Hierarchy and Craft Production of Obsidian at Teotihuacan

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Abstract:

This research examines how obsidian production, consumption, and exchange shape the organization of political hierarchy and economic power at Teotihuacan during the Classic period. Drawing on archaeological evidence from apartment compounds, particularly Tlajinga and La Ventilla, and research on the Otumba and Pachuca obsidian sources, it explores how craft production connected household economies to broader urban and regional exchange networks. Situating obsidian within debates over centralized state control, market exchange, and neighborhood autonomy, this paper argues that economic practices did not simply reflect existing political hierarchies but actively produced social differentiation and interdependence. Differences in raw material sources, workshop organization, and distribution spotlight relationships between labor specialization, resource access, and political authority. This research also considers whether changes in economic organization shed light on Teotihuacan's political fragmentation and decline. Despite limited excavation coverage and challenges in interpreting artifact distributions, obsidian provides a valuable material record for examining how economic practices shaped social and political relationships in ancient Mesoamerica.

Teotihuacan was one of the largest and most influential primate centers in Mesoamerica, known for its multiethnic population, dense urban nucleation, and a highly integrated economic system. Teotihuacan's success was partially attributed to obsidian, a volcanic glass valued for its predictable flaking properties, sharpness, and cosmological significance. Obsidian was abundant, circulating through the hands of elites, households, marketplaces, craft workshops, and long-distance trade networks. Its prevalent presence makes obsidian an especially useful tool for understanding how the economic practices of Teotihuacan shaped everyday life and relationships in the city and throughout its hinterlands. Teotihuacan's role as a primate city in the Basin of Mexico distinguished it from centers such as Cholula or Tikal, which were politically significant but lacked the dense urban integration observed at Teotihuacan (Cowgill 2015). This density allowed for more complex economic interdependencies, making obsidian not only a utilitarian resource but also a vehicle for social negotiation and political signaling. At Teotihuacan, obsidian production, consumption, and exchange formed an integrated economic system rooted in apartment compounds and neighbourhood organizations. These practices did not merely reflect the existing political hierarchy, but actively produced economic interdependence and social differentiation across the city by linking household-level craft production to regional exchange networks across the Teotihuacan Valley and beyond. Additionally, interactions between household and state-level production exhibit how economic activity itself became a means of social negotiation, with households negotiating access to materials and workforce through both local and citywide influence (Manzanilla 2009; Carballo 2016).

Scholars have long debated whether Teotihuacan's influence was attributed to centralized state control, corporate organization, or a market-based exchange. Early models argued elite dominance over production and trade, particularly obsidian (Spence 1981). Later

approaches have advocated for neighborhood autonomy, household specialization, and collective organization (Manzanilla 2009; Hirth 2009). By examining obsidian across production, consumption, and exchange, this paper contributes to ongoing discussions about how political hierarchy was materially produced rather than forcefully imposed.

Obsidian provides a uniquely effective lens for examining these debates as it moves through every level of Teotihuacan society while remaining materially traceable in the archaeological record. Unlike prestige goods restricted to elite contexts, or subsistence materials limited to household use, obsidian circulated across domestic, neighborhood, ceremonial, and interregional spheres. Its presence in apartment compounds, state-run workshops, marketplaces, ritual deposits, and foreign exchange networks allows its trajectory from extraction to consumption to be traced. This makes obsidian particularly useful for assessing how economic practices were structured, how access was regulated, and how labor and materials linked households to broader systems of authority. Rather than treating hierarchy as a fixed political structure, obsidian allows for an examination of how hierarchy was produced through everyday practices of work, exchange, and consumption embedded in the city's urban fabric. Furthermore, the cosmological and symbolic significance of obsidian reinforced social hierarchical structures, with certain materials controlled and reserved by elites for ritual and political displays (Saunders 2001; Parry 2014).

Research Questions

How did the production, consumption, and exchange of Obsidian reflect and actively produce political hierarchy at Teotihuacan? What, if anything, can economic organizations suggest regarding Teotihuacan's fragmentation or decline?

Methodology

This work employs archaeological data from Teotihuacan, including excavation data from the apartment compounds such as Tlajinga and La Ventilla. Both apartment compounds have shown evidence of large obsidian production and craft specialization. It also draws upon archaeological studies of obsidian quarries and extraction at the Otumba and Pachuca sources. Analyzing the production, exchange, and consumption of obsidian reveals how economic practices operating at multiple levels, from household to regional trade networks, both reflected and reproduced political hierarchy and economic interdependence at Teotihuacan.

Obsidian at Teotihuacan has a uniquely robust dataset due to its traceability and frequency in archaeological contexts. However, it is crucial to recognize its limitations, which include uneven excavation coverage, differential preservation, and the challenge of connecting artifact density directly back to social status and production intensity. These limitations require interpretation of obsidian not only as a proxy for power, but as a part of the grander material and spatial patterns.

Teotihuacan's Urbanization

Teotihuacan's rapid growth during the Early Classic period created an unprecedented level of urban nucleation, with approximately 100,000 to 200,000 people at a time in its heyday. (Pierce 2025) Teotihuacan became a multiethnic city due in part to environmental pressures, such as Popocatépetl (smoking mountain) erupting during the first and fourth centuries A.D., displacing folks in the southern Basin of Mexico. This contributed to the city’s transformation into a primate urban center (Manzanilla 2015, 9210). Another wave of migration followed the second eruption of Xitle around AD 320, which, alongside “urban renewal initiatives,” created conditions for a reorganization of Teotihuacan society into a corporate multiethnic system (Manzanilla 2015, 9210). Groups from diverse regions settled

initially along the outer limits of Teotihuacan, including the Tlaloltcan and Oaxaca barrios. This brought in skills of garment making, lapidary work, construction, music, and military service to the city. (Manzanilla 2015, 9210).

This rapid urban nucleation led to the development of tightly packed, multifamily apartment compounds, serving as fundamental social units of Teotihuacan. Excavations in the Tlajinga neighbourhood revealed communal living environments that molded daily interactions, craft production, and relationships (Special Section Introduction 2019, 91). The layout of these apartment compounds reflects social hierarchies, as centrally located areas in Teotihuacan held status and political power, and outer neighbourhoods held a labor and status diversity, integrating household production into both local and city-wide economic networks. Urban planning shows the intentional changes in landscape to accommodate population growth, a crowded landscape, and craft specialization. This is reflected in the extension of the Street of the Dead into Tlajinga (Special Section Introduction 2019, 93).

Sources and Material Properties of Obsidian

Obsidian's material properties made it uniquely suited for large-scale production and widespread use at Teotihuacan, allowing for the fusion of craft specialization into domestic and larger neighbourhood contexts. Its predictable flaking pattern, skill transferability, and abundant local sources ensured its sustainability for mass production. There are two kinds of obsidian found at Teotihuacan: Otumba, whose quarry was located 16km east of the city, produced a grey-black obsidian. Its proximity to Teotihuacan allowed for nearby households and workshops to get the obsidian without a middleman, facilitating neighbourhood-level production networks. The second kind of obsidian was from the Pachuca quarry, which is located approximately 50km northeast of the city. Pachuca obsidian was known for its green-tinted quality and was not directly under the control of the Teotihuacan elites. This

suggests there is an interdependent trade network, reflecting a likely oversight and selective resource management (Spence 1981; Carballo 2007). These quarrying sites show how obsidian economic structures were integrated at a communal and hierarchical level. Pachuca obsidian was prized not only for its hue but also for its low sulfur content, which made blades exceptionally sharp and durable, ideal for both ceremonial and utilitarian purposes (Barnes 2024; Vance 2014). Transportation from Pachuca to Teotihuacan required organized labor and intermediate stops along the Tula–Valley corridor, indicating a semi-centralized oversight mechanism that balanced household autonomy with elite control.

Organization of Obsidian Production

Before obsidian can be consumed or transformed into a finished product, it must be extracted and processed. Production involves several stages: mining, shaping raw blocks into cores, creating blades, and only then can they be processed into weapons or ceremonial objects (Spence 1981). Labor organization and specialization of production varied depending on the source of the obsidian and the location of the workshop. For obsidian from the Otumba quarry, the miners may have also doubled as knappers. In contrast, Pachuca obsidian was located 50 km from Teotihuacan, requiring a separation of labor. One group would be dedicated to mining the obsidian while another group would transform the raw blocks into obsidian cores Spence 1981; Carballo 2007).

Within the city, production sites were organized into a tiered workshop system, showing the scale of output and social hierarchy. Production sites within Teotihuacan are divided into local, regional, and precinct workshops. Local workshops were placed in apartment compounds, promoting household-level crafts made for neighbourhood consumption. Regional workshops operated on a larger scale, supplying bigger sections of the city and fusing multiple households into coordinated production networks. Precinct workshops were state-run, working under elite

oversight to create goods for tribute, ceremonial purposes, or for city-wide redistribution (Spence 1981). This hierarchical system ensured streamlined production and distribution, while reinforcing the political hierarchy of Teotihuacan. Elites would control access to more distant obsidian sources, distribute labor, and create a regulated standard of quality. In turn, local households contributed to the economic interdependence of neighborhoods (Manzanilla et al. 1996).

The differences in quarry methods draw out the relationship between labor and political organization. Pachuca obsidian, due to its distance and desirability, was likely extracted under political watch, whereas Otumba obsidian could be gathered through cooperative, neighborhood-based labor. These labor practices reflect the broader Mesoamerican beliefs that work was a civic duty and a form of tribute, incorporating household production in the larger economic and political systems of the city (Manzanilla et al. 1996; Murakami 2019). The structuring of production maximized output while it enforced social hierarchy and economic interdependence at Teotihuacan.

The organization of production also reflects the differences in skill set and hierarchical access to obsidian. Artisans trained to work with Pachuca obsidian needed the most expertise due to its valued green tint and the high expectations for the blades. Errors tended to be lower in workshops producing for the elite, suggesting they were the most skilled knappers trusted to work the obsidian. Otumba obsidian was crafted into utilitarian blades by those with less specialized training. The result was a division of labor and skill that not only maintained quality control but also reinforced social hierarchy. Access to the most valuable materials and the most skilled laborers was monopolized by elite households and precinct workshops, and neighborhood-level production supported everyday economic functions. By controlling who was trained, what materials they could access, and what products they were allowed to produce,

Teotihuacan's obsidian economy both mirrored and actively reproduced the city's political and social hierarchy (Spence 1981; Carballo 2007).

Excavations at Operation 17 show an organized obsidian craft workshop placed within an apartment compound, revealing how labor was structured and distributed at Teotihuacan (Hirth et al. 2019). The recovery of roughly 406.8 kg of obsidian and nearly 800,000 artifacts points to sustainable large-scale production rather than casual household toolmaking. 41.2 percent of the analyzed samples provide a reliable base for interpreting workshop activities and their role within apartment-based production systems. Production was carried out by trained individuals assigned to specific stages of the process, indicating coordination.

Nearly 99 percent of the analyzed artifacts relate to the Mesoamerican core/blade industry, indicating a high degree of craft specialization within the compound (Hirth et al. 2019). This specialization suggests standardized tasks were allocated according to skill and possibly status, linking workshop organization to broader social hierarchies. Most of the obsidian comes from the Pachuca source (95.4%), with smaller amounts of gray obsidian from nearby Otumba. Using only a few sources suggests that access to obsidian was regulated through established networks that supplied apartment-based workshops. This controlled access allowed for consistent production and tied these workshops into the city’s broader economic system.

Operation 17 revealed that apartment compounds functioned as an important point of specialized craft production. Obsidian blade manufacture was organized, repetitive, and corporatized, reflecting deliberate labor coordination within residential spaces. These apartments held focused workshops where labor was distributed among trained individuals, contributing to Teotihuacan's urban economy and supporting interpretations of neighborhood-level specialization and managed craft production (Hirth et al. 2019).

Apartment compounds as sites of Craft Specialization and Consumption (La Ventilla and Tlajinga)

Beyond production, the apartment compounds were social, economic, and craft hubs within Teotihuacan. These multi-function complexes addressed the challenge of rapid urban nucleation, including food distribution, population density, and potential conflict, while providing spaces for craft production, consumption, and exchange (Arnauld, Manzanilla, & Smith, 2012). Apartment compounds mitigated these challenges by concentrating labor, reducing the need for movement across the city, and making production and daily life more predictable. By embedding specialized craft production, households could simultaneously manage domestic needs and contribute to the broader urban economy in an organized and controlled manner (Arnauld, Manzanilla, & Smith, 2012).

The obsidian sourced from the Otumba and Pachuca flowed into the apartment compounds, where they were transformed into utilitarian tools, ceremonial objects, and weapons. The presence of obsidian workshops within residential complexes showcases how domestic and economic activities were deeply integrated, blurring the lines between household life, specialized craft production, and broader market participation (Arnauld, Manzanilla, & Smith 2012; Carballo 2016).

La Ventilla, located southwest of the city center, housed a diverse population reflecting multiple social statuses. Its layout incorporated tightly arranged apartment compounds, open plazas, and platform structures, allowing craft production and domestic life to coexist. Skilled artisans and elite households were concentrated in the more complex architectural areas, while ordinary residents occupied spaces adjacent to workshops (Carballo & Fortenberry 2015:91).

The proximity of elite households to workshops was a Strategic decision, which enabled oversight, controlling access to valuable obsidian, and the efficient coordination of labor.

Architectural features like platforms, plazas, and streets helped to regulate movement and facilitated state surveillance, which reinforced the hierarchy. The production of obsidian here was not just a practical activity. It carried a symbolic weight, as it reflected the status and authority of the individual in the compound. Through this spatial arrangement, La Ventilla exhibits how Teotihuacan structured residential spaces to manage both production efficiency and social order.

The Tlajinga district, located on the eastern outerlands of Teotihuacan, serves as an example of neighbourhood-level craft specialization. Tlajinga was farther from the urban core when compared to La Ventilla; however, this did not diminish its economic and ritual significance. Its location allowed for the concentration of workshops in a less policed area, where households could engage in craft production at a smaller scale while still being a part of the city's economic and political system. The district consisted of three or four continuous neighborhoods composed of tightly packed apartment compounds, platform structures along the western side of the Street of the Dead, and open-air plazas that likely served multiple purposes, like marketplaces or for public announcements (Carballo 2015:91). The proximity of households to workshops allowed for a consistent, large-scale production of obsidian blades, while integrating domestic life with craft and ceremonial practices. Microartifact studies and bioarchaeological analyses indicate that these residential areas were more than just living spaces. They also acted as centers for craft knowledge, skill training, and oversight of production (Widmer 1991; Sheehy 1992).

The layout of Tlajinga aims to address the challenges of urban nucleation. Through contracting labor, materials, and housing in a set area, the city can manage population density, ensure a steady rate of production, and maintain social order. At the same time, this layout reinforces hierarchical structures. Access to higher-quality obsidian, skilled workers, and

specialized tools was controlled, often found in households involved with elite or regional trade networks. Craft production was fused into both the social and economic fabric of the district, linking local household-level activity to broader urban and regional trade systems (Arnauld, Manzanilla, & Smith, 2012; Carballo, 2016).

The spatial organization of Tlajinga's compounds also reveals how social hierarchy was actively produced. Households that engaged in production for the elite or larger redistribution networks often lived in more architecturally complex spaces, while families with less access to materials or specialized skills lived in areas adjacent to workshops. Open plazas within the district likely served as a bridge between household production and citywide exchange, facilitating the movement of goods and hosting ceremonial events that reinforced social ties and identity.

Lastly, the peripheral location of Tlajinga shows how urban planning, production, and social hierarchy were closely intertwined. Despite being farther from the city's central authority, the district maintained strong economic and ritual significance, contributing to Teotihuacan's overall economic stability and regional influence. The integration of craft production into domestic spaces, combined with the strategic placement of workshops and plazas, allowed Tlajinga to function as both a social and economic axis, ensuring local activity supported the broader citywide and interregional networks.

Consumption

Obsidian at Teotihuacan was not important for tool production, but it was deeply ingrained in the daily and ritual life of households. Inside residential apartment compounds, it was regularly used to produce knives, scrapers, construction tools, and crafting (Aoyama 2014; Spence 1981). These domestic workshops often combined living spaces with craft production, further blurring the boundary between household and economic production. Smaller workshops

like those in Tlajinga 33 demonstrate that households could serve as both production centers and sites of craft knowledge transmission, ensuring that consumption and skill development were closely intertwined (Widmer & Storey 2012; Hirth 2009). By rooting obsidian production into domestic spaces, residents structured their everyday activities around both labor and consumption, making the material central to household economies.

Beyond practical usage, obsidian served symbolic and ritual functions. Green Pachuca obsidian was a marker of social hierarchy and political authority, though it may not have been strictly rare (Aoyama 2014; Carballo 2016). Obsidian frequently appears in ritual deposits, ancestor bundles, and grave contexts, showing the importance of cosmological thought (Saunders 2001; Parry 2014; Carballo 2007). Objects such as eccentrics, bipointed knives, and ceremonial blades were produced for ritual use rather than domestic tasks. The consumption of obsidian operated on a practical, social, and symbolic level. (Parry 2014; Saunders 2001).

Looking into how obsidian was used across the landscape reveals a lot about differences in social status. Some compounds clearly had access to a higher quality of obsidian or more specialized tools, as a way to present their own social status, take part in rituals, or signal the identity of a household or community (Aoyama 2014; Manzanilla 2009). Obsidian is a tool that pierced itself into everyday life, ritual, and public life, helping people express relationships, uphold traditions, and stay connected to the city's larger economic and political networks. Observing how Teotihuacanos consumed obsidian gives us a window into the complex mix of work, family life, ritual, and social hierarchy that shaped the city.

Regional Exchange and Interregional Networks

Beyond Teotihuacan itself, obsidian linked the city to an extensive web of regional and interregional interactions. The metropolis's access to Pachuca and Otumba obsidian sources

allowed it to shape trade patterns across Central Mexico, reaching outlying communities, neighboring valleys, and even the Maya region (García-Des Lauriers & Murakami 2021; Aoyama 2014). This movement of material was not merely about supplying tools; it carried symbolic, political, and social weight. High-quality green obsidian served as a marker of elite status, often appearing as gifts to reinforce alliances, demonstrating how material exchange functioned as a means of influence beyond the city itself (Levine 2014; Saunders 2001).

The structuring of these networks reflects strategic planning and adaptive flexibility. At the same time, certain types of obsidian were likely controlled by elite actors. Others circulated widely, which supported everyday craft production, Local consumption, and neighborhood-level specialization (Manzanilla 2017; Spence 1981). The simultaneous circulation, which was both restricted and open, aided in the maintenance of social hierarchies while simultaneously sustaining the city's broader economy. The regularity and scale in which obsidian moved also indicate that Teagan and households and workshops were plugged into Coordinated Networks of procurement, production, and distribution that connected urban life to distant regions (Hirth 2009; Widmer & Storey 2012). By controlling which households, neighborhoods, or allied communities received specific materials, elites could subtly regulate power, signal allegiance, and embed social norms within both local and regional networks. In this way, the city’s economic infrastructure reinforced its social and political structures simultaneously.

Discussion: The Implications of Obsidian Production

Michael Mann’s IEMP model is a useful framework that helps analyze how power operates on multiple, overlapping domains rather than through a single centralised force. IEMP refers to Ideological, Economic, Military, and Political sources of power. Each of these powers works independently while also reinforcing the others (Mann 1986). This approach allows

material evidence to be connected to broader social development without having to assume that power was solely contained within the elite ruling class. In Teotihuacan, obsidian offers the ideal lens in which to view these dynamics of power, as they were connected via everyday labor, household organization, ritual practice, and regional exchange.

The ideological power of Teotihuacan is evident in the obsidian's symbolic and ritual importance. Green Pachuca obsidian, used in knives, eccentrics, and ceremonial blades, held cosmological importance (Aoyama 2014; Carballo 2016). These artifacts appear in ancestor bundles, graves, and ritual deposits (Saunders 2001; Parry 2014; Carballo 2007), demonstrating how obsidian reinforced community values and religious beliefs.

Economic power was rooted in the organization of labor and the integration of households into the broader systems of production and exchange. Obsidian was acquired in large quantities, but its production was not confined to everyday labor, household organization, ritual practice, and regional exchange. Rather, archaeological evidence shows that production and tool manufacturing were frequently planted within apartment compounds, where domestic life and craftsmanship converge (Spence 1981; Hirth 2009). This spatial arrangement suggests that influence operated through coordination and specialization rather than strict elite monopolization.

By situating obsidian production in a residential context, Teotihuacanos created an economy where households worked as productive units. Smaller workshops, such as those carried out at Tlajinga 33, demonstrate how obsidian production could be carried out at the local level while still participating in citywide and regional trade networks. These households were not isolated, but were economically interdependent as they relied on access to raw materials, knowledge of craftsmanship, and trade relationships to survive. In this sense, power came about from participation within the market, then from ownership of resources alone.

Importantly, this organization allowed for economic differentiation without complete exclusion. While access to higher-quality obsidian or specialized tools varied across compounds, most households appear to have participated in some aspect of production or consumption. Economic hierarchy existed along a spectrum, structured through levels of access, skill, and connectivity rather than through highly stratified class divisions. This aligns with models that emphasize neighborhood autonomy and collective economic organization over centralized redistribution (Manzanilla 2009; Nichols 2016).

The circulation of obsidian beyond the household context further reveals how economic power and influence were distributed across the landscape and multiple societal levels. Obsidian flowed not only within local neighborhoods and apartment compounds, but also through coordinated trade networks linking the city to distant regions well beyond the Basin of Mexico. Local markets facilitated the movement of utilitarian tools, while neighborhood-level exchanges allowed households to maintain connections with neighboring compounds, reinforcing social cohesion and economic interdependence. At the regional level, long-distance trade brought in high-quality Pachuca obsidian, integrating Teotihuacan into broader Mesoamerican exchange networks (Hirth 2009; Nichols 2016). This layered system shows that economic organization was neither entirely centralized nor completely decentralized, but functioned through a dynamic combination of market exchange, household specialization, and selective institutional oversight.

Mixing production with residential space, while connecting households to wider trade networks, created economic interdependence across the city. Households that specialized in production depended on skilled labor, raw materials, and channels of distribution. Consumers and traders relied on these producers for a constant supply of tools, ceremonial objects, and other goodies. The obsidian reinforced social ties between neighborhoods. Elites likely exercised some

influence over points of exchange. For example, there is clear access to Pachuca obsidian or participation in long-distance trade, but the evidence does not support absolute elite control over all circulation. Instead, power was exercised through regulation, access, and coordination, allowing the state to benefit from obsidian exchange without fully monopolizing it.

This economic structure contributed to Teotihuacan's remarkable size and resilience. The integration of domestic life, production, and exchange supported a densely populated city while creating a mechanism of coordination across communities and regions. Yet this interdependence also introduced new vulnerabilities: disruptions to trade routes, neighborhood production, or the flow of high-quality materials could ripple across the urban system, affecting both economic stability and social cohesion. If a key source of obsidian was temporarily inaccessible, workshops relying on that material would slow production, impacting both local and regional exchanges. The potential fragmentation of this network highlights the delicate balance between control and interdependence, as the city's economic networks are both a strength and a point of weakness.

The circulation of obsidian shows the relationship between economic and political powers. Through the regulation of access to resources and overseeing their movements, the elite enforced their power while allowing households to participate in production and trade. Economic power was exercised through coordination, rather than violent dominance, demonstrating a complex, collaborative approach to urban organization that supported Teotihuacan's political and social systems.

The interplay between economic and political power at Teotihuacan also highlights how obsidian functioned as a medium through which houses were fused into broader networks of authority. By controlling the centers of high-quality raw materials like Pachuca obsidian, elites could indirectly shape production patterns, incentivize compliance with citywide labor

expectations, and maintain oversight of traditional routes without needing to micromanage every single household. In this sense, power was exercised through coordination, regulation, and selective influence, rather than through coercive domination by itself. Obsidian thus acted as both a practical and symbolic marker of participation within the urban economy, linking production with political oversight in ways that reinforce social hierarchy, while still allowing for flexibility and autonomy for each household.

At the neighborhood level, apartment compounds function as a semi-autonomous point of production, training, and transmission. Households not only manufactured the obsidian tools but also passed down the techniques and specialized in the knowledge needed, creating a web of skill and labor that extended across the city. The systemic distribution of expertise strengthened Teotihuacan's economic resilience, as a disruption in one compound could be mitigated by the production in another. It also reinforced ideological and social cohesion, as participating in this craft production both carries practical and Ritual Importance. This repeated engagement with obsidian, through production, consumption, and trade, helped integrate households into the collective, resulting in a hierarchy that was materially enacted, socially recognized, and ideologically backed.

Long-distance trade networks took these dynamics away from the city and connected Teotihuacan to regional exchange networks, such as the Maya lowlands, mainly involving the movement of Pachuca green obsidian (Spence 1996). At first, these exchanges were only interpreted in economic terms, as the flow of materials had a deep impact on regional economies; further examinations of these artifacts suggest the use of obsidian was more symbolic than economic. While these items were indeed produced as commodities in Teotihuacan's workshops, they transformed into gifts during their journey to the Maya area, serving as a testament to the alliance between two Mesoamerican powerhouses. Teotihuacan’s

influence also extended into Oaxaca and the Gulf Coast, where Pachuca obsidian appears in elite burials, suggesting it functioned as both currency and diplomatic gift (Koszkul, Helmke, & Źrałka 2006; García-Des Lauriers & Murakami 2021). This dual role of obsidian, as an economic resource and ideological symbol, showcases how power was performed on multiple levels, through the households that produced and managed their resources locally, elites coordinating access and long-distance distribution, and the receiving party that interprets these interactions in their own ritual and political frameworks.

Viewing these processes through Mann's IEMP model, we can observe that Teotihuacan's power was not solely acquired through dominance or cohesion, but through the designed interconnectedness of labor, trade, and ritual practice. Economic power was enacted through planned coordination, craft specialization, and regulation over complete control, while ideological power was in the very resources that moved along the landscape. Political power operated through the oversight of key sources and networks, and military power, though less directly visible in obsidian outside of the creation of weaponry, provided a constant need for that network. Together, these domains of power created a complex, adaptive system that was capable of supporting a diverse population while pushing its influence across distant regions.

At the same time, this interdependence had risks. Disruptions to trade, workshops, or access to obsidian can spiral quickly, exposing possible cracks in Teotihuacan's apparent stability. Said vulnerabilities may have contributed to the city's eventual fragmentation, as economic networks fractured, ritualized regional exchanges slowed, and political oversight deteriorated. The study of obsidian not only reveals the mechanisms of hierarchy and control but also provides insight into the structural pressures that shaped the city's decline.

Conclusion

Obsidian production and circulation at Teotihuacan exhibit how material culture can

reflect and produce social hierarchy. Household-level craft production, neighborhood organization, and citywide trade networks demonstrate that power was distributed, coordinated, and interdependent, rather than being held by one sole authoritative entity. The symbolic and ritual significance of Obsidian reinforces ideological power, linking labor to cosmology, while elites use their political influence through regulating access and maintaining oversight of trade networks. Long-distance exchange further pushes these dynamics, blending economic and ideological purposes to reinforce alliance and perpetuate social cohesion. Through fusing economic, political, and ideological power in daily life, Teotihuacan created a resilient, flexible urban system. The very same mechanisms that supported its expansion, interconnected households, semi-autonomous neighborhoods, and laid-out trade networks also introduced potential weak points, offering a different perspective on the city's eventual decline. Using Mann's IEMP model, obsidian comes about not just as a raw material but as a proxy through which power was enacted, negotiated, and held. The study of obsidian provides insight into the ways complex societies organize labor, space, distribute resources, and integrate religious thought, economy, and politics into enduring social structures.

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