present. As swatches no larger than a few inches square, they provide less information about their potential use than they do evidence of the weavers' processes and mistakes. Many reveal in their surface the trace of a rethought plan, somewhere toward the middle of the progression of the weave, as in a sample given the Bauhaus Archive inventory number 353a, where the experiment seems to yield a hiccup in the weft. These speculative weaves are neither truly pictorial nor properly functional; their makers were more concerned with working through ideas at the loom—an application of Klee's pedagogical philosophy of movement und countermovement, to the back-forth of weft through warp, or to the juxtaposition of disparate materials and textures (shiny viscose and rough wool). Rather than realizing a utilitarian goal, these proto-prototypes can only signal the fantasy of a future mode, a function not yet achieved. They are, as woven stuff, what might simply be referred to as "things": the results of experimentation that are sufficient neither as objects for human use nor as works of art: "Temporalized as the before and after of the object, [their] thingness amounts to a latency (the not yet formed or the not yet formable) and to an excess (what remains physically or metaphysically irreducible to objects)."²⁸ These fabric leftovers, in a box, in an archive, are excessive, pointing more toward the weaver's budding theories than practical use.

Related to the samples is another category of things, perhaps even more useful. Lying somewhere between thingness and theory (in its most applicable sense) are the weaving instruction books (referred to as *Unterrichtsmaterial* or *Bindungslehre*), several of which were written and compiled by different members of the workshop, including Stölzl, Koch-Otte, and Otti Berger.²⁹ These reference manuals were not simply of pedagogical value in the classroom but provided a record of their makers' working thoughts on the practice. (Indeed, the larger history of the *Bindungslehre* is connected to a lineage of mill books used by master weavers and textile mill owners since the eighteenth century to note formulae

for threading looms, diagrams of looms and other machines, drafting patterns, textile samples, and notes.³⁰ Such books could be described as theoretical tracts written by and for weavers, a specialist audience.)

For now, it seems pertinent to focus on Stölzl's *Unterrichtsmaterial zur Materaillehre*, which was likely compiled sometime after 1925 for the use of her students.³¹ Here, one can find cut swatches of industrially produced commodity fabrics, undoubtedly acquired as scraps from a textile mill or shop and pasted on pages next to descriptions (see Plate 6). These typewritten texts describe and analyze the swatch systematically: the fabric type (i.e., taffeta, Chinese crepe, cotton jersey, muslin, etc.); its function (clothing fabric, curtain fabric, tablecloth); the materials used for the warp and weft (wool, cotton, rayon, etc.); the colors of the threads as well as the thickness of the fabric; the technique used to make the pattern on its surface (weaving, knitting, brocade, printing, Jacquard); and last, the cost of the particular fabric per meter. Stölzl's instruction manual can be seen as a kind of secondary-source text, used to analyze the successes and failures of earlier fabric documents. Harnessing an analytic method, she breaks down the fabrics into a set of data. Indeed, the diagnostic language seen on the page to the side of the swatches will reappear (only slightly transformed) in the two lists in her theoretical essays: one list of material properties particular to textiles (color, thread, structure), the other list providing examples of textile types (carpets, curtains, upholstery). Both kinds of texts analyze properties, aiming to show where these industrial fabrics might go if the technique were better handled or if the Jacquard or mechanical loom were traded for experimentation on a handloom. Stölzl, in other words, had to destroy these fabrics quite literally (by cutting them up and pasting them in a book) and metaphorically (through an analytical dissection of their properties) in order to use them for her pedagogy and the development of a new approach to thinking about weaving. The book's usefulness to the weaver's theory was predicated on an analytical destruction.

In the experimental textiles and instructional manuals coming out of the workshop, the weavers were just beginning to grapple with the relationship between their practice and an orientation toward the use of fabrics within dwelling space. Between 1924 and 1926 their work attempted to integrate and then surpass pictorial

objectives. (Stölzl wrote in her diary at the time: “The weavers [were] . . . happy to have found another means of expression, besides watercolors and oils. . . . Naturally, one learned very quickly *that weaving could not be a picture.*”)³² While their speculative weaves were not quite ready for use, the weavers began to define their *Gestaltungsgebiet* through experimentation in order to locate its parameters. Very few designs for architectural textiles were actually generated in this moment; it took until late 1926 to establish a rhythm in the new Dessau workshop. What did result from these investigations were two important texts by workshop members Stölzl and Schmidt-Nonné.

Before turning to a discussion of this development in weaving theory, however, it seems important first to examine the contradictions that abound in the texts by Behne and Gropius, who initiated the *Sachlichkeit* language in the workshops. For here, it turns out, functionalism was not a simple attention to “use,” but a means to advocate for modern form.

Functional Words about Form: Behne and Gropius

Sometime in 1926, as the workshops were moving into the new building in Dessau, the medium of architecture took over as the conceptual touchstone of the school, a position that painting had occupied in the Bauhaus’s early years. Even painter Oskar Schlemmer, as head of the stage workshop, would now advocate for following an architectural model in the development of sets and costumes. Defining the stage as “after all architectonic,” Schlemmer considered his workshop to be the perfect setting to explore the “integration of artistic ideals with craftsmanship and technology.” So like other workshops at the Bauhaus, he “direct[ed] all activities together toward architecture.”³³

The words of architectural critic Adolf Behne, a prolific writer and advocate for the Neues Bauen movement, along with Gropius’s 1923 exhibition *Internationale Architektur* (which Behne helped to prepare), were mostly responsible for this shift.³⁴ Indeed, the Bauhaus students would have been familiar with the writing of Behne, who harnessed words like *Zweck*, *Funktion*, and *Sachlichkeit* in his book *Der moderne Zweckbau* (The Modern Functional Building) and in essays on that topic.³⁵ With the pervasiveness of such terms,

most of the *Bauhäusler* were inspired to get on the same architectural train.³⁶ Gropius, meanwhile, was emboldened to reharness his Werkbund roots and to frame not just architecture but also the products of the workshops with these functional terms in hand. In some sense copied from Behne's analysis of the functional house and pasted onto his new program for the workshops' future prototypes, functional ideas buttressed new thinking about design's "use" in the modern home, now "appropriate to [modern man] and his time." Soon after the *Internationale Architektur* exhibition, Gropius set out to publish a promotional book on the workshop's activities.

Important to keep in mind in this discussion is the slippery history of certain words. Historians have noted how the use of *Zweck* (function, purpose) and *Sachlichkeit* (objectivity, functionalism) were inconsistently applied throughout German architectural modernism.³⁷ After a primarily "organic" moment that came out of architectural expressionism, a hard-edged moment and definition of functionalism ensued, ultimately spearheaded by the economic collapse of 1929. At this point, as Hilde Heynen comments, "functionality" in the public housing movement was increasingly "thought of in terms of cost-effectiveness."³⁸ The already economical ethos of Ernst May's Frankfurt developments, Grete Lihotzky's Frankfurt Kitchen, and the Neues Bauen concept of the *Existenzminimum* became, after 1928, "subordinate to the purpose of being of service to as many people as possible with the (inevitably limited) means that were available."³⁹ Thus, the year 1926, at the middle point of this functionalist history, reveals quite a bit about this passage.⁴⁰ For at this juncture what emerged was a profound anxiety about the movement's supposedly organic origins and the viability of its economic future. Indeed, the beginnings of architectural functionalism, as explained by historian Rosemarie Haag Bletter, have been underestimated by the American audience of European modernism, who tend to gloss over some of the productive contradictions at stake in this term, especially when it is understood to be synonymous with utilitarianism. While Henry Russell Hitchcock and Philip Johnson in *The International Style* hold Hannes Meyer (the Bauhaus's third director) responsible for an overexaggerated "anti-aesthetic functionalism"—thereby distancing themselves from Meyer's failures—their text also contributes to the simple equation of "Bauhaus functionalism" with Sullivan's

dictum “form follows function,” after which the concept seems to exist as a positivist “law or mathematical theorem.”⁴¹

The understanding of functionalism was especially vexed between 1923 and 1926, and Behne’s *Moderne Zweckbau* is an important touchstone for thinking through the contradictions at this time. For Behne, the relationship between form and function did not fit a neat theorem, let alone opposition. The fact that form, or facades, had taken over from organic functions (thinking of the house as a tool) in the past several centuries in Europe was not simply a matter to be inversed; rather, according to Behne, a new “compromise” between them was required.⁴² In fact the problem of form was more important to Behne’s theory than it would otherwise seem, though it was redefined according to objects (*Sachen*) rather than facades.⁴³

To understand the contradictions at stake in Behne’s first major discussion on the topic of architectural *Sachlichkeit*, it helps to unpack the book’s layers. The chapter titles follow a dialectical progression that suggests that the history of modern architecture since the late nineteenth century is an interconnected progression of forms:

- I. No Longer a Façade / but a House
- II. No Longer a House / but Shaped Space
- III. No Longer Shaped Space / but Designed Reality

In the first chapter, Behne introduces the trajectory of modern architecture, found first in the buildings of Otto Wagner, Alfred Messel, and Frank Lloyd Wright, who represent a shift from an attention to “style” in architecture, marked by its facade, toward a concern for the building as a whole.⁴⁴ The second chapter shifts to the description of industrial architecture and its relationship to the worker, mainly Peter Behrens’s Turbine Hall factory built in 1909 for the electric company AEG.⁴⁵ Here *Sachlichkeit* is defined as it concerns the movement of workers in space, their need for light, or the requirements of organizing the factory space like a city with a railway at its center for the moving of heavy materials within it. The factory environment as a unit (the building, its workers, and the industrial tasks performed there) is the quintessential medium for the development of the functionalist plan.⁴⁶ But this

notion of *Sachlichkeit* then moves into the space of another kind of building—namely, the dwellings designed by Henry van de Velde. Behne notes that van de Velde is able to shape space “from the inside,” to arrive at expressive forms that “speak” the will of purposes and materials; as applied to van de Velde, functionalism is an organic and anthropocentric affair.⁴⁷ While Wright’s sense of movement is made up of “immobile, technically determined, standardized, ready-made pieces,” that are “absolutely ‘expressionless,’” van de Velde injects empathy into function, through “curves and flourishes” that acknowledge and respond to lived, organic bodies, who “know no right angles and straight lines.”⁴⁸ But van de Velde’s functionalist ethos—“colored with a romantic, pantheistic tinge”—potentially goes too far, particularly when its consequence emerges in another architect, Hermann Finsterlin. (One might take *pantheistic* to mean antiquated, but also undisciplined, too tolerant of hybridity.) In Finsterlin what emerges is, in the movement of this dialectic, “the most radical dissolution of the house.”⁴⁹ Behne thereby identifies several strains of functional attitudes.

This suggests that for Behne a concern with function is not the endpoint of the entire modern architectural development. Behne comments that while functionalism is important for grasping the movement of a body, “reality” could never fully take to the functionalist dream: “Functionalist deliberations are correct so long as they concern a specific matter, and they go wrong as soon as things have to fit together.” While “a curve is a better biological transcription of real usable space,” when it comes to the “matter of arranging several rooms together . . . a group of rectangular rooms” or buildings in a development is preferred.⁵⁰ In other words, a “romantic” functionalism comes at a price when it interfaces with society, insofar as the individual inhabitant’s tendency toward curves and organic movement might eclipse social requirements. Moreover, good function is never enough, because without *form*, functionalism always runs the risk of effacing itself, dissolving into a romantic experiment or the invisible ground of its use. Hence, the resolution of the dialectic (found in the third chapter on designed reality) returns to the question of form in order to save functionalism from yielding its own dissolution. Here Behne writes: “Form is nothing more than the consequence of establishing a relationship between human beings. . . . Form is an eminently

social matter. Anyone who recognizes the right of society recognizes the right of form.”⁵¹

The definition of *designed reality* is a formal-social matter, so the relationship between function and form traverses a shift that doubles back and redefines each term. Where function originally supported the inhabitant’s movement, and the Baroque facade denied it, now functional solutions are problematic insofar as they overemphasize the individual or the specific case. The “functionalist prefers to exaggerate the purpose to the point of making it unique and momentary,” the problem related to a specific building, kind of worker, or resident— “a house for each function!” At this point, then, Behne cites Le Corbusier, the “rationalist architect,” whose attention to form considers the “purpose broadly and generally as readiness for many cases,” that is, for a social whole.⁵² Although pure rationalism can be a problem when it becomes “rigid formalism,” it is form that the architect needs to counteract the (individualist) dissolution of social accord.⁵³ Form is indeed central to *Sachlichkeit*, defined according to the “object” of architecture as an “instrument of human use,” an “eminently social matter.”

Yet for all of Behne’s discussion of form as social, the critic’s examples are telling. Speaking of Peter Behrens’s Turbine Hall as the most *sachlich* of built factories, Behne would emphasize its form as its absolute virtue: the “body built here to house the working process was an *indivisible, unbroken whole*. . . . *The building was itself form, it needed no forms.*”⁵⁴ And concluding the book with the example of Dutch Theo van Doesburg, he adopts the designer’s words on the “double function of the building: ‘Function from the perspective of practice; proportionality from the perspective of art.’ Function and play.”⁵⁵ Form returns at the end of Behne’s book in a more traditional guise—as a question of “rhythm” and the “relationship of masses” to create a harmonious entity.

Indeed, what becomes apparent in Behne’s analysis of buildings as object-like is that they are defined, despite (or perhaps because of) their interface with society, as discrete units, forms, or vessels—rather like a teapot filled with water or a lamp emitting light. And this might even account for the contradictions found in the dizzying progression of Behne’s argument. He begins by rejecting form as a matter of covering surfaces (facades), later to reject functionality that denotes adaptability to human bodies (“a house for each

function!”), and ultimately to promote those buildings that uphold “proportionality” in formal play. Noticeably missing from nearly all of the book’s one hundred illustrations of buildings and interiors are those objects of design that cover floors and furniture with cloth (only one page of photographs showing van de Velde’s spaces includes carpeting). Of course his focus is the modern functional building, but it is not hard to imagine that Behne would have trouble recognizing fabric’s particular version of *Sachlichkeit*. Flexible textiles in architecture would, perhaps, be too functional—far too lacking in a distinct form of their own. The language of functionality within the discourse of the Neues Bauen, no matter how diverse, could never quite accommodate the textile’s profound adaptability.

When the vocabulary of functionalism was repurposed and applied by Gropius to his analysis of workshop products, Behne’s conception of functional form was deployed not just as a vehicle for users but also as a way of challenging the existing framework of craft at the school. In three related texts published in 1925 and 1926, Gropius sought to market the Bauhaus’s new products and redirect the workshop’s goals. The first was an introduction to *Neue Arbeiten der Bauhauswerkstätten* (New Work of the Bauhaus Workshops), number seven of the *Bauhausbücher* series, written in 1924 and published in 1925.⁵⁶ The most cited of the three, “Bauhaus Dessau—Principles of Bauhaus Production,” printed as a leaflet in 1926, was a shortened version of the book’s introduction.⁵⁷ The third, “Where Artists and Technicians Meet,” was published in the Werkbund magazine, *Die Form*, alongside photographs of airplanes and mechanical parts, suggesting that Bauhaus ideas on household objects had wide applications, equivalent to the most sophisticated machinery of the day.

In the 1926 leaflet, Gropius declares: “The development of present-day housing, from the simplest household appliances to the finished dwelling,” must be a “rational” endeavor, akin to the requirements of modern life.⁵⁸ Thus he proclaims the “new attitude towards design” to be as much about a “resolute affirmation of the living environment of machines and vehicles” as “the organic design of things based on their own present-day laws.” Gropius defines the direction of the new orientation of Bauhaus practice, a project that considers the objective “laws” of things and recognizes “simplicity in multiplicity, economical utilisation of space,

material, time, and money.”⁵⁹ While Behne’s *Moderne Zweckbau* discussed the house as a tool for the dweller but hardly mentioned the tools of the architect, the designer’s craft (his means) is integral to Gropius’s consideration of the Bauhaus workshops—hence the focus on *Arbeit* (work) in the title of the book.⁶⁰ Still, craft emerges in “Principles” as a conflicted element within his argument. In the final three, rather ambivalent paragraphs, Gropius attempts to define something called *future crafts* as the means through which laboratory experimentation will ensure better quality prototypes. Yet at the same time he writes that the “Bauhaus fights against the cheap substitute, inferior workmanship, and the dilettantism of the handicrafts, for a new standard of quality work.”⁶¹ Future craft is separated from handicraft, which would signal the hand’s tendency toward inaccuracy and frivolousness.

A discussion of craft is less overt in his article for *Die Form*—where Gropius attempts to outline the modern designer’s practice as a meeting of the artist and the technician—but appears between the lines, nevertheless. Here, he discusses the process whereby “technical transformations” in the school’s workshops are synthesized with “new modes of creativity”—“artistic” or “elementary insights” into material nature and form. Although not mentioned explicitly, the concept of craft underscores his discussion of the artist, whose “interest centres on the way technical articles are put together and on the organic unfolding of the manufacturing process.” But it also applies to the engineer, whose “principles . . . are basically the same.” Both recognize that a “thing (*Sache*) is determined by its nature and if it is to be fashioned so as to work properly, its essence must be investigated and fully grasped.”⁶² Gropius thereby details a synthesis of the artist and the engineer, a figure—perhaps a designer or a future craftsperson—whose “‘work of art’ must be made to ‘function’ in the spiritual as well as the material sense, exactly like the engineer’s design, such as an aeroplane whose inescapable power is to fly.”⁶³ Design practice, unlike applied arts, is a “rational” and “spiritual” affair, yielding objects, unmarred by the “dilettantish” mistakes, with surfaces that gleam like an airplane. A thing’s formalized function is of the essence.

It is perhaps telling, therefore, that for his 1925 book on the workshops, the Bauhaus director paradoxically chose to display, not advanced textile prototypes for industry, but twenty-nine full-page

images of wall hangings and one-of-a-kind blankets—all falling under the category of *Kunstgewerbe*. Gropius was somehow compelled to illustrate the weaving workshop using nice images of discrete items that resembled the proportional glass facades of his own buildings (like the new Bauhaus building), rather than ones that would actually function for architectural space. The one exception is a folding fabric room divider (a screen) by Dörte Helm from 1923, but even that object with its bold composition of rectangles and strong outline looks architectural. So just as he asked the metal and weaving workshops to display their hand-wrought teapots and fabrics in rows at trades fairs in 1924—hoping somehow to convince an audience of manufacturers that these items could be manufactured serially—his choices of textiles for *Neue Arbeiten* suggest that the book was more of a marketing tool than a site for purely



Page from Walter Gropius, *Neue Arbeiten der Bauhauswerkstätten*, *Bauhausbücher*, Nr. 7 (Albert Langen Verlag, 1925), 73. M. Schreyer, Gobelin, 1923. Wool, gray-blue-white-black.



The Bauhaus building in Dessau, 1925–26 (detail: windows). Architect: Walter Gropius.

theoretical reflection. He knew who the weaving workshop's new clients were and thought they could be convinced by "architectural" imagery, not poorly lit, black-and-white images of plain-looking *Meterwaren*. His introductory theoretical text thus provided the armature through which otherwise arts and crafts objects could be seen differently—akin to machinery and curtain wall facades. It seems he understood the point made by Behne on the need for balance between function and form: good function is never enough.

The near lack of images of architectural fabrics for curtains or upholstery in 1925 illustrates the conundrum the weavers faced as they harnessed the new language of functionalism. As their objects evolved from well-framed "arts and crafts" items into adaptable, unframed things that spread across the surfaces of floors and walls or furniture, they had to generate essays to define their practice and its parameters. Functionalist ideals borrowed from the *Neues Bauen* discourse helped the weavers assert an identity for their textile medium in words, even as those ideals simultaneously undercut its visibility. Functionalism without form, the weavers no doubt grasped from Behne's and Gropius's texts, always runs the risk of effacing itself, dissolving into the invisible ground of its practice or use.

Adaptable Words about Fabric: Weaving Theory after 1926

The second and third essays on weaving came out in 1926, following the move to Dessau and in response to Gropius's developed program. Written by workshop members Gunta Stölzl and Helene Schmidt-Nonné, these two essays embraced the rhetoric of functionalism in their definition of the weaving workshop's practical area. With increased focus on the use of fabrics in architectural space, their definitions of the discipline began to address not just the practical dimensions of the craft but also the arena of dwelling, a particular site. By harnessing the Neues Bauen language of function, their essays sought to complicate the *Kunstgewerbe* picture of their work, and so they declared, avant-garde style, their revised intentions for textiles' utility in the modern world.

Repeating the major point made by Anni Albers's text from two years earlier, Stölzl's essay on "Weaving at the Bauhaus" in 1926 argued that practice on a handloom was vital to all investigations of textiles:

Since mechanical weaving today is not far enough advanced to provide all the possibilities offered by hand weaving, and because these possibilities are necessary for people to develop their creativity, we deal in particular with hand weaving. It is only by working on a handloom that one has enough room to play, to develop an idea from one experiment to the next, until there is enough clarity and specification about the model for it to be handed over to industry for mechanical reproduction.⁶⁴

This was an argument, it should be said, that Stölzl (the workshop's technical master) had professed to the younger Anni Albers in the classroom—which leaves the question of its authorship rather unclear, or perhaps inconsequential. In any case, Stölzl's essay was reiterating the fact that the weavers sought to engage with their craft, not just with a definition of their object. The weavers realized through experience that the possibilities provided by a nonmechanical loom—with its multiple harnesses (4, 8, or 12) and treadles—were best understood through slow experimentation. To fully grasp all the options in woven structures afforded by an 8-harness loom, one had to thread the loom by hand. And to define or clarify these

textile ideas for industry, a sustained exploration of threads and weaving technology was required.

One might say the argument for hand-weaving technique and experiment in Stölzl's 1926 essay served the simple function of defending the continuation of craft in the Bauhaus workshop. As the Bauhaus increasingly turned toward industry, they had to defend their seemingly retrograde methods. And the argument served another purpose as well: it helped to support Stölzl's battle against the workshop's form master, Georg Muche. He had purchased and wasted money, so she thought, on several expensive Jacquard heads and mechanical looms for the workshop upon moving to Dessau in 1925.⁶⁵ Stölzl and the weaving students found Muche's act to exemplify his general disregard, and even contempt, for the workshop's practice.⁶⁶ His interests remained firmly planted in his own painting and budding architectural career, and so Muche made his role as the form master into more of a business manager, to meet the demands of an increasing financial interest in the workshop's products, specifically its commodity fabrics, which had become increasingly well regarded as potentially profitable.⁶⁷ The Bauhaus weavers turned away from the language of painting, but they also rather defiantly rejected a simple transfer toward mechanics. In their rebellion against both, the students declared that Muche "was not needed in the workshop," and they ultimately engaged in a revolt against the school.⁶⁸ The entire student body (weavers and nonweavers alike) insisted on Muche's removal as the weaving workshop's form master and voted to replace him with Stölzl.

The turn against Muche was an interesting step in the weavers' move toward independence and recognition. In a feminist-like revolutionary act, they asserted that their medium was a specific material entity and practice, an area for "women's work." Gropius opposed this revolution, and he apparently asked Muche to "get a handle on the workshop," since he was uncomfortable with the uprising of the workshop against the institution and against one of the masters of form.⁶⁹ Nevertheless, the weavers' arguments were heeded and Stölzl took over as the workshop's leader. Writing in *Meister* by hand on her Bauhaus identification card where it once said that she "studied" there, the junior master asserted her new role and authority.⁷⁰ A revolutionary act thus inspired a modernist,

theoretical enterprise: Stölzl was appointed head of the weaving workshop in 1926, and that year she set herself the task of determining the parameters and conditions of her weaving medium, or formal field (*Gestaltungsgebiet*).⁷¹ Taking on her new didactic role, she declared emphatically and authoritatively in her first article on the weaving workshop:

In all fields of design today, there is a striving for universal laws and order. Thus, we in the weaving workshop have also set ourselves the task of exploring the basic laws of our field of specialization. Whereas, for instance, in the early days of our work at the Bauhaus, principles of pictorial images formed our foundation—a woven piece was a [picture] made of wool, so to speak—today it is clear to us that a woven piece is always a serviceable object, which is equally determined by its function and its [conditions of manufacture].⁷²

Although a woven fabric is “an aesthetic whole: a composition of form, color, and substance into a unity,” its applications are manifestations so diverse that woven pieces can only be explored through experimentation. To determine the specificity of her field, Stölzl both describes the entity’s formal properties—the fact that it is a “surface” but also material, made up of threads in various structures, or the fact that its color could be “intensified or weakened through brilliance or dullness” of the surface—and addresses its multiple applications. “Since textiles can be put to such different uses, and have to meet so many different requirements,” she writes, it’s important to acknowledge the various demands required of blankets, curtains, carpets, or upholstery fabric. The entity’s identity as a formal object emerges from certain conditions of manufacture but also from its (organic, lived) use in dwelling space. Thus, in its flexible identity, it is essentially multiple, even marked by several opposing terms: “It is a characteristic of [a] woven textile that it can be rough or smooth, hard or soft, light or heavy, matte or shiny,”

Stölzl’s 1926 essay thus describes an object that hovers between painting—a composition or “thing in its own right” (*Ding an sich*)—and one whose function is a curtain, carpet, or upholstery fabric.⁷³ Where curtains and blankets are objects that “can be easily moved and changed,” and carpets can be “incorporated into the layout of a room,” having “a determining spatial function,” the latter

can also be an “independent ‘thing in its own right,’ whose form and color vocabulary” can express any theme.⁷⁴ Color and form as an abstract, autonomous terrain of inquiry remain integral to the object, even as it shifts toward use. Utility and formal concerns occupy the same matrix.

Several years later, in an article titled “Utility Textiles of the Bauhaus Weaving Workshop,” for the July 1931 issue of the *bauhaus zeitschrift für gestaltung*, this theme of integration grows more intense. While she declares that there is a rhetorical “cleavage between . . . the *development of textiles* for use in interiors (prototypes for industry) and speculative *experimentation* with materials, form, and color,” she also insists that any “cleavage” between utility and experimentation is *also bound* within the very structure of the woven prototypes.⁷⁵ Stölzl notes that through the “bond” (*Bindung*) of the fabric—that is, what she referred to as the “structure of the intertwining of the colors”—color, material, and functionality touch one another.⁷⁶ As several properties cross one another in the fabric’s weave, there is a crossing of the fabric’s functions—its “elasticity” or “flexibility”—with its aesthetic qualities of color, pattern, luster, or softness. This is evidenced in a series of four prototypes by Stölzl using cellophane from 1928.⁷⁷ Through its material juxtaposition with other threads in various colors (yellow, red, green, and white), the cellophane both produces a visual effect in the formal composition and functions—as a wall covering—to reflect light and illuminate architectural space. Moreover, developments in technology (such as new dyeing methods or mechanical treatments) equally determine the effect of woven fabrics in a room. Woven out of a binary system (the crossing of the warp and the weft), a fabric also interlocks the terms of this binary within its bond, thus holding the analytical distinction between horizontal and vertical, or weft and warp, in tension with their joining. Significantly, the model of fabric in Stölzl’s 1926 and 1931 essays invokes both the binary system and the process that binds them. Once the fabric is woven, its properties such as color, material, form, and function are not so distinct from one another or from the functional end product. In any event, these properties suggest the dual nature of the textile object—its potential functionality and autonomy all at once.

Still, the question of form within functionalist discourse posed several problems for the weavers’ theories. Their textiles adapted

to modern architecture, as wall coverings, wall-to-wall carpeting, curtains, and upholstery—things that extend or “span” (as the German *Spanstoff* indicates) across floors, walls, windows, and furniture. But as Magdalena Droste has pointed out, the new functionality and adaptability of the weaving workshop’s products in 1926 and 1927 helped erase their presence in photographs.⁷⁸ Whereas a teapot has discrete borders and relatively clear applications (a vessel to hold and brew tea), the same can’t be said for a swath of fabric whose identity may shift depending on the context. Some wall-covering textiles may alternatively be used as curtains or upholstery.⁷⁹ Textiles have a uniquely integrated relationship to architectural space, helping to define it subtly or more obliquely, but their functional applications are so variable that their identity as an object is also conditional. As things with relatively “mobile” and “adaptable” functional parameters, as the weavers’ theories would express, fabrics are difficult to pin down. Thus as the language of architecture came to frame the weaving medium, fabrics were incorporated into the building as surfaces, and their *sachlich* (objective) identity became less clear.

What is further interesting is that the practice and medium of the female weavers were explicitly and implicitly gendered in the weavers’ texts. Women, Stölzl notes in her 1926 essay, were adaptable creatures, much like textiles. Hence she would write that fabric “design is concerned with a two-dimensional rendering that relates to all things surrounding it, *adapting and adjusting itself* accordingly . . . the movability of the surface lends the textile its special character.”⁸⁰ But also that weaving “is primarily a woman’s field . . . the ability to feel and *adapt* strongly, more rhythmic than logical thinking are all predispositions with which the female character is generally equipped, which makes women particularly able to achieve great creativity in the field of textiles.”⁸¹ A structural resemblance between object and subject—however adaptable that (female) user is—only complicates the functional equation. The object’s form is not merely the consequence of its functions; it also appears to reflect a predisposition specific to women. Textile subjects and objects bear a similar character.

Helene Schmidt-Nonné (wife of Joost Schmidt) also wrote on the weaving workshop’s area, further claiming it as “the woman’s field in the Bauhaus” (*Das Gebiet der Frau im Bauhaus*), as the

title of her article suggests.⁸² Her text, published in the August-September 1926 issue of *Vivos Voco. Zeitschrift für neues Deutschtum*, was an apparent capitulation to the form masters' disregard for weaving and to the idea that "this field of work is appropriate to a woman and her talents." Schmidt-Nonné seems to concede that weaving is a task more suited to woman's inherent talents or her attention to "details" than to man's "spatial imagination." And Schmidt-Nonné's text even appears to react against "the accomplishments of the Women's Movement," arguing that a woman's way of seeing is "so to speak, childlike, because like a child she sees the details instead of the over-all picture." What is established at the start of the essay is a clear binary distinguishing "intellectual" from "intuitive."

Yet through a subtle twist (or manipulation) of these essentialist assumptions, her argument also worked to dismiss Muche's role and position as the workshop's form master. Toward the middle of the essay, Schmidt-Nonné deploys essentialism to her advantage: "There are even indications," she writes, "that woman is counting on her limitations, considering them a great advantage." Women have the capacity to experiment with the details of the fabric surface and thus meet the dictates of "functional requirements." For even with wall hangings, Schmidt-Nonné notes, the "advantage of woven pictures over framed pictures is that they can be easily removed and folded into a very small space," a function more in keeping with a modern world determined by "airplane[s] and radio."⁸³ Schmidt-Nonné was in some ways repeating what Gropius had written in his introduction to the exhibition of 1923: "We want an architecture adapted to our world of machines, radios, and fast motor cars, an architecture whose function is clearly recognizable in the relation of its forms."⁸⁴ But the weaver turns this functionalist rhetoric of fast cars and airplanes toward an advocacy of weaving work, which, she claims, was an exemplary thing for the modern world, certainly more than painting but perhaps even more than architecture itself. Architecture is stationary and, despite itself, too focused on the relation of its forms. Schmidt-Nonné instead highlights the mobile capacity of the object itself. The soft object could contribute to the reconception of dwelling space, in the same way that a Murphy bed challenges, in the Ernst May apartments in Frankfurt, the specification of rooms for single functions. (With

the installation of a Murphy bed, any room could also function as a bedroom.) Thus functionalism in the fabric was less about specificity (a specific object for a specific function) than it was about variability. The textile medium's soft flexibility made it suitable to change and to what might be referred to in today's context as "mass customization."⁸⁵ The fabric must meet the demands of mobile and economic living—able to be folded into a small space and put away in a drawer, used as a curtain or convertible wall divider. This would be important for the modern dwelling, whose requirements were determined by strict limitations on space.⁸⁶

Functionalism served the weavers well: they used it to redefine their medium and to reject the logic that otherwise identified their practice as a "feminine handicraft"—as "domestic" (mindless) work with little purpose. The *Stoffgebiet* of weaving, they seemed to argue, is particular enough to deserve a theory: a rigorous description of its processes, or the "conditions of its manufacture," as well as its multiple functions. One might go even further to say that Schmidt-Nonné and Stölzl did a fine job of beating Gropius and Behne at their own rhetorical game. In their (gender-neutral) discussion of functional *Sachen* and architectural form, Gropius and Behne provided no discussion of *adaptability* and *flexibility*, terms that the weavers would use to identify the specificity of textiles. So with the weavers' description of a textile that out-functions cement-and-steel buildings, their theoretically defined "adaptable" object significantly challenges the formal parameters of functionalism.

Thus the weavers' theories of their medium also worked, perhaps in spite of their intentions, as a kind of feminist call-to-arms, a manifesto for recognition, in an institution that otherwise subsumed their work under the rhetorical and physical frame of architecture. An embrace of adaptability gained them a theoretical vocabulary and identity, even as it also in some sense returned them to a consideration of the domestic interior, the home.

The Function of *Frauenkultur*

Which brings us to the final, more obvious problem in the *Sachlichkeit* discourse. Insofar as it is a discourse of use, it must ultimately acknowledge the existence of the user. And these users are not

(neutral) “humans” (as Behne or Gropius might suggest) but, rather, specific beings: some are artists or architects occupying a Bauhaus *Meisterhaus*, with a predilection for walls covered in neutral or bolder tones, while others are *Hausfrauen*, women who clean and fold fabrics and are well positioned to advocate for new designs in domestic housing. Of course this little fact was not lost on all writers about the Neues Bauen. In one book, architect Bruno Taut highlighted the “new dwelling” and the redesign of domestic space with an eye toward developments in another modern movement. The German women’s movement or, rather, the women’s “culture” it inspired (*Frauenkultur*), was put to service by this “new architect” in 1924, in a book that identified the new, female user as nothing less than a creator. *Die neue Wohnung: Die Frau als Schöpferin* (The New Dwelling: The Woman as Creator) sought to capitalize on the growing popularity of the women’s movement among the female population. So Taut’s book—something of a promotional campaign for his own dwelling designs—added a subheading that would equate the most advanced architecture of the moment with the language of feminist progress.

The utility of the *Frauenkultur* for architecture was clear enough in Taut’s mind to put it front and center. As historian Mark Peach points out, Neues Bauen architects hoped that by “converting women to the cause of modern architecture” they would become the strongest advocates for new definitions space.⁸⁷ “Once the New Woman saw the light and began to demand the efficient, airy, sunny, and hygienic home foreseen by modern architects,” Peach notes, “the movement could only succeed, given the influence over domestic issues supposedly wielded by women.”⁸⁸ Modern architects figured that the changed psyche of the converted modern woman would help promote the cause of the New Dwelling. Taut wrote *Die neue Wohnung* the year he became head of the city planning board in Magdeburg, and the text signaled his shift in interest from the earlier expressionist architecture toward the “social and cultural implications” of designing new forms of dwelling for the masses.⁸⁹ At this point, Taut was determined to address the rising housing shortage in Germany’s cities, and he hoped that a member of the Neues Bauen movement (or he himself) would be hired to meet the task. His argument depended on women’s change of

mind “in this [modern] direction.” For, as Taut declared, “in order to even begin to build better homes the woman must emphatically demand them.”⁹⁰

By giving her a new, more economically designed living space, free of comfortable yet hard-to-clean drapery and other sentimental items (*Gefühlsdinge*), Taut even claimed to advocate for woman’s best interest, reciprocating the camaraderie she might offer him in support.⁹¹ He argued that his design would rid her of unnecessary emotional “nervousness” caused by the expectations of a traditional dwelling environment. But this attempt to align women’s revolutionary goals and the “revolution of the household” had another, rather retrograde purpose, as found on the dedication page of his book:

Dedicated to women!

The century’s pendulum has reached the bottom—ready for an upswing. What until that point was negation, now becomes affirmation with a new goal. Hitherto, woman was forced to turn her back on the home and now is turning toward it again. Mere critique [now] becomes a creative act. Critique is no longer reproach and reprimand, but a perspective on the new path.⁹²

Instead of abandoning her maternal role for a career, with the new architect’s help the woman could return to the dwelling (somehow) refreshed. In Taut’s indictment of “critique” (or rather “reproach and reprimand”), he implores women to maintain their “Mütterlichkeit” (motherhood) in the face of modernity.⁹³ So while Taut uses the women’s movement to aid in his book’s popularity, his dedication also performs a preemptive tactic, by dismissing feminist criticism as obsolete. Were the woman to “turn her back on the home,” Taut recognized, she would surely be in no position to advocate for the architect’s New Dwelling.

The problems of the household would remain the sphere of the woman, even after she achieved the right to vote. Explicitly acknowledging rather than disregarding this fact, Anni Albers (still known by her maiden name Annelise Fleischmann) published her second magazine article titled “Wohnökonomie” (dwelling-economy) in 1925. It was not a theory of weaving per se, but it

pinpointed the Bauhaus weavers' budding interest in the economic concerns and functional requirements of fabrics within modern interiors and initiated a dialogue on the function of cloth for the New Dwelling. Similar to the neologism coined by Le Corbusier, "dwelling-machine," which was translated into German as *Wohnmaschine*, the word *Wohnökonomie* (which Albers no doubt exploited to recall its precedent) was entirely in keeping with the economic agenda of Weimar society.⁹⁴ In her essay she was responding to the trend among German architects of praising "amerikanischen Hauswirtschaften," or American-style home economics, and its Taylorized system of efficiency applied to the household.⁹⁵ As Albers explains, "Economy is a requirement today in every area of economic life," yet "the *Wohnökonomie* . . . has been little considered. Four hours of freedom won through economic house design means an essential change in the current life picture."⁹⁶ Although the landscape of the Weimar economy had been up for continual review since 1919, perhaps even with respect to the newly minted working woman, the sometimes severe consequences for the housewife were only beginning to come under scrutiny. "The traditional form of the household," she writes,

is an exhausting machine that makes the woman a slave to the home. Poor arrangement of rooms and interior furnishing (seat cushions, curtains) steal her free time, thereby limiting her development and creating nervousness. The woman today is the victim of a false *Wohnform*. That we must perform a full remodeling of this form should be obvious.⁹⁷

Published in the pages of *Neue Frauenkleidung und Frauenkultur's* special issue on the Bauhaus (following an article by her soon-to-be husband, Josef Albers), the weaver's article harnessed the concerns of the Weimar housewife-cum-working woman. Albers could diagnose, in part from experience, that the New Woman required an economical rather than a "false *Wohnform*," that she wished not to be a slave to the home. So in focusing on upholstered chairs and curtains, Albers suggested that any path toward enslaving the woman and remodeling the household form had to begin with a reconception of household fabrics. The way she combines the discourse of architecture, technology, and the women's

movement sets the stage for the method by which later texts from the weaving workshop would frame the medium. What her article does is to join economic, architectural, practical, textile, and so-called women's questions in a concise, modernist manifesto using the neat language of combined pragmatism and utopian aspiration: "Our clothing accords with the demands that transportation, hygiene, and economy pose to it. (In a hoop skirt one cannot ride the railway.)"⁹⁸ The design of chairs, lamps, houses, and clothing is required to meet the demands of current social life, and the solution is, she argues, not the creation of a new "style (facades, motifs, ornaments)" but, rather, the design of a single reproducible "type," like telephones that simply fill a function and nothing more. Her task was to explicate in the clearest terms possible the interior design ideas that pervaded the Bauhaus after 1923 by using the language of *Frauenkultur*. And in adapting this movement's language, Albers was able to frame textile products for a new audience of Neues Bauen-friendly women.

The questions of gender and women's culture were indeed central to the discussions. But as the new functionalist architecture came to depend on the language of the women's movement in order to advance its own goals, the reliance would yield several problems for its functionalist ethos. Functionalism was in some sense a theory of specificity—specific spaces for specific functions—and yet the specificity of the New Woman was perhaps too specific. The incorporation of *Frauenkultur* into functionalism, on the one hand, neutralized the women's movement into the clean "white cubes" of the new architecture and, on the other, gave it a "feminist" tint. This was especially the case as Taut's ideas on the New Dwelling were (re)harnessed, in turn, by the women's movement.

Both Albers's essay and Taut's book in fact preceded a series of texts found in magazines concerning a parallel interest in the refashioning of the household's economy (or mechanics of operation) and the fashioning of the New Woman and/or Housewife as an active agent of society and culture. Taut's book, as well as the New Dwelling's style and functional operation, suddenly became a popular topic of discussion in the press.⁹⁹ Women's organizations and periodicals debated the significance of the new architecture, particularly in response to Taut's conception of the *Idealwohnung*. Between 1925 and 1926, a number of texts in *Die Frau: Monatschrift*

für das gesamte Frauenleben unserer Zeit addressed the problem of coordinating a career with the duties of the household.¹⁰⁰ Most texts merely reiterated the new architecture's theories.¹⁰¹ Others, however, adapted the rhetoric to a field of debates about "Wohnungsbau und Hausfrauen," shedding new light on the significance of functionalist thought.¹⁰² Again, the influence from Taut and Le Corbusier to the magazine's female readership and writers was not a one-way street.

The women's movement had been grappling with the double bind of the housewife in modern society, in addition to addressing the most pertinent concerns of the bourgeois woman and/or the female intellectual, at least since 1894, when the Bundes deutscher Frauenvereine began to lead its charge. Figuring how to balance *Hausarbeit* and *Kopfarbeit* (mental, or intellectual work) was a central mission of *Die Frau*.¹⁰³ Throughout its history, from 1893 to 1944, the magazine was interdisciplinary in its scope and addressed a range of topics and fields from religion, philosophy, and the arts to economics, education, social injustices, and female labor.¹⁰⁴ For example, Grete Lihotzky's essay on the "Rationalization in the Household," published in the first year of *Das neue Frankfurt*, identified areas—like the kitchen's design, good lighting, and well-chosen wallpaper—that would be useful to the reformation of the dwelling for the New Woman.¹⁰⁵ But it also made the point that the Frankfurt Housewives' Association had recognized "for more than a decade . . . the importance of relieving the housewife of unnecessary burdens and have spoken out for central management."¹⁰⁶ Similarly, "Frauenanteil an der Lösung der Wohnungsfrage" (Women's Role in the Solution of the Dwelling Question) by Dr. Edith Jacoby-Oske, expressed concisely the sentiment of that moment—that women's concerns were central to the questions and solutions of the new architecture and were leading the charge.

Nevertheless, multiple viewpoints were knotted up in the women's movement, and not all of them were in agreement about whether to remodel the home. While male architects perceived the movement as a straightforward revolutionary force, in fact the feminine revolution between 1923 and 1926 was rupturing at its seams from the inside, with women antagonistic to the new requirements of outside employment in addition to work in the home. As Detlev

Peukert notes, the women's movement had to recognize that the image of the efficient housewife was far different from reality:

On the face of it, these new efficient methods of household management were time-saving, but the result was not necessarily to make women's work easier. Women were still stuck with the double burden of housework and a job, or they were expected to spend more time on housework and child care in order to meet the norms of modern family life that were being promoted. Conforming to new standards of hygiene or interior decoration similarly took more time, not less.¹⁰⁷

A plain return to motherhood and home seemed to some women in the wake of economic and social upheaval a practical solution to the uncertain roles imposed by modernity. Members of the Bund für Mutterschutz (League for the Protection of Mothers) sought, following WWI, to reinvest a Wilhelmine ideal of motherliness (*Mütterlichkeit*).¹⁰⁸ Marianne Weber, for instance, saw the “special cultural mission of women” to be the restoration of morality and civilization based in the household.¹⁰⁹ There was also the fact that some women activists during the Weimar Republic often supported the idea of a separate female sphere in spite of their interests in equal rights. Historian Ute Frevert explains that suffrage movements wanted “conditions allowing the free development of the female character” at the same time that they sought emancipation.¹¹⁰ Much of the feminist discourse at this moment hardly included a radical critique of gender roles.

Marketing Modernism

One might say that the specificity and complexity of the *Frauenbewegung's* views on the New Dwelling underpinned the organizational logic of the Bauhaus weaving workshop. Stölzl, for example, found it rather useful that Gropius wanted to separate female students from the other *Bauhäusler* by establishing a women's class. Anja Baumhoff diagnoses this act as an internalization of sexism: “A precondition for her employment in the weaving workshop was her willingness to accept gender ideology.”¹¹¹ Though surely the case, Stölzl may have had other motivations for creating a separate sphere for the development of the (adaptable) “female

character”—one of which was to secure a space in which the specific conditions of her medium could be explored without the direct oversight of (male) masters and business managers. Moreover, she was undoubtedly savvy about her audience: a bourgeois female clientele newly reinvested in the home and perhaps interested in an affirmation of applied-art practices like weaving. The act of establishing the women’s class was thus engaged in a larger debate in the Weimar Republic concerning woman’s place in modern society and in the New Dwelling, but it was also, quite simply, good marketing. (Even before the culture industry actively capitalized on feminism in the 1970s, the weaving workshop—like Taut and the writers for *Die Frau*—had participated in this process.)¹¹² And so we note the complexity of the weavers’ theories: the adaptation of modes of advertising was paralleled by a simultaneous capitulation to, and critique of, traditional gender dynamics. Perhaps Stölzl figured that the language of adaptability would leave clients feeling as though functionalism might also work for them—an apparently feminine brand of functionalism.

One key feature of Bauhaus textiles, in fact, was their ability to adapt to particular color choices—as evident in a table or aisle runner, designed by Stölzl and reproduced by Helene Börner for a female client who asked for “black with fresh blues and greens” in lieu of shades of purple.¹¹³ This object—initially developed as a pictorial wall hanging—came in a design of layered, intersecting rectangles that adjusted easily to the length requirements of a given runner, while its abstract geometry was flexible enough to account for variations in color desired by the customer (see Plate 3). (Indeed, it might be said that these picky clients with “feminine” tastes helped inspire the workshop’s prescient model of flexible manufacturing, as suggested in Schmidt-Nonnés article.) So when Stölzl’s 1931 essay argued that an “understanding of and feeling for the artistic problems of architecture will show us the right way,” she was still speaking to her object’s female users, using a coded language of adaptability. If she had internalized the sexism of the masters, it was not just in the organization of the Bauhaus women’s class but in her view of, and appeal to, the workshop’s female buyers.

Thus as the writings of the weavers initially developed using the language of functionalism, their theories were not simply *about* an

object; they were also often speaking *to* a certain subject—the New Woman, a specific consumer who was accommodating the ideas of the New Dwelling. Bauhaus weaving theory, as it was established between 1924 and 1926, was a modernist articulation of an object and practice, but it was also a means to explain and justify why the weavers did what they did, or why a client might pay for an expensive Bauhaus fabric. The particular recipient of the message (the gendered user), it seems, was an important part of this medium-specific, form-functional equation.

Anton Kaes et al., in which he points to the problematic myth of white-collar working women, developed through Weimar-period films, which lauds their freedom and success and denies the reality of their lived conditions.

95. The complexity of the situation with respect to gender and technique cannot be overemphasized. Precisely at the moment when “femininity” pervaded much of the concern about the body and labor in a technical society, “feminine values,” meaning domestic values, were being identified as an alternative to “technification.” Writing on women’s movements in Weimar, Ute Frevert writes: “Since ‘masculine culture’ found itself in a crisis characterized by de-individualisation, alienation from nature, technification and objectification, there was all the more reason to inject into society feminine values and orientations and so nurture motherly and humane behaviour at all levels.” Ute Frevert, *Women in German History: From Bourgeois Emancipation to Sexual Liberation*, trans. Stuart McKinnon-Evans (Oxford: Berg, 1989), 171.
96. Max Beckmann, “Thoughts on Timely and Untimely Art” (1912), in Long, *German Expressionism*, 99.
97. Michel Foucault, *Archaeology of Knowledge*, trans. Alan Sheridan (New York: Pantheon, 1972), 28.
98. Anni Albers, “Weaving Workshop,” in *Bauhaus 1919–1928* (reprint), ed. Herbert Bayer, Walter Gropius, Ise Gropius (Boston: Charles T. Branford, 1952), 57. Albers refers in a caption to the image of this work as a “woven cover,” not a wall hanging. Originally published in 1938.

2. Toward a Modernist Theory of Weaving

1. Gropius’s lecture “Art and Technology—A New Unity” was given during the “Bauhaus week” from August 15 to 19, during the opening week of the 1923 exhibition. See Frank Whitford, *Bauhaus* (New York: Thames & Hudson, 1988), 139.
2. Walter Gropius, cited in Anna Rowland, “Business Management at the Weimar Bauhaus,” *Journal of Design History* 1, no. 3/4 (1988): 153–75, 164. The arguments made in this chapter are especially indebted to Rowland’s groundbreaking research and thesis that the Bauhaus in Weimar after 1923 was not simply a romantic ivory tower of education but, rather, a school engaged heavily in the marketing of its craft products.
3. See Barry Bergdoll’s discussion of the Sommerfeld House in his essay “Bauhaus Multiplied: Paradoxes of Architecture and Design in and after the Bauhaus,” in *Bauhaus 1919–1933*, ed. Bergdoll and Dickerman, 43–44. Citing Gropius’s essay on wood, which claimed it to be the perfect material for the purposes of modern building, Bergdoll discusses how the house incorporated fixtures from all of the workshops (except pottery) and was meant as a replicable model geared toward the postwar housing shortage in Germany.

4. Gropius's modular housing designs are reproduced in Adolf Meyer, *Ein Versuchshaus des Bauhauses in Weimar. Haus am Horn. Bauhausbücher 3* (Munich: Albert Langen Verlag, 1925).
5. See Robin Schuldenfrei, "The Irreproducibility of the Bauhaus Object," in *Bauhaus Construct: Fashioning Identity, Discourse, and Modernism*, ed. Jeffrey Saletnik and Robin Schuldenfrei (London: Routledge, 2010), 37–60. Schuldenfrei points out that until Gropius left the Bauhaus in 1928 and the Swiss architect Hannes Meyer took over as director, calling for "people's needs instead of luxury needs," most of the objects from the metal and woodworking workshops were expensive, one-of-a-kind items (tea sets and lamps) for a specialty audience interested in the "look" of a technologically progressive, "modern" design (37–38). Schuldenfrei does not discuss the case of Bauhaus textiles, however, which is a bit more complicated, given that the weaving workshop was by 1924 already producing fabric sold by the meter and as such was better positioned to "industrialize" a bit earlier than the metal or wood workshops.
6. Rosemarie Haag Bletter points out that Behne wrote *Der moderne Zweckbau* in November 1923 (and indicated as much on the page following the copyright) but delayed publication until 1926 because Gropius asked him to do so. Bletter, "Introduction," in Adolf Behne, *The Modern Functional Building*, trans. Michael Robinson (Santa Monica, Calif.: Getty Research Institute), 1.
7. Rowland, "Business Management at the Weimar Bauhaus," 159. Rowland writes: "In a memorandum of July 11, 1924, it was noted that the weaving workshop had already begun to sell prototypes to outside manufacturers, at first earning 20 percent in license fees. The weavers were in the business of conceptualizing the function of weaving work. In October 1924, another memo reported that the vast majority of textiles were sold by representatives."
8. The students were undoubtedly aware of the debate ten years earlier at the Deutscher Werkbund between Hermann Muthesius and Henry van de Velde regarding the *Typ* (prototype) and the individual artist's specific style, respectively identified with each architect. See Frederic J. Schwartz's analysis of this debate in his *The Werkbund: Design Theory and Mass Culture before the First World War* (New Haven, Conn.: Yale University Press, 1996).
9. This is a translation of the title of Schmidt-Nonné's article, originally published as "Das Gebiet der Frau im Bauhaus," *Vivos Voco: Zeitschrift für Neues Deutschum* 5, no. 8/9 (1926).
10. Rowland discusses the degree to which many of the orders for textiles after the 1923 exhibition came from a female clientele who asked for "slight variations on the pattern offered. For example, a typical order would look like this: N493 Lilac stripes instead of red stripes." Rowland, "Business Management at the Weimar Bauhaus," 157.
11. The subtitle for *Junge Menschen* magazine is "Monatshefte für Politik, Kunst, Literatur und Leben aus dem Geiste der jungen Generation."

12. Walter Gropius, cited in Rowland, "Business Management at the Weimar Bauhaus," 165. Writing to Lilly Reich, who was organizing the exhibition, Gropius declared: "We intend to abandon the applied arts stand point which we have had up until now, and to aim our products more and more at serial production. Therefore, I would ask you to plan the display in such a way that the effect is not the normal, pretty arts and crafts arrangement, i.e., a higgledy-piggledy scattering of the individual products according to a purely visual point of view. I would rather that each product was separated from the others according to type and displayed in rows: 10 lamps in a row, all the fabrics next to one another, etc. That is in my opinion a more serious and more effective display method."
13. Albers, "Bauhausweberei," 188.
14. This is discussed further in chapter 1.
15. At a visit to Krefeld's textile school in 1924, the two older students learned traditional methods in dyeing and then taught them to the others. Interestingly, the Krefeld faculty found their interest in dyeing to be quaint.
16. Rowland, "Business Management at the Weimar Bauhaus," 155.
17. *Ibid.*, 161.
18. Anna Rowland refers to the 1923 exhibition and 1924 fair as a barometer for the "state of flux" in the Bauhaus ideology. "The debate about display styles is interesting because it illustrates the Bauhaus's state of flux at this stage, poised between a craft and an industrial orientation." *Ibid.*, 165.
19. Barry Bergdoll's "Semperian reading" of Gropius's attitude toward the "experimental worksite" of the Sommerfeld House might apply to Albers's essay. Like Semper, Albers maintained a "search for the new in primeval methods." Commenting on the form of the building, which resembled a log cabin, Bergdoll notes: "One might easily develop a Semperian reading of Gropius's attitude to the search for the new within the primeval." Bergdoll, "Bauhaus Multiplied," in Bergdoll and Dickerman, *Bauhaus 1919–1933*, 43.
20. Rowland discusses the two viewpoints on business held by Gropius and Lange. While the former pushed to industrialize the workshops, Lange more pragmatically tried to ensure that the handicraft work was simply well done and palatable to a market of distributors who sold expensive applied-arts products.
21. A similar point is made by Gropius in an essay from 1926: "Where Artists and Technicians Meet," in *Form and Function: A Source Book for the History of Architecture and Design 1890–1939*, ed. Tim Benton, Charlotte Benton, Dennis Sharp (London: Crosby Lockwood Staples, 1975), 147–48. Original publication: "Wo Berühren sich die Schaffensgebiete des Technikers und Künstlers," *Die Form* 1, no. 6 (March 1926): 117–21. He writes: "It is precisely the most clear-cut and obvious ideas which take the longest to be realized. They are radical, that is to say, rooted, in origin which allows them to be effective not in a narrow, easily comprehensible sphere of influence, but instead in all spheres of life" (147).
22. Albers, "Bauhausweberei," 188.

23. Ulrike Müller, *Bauhaus Women: Art, Handicraft, Design* (Paris: Flammarion, 2009), 56–61. Müller discusses Gertrud Arndt's reluctant entrance into the weaving workshop but focuses on her photographic self-portraits, for which she remains better known.
24. Bauhaus-Archiv Berlin, Polytex-Textil collection, Inv. Nr. 332, 480, 481, 1066—1073/2. See chapter 4 for a further discussion of the achromatic textiles.
25. Gunta Stölzl's notebooks from Paul Klee's form-theory courses, for instance, hold many pages demonstrating this relationship. See Bauhaus-Archiv Berlin, Gunta Stölzl files, folder 1. The degree of Klee's influence on the weavers' textile practice has been discussed by Virginia Gardner Troy and Jenny Anger, particularly for the period the painter was the workshop's form master between 1927 and 1929. See Troy, *Anni Albers and Ancient American Textiles*; and Jenny Anger, *Paul Klee and the Decorative in Modern Art* (Cambridge: Cambridge University Press, 2004). Troy discusses the profundity of Klee's influence in the workshop beginning in 1923, when he arrived at the school (80–89). But the influence was not a one-way street. Both Troy and Anger discuss how Klee's thinking was similarly influenced by the horizontal-vertical grid structure of weaving.
26. Quoted in Müller, *Bauhaus Women*, 57.
27. Benita Koch-Otte, for instance, later commented on the different ways the form masters influenced her teaching and work: "If I were to say what Klee's teaching has meant to me, I don't know how to summarize it with words, whereas Itten's method was very direct. Klee reaches much deeper layers, layers unknown, bringing the unconscious and unknown in us to sound; you listen to it. This carries through one's entire life." *Farblehre und Weberei*. Benita Koch-Otte: *Bauhaus, Burg Gebichenstein, Weberei Bethel*, exhibition catalog (Bethel, Germany: Werkstatt Lydda, 1972), 13; translation mine.
28. For a discussion of the difference between "things" and "objects," see Bill Brown's "Thing Theory," *Critical Inquiry* 28, no. 1 (Autumn 2001), 1–22, 5.
29. Although Koch-Otte never taught at the Bauhaus, she used its theories for her own development of a pedagogical method while teaching at the school in Burg-Giebichenstein between 1925 and 1933. Berger's "Bindungslehre," which she developed between 1929 and 1930 while teaching in Stockholm for six months and then back at the Bauhaus, is another example of an instruction manual serving as a catalyst for theory. Bauhaus-Archiv Berlin, Otti Berger textile collection, Inv. Nr. 2001/49.
30. For an exemplary description of the use and importance of pattern books in the American textile industry, see Florence M. Montgomery, *Textiles in America, 1650--1870: A Dictionary Based on Original Documents, Prints and Paintings, Commercial Records, American Merchant's Papers, Shopkeepers' Advertisements, and Pattern Books with Original Swatches of Cloth* (New York: W. W. Norton, 2007).
31. Bauhaus-Archiv Berlin, Gunta Stölzl textile collection, Inv. Nr. 2993/1–35.

32. Stölzl, cited in Baumhoff, *Gendered World of the Bauhaus*, 104.
33. Oskar Schlemmer, “The Stage and the Bauhaus,” quoted in Wingler, *The Bauhaus*, 117.
34. See Kai Konstanty Gutschow’s dissertation for a comprehensive bibliography of Behne’s texts, which were published throughout German culture in magazines, newspapers, and journals. “Adolf Behne and the Development of Modern Architecture in Germany, 1910–1914” (Columbia University, 2005).
35. Bletter, “Introduction,” in Behne, *The Modern Functional Building*, 4. Bletter points out that Behne’s criticism was especially instrumental in developing and applying the concepts “*Sachlichkeit* (objectivity, functionalism) and *Zweck* (purpose, function)” to architecture.
36. Bletter addresses the difficult relationship between Behne and Gropius: “The three-year delay in *Internationale Architektur*’s publication reveals much about the competitive nature of early Modernism” (ibid., 1). Gropius asked Behne to help prepare the 1923 exhibition, for which there would be an accompanying book published by the *Bauhausbücher* series. In exchange for his assistance, Behne requested that Gropius delay the publication date because its content and scope were so similar to Behne’s *Der moderne Zweckbau*. Gropius refused to comply, and when the Bauhaus books series got off the ground it further delayed Behne’s publication; the Dutch architect J. J. P. Oud, whose work Behne hoped to use, said he would prefer to have his work published in Gropius’s series. Because of the break with Gropius, Behne faced a number of obstacles in getting the book to print.
37. For a concise analysis of the term *function* in architectural discourse, see Larry L. Ligo, *The Concept of Function in Twentieth-Century Architectural Criticism* (Ann Arbor, Mich.: UMI Research Press, 1984). Ligo identifies five primary categories of function that pervade German and American architectural criticism: “Structural articulation,” which includes the building’s and its material’s functions; “physical function,” which includes environmental functions, like traffic patterns; “psychological function” that a building might invoke in its viewer; “social function,” which “refers to the concretization of social institutions”; and finally “cultural/existential function,” 5. For a dismissal of functionalism’s relevance to modern architecture, see Stanford Anderson, “The Fiction of Function,” *Assemblage 2* (February 1987): 21. Anderson’s argument and the concept of functionalism are also discussed in Bletter, “Introduction,” 14.
38. Hilde Heynen, *Architecture and Modernity* (Cambridge, Mass.: MIT Press, 2001), 48.
39. Ibid., 49.
40. This is also the year that Ernst May’s *Siedlung* project in Frankfurt took off and his magazine, *Das neue Frankfurt*, entered publication.
41. Bletter, “Introduction,” in Behne, *The Modern Functional Building*, 11–13. Bletter is referencing Henry Russell Hitchcock and Philip Johnson, *The International Style: Architecture since 1922* (New York: Norton, 1932).
42. According to the prologue of *Der moderne Zweckbau*, primitive forms of

architecture were seen by builders as something of a “tool” (*Werkzeug*), a device for protecting inhabitants from the elements or enemies. But they also integrated an element of play, of design. Primitive architects always had a way of treating architecture not just as a *Werkzeug* but also as a *Spielzeug*, as a space of formal play. Architecture of the Baroque or Neoclassical eras, by contrast, shifted emphasis from this balance toward a singular focus on the building’s form, its facade. The new movement in architecture was about finding equilibrium.

43. For a fuller discussion of *Sachlichkeit* in Behne’s later writing, which increasingly took over from the term *Zweck*, see Frederic J. Schwartz, “Form Follows Fetish: Adolf Behne and the Problem of ‘Sachlichkeit,’” *Oxford Art Journal* 21, no. 2 (1998): 47–77. According to Schwartz, Behne became especially focused on the question of *Sache* at its root in three later texts written between 1926 and 1928: *Neues Wohnen—Neues Bauen*; *Max Taut: Bauen und Pläne*; and *Eine Stunde Architektur*. Schwartz notes that *Sachlichkeit* is a difficult word to render into English. The adjective *sachlich* could be translated literally as “material,” “practical,” or “objective,” but it also implies a “matter-of-factness” or “practicality” and “suitability” of a *Sache* as an “instrument for human use” (48, 50).
44. Messel’s Wertheim Building, “the prototypical department store,” moved in the direction of “the house,” but its use of windows on the upper level had neither “significance for advertising purposes” nor for light, and in this sense “was not entirely *sachlich*.” Behne, *Modern Functional Building*, 96.
45. For further discussion of Behrens’s AEG turbine factory, see Stanford Anderson, *Peter Behrens and a New Architecture for the Twentieth Century* (Cambridge, Mass.: MIT Press, 2000).
46. Behne, *Modern Functional Building*, 106–109.
47. *Ibid.*, 111. Van de Velde’s work, according to Behne, “is important for the further development of functional architecture.”
48. *Ibid.*, 111, 121.
49. *Ibid.*, 113.
50. *Ibid.*, 129.
51. *Ibid.*, 137.
52. *Ibid.*, 137–38.
53. Bletter nevertheless points out that Behne “describes the pitfalls of both these positions” (functionalism and rationalism). Bletter, “Introduction,” 44.
54. Behne, *Modern Functional Building*, 109.
55. *Ibid.*, 146.
56. Gropius, “Grundsätze der Bauhausproduktion,” *Neue Arbeiten der Bauhauswerkstätten. Bauhausbücher 7* (Munich: Albert Langen Verlag, 1925), 5–8.
57. Walter Gropius, “Bauhaus Dessau—Principles of Bauhaus Production” (March 1926), included in Wingler, *The Bauhaus*, 109–10.
58. *Ibid.*, 110.
59. *Ibid.*
60. Behne rarely addresses the question of practice, though he describes the

differences among various kinds of architects according to their assessment of the machine: “When the functionalist refers to the machine, he sees it as a moving tool, the perfect approximation to an organism. When the utilitarian refers to the machine, he sees it as an economic principle of saving work, power, and time. When the rationalist refers to the machine, he sees it as the representative and patron of standardization and typification.” Behne, *Modern Functionalist Building*, 130.

61. Gropius, “Principles of Bauhaus Production,” 110.
62. Gropius, “Where Artists and Technicians Meet,” included in Benton, *Form and Function*, 147.
63. Ibid.
64. Stölzl, “Weaving at the Bauhaus,” in Stadler and Aloni, *Gunta Stölzl*, 86.
65. Ingrid Radewalt has explained that Muche thought it was necessary for the weaving workshop to be reconceived in Dessau, and new tools had to be purchased. Radewalt, “Bauhaustextilien 1919–1933,” 26.
66. The tense relationship between Georg Muche and the weaving workshop is discussed further in chapter 1.
67. It should be noted that despite his contempt Muche was nevertheless a strong advocate for the weaving workshop and its students’ financial interests. Rowland notes a disagreement between Lange and Muche over the sale of goods from the weaving workshop in particular: Muche insisted on different pay rates for the weavers. Muche, as it turns out, proposed to have all the weaving workshop’s goods bought by the school, whereas Lange proposed to give each weaver only “10 percent of the pure profit on the sale of his/her work.” Rowland, “Business Management at the Weimar Bauhaus,” 156.
68. Anja Baumhoff describes this situation in *Gendered World of the Bauhaus*, 93.
69. Gropius, cited in Baumhoff, *Gendered World of the Bauhaus*, 93.
70. Monika Stadler and Yael Aloni note that Stölzl did not use the feminine *Meisterin*, which indicated that Stölzl was asserting her identity as “master, plain and simple,” *Gunta Stölzl*, 13.
71. Stölzl was named technical master in April 1925. In June 1926 she took over Georg Muche’s role as the workshop’s primary master.
72. Stölzl, “Weaving at the Bauhaus,” in Stadler and Aloni, *Gunta Stölzl*, 85. The German reveals some differences from the English translation, so I have slightly altered the quotation in the text, using brackets to indicate any changes from the Aloni and Stadler translation: “Auf allen Gestaltungsgebieten zeigt sich heute ein Bestreben nach Gesetzmäßigkeit und Ordnung. So haben auch wir in der Weberei uns zur Aufgabe gemacht, die Grundelemente unseres besonderen Stoffgebietes zu untersuchen. Während z.b. in den Anfängen der Bauhausarbeit von bildmäßigen Prinzipien ausgegangen wurde, ein Gewebe sozusagen ein Bild aus Wolle war, sind wir uns heute darüber klar, daß ein Gewebe immer ein dienender Gegenstand ist, der von seinem Verwendungszweck und in gleichem Maße von den Gegebenheiten seiner Herstellung bestimmt wird.”

73. Ibid., 87.
74. Ibid.
75. Stölzl, “Utility Textiles of the Bauhaus Weaving Workshop” (1931), in Wingler, *The Bauhaus*, 174; emphasis mine.
76. Ibid. The English translation of this text in Wingler uses the word *bond* in place of *Bindung*. Typically *Bindung* would translate as “weave” with respect to textiles, and “bond” with respect to chemicals like glue. *Bond* nevertheless seems an appropriate word given its usage in architecture to refer to masonry.
77. Bauhaus-Archiv, Gunta Stölzl textile collection, Inv. Nr. 489.
78. For a further discussion of the question of “adaptability” in Bauhaus textiles, see Magdalena Droste, “Anpassung und Eigensinn: Die Weberai Werkstatt des Bauhauses,” in Droste and Ludewig, *Das Bauhaus Webt*, 18. It should be noted, however, that this relative invisibility in photographs would change again in 1929, when photography became an official part of the curriculum under Walter Peterhans, and beautiful close-ups of fabrics made their way into Bauhaus brochures, advertisements, and the *bauhauszeitschrift*. See chapter 3 for further discussion of this development.
79. A great example of this is a fabric of cellophane and chenille designed by Anni Albers, discussed later in the chapter. Designed for the auditorium walls of a school in Bernau by Hannes Meyer (1929), the fabric would later be marketed by Design Within Reach as a multipurpose fabric, including upholstery.
80. Stölzl, “Weaving at the Bauhaus,” 86; emphasis mine.
81. Ibid., 87; emphasis mine.
82. Helene Nonné-Schmidt, “Woman’s Place at the Bauhaus” (1926), in Wingler, *The Bauhaus*, 116–17. Note that Wingler puts her maiden name, Nonné, before Schmidt. The Wingler edition’s translation of the original title, “Das Gebiet der Frau im Bauhaus,” is “Woman’s Place at the Bauhaus” rather than “The Woman’s Field in the Bauhaus,” which I suggest here. There is a difference between “place” and “field” that is worth specifying. Wingler’s translation implies an essential place for the weavers rather than the area in which the weavers practiced and explored their medium, or field.
83. This is similar to what Aleksandr Rodchenko projected for his hanging *Spatial Constructions* (1920). Cut from a single piece of plywood, the *Constructions* could be arranged into a three-dimensional form with the use of wire. And after display in an exhibition, they could be collapsed and stored or easily transported. See Christina Lodder, *Russian Constructivism* (New Haven, Conn.: Yale University Press, 1983), 24.
84. Walter Gropius, “The Theory and Organization of the Bauhaus,” in *Bauhaus 1919–1928*, 27. Originally published as “Idee und Aufbau des staatlichen Bauhauses Weimar,” in *Staatliches Bauhaus in Weimar* (Munich: Bauhausverlag, 1923).
85. For a discussion of the way mass customization operates in new media, see, for example, Lev Manovich’s discussion of variability in *The Language of New Media* (Cambridge, Mass.: MIT Press, 2001), 36–45. In fact, textiles’

- variability and software's variability are similar in many ways. The "infinite possibilities" and variability that the weavers identified with their medium (i.e., soft fabrics) parallel the kind of flexibility and "scalability" of software, "in which different versions of the same media object can be generated at various sizes or level of details" (38) or modular media elements "give rise to many different versions instead of identical copies" (36). The analogy and differences between software and textiles could be drawn out further, but this would be better served as the subject of another future analysis.
86. Anni Albers's essay "The Pliable Plane: Textiles in Architecture" (1957), in *On Designing*, makes a similar argument to discuss the differences between architecture and textiles: one signals grounding and permanence whereas the other is defined by its flexibility.
 87. Mark Peach, "'Der Architekt Denkt, Die Hausfrau Lenkt': German Modern Architecture and the Modern Woman," *German Studies Review* 18, no. 3 (October 1995): 441–63, 442.
 88. *Ibid.*, 454.
 89. Rosemary Haag Bletter, "Expressionism and the New Objectivity," *Art Journal* 43, no. 2: *Revising Modernist History: Architecture of the 1920s* (Summer 1983): 108–20.
 90. Bruno Taut, cited in Peach, "'Der Architekt Denkt,'" 442; translation by Peach.
 91. Taut, *Die neue Wohnung*, 10–11.
 92. *Ibid.*, 5.
 93. *Ibid.*, 58–59.
 94. Le Corbusier, *Towards a New Architecture* (1923), trans. Frederick Etchells (New York: Dover, 1986).
 95. Taut, *Die neue Wohnung*, 64. Giedion would later repeat the equation of the housewife's domestic work with mechanics and Taylorization twenty-four years later: "The mechanization of the Housewife's work is not unlike the mechanizing of the other complex handicrafts. The alleviation of domestic drudgery proceeds along like paths: first, through mechanization of the work process; and again by its organization." Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (1948) (New York: Norton, 1975), 5.
 96. Annelise Fleischmann [Anni Albers], "Wohnökonomie," *Neue Frauenkleidung und Frauenkultur* 1 (1925): 7–8, 7. All translations of this text are mine.
 97. *Ibid.*, 7. It should be noted that Taut, like other architects of the time, also put housework in the language of "nervousness." See Wigley, *White Walls, Designer Dresses*.
 98. Fleischmann [Albers], "Wohnökonomie," 7.
 99. Barbara Miller Lane, *Architecture and Politics in Germany 1918–1945* (Cambridge, Mass.: Harvard University Press, 1985), 127. Lane notes how "women's magazines . . . frequently illustrated the Bauhaus buildings and the new housing projects and commented upon the virtues of the 'new dwelling.'" Lane (249, n. 8) also mentions one article from that period that responded to Taut's text: "Wohnkultur," *Frau und Gegenwart* (June 1925).

100. *Die Frau: Monatschrift für das gesamte Frauenleben unserer Zeit* was published by the Bund deutscher Frauenvereine from 1893–1944 and was edited by two prominent voices of the German movement, Helene Lange and Gertrud Bäumer. See Lydia Klante, “Die Vereinigung von Haushalt und Beruf,” *Die Frau: Monatschrift für das gesamte Frauenleben unserer Zeit* 33, no. 6 (March 1926): 307–308; and Rosine Speicher-Nürnberg, “Vereinigung von Haushalt und Beruf,” *Die Frau* 33, no. 8 (May 1926): 491–93.
101. See Margarete Thomas, “Zur Frage der Rationalisierung der Hauswirtschaft,” *Die Frau* 34, no. 1 (October 1926): 97–101. See also Emma Kromer, “Wohnungsprobleme der Neuzeit,” in *Die Kultur der Frau: Eine Lebenssymphonie der Frau des XX Jahrhunderts*, ed. Ada Schmidt-Beil (Berlin-Frohna: Verlag für Kultur und Wissenschaft, 1931). Here Kromer speaks, from a perspective of five years, of the “rationellen Haushaltungsführung” in the New Dwelling movement. A copy of this book is in the Bauhaus-Archiv in Berlin, suggesting the weavers may have been aware of it.
102. Gertrud Lincke, “Wohnungsbau und Hausfrauen,” *Die Frau* 33, no. 11 (August 1926): 673–79. Lincke is relatively unknown, and yet in the context of *Die Frau* magazine in 1926 she was the representative voice of the Neues Bauen. Citing Le Corbusier’s *Towards a New Architecture* at length in the opening paragraph of her second text, she explicated the key aspects of his theory in order to establish its usefulness to women’s thinking about the home.
103. This is the title of one article, by Erna Meyer, “Hausarbeit—Kopfarbeit,” *Die Frau* 35, no. 2 (November 1927): 207–10.
104. Certain fields, however, were more pertinent to certain moments and, in fact, *Die Frau* as a whole acts as a kind of index of Germany’s general social and cultural concerns at this time.
105. Grete Lihotzky, “Rationalization in the Household,” reprinted in Kaes et al., *Weimar Republic Sourcebook*, 462–65; originally published as “Rationalisierung im Haushalt,” *Das neue Frankfurt* 5 (1926): 120–23.
106. *Ibid.*, 463.
107. Peukert, *The Weimar Republic*, 100. See also Vibeke Rützou Petersen, *Women and Modernity in Weimar Germany: Reality and Representation in Popular Fiction* (New York: Berghahn, 2001).
108. See Marsha Meskimmon, *We Weren’t Modern Enough: Women Artists and the Limits of German Modernism* (Berkeley: University of California Press, 1999), especially her chapters on “The Mother” and “The Hausfrau.”
109. Marianne Weber, “The Special Cultural Mission of Women” (1919), cited in Kaes et al., *Weimar Republic Sourcebook*, 197. For a strong discussion of the complexities of the women’s movement and in particular the ideologies of women on the Right in Weimar Germany, see Raffael Scheck, *Mothers of the Nation: Right-Wing Women in Weimar Germany* (Oxford: Berg, 2004).
110. See Ute Frevert’s chapter “The Weimar Republic,” in *Women in German History: From Bourgeois Emancipation to Sexual Liberation*, trans. Stuart McKinnon-Evans (Oxford: Berg, 1989), 170.

111. Baumhoff, *Gendered World of the Bauhaus*, 108.
112. For a critique of the capitalization of feminism in contemporary culture, see Nina Power, *One-Dimensional Woman* (Winchester, U.K.: O Books, 2009).
113. Rowland, "Business Management at the Weimar Bauhaus," 157.

3. The Haptics of Optics

1. The tactile has been an issue for different artistic contexts throughout modernism. For a perspective on the optical and the haptic through a discussion of *Einfühlung* (empathy) in late-nineteenth- and early-twentieth-century German discourse, see Juliet Koss, "On the Limits of Empathy," *Art Bulletin*, vol. 88, no. 1 (March 2006): 139–57. See also Margaret Olin, "Validation by Touch in Kandinsky's Early Abstract Art," *Critical Inquiry*, vol. 16, no. 1 (Autumn 1989): 144–72. The question of the tactile also emerges in criticism of post-1960s installation art; Alex Potts discusses this in "Tactility: The Interrogation of Medium in Art of the 1960s," *Art History*, vol. 27, no. 2 (April 2004): 282–304. According to Potts, the emergence of "tactility" at this time is responsible for the dissolution of the medium (meaning painting and sculpture) in contemporary art. For an analysis of the issue of tactility in contemporary photography and film, see Jean Arnaud's essay on Michael Snow, "Touching to See," *October* 114 (Fall 2005): 5–16.
2. *bauhaus zeitschrift für gestaltung* 2 (July 1931). The issue includes Gunta Stölzl, "Die Entwicklung der Bauhaus-Weberei"; Amédée Ozenfant, "Mein Besuch in der Textilwerkstatt des Bauhauses"; and Johanna Schütz-Wolff, "An die Wolle."
3. It is important to note that, for example, Greenberg's use of term *optical* as the quintessential feature of modernist painting links his argument to a number of German and Austrian contributors to art history, beginning with Lessing and Kant, whom Greenberg mentions, but also to Alois Riegl, Robert Vischer, and Konrad Fiedler, all of whom were deeply influential in the Bauhaus context. In other words, the question of opticality—so integral to the modernist notion of medium specificity—was initially developed through the writings of Bauhaus practitioners.
4. Otti Berger, "Weberei und Raumgestaltung" (c. 1932–1934), folder 3, Otti Berger Files, Bauhaus-Archiv Berlin, 3. All translations of Berger's texts are mine.
5. Otti Berger, "Stoffe im Raum," *ReD* (Prague) 3, no. 5 (1930): 143–45, 143.
6. This includes those authors such as Moholy-Nagy writing on photography, the art historian Hans Hildebrandt, who wrote on wall painting and relief, Walter Gropius, and architect Ludwig Hilberseimer, all of whom contributed to the *bauhaus* magazine. For a thorough discussion of Riegl's ideas and their influence on art history, see Margaret Olin, *Forms of Representation in Alois Riegl's Theory of Art* (University Park: Penn State University Press, 1992); and Margaret Iverson, *Alois Riegl: Art History and Theory* (Cambridge, Mass.: MIT Press, 1993).