Born to a century of unparalleled social change, sociology has from its inception looked for ways to explain that change. Just prior to the establishment of sociology as an academic endeavor, Marx and Engels ([1845] 1946) offered a view of historical change in which human societies transitioned through tribal, state property, feudal, and capitalist “stages of development.” While their transitions were driven by material conditions, for Weber ([1904] 1958, [1919] 1927), the transition to capitalism was due to a conjunction of ideal and material conditions. His orienting perspective was this: “Not ideas, but material and ideal interests directly govern men’s conduct,” yet ideas have “like switchmen determined the tracks along which action has been pushed by the dynamic of interest” (Weber [1922] 1946:280).

Influenced by Marx and Weber, our focus is on structural transitions in chiefdoms. From a developmental perspective, chiefdoms stand between simpler unsegmented tribal communities and more complex political states (e.g., Redmond and Spencer 2012; Service 1985). Our orienting perspective is that the transitions within chiefdoms occur because they are pushed by the dynamic of interest. We locate the origin of that interest in social structures. If social structures are counted as “material,” then the transitions we trace are produced by human activity grounded in material interests. To find those interests and locate those activities, diagrams for social structures are drawn and interpreted using two theories, status characteristics theory (Berger, Cohen, and Zelditch 1972; Berger et al. 1977; Correll and Ridgeway 2006; Kalkhoff and Thye 2006) and elementary theory (Corra 2008; Simpson and Willer 2005; D. Willer 1984; D. Willer and Szmatka 1993). Insofar as historical change is concerned, the theories are not teleological. Actors are not modeled as planning the social structures into which their chiefdoms are transitioning. To the contrary, the theories model a series of structural forms, each of which has its own source of instability. Then evolutionary change is produced by human activity aimed at solving the immediate problem of instability while preserving or enhancing privilege.

While social change has long been a concern of sociology, most of the research on chiefdoms has been carried out by
archaeologists focusing on the prehistoric and historic and anthropologists focusing on the contemporary. Chiefdoms are of interest because they are precursors of the state (Flannery 1999; Wright and Johnson 1975), and as suggested by the following definitions, they transition across quite different social forms:

Chiefdoms are normally characterized as kin-based societies, meaning that a person’s place in the kinship system determines his or her social status and political position (Earle 1997:5)

and

I would define a chiefdom as an autonomous political unit comprising a number of villages under the permanent control of a paramount chief. (Carneiro 1981:45, italics removed).

As shown here, in transitioning from kin-based to polity, chiefdoms move through strikingly different social structures. Those changes offer new opportunities to understand structural transitions.

In this paper, we seek to apply two theories, status characteristics theory and elementary theory, to historical transitions, theories that have been extensively tested experimentally. The idea of applying lab-tested theory to explain historical events is not new. More than 50 years ago, Zelditch (1961:530), in suggesting that an army can be studied in the laboratory, called for “application of a theory supported by experiment.” More recently, Kiser and Hechter (1991) add the call for historical explanations based on theories and abstract models. Our method is that suggested by Willer and Walker (2007). We find historical social structures parallel to those studied in the laboratory and offer explanations grounded in the theories there tested (see also Freese 1980).

Both status characteristics theory and elementary theory are formally stated sociological theories that have been tested hundreds of times in experiments that have supported the theories while broadening their scope (Berger, Wagner, and Webster 2014; D. Willer et al. 2014). Applying theories of this kind outside the laboratory is unusual in the social sciences. Nevertheless, looking back through the history of the sciences, the purpose of experimentation has long been to test theory. And the purpose of theory has been to explain both in the lab and in the field. It might be well to ask, to what purpose have the hundreds of experiments testing these and other theories been conducted if not for explanation?

Applying experimentally tested theory to other times and places is taken for granted in other sciences today. Without the experimentally grounded theory of optics first developed by Newton ([1729] 1966), the expansion of the universe and its relation to the distance of galaxies would not have been inferred from the red shift of light from those galaxies (Hubble 1929). And without lab-based research in genetics built on the helix model, the evolution of modern humans, its timing, and origins would still be largely a mystery (Watson 1969).

This paper is organized to trace a line of transitions in chiefdoms from influence produced by status-lineage structures to power produced by a structure of coercive relations. It explains why these structures occur in the order that they do. As shown in the following, conditions for subsequent social structures are produced in those immediately prior. In each section of the paper, theoretical procedures are applied to model social structures. Then, theory explains processes leading to the transition. As a part of our explanation, we reference sources from the wider experimental literature.

In simple chiefdoms, status and influence are connected by application of status characteristics theory, which locates the source of instability within status-lineage structures in status-rivalries produced by downward mobility. The interest in stabilizing the structure leads high-status actors to strategically employ warfare. Seeking to avoid status-rivalries while stabilizing the structure is the “dynamic of interest” bringing the transition.

Applying elementary theory shows that warfare produces a second social structure grounded in indirect coercion. Indirect coercion occurs when high-status actors protect low-status actors from external threats—for a price. For settled societies, the strategy of instituting ongoing war together with selective redistribution of resources differentiates warrior and commoner ranks. As the warrior rank develops, so does the warrior ethic, producing further conflict. This positive feedback loop is the “dynamic of interest” pushing the transition toward the chiefdom grounded in a coercive social structure.

Tracing further, elementary theory finds that concentrating the means of violence produces a class structure signaling further concentration and centralization of the means of violence in the direct coercive chiefdom. Once direct coercion of commoners is possible, land can be privatized into the hands of chiefs and warriors. That process furthers exploitation and class stratification. In tracing this line of transitions, we do not mean to suggest that all chiefdoms transition through all these structures. Rather, if they do, we predict that the transitions will follow the line we trace. Whether or not a chiefdom transitions or is static is taken up at various points in the following.

It is not a part of this paper to review status characteristics theory or elementary theory. Nor is such a review needed. Both have been comprehensively reviewed, most recently in Berger et al. (2014) and D. Willer et al. (2014). Instead, we present models drawn in relation to these theories. The chiefdom structure of influence is modeled using status characteristics theory as supplemented by network formulations proposed by Hage and Harary (1996). Following those formulations, elementary theory’s models for indirect and direct coercion are drawn and applied. Activities and changes within social structures are explained as the models are presented.
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downward mobility in a theoretical patrilineal structure.
the chiefdom as a structure of influence
in this section, we apply status characteristics theory (sct) to
the lineage structures. we show how influence relations orga-
nized by that status structure solves problems of social organi-
zation, including collective action problems such as inter-polity

counter that certain scope conditions be satisfied. Paramount among those con-
tions are that the situation involves a collective task orienta-
tion and individuals are motivated to achieve a successful
outcome. As will be seen, in our applications to chiefdoms, influence generated by status-lineage structures governs task
activities in which successful outcomes are a concern.

modeling status-lineage structures
we model a status-lineage system at three points in time in
figure 1a, 1b, and 1c. by a lineage, we mean a descent group
whose members can trace or remember genealogical ties
(bates and fratkin 2003), while status refers to an individual’s
standing in a social grouping based on the prestige, honor, and
defereence rendered by other members (lovaglia et al. 1998;
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harary (1996) have offered the only systematic method of
modeling status in lineage structures. their procedure works
in the following way (see figure 1c). to assign statuses, begin
with the lineage founder (the F node) and trace the senior line
(to the right) assigning status rankings in order. then, dou-
bling back, assign statuses by tracing through all branchings
(on the left) in the order encountered.

following hage and harary (1996), Y. Chacon et al. (2015) diagrammed the patriarchal and patrilineal status-lineage structures shown in figure 1c. the senior line is composed of firstborn males. the timeline extends horizontally from left to right. the lower status of second born males is shown by their lower placement. the firstborn of the founder’s second-born son together form the beginning of a cadet line that may become a status-rival of the senior line. as diagrammed, hage and harary’s method gives a lineage structure with no status reversals.

here is how influence works in the modeled structures. In
the networks of figure 1, the lines between individuals
(boxes) represent parentage. Influence relations follow those
lines and may also connect any lower numbered (higher status)
individual to any higher numbered (lower status) individual. Therefore, the position labeled 1 can influence everyone, the position labeled 2 can only be influenced by position 1 but can in turn influence all those below, while the position numbered 8 can be influenced by the 7 lower numbered others, and so forth. For this and any lineage structure, (1) the higher an individual’s status, the larger the number of lower status others who can be influenced, and (2) the lower an individual’s status, the larger the number of higher status, influential others to which it is subjected.

as time goes forward, downward mobility occurs in the
lineage structure because nodes from the senior line preempt
the statuses from the cadet line, while the cadet line preempts
statuses from lines below it, and similarly through the structure.
An example of that downward mobility is shown for the
patrilineal structure in the three steps of figure 1a–c. following
the status of the founder’s second son across the three periods,
in step a, he is second in status to his older brother, but in step
b, he and his older brother have each had two sons, such that
the status of the founder’s second son has fallen from second
to fourth. the third generation, displayed as step c, shows that
the status of the founder’s second son has declined to the
eighth rank—with further declines that will occur as time goes
forward. Under Salic law, exactly the same downward mobility
was seen in England’s royal family.

beyond patrilineal, descent structures can also take matrilin-
eal and bilateral forms. Matrilineal structures would be mirror
images of patrilineal ones if they ordered status in matriarchal
societies, but they do not. according to keesing (1975:63),
“There is no such thing as a matriarchy” (see also aberle 1961;
parkin 2004; Schneider 1961). it follows that matrilineal, patri-
archal structures contain a fundamental distinction: Males influence,
but the male’s status is determined on the maternal side.

figure 2 diagrams a matrilineal, patriarchal status-lineage structure in which status in the lineage is exclusively inher-
ited on the female line. Unlike the diagrams of figure 1 that
begin with the founder, figure 2 begins with the founder’s
daughter. As in figure 2, the earliest born have highest sta-
tus: For clarity, only oldest and second oldest daughters and
oldest sons are displayed. as is conventional, females are
shown as circles and males as triangles. Filled triangles

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Downward mobility in a theoretical patrilineal structure.}
\end{figure}
represent the series of chiefs; unfilled triangles are firstborn sons who, being off the senior line, are not chiefs or in line to become chiefs. As seen in the diagram, each new chief is the eldest son of the current chief’s eldest sister.

**Status Theory: Status-Lineages as Optimal Status Structures**

The chiefdom is not initially a power structure based on “force, coercion and sanctions” (Mokken and Stokman 1976:35). Instead, chiefdom organization is initially grounded in influence relations. The influence relations of chiefdoms are produced in its status-lineage structure. Whereas we use Hage and Harary (1996), there is no doubt that people living in status-lineage structures know or can determine the lineage basis of their own and other’s statuses (e.g., Malo [1898] 1903.) In a status-lineage, the chief has the highest status position in a structure in which lineages are status ranked (Goldman 1955, 1957, 1958, 1960; Kirchhoff 1949, 1959; Oberg 1955; Sahlins 1958). A well-ordered status-lineage structure solves collective action problems through organization grounded in its status-based influence relations (Simpson, Willer, and Ridgeway 2012). To solve collective action problems through influence, a structure must have a series of status relations with no reversals as modeled previously.

As modeled, the patriarchal, patrilineal structure of status-lineage optimizes influence because, as shown in experiments by Melamed and Savage (2013a, 2013b), influence is determined by status and number. The status-lineage structures diagrammed in Figure 1 are optimal because their ordered branching gives a series of status differences with no reversals, and tracing down the structure, status is increasingly reinforced by numbers. Status-lineages are simple structures, perhaps the simplest human social structures that can provide sufficient organization to solve collective action problems. That simplicity is consistent with the parallel development of chiefdoms out of simpler, unsegmented societies on all inhabited continents (Service 1985).

As shown by R. Willer (2009) status-based influence can solve collective action problems. Collective action occurs when a number of people are organized such that they can attain their individual or collective goals (Hardin 1982). Having no overarching structure, simpler unsegmented societies are not organized to solve collective action problems. For example, Evans-Prichard (1940) documents the success of the status-lineage structured Nuer in conflict against the unsegmented (tribal) Dinka. Following Kelly (2000:3), who defines war as “armed conflict that is collectively carried out,” status-lineage chiefdoms are capable of organized warfare; unsegmented societies are not. We suspect but do not assert that the organizing ability to solve collective action problems is a reason why status-lineage structures developed out of unsegmented societies.

Here it is useful to note that social roles in matrilineal societies are frequently quite different from those normal in patrilineal lineages. For example, the role of father is frequently acted by the mother’s brother. If so, each chief has the role of father to the chief to follow (Schneider and Gough 1961). The chief’s biological sons are not displayed because they do not inherit chiefly status. While downwardly mobile, chief’s sons may, as in the case of the matrilineal Natchez (White, Murdock, and Scaglion 1971), not drop to commoner status but remain at a lower status in the noble rank. The matrilineal, patriarchal structure of status-lineage optimizes influence from the top to bottom just as a patrilineal, patriarchal structure does. With influence determined by status, the status-lineage structure modeled in Figure 2 is also an optimal influence structure because the branching gives a series of status differences with no reversals, while tracing down the structure, status is increasingly reinforced by numbers.
Status Theory: Status-Rivalries that Block Influence

The diagrams of Figures 1 and 2 are not mappings of concrete status structures. Instead, they are constructs where the status ranking of positions is determined by Hage and Harray’s (1996) procedure. Because they are not mappings of concrete status structures, they have no status reversals and display no status-rivalries. In any concrete case, however, some status-rivalries will take the form of disputes over whose status is higher. As Malo ([1898] 1903:20) explained:

> The initial ancestor in one genealogy differed from that in another, the advocate of each genealogy claiming his own version to be the correct one. This cause also operated in the same way in producing contradictions in the historical traditions; one party received the tradition in one way, another party received it in another way.

Arguably, the most important source of status-rivalries is the downward mobility found in all lineage structures. Over time, as shown previously, the structure is subject to massive downward mobility that disrupts its lines of influence (Goldman 1955; Kirchhoff 1959). The motivations upon which status-rivalries are grounded lie in the confluence of two factors. The first is the possibility of losing concrete advantages that flow from holding a position of high influence and status. Second, looking at the status-lineage structure dynamically, in both patrilineal and matrilineal structures (White et al. 1971), all but the senior line are downwardly mobile over time. According to Goldman (1960:691), “The psychology of status is such that inequality provokes rivalry, if not through the entire society, then surely in its upper status ranges.” A recent experimental investigation by Pettit, Yong, and Spataro (2010) found that the effect of prospective status loss is greater than that of status gain.

> From whom are you descended. . . . Who was your father. . . . Who was your father’s father. . . . Thus they continued to question him until they reached in their inquiry the man’s tenth ancestor. . . . Who was your mother? . . . Who was the mother of your mother? . . . The questions were kept up in this manner until they had come to the tenth ancestor in their inquiry.

What is the effect of status-rivalries? Experiments by Kilduff, Willer, and Anderson (2016) show that status disagreement leads to withdrawal of contributions and lower group performance. Experiments by Barclay and Benard (2013) show that when the ordering of statuses is disrupted, so are lines of influence and thus the effectiveness of the status structure as an organization. Furthermore, given the importance of numbers to influence, the branching pattern of status-lineages means that status reversals can produce influence reversals throughout the structure. For example, in Step c of Figure 1, a defecting second son of the founder could carry with him two others with which to influence individuals higher in the diagram.

Some suggest that there are more opportunities for status-rivalries in matrilineal status-lineages than patrilineal because men have higher status than women but men’s status is traced down the female line (Keesing 1975). The distinction between patriarchy and matrilineal descent produces what Richards (1950) called the “matrilineal puzzle,” wherein a woman’s ties to her husband and brother are at odds. The children of the marriage are subordinated not to the husband but to the wife’s brother, and it is from the brother that they inherit. On the other hand, matrilineal lineages have strengths not seen in patrilineal lineages. In times of stress, women can assume the male roles, as did the wife of the king in becoming war leader of the Ashanti in their struggle against the British Empire (Obeng 1988). Furthermore, as explained in the following, with the formation of a warrior ranking, chiefs may reward successful warriors with high-status wives. When that reward occurs in a matrilineal society, the marriage elevates the successful warrior directly into the noble ranking.

In bilateral lineage structures, opportunities for status-rivalries are multiplied compared to either patrilineal or matrilineal lineages. For example, in the double descent system practiced in Hawaii, status was determined jointly by father’s lineage and mother’s lineage. According to Malo ([1898]1903:254), for one who would serve the king, inquiries on both lineage sides were made:

> From whom are you descended. . . . Who was your father. . . . Who was your father’s father. . . . Thus they continued to question him until they reached in their inquiry the man’s tenth ancestor. . . . Who was your mother? . . . Who was the mother of your mother? . . . The questions were kept up in this manner until they had come to the tenth ancestor in their inquiry.

From Malo, we know that bilateral information on status was gathered by the king’s geneticists, but we do not know how that information was synthesized such that a single status was assigned to the individual being questioned. Nevertheless, having a single status mattered because status comparisons governed many if not all social relations. For example, for a high chief, the best marriage partner was his sister and failing that, his half-sister. To outsiders, the two pairings seem little different, but for the first, the child of the marriage was called “divine,” and all would prostrate themselves, whereas the second was not divine and others need only sit (Malo [1898] 1903).

There is not the slightest suggestion in Malo that a procedure for synthesizing information from two lineages to assign a single status actually existed in Hawaii. If not, with the possible exception of those on the senior line, no one’s status could be exactly known. Since it could not be known, irresolvable rivalries with threats of downward mobility would be rife.

Looking across systems of descent, there are multiple opportunities for disagreement on status to motivate status-rivalries. Such status-rivalries cut the lines of influence that allowed a status-influence chief to maintain the structure of privilege while resolving collective action problems. Furthermore, even in the absence of rivalries, influence due to status is a limited kind of control for “individuals of rank . . . do not possess coercive power . . . leaders rely on persuasion by
various means to achieve collective goals” (Stanish 2009:97). Furthermore, influence relies on both status difference and the belief on the part of the one being influenced that the influencer is disinterested (Berger et al. 1972). To express disinterest, chiefs almost universally claim to be generous, a claim that Hayden and Villeneuve (2012) see as questionable.

In the face of status-rivalries, if not circumscribed, the structure may split, with some part moving away (Thapar 2005). If the structure is to continue intact, however, as modeled in the following, the chiefdom will follow a path transitioning from a status-influence structure toward a coercive power structure.

Recapping the key theoretic inferences:

- Hierarchal status structures, when ranked without reversals, can act collectively through their influence relations.
- Status reversals inherent in status-lineage structures produce status-rivalries.
- Status-rivalries undermine the capability of status-lineage structures to resolve collective action through influence, thereby introducing instability leading to structural change.

The Chiefdom as a Coercive Structure

In this section, we apply elementary theory to show how power relations produced in chiefdom structures solve the same problems as solved by influence structures but without the inherent instability caused by the downward mobility of status-lineages. Elementary theory (ET) relates the exercise of power to structural conditions, including the connectivity of relations and the distribution of sanctions. ET applies under the following scope conditions. Actors acquire their values from the structures in which they are acting (D. Willer 1984). Given those values and beliefs that generally reflect structural conditions, ET infers which actors control others and which benefit from that control. Because values are produced by the structure, the rationality assumed for actors that connects structures, values, and beliefs to action, unlike the rationality assumed in economic theory, does not carry the baggage of self-interest (D. Willer et al. 2014). Further, the accuracy of actors’ understanding of structure beyond their immediate relations is never assumed. To the contrary, in this section, lower power actors are seen as acting on beliefs that may well be false.

Modeling Direct and Indirect Coercion

We begin by modeling direct and then indirect coercion. Marx ([1867] 1967) and Weber ([1918] 1968) built the groundwork for theories of power while focusing on two distinct forms of power exercise. Marx concentrated on exploitation, which is to say the extraction of value. Weber concentrated on domination, the exercise of control. When effective, power exercise in either kind of coercion takes both forms. A direct coercive relation is modeled in Figure 3 where the negative sanction held by the coercer, C, is used as a force threat to extract positive sanctions from the coercee, D, which has no negative sanctions at its disposal. Direct coercive relations include a variety of events that range from the systematic extraction of taxes by the state to the sporadic exploitation of victims by muggers. A coercive chiefdom takes the form displayed in Figure 4 with the chief, who is the coercer, central and coerees peripheral.

Turning to indirect coercion, as displayed in Figure 5, there are minimally three actors, C, the coercer; D, the coercee; and X, the external actor who threatens D. C extracts value from D by protecting D from the external threat of X. Social structures largely founded on indirect coercion are commonly found in relatively simple societies. However, relations of indirect coercion are by no means limited to chiefdoms, other prehistoric structures, or organized criminals of any era. Indirect coercion recently occurred in the United States when a president demanded higher taxes and enhanced powers to defend against foreign threats both real and imagined (R. Willer 2004).

An impressive array of experimental studies relates intergroup conflict to internal structure. Benard (2012) found that conflict increases both norm enforcement and contributions to the group. Other research suggests that external threat increases support for leaders (Gavriilets and Fortunto 2014; Van Vugt, Hogan, and Kaiser 2008). Puurtinen and Mappes (2009) found that group competition resolves collective action problems by increasing within-group cooperation and intensifying morally grounded emotions such as anger and guilt. Bornstein and associates in a series of studies (Bornstein 2003; Bornstein, Erev, and Rosen 1990; Bornstein, Gneezy, and Nagel 2002) showed that paired threats of intergroup conflict interacted with the group payoff structure, reducing free riding and increasing group cohesion. Furthermore, the report of Hayden and Villeneuve (2012) on Futuna chiefdoms agrees with experimental results of Barclay and Benard (2013): Those of high rank exaggerate outside threats to promote cooperation and suppress competition.

Elementary Theory: Indirect Coercion and the Chiefdom in Transition

Why do chiefs who are beset by status-rivalries turn to war and not directly to the exercise of coercive power to stabilize...
Emanuelson and Willer

their structure of privilege? The answer lies in this: The social structure of the lineage-based chiefdom will not support ruling by direct coercion because for coercion to be direct, it is necessary that the means of violence be concentrated in the hands of the coercer(s) (Weber [1918] 1968), a concentration absent from status-lineage structures. When the means of violence are not concentrated, conflicts over status are ongoing and retaliation against attempts to coerce result in further conflicts within the social structure. For example, in an investigation of collective action, Kikiforakis (2008) found that cooperation broke down when punishers could be counter-punished. While no one doubts that punishment can strongly affect behavior, in the absence of a concentration of the means of violence, attempts to coerce can be met with counter-punishment that spirals into conflict. Needless to say, conflict relations are not a stable basis on which to ground a social structure.

Whether a chiefdom transitions from status-based influence to an indirect coercive structure may depend on a balance of conditions. There are three possibilities. First, the transition may not occur. If not, the chiefdom may continue in a more or less stable state of status-influence or, as mentioned previously, divide along rivalry lines, thus establishing multiple influence-based chiefdoms, each more stable than the one of which it was a part. Second, the chief may convince others that there is a real threat that needs to be met with aggressive action. Third, if the chiefdom is embedded in a larger system of chiefdoms, relations of hostility may begin outside the chiefdom. With outside hostility believed real, a structure of indirect coercion can develop internally even in the absence of influence by the chief.

Looking ahead, while no chief can rule by coercion alone, a chief and a loyal warrior ranking can rule (Petersen 1982). Importantly, indirect coercion provides the mechanism through which the warrior status group emerges. For indirect coercion, concentration of the means of violence is not necessary. Instead, it is sufficient that relations between the chiefdom and its neighbors either be hostile or appear to be and that the chief claims to defend the chiefdom from attack—for a price. The price is the exercise of power over commoners governing and taxing them. The effects of indirect coercion are sometimes seen as increasing solidarity (Popov 1974).

Capabilities of the Indirect Coercive Chiefdom

The relation of indirect coercion is more complex than direct coercion in that there are three types of actors, not just two. But it is the easier of the two coercive forms to institute as a structure because it does not require prior concentration of the means of violence. As shown in Figure 6, what is needed is at least one other chiefdom that is in hostile contact, threatening, or can be made to appear threatening. For indirect coercion, it matters not which chiefdom institutes the threats. To the contrary, pairs of chiefdoms, acting as external threats to each other, stabilize each other. When they do, both chiefs benefit by gaining the support of and extracting value from their coercee commoners. Nor is the relation limited to pairs of chiefdoms. As seen in the case of the nearly 50 Cauca Valley chiefdoms in northwest South America (Carneiro 1991, 2012), whole systems of chiefdoms can be in hostile contact with each other. Though war can be sporadic, when pursued for internal stability, as here and in Orwell’s (1948) imagined 1984, hostility is permanent.
As Carneiro (1970, 1981, 1998) emphasized, a necessary condition of coercive relations is circumscription. If not circumscribed, coercees will flee the domain of coercion. In fact, circumscription is as necessary for indirect as direct coercion. Nevertheless, for the indirect coercive chiefdom, circumscription is not problematic: War produces hostile relations among chiefdoms that tend to block flight and make fission a dangerous expedient. That is to say, indirect coercion produces both the threat and circumscription necessary for the exercise of power.

Beyond solidity and circumscription, warfare and indirect coercion fuel status differences. A higher rank of warriors will separate from a lower rank, which can now be called commoners (Flannery and Marcus 2003). Successful war as a means of acquisition expands the resources of the chiefdom by acquiring land and taking captives to become slaves. The developing warrior status group benefits disproportionately from lands gained in territorial expansion and the labor of war captives/slaves (Goldman 1955, 1957, 1958, 1960).

Warrior and commoner ranks separate only in chiefdoms that are settled, especially those that are agriculturally based. By contrast, horse nomads, engaging in no agricultural labor, mustered a military force that included all able-bodied adult males (Barfield 1989, 1990). In effect, all adult males were in the warrior rank. With no subjected commoner ranking, nomad social organizations were based on status-influence and indirect coercion only and thus did not develop into direct coercive structures.

Experiments by Emanuelson and Willer (2015) compared rates of coercive exploitation between direct and indirect coercive structures and found them to be of the same magnitude. From this result, we infer that the chiefdom founded on indirect coercion should be able to extract value from commoners with the same order of effectiveness as direct coercive chiefdoms can. It is difficult to see, however, how indirect coercion can generally direct the individual activities of those subject to it. That is to say, indirect coercion produces the exploitation that was the focus of Marx but not the control that was the focus of Weber. Nevertheless, war offers the chief two sources of income not previously available, booty from enemies and value extracted from commoners by indirect coercion.

When either or both income sources are monopolized by the chief, elementary theory experiments point to exclusion as a power condition through which chiefs can control the warrior rank (D. Willer 1984; D. Willer and Emanuelson 2008). Having received booty from war and value extracted from commoners, the chief can reward some and exclude others or develop a more finely graduated reward structure. When members of the warrior rank see their payoffs to be proportionate to services rendered to the chief, competition for favors can develop. Since that competition divides warriors against each other, it supports chiefly rule. Furthermore, competing for favors, members of the warrior status group seek opportunities to serve, thus sharpening hostilities and intensifying warfare.

**Limitations of the Indirect Coercive Chiefdom**

The indirect coercive chiefdom contains two ranks and two distinct sources of power for the chief. First, power based on indirect coercion supplies the chief with resources from commoners, but the chief alone cannot “protect” those commoners. For that protection, a supporting rank of warriors is necessary. Second, warriors competing for resources from the chief will support the chief. Given that competition, the chief’s power over warriors can be quite broad. By contrast, a chief’s power over commoners is narrow. While it can extract value from commoners, it is difficult to see how indirect coercion can generally direct the individual activities of those subject to it. If so, the chief can direct war but not hunting or farming. It follows that indirect coercion alone cannot separate commoners from the means of production. If not, it cannot produce class stratification. Thus, indirect coercive chiefdoms, like status-lineage chiefdoms, are “ranked,” not “stratified.”

The indirect coercive chiefdom is significant as a transitional structural form. On the one hand, it shores up status-lineage structures that have been weakened by status-rivalries, while on the other, it establishes the conditions necessary for transition to the coercive chiefdom in which rule is through direct coercion. It establishes those conditions by fundamentally altering the social structure of the chiefdom from status-lineage to a ranked society of warriors and commoners. This begins the process of concentrating the means of violence in the hands of the warrior status group. Indirect coercion does not wither away with the development of coercive power. Instead, power exercised as a consequence of external threat continues and, as mentioned previously, is seen as a legitimating force even in contemporary polities.

Carneiro (1970, 2012) linked chiefly war to overpopulation. Should the warlike condition of chiefdoms be better attributed to overpopulation than, as here, to stabilizing privilege through developing indirect coercive structures? Pollock (1999), Butzer (1976), and Liu et al. (2004), respectively, deny that the Tigris-Euphrates, Nile, and Yiluo valleys...
were overpopulated prior to state development. Wright and Johnson (1975) also deny overpopulation in the tributaries of the Tigris. Since they were not overpopulated later when states developed, it is difficult to see how overpopulation could have been the motor producing the earlier warfare among chiefdoms.

Recapping the key theoretic inferences:

- Indirect coercion effectively extracts tribute and solidifies the structure of privilege threatened by status-rivalries.
- Indirect coercion by acquisition and selective distribution of resources obtained through conquest enhances status differences and concentrates the means of violence, laying the groundwork for an emerging warrior rank.
- As indirect coercion is predicated on chiefly claims to being acting in the collective welfare; resultant power over commoners is limited to collective activities and those that do not sharply violate collective interests. For example, indirect coercion will not support the establishment of private “ownership of land.”
- Once indirect coercion is established, resources gained by the chief can be distributed to the warrior status group in such a way that each will compete with others, thus solidifying chiefly rule.

Elementary Theory: Direct Coercive Chiefdom

Rule through direct coercion begins when the commoners are (1) separated from means of violence, (2) circumscribed, and (3) routinely subjected to coercive threat by a chief and warrior status group. Concentrated means of violence together with capability to circumscribe are the means of coercion. Since no individual can rule through direct coercion (Hobbes [1668] 1982; Petersen 1982), the chief does not rule alone. Instead, the chief and supportive warrior rank rule through direct coercion.

The coercive chiefdom is stable if the means of violence are concentrated in the hands of the chief and obedient warrior rank and the members of the commoner rank, being circumscribed, cannot escape the domain of coercion. With the means of violence concentrated, the chief and warrior rank can decide when, how, and upon whom to wage war. Successful war in turn contributes to the power exercised through indirect coercion as well as legitimating the direct coercion exercised within chiefdom society. Experiments discussed in Walker and Zelditch (1993) show how legitimations justify power exercise (see also Zelditch 2001.) Stable coercive structures can solve collective action problems, and the resolution of those problems benefits the coercers. Central among these “solutions” is the conversion of the means of production—which is to say land—into private property (D. Willer 1985).

Capabilities of the Direct Coercive Chiefdom

Earlier work of Sahlins (1958) and Service (1962) explained the separation of commoners from land, as caused by economic development. More recently, led by Carneiro (1970, 1981, 1998), anthropologists and archaeologists have come to place war and coercion at the forefront of their explanations of that separation (e.g., Earle 1991a, 1991b, 1997; Haas 1982). Seeing coercion as necessary to produce separation, we agree with Carneiro, Haas, and Earle. A similar process where a rural population was coercively separated from possession of land occurred in the transition from feudalism to capitalism. Marx ([1867] 1967), in the last few chapters of Volume I of Capital, explained how coercion was central to the process. While anthropologists and archeologists have moved on, at least some economists still insist that private ownership of land was produced economically (Bowles and Choi 2013; Dow and Reed 2013), a position difficult to support given that property rights can only be enforced through coercion (Gilham 1981).

Very frequently, the first step of privatizing was for the chief to claim ownership of all land. For example, Kamehameha, in the process of forming the Hawaiian state, claimed to own all Hawaiian land (Kirch 1984, 2010). Much the same claim was made on the island of Panape (Petersen 1982) and by William upon conquering England in 1066 (Finer 1997). However, no head of a coercive chiefdom (or archaic state) had the organizational capability to extract taxes from such huge tracts of land. Yet tax income from agricultural production was the primary material support for the polity.

The problem was to administer agricultural production such that value was extracted from the commoners tilling the land. The solution was to divide land into parcels passed as gifts from the ruler to favored members of the warrior ranking, creating the nobility. When the resulting land parcels were too large for face-to-face administration, smaller parcels were passed on, creating lesser nobility and buying loyalty of yet another stratum. Initially, the chief’s gifts were not ownership grants. They were grants to use the land and share the benefit from its use. Over time, however, because of the limited administrative abilities of the chief, user rights generally changed into ownership rights.

Subdividing privatized land simplified its administration, thus allowing the extraction of value from the work of the commoners. Rent supported the warrior rank while taxes supported the chief and his inner circle. The overall effect of privatizing the means of production in land was to amplify the power of the chief and his warriors over the commoners. These changes produced class stratification that developed out of and came to exist to some degree parallel to the status rankings of the old society.

As the warrior ranking developed, so did a warrior ethic. Theft through raiding and war came to be seen as honorable in contrast to manual labor, which came to be seen as dishonorable.
and contrary to the warrior’s code (Weber [1918] 1968). Their sense of honor led warriors to seek conflict, leading to more and larger wars. The mutual reinforcing relation between ethic and conflict formed another positive feedback loop furthering war between chiefdoms (Trimborn 1949).

For the chiefdom, successful war increased status differences beyond that given by the lineage system and opened the door for the achievement of status in a society otherwise limited to status ascribed by status-lineage. As a part of the chief’s distribution system, recognition of achieved status by the chief was shown through gifts of prestige items, including high-status wives (R. Chacon and Mendoza 2007). Those gifts legitimated achieved status while building a loyal warrior and noble class. That class was composed partly by those once high in lineage status and partly by those upwardly mobile through success in war. The two parts were potentially hostile; standing above both, only the chief could resolve their hostility, thus did *divisiare et imperatori* begin in the chiefdom and prior to the state.

**Limitations of the Coercive Chiefdom**

To this point, theory has uncovered chiefly sources of power, of which there are many. If the status-lineage structure is still in place, the chief will be influential. Through war, the chief derives power over commoners from indirect coercion and power over warriors from differential distribution. When the means of violence are centralized and the chiefdom is circumscribed, direct coercive power can be exercised. With these structures in place, it would seem that the chief’s power is unlimited. But nothing could be farther from the truth.

The chief’s power is limited because the chiefdom is not a state. States have purposefully designed systems of administration. In early states where power is centralized, there is a hierarchy of positions though which officials are advanced. The separation of officials from the means of administration (Weber [1918] 1968) together with differential advancement for the most obedient officials (D. Willer 1987) allow policy-making to be centralized at the top. The officials of this structure, including those of the Inka empire (Brundage [1963] 1985; Cobo [1663] 1998), were “officials” because they were professionally trained. In other words, in early states, power is centralized through bureaucratic structures (Finer 1997; Weber [1918] 1968). It is safe to say that chiefdoms, however advanced, do not have bureaucratic administrative structures, for if they did, they would be states.

On the other hand, privatizing ownership in land and distributing that ownership to the warrior rank allows exploitation to be routinely extended to two or more levels. This extension occurs when each warrior exercises power over commoners on “his” land. However, the power of each warrior over a subset of the commoners negatively impacts the chief’s power in two ways. First, because value exploited from commoners takes the form of rent to the warrior and taxes to the chief, the chief will receive only part of the value extracted. Here warriors’ and chief’s interests are directly opposed, with each warrior seeking to maximize rent and the chief seeking to maximize taxes. Second, having taken ownership of land, each warrior has gained a source of income distinct from chiefly distributions. This greater autonomy is a threat to the coercive power of the chief.

Though the coercive chiefdom can solve collective action problems and thus wage war and extract value from commoners, the chief’s power exercise is simplest and most effective in face-to-face relations. Lacking an administrative structure, power extension beyond face-to-face relations raises issues that have come to be called *principle-agent problems* (Eisenhardt 1989). Early state structures are such because they contain formal organizational structures, state bureaucracies that are designed to exercise power at a social distance (D. Willer 2003). It follows that chiefdoms are sharply limited in size, as Flannery (1999) put it, maximizing out at a radius of one day’s walk, or perhaps as Flannery should have put it, one day’s travel. For example, the *nome* administrative districts of the Egyptian state, which Carneiro (1981) suggests reflect pre-state chiefdoms, are elongated on the Nile axis. Those elongations are substantially longer than a day’s walk, possibly because of the greater speed of water travel.

Recapping the key theoretic inferences:

- Direct coercion is effective at directing a wide variety of behaviors such as tax and rent extraction and commoners’ labor.
- Direct coercion further solidifies power by privatizing land ownership into the hands of the chief and the warriors, now a noble class.
- Upward mobility for successful warriors produces an ethos linking honor to acquisition through violence and brings a new upwardly mobile class into hostile relations with the hereditary nobility.

**Concluding Remarks**

This paper offers models for three contrasting kinds of chiefdoms using diagrams that are interpreted by status characteristics theory and elementary theory. Those theories uncover the relations between the modeled structures and the influence and power exercised within them. Beginning with those models, the goal has been to explain transitions across the structures, more specifically, how the transitions were pushed by the dynamic of interests, interests located in the structures themselves.

Theory finds that downward mobility, inherent in status-lineage structures, destabilizes lines of influence and threatens existing systems of privilege. The mechanism found to preserve and enhance privilege is to engage in hostile relations with other chiefdoms. Chiefs together with others of high status offer protection to those of low status, protection through which they gain tribute and support. This is a structural change from status-influence to power exercised...
through indirect coercion. In agricultural and other settled societies, accumulation through war and selective redistribution contributed to separation of warrior and commoner status groups. It also led to the structure of direct coercion of chieftdoms. Throughout this process, it mattered not whether one or another external threat was real or imagined.

Nothing in theorizing each structure presumes that older forces producing inequality dissolve in the transition to newer forces. Just as indirect coercion complements direct coercion in modern states, war and indirect coercion add support to coercive chieftdoms. Similarly, the inequalities of indirect coercive chieftdoms can, to varying degrees, be buttressed by status-based influence first found in the status-lineage structure. In the absence of an administrative structure, however, coercion cannot extend far beyond face-to-face relations.

Theory presented here does not link changes in the social structures of chieftdoms to environmental conditions such as overpopulation external to the social structure of the society. Transitions in social structures are explained by forces inside those structures. The theory is not mechanically deterministic. For societies to transition, threats to stability and privilege must be recognized by historical agents, and their solutions must be the ones traced here. Nor does the theory predict that all societies will pass through the same evolutionary steps. Only agricultural and other settled societies can develop beyond the indirect coercive form. We hypothesize that nomadic societies cannot. While we do not take up this issue here, we propose to do so in a paper now being developed.

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Author Biographies

**Pamela Emanuelson** is associate professor of sociology at North Dakota State University. She specializes in the development, testing, and modification of formal group processes and social psychology theory. Her interests are cross-disciplinary, including publications in Social Networks, Social Evolution and History, and The Chinese Journal of Sociology. Current projects use experimentally tested theories to explain processes underlying the emergence and development of prehistoric complex, sociopolitical organization. Other projects continue to expand and refine theories of collective action, coercion, and cooperation.

**David Willer** is Scudder Professor of Sociology (emeritus), University of South Carolina. His research investigates the effects of social structures on human behaviour. His *Network Exchange Theory* (1999) received the Coleman award from the American Sociological Association and is available in Chinese. More recently, he published *Building Experiments: Testing Social Theory* (2007) with H. Walker, also published in Chinese. This century, he has written a series of papers that include: “Testing Ten Theories,” with P. Emanuelson (2008); “Power, Embedded Games and Coalition Formation,” with C. Borch (2006); “The Embeddedness of Collective Goods,” with B. Simpson (2005); and “Theory Programs and Theoretical Problems,” with J. Berger and M. Zelditch, Jr (2005).