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## **The Circumscription Theory: A Clarification, Amplification, and Reformulation**

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In 1963 in his book *Social Anthropology*, Paul Bohannan wrote: ‘we know that we cannot answer questions about the “origin” of the state because the factual evidence is buried deep in the unrecorded past’ (Bohannan 1963: 271). Today, though, half a century later, neither Bohannan nor anyone else would be inclined to utter these words.

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The emergence of the state was an event of such importance in the history of the mankind that it has long commanded the attention of historians and social scientists alike. And the event has been looked at in at least two contrasting ways. Some observers have considered the rise of the state to be such a singular occurrence that only a very special set of circumstances could have brought it about. The 19<sup>th</sup> century sociologist Lester F. Ward, for example, was convinced that the creation of the state was so remarkable that it must have been ‘the result of an extraordinary exercise of the rational faculty’. Indeed, so exceptional did he regard it that he insisted ‘it must have been the emanation of a single brain or a few concerting minds’ (Ward 1883: 224).

Akin to this view – if not quite so extreme – is the belief that the origin of the state, while, perhaps, not a unique event, was at least a very rare one. It took (it is argued) an unusual – even a fortuitous – set of circumstances to bring it about. Associated with this belief is the notion that no matter how many independent cases of state formation there might have been, each one was substantially different from the rest. Therefore, in order to account for

Social Evolution & History, Vol. 11 No. 2, September 2012 5–30

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the rise of any particular state one would have to know the exact set of circumstances surrounding it. Clearly, as long as this view is adhered to, no general theory of state formation can be formulated. If a dozen cases of state formation were being investigated, then a dozen different theories of their emergence would have to be devised.

There is, of course, quite another way of looking at the matter. One can take the position that all states, regardless of how disparate they may have been in detail, had at least certain basic elements in common. They each arose through the combined action of the same small set of factors. The role of each factor need not have been exactly the same in every case, but their joint operation was sufficient to give rise to the state, wherever it arose. This is the position adopted in this paper. It accords with the principle of *parsimony*, the aim being, as in any scientific endeavor, to account for the largest number of instances of a phenomenon with the smallest number of factors.

It seems desirable at this point to discuss *multicausality* as it applies to the problem of state formation. A certain class of theorists exists which seems to regard the finding of a high degree of regularity in the rise of the state as uncongenial. Those who hold such a view are more comfortable with divergence and diversity than with regularity. They are quick to embrace the idea of *multicausality*, believing that it ensures the existence of a complex web of causes, something they feel more truly reflects reality. But just a moment! The term 'multicausality' can be understood in two very different ways.

One interpretation of the term is that while various factors may be involved in the occurrence of a given phenomenon – the rise of the state, in this case – these factors may form a tightly related *composite* of several causes acting together as a *unit*. A theory, which recognizes multicausality in this sense, can still be thought of as *unitary*; the same set of circumstances operating jointly to produce the same effect. Applied to state formation in particular, this means that a single amalgam of elements, acting together, sufficed to account for every case of state formation.

The first interpretation of multicausality, let me repeat, holds that in *every case* of state formation a *different* set of factors was at work. Each state that arose – in Egypt, in China, in the Andes, or

anywhere – had its own unique set of determinants. No single theory could hope to account for more than one or two instances of it.

Thus, there are two contrasting classes of theory here, and the two are clearly competitors. They cannot both be true. Now, while they have been presented here as polar opposites in order to highlight their differences, the two are in fact not absolutely separate and distinct. There are points of contact between them. Nevertheless, they do represent sharply contrasting ways of looking at the problem. The one adopted in this paper is based on the belief that a high degree of regularity has marked the process of state formation. The other view supposes the opposite, embracing diversity of explanations almost as a *desideratum*. It appears thereby to turn its back on the scientific goal of discovering in the causes of any phenomenon the maximum degree of regularity.

Let me emphasize that a unitary theory of state origins need not be antagonistic and antithetical to multicausality if properly understood. In the rest of this paper I will argue, not that a single factor can account for every case of state formation, but that the joint operation of the same set of four or five factors, conjoined in a unitary theory, can readily do so.

Of course, even if a unitary theory is capable of accounting for all cases of state formation, the question still remains, *which one?* Since several unitary theories have been proposed, it is clear that the mere fact of being *unitary* does not, by itself confer on a theory any special claim to being true. Each theory must be tested against the facts of history and prehistory before one of them can be adjudged the most successful.

Having said that, it is possible to subsume all theories of state formation – unitary or multiple – under two main categories. In an earlier paper, written some forty years ago, I divided such theories into *voluntaristic* and *coercive* (Carneiro 1970: 733–734). Theories of the first type hold that states arose by peaceful means through the concerted endeavors of individuals acting in their own self-interest, but without the use of force. Supporters of such theories see autonomous villages – the basic building blocks of any larger polity – voluntarily surrendering their sovereignties to a higher political authority, creating thereby the structures that eventually evolved into the state. The mutual benefits derived by each village from such a union (it is argued) more than compensated for the loss of independence it entailed.

*Coercive* theories, on the other hand, hold that only through the outright use of force – primarily warfare – were local autonomies surmounted and villages welded into a larger unit with an overarching political structure. Only in this way (such theories hold) could *chiefdoms*, and then *states*, have arisen. Let us look at examples of each of these two types of theory.

Recently, the Dutch ethnologist Henri Claessen expressed a voluntaristic view, similar in some respects to that proposed years earlier by Lester Ward. The two are alike in making *ideas* the prime mover in giving rise to the state. For the state to come into being, says Claessen, '[t]here must exist an ideology, which explains and justifies a hierarchical administrative organization and socio-political inequality'. Why was this ideology required? Because '[t]he existence ... of such an ideology makes it possible for the less fortunate to understand and accept their modest position' in the society. Without this acceptance, Claessen argues, statehood could not have been attained. Moreover (he adds) if such an ideology is not present from the very beginning, or if it does not emerge very shortly thereafter, 'the formation of the state becomes difficult, or even outright impossible' (Claessen 2004: 79).

Nor is Claessen alone in believing that states arose through the exercise of far-sighted intelligence and without the agency of war. Take, for example, Jan Vansina, an ethnohistorian who has long studied the native kingdoms of sub-Saharan Africa. Vansina is a staunch believer in the notion that 'Tropical African kingdoms were products of an ideology more than of any other force...' Indeed, he maintains that they 'were truly built in the mind first' (quoted in Bondarenko 2006: 11).

With the cultures of Chavín (in the Andes) and the Olmec (of lowland Mexico) particularly in mind, Richard Schaedel and David Robinson, two New World archaeologists, have remarked that '[t]he appearance of multi-community 'hegemonies' [*i.e.*, complex chiefdoms] ... in the second millennium B.C. was probably created through voluntary participation in a shared belief system...' (Schaedel and Robinson 2004: 262–263).

By all odds, though, the best-known voluntaristic theory of state formation is the 'hydraulic hypothesis' proposed a number of years ago by Karl Wittfogel. While Wittfogel did not hold that the state was a spontaneous creation of the human mind (as did Lester Ward)

he did envision it as arising by voluntary, non-coercive means. For him, the first states emerged in arid regions of the world when villages of peaceful farmers, having built local irrigation systems to increase the productivity of their fields, saw the advantage to themselves of relinquishing their individual sovereignties and merging their small-scale irrigation works into a larger, carefully regulated network. The complex of institutions required to operate and administer such a system constituted, for Wittfogel, the nucleus around which the political machinery of the state eventually arose (Wittfogel 1957: 18).

A variant of such voluntaristic theories of state formation regards the first supra-village political aggregates as *theocracies*. Such polities arose – the theory runs – when the special access to supernatural power claimed by the priests of a society provided them with the means of gaining control over a large population of believers, thus bringing about their political integration. According to this view, it was the moral suasion of the priests, buttressed by the populace's fear of the supernatural sanctions they could bring down on them, rather than the exercise of naked military power, that lay behind the rise of the first chiefdoms and states.

Earlier I quoted the views of Schaedel and Robinson that the polities of Chavín and of the Olmec were ‘probably created through voluntary participation in a shared belief system...’ That belief system, they went on to suggest, had been ‘elaborated over time by priest groups in several shrine communities’ (Schaedel and Robinson 2004: 263).

Although Morton Fried acknowledged the importance of warfare once the state had come into being, he was reluctant to assign to war any constructive role in political development before that stage. Specifically, he saw warfare playing little or no part in the rise of chiefdoms. He too looked to religious specialists as forming the nucleus around which the political machinery of supra-village polities had arisen. Speaking of the political leaders of incipient chiefdoms, Fried remarked that these ‘chiefly figures bring little in the way of [political] power to their priestly roles. Instead, it seems more accurate to believe that such small power as they control is likely to stem from their ritual status...’ (Fried 1967: 141).

Bruce Trigger, on the other hand, saw the rise of multi-village polities as a sort of a halfway house between pure voluntarism and

coercion. He believed that the critical step in the rise of the state occurred when the populace agreed to be led by a small coterie of men, but only through compulsion born of fear of the supernatural. Thus he wrote that

In the modern equivalent of the social contract theory to which American anthropologists have subscribed in recent years, the ideas of rationality and freely given consent have been replaced by ones that evoke religious fear as the main reason an exploited majority was initially prepared to support a social system based on political and economic inequality (Trigger 1993: 81).

For Trigger, then, religion did indeed have a role to play in the origin of the state. But it was religion with teeth in it ... religion with a decidedly coercive edge.

In *A Theory of the Origin of the State*, in which I proposed the dichotomy between voluntaristic and coercive theories, I argued that the former were not up to the task of accounting for the rise of the state. No political unit, regardless of its size, I maintained, ever gave up its sovereignty of its own accord. Only an application of force, or the threat of it, would cause it to do so. A coercive theory, then, was required to explain how the first generation of states had emerged.

Beyond asserting such a belief, I proposed a coercive theory with a specific mechanism that would, in time, give rise to the state, along with a series of stages by which this transformation had occurred. The theory I proposed described how autonomous villages had initially formed chiefdoms, and how some of these chiefdoms had then evolved into states (Carneiro 1970). This theory came to be known as the *circumscription theory* since it pointed to the key role played by tight environmental constriction in giving rise to population pressure, which in turn had brought about recurring warfare, culminating, in certain areas, in the rise of the state.

Since its introduction, the circumscription theory has gained a certain degree of currency, having made its way into a number of anthropology textbooks (*e.g.*, Kottak 1974: 203–204; Harris 1975: 379–380; Miller and Weitz 1979: 256; Wenke 1999: 357–360; Haviland *et al.* 2005: 312; Ember, Ember, and Peregrine 2004: 194). The theory has also found adherents among several recognized

theoreticians. Marvin Harris (1979: 102), for example, referring to this theory, wrote:

There is a very good fit between this model of pristine state formation and the conditions that existed in the regions most likely on archaeological evidence to have been the centers of formation of pristine states. Egypt, Mesopotamia, northern India, the Yellow River Basin, central highland Mexico ... and the Peruvian coastal rivers and Andean highlands are all sharply [environmentally] circumscribed...

It is, of course, gratifying to have one's theory receive a substantial measure of acceptance. Nonetheless, for some time it has seemed to me that in certain respects the theory needed to be clarified, qualified, and elaborated. However, for a number of years I took no steps in that direction. The impetus that finally led me to do so came from a paper presented at a symposium on the Olmec of southern Mexico held at a meeting of the International Congress of Americanists in Seville in 2006. In that paper the archeologist Christopher Pool discussed the circumscription theory as it bore on political evolution among the Olmec. I found Pool's observations about the theory thought-provoking and suggestive (Pool 2006). I too read a paper at that symposium in which I restated the circumscription theory in much the same terms as I had in 1970, modified only slightly to fit the Olmec case. Pool's paper, however, caused me to take stock of the theory more broadly and to consider ways of restating it more fully and systematically.

I would like to begin my reappraisal of the theory with a statement about state formation in general. Let me repeat that unlike some theorists, I hold that despite certain difference among various instances of state formation, no one of them is by any means unique. Nor should the rise of any state be considered anomalous or aberrant in any fundamental way. Underlying the development of every archaic state it should be possible to discover a common set of factors. And assuming this to be true, it should be possible to identify these common elements, study their interrelation, and combine them into a single master theory which would account for every known case of state formation.

To be sure, slight modifications might have to be made in the basic theory in order to take account of peculiar features in the rise of certain states. But nothing more than this should be required. To give an analogy, the minor modifications that might have to be made in the general theory could be likened to altering the distributor cap in an automobile engine, adjusting the flow of current to the various spark plugs, but maintaining the functions of the engine essentially unchanged.

In seeking this basic theory, the questions we must answer are, *first*, what is the irreducible minimum of essential features that make up the core of any successful theory of state origins? And, *second*, what auxiliary elements must be introduced into the theory at certain points to account for any case not fully explained by the general theory?

We must start, then, by identifying the essential and universal features of state formation. And to do so we need to take a step backward, disassembling the original theory proposed in 1970 and subjecting its various aspects to careful scrutiny.

It turns out that the name by which the theory is generally known – the *circumscription theory* – is somewhat misleading. Indeed, it is something of a misnomer. To be sure, environmental circumscription characterizes the underlying condition most conducive to the rise of the state. More precisely, this feature highlights the condition that most vigorously *accelerates* the process. But to *accelerate* a process is not the same thing as to *initiate* it. And thanks to cases like those of the Olmec and the Maya, where complex chiefdoms, if not full-blown states, arose in the *absence* of anything like strict environmental circumscription, we are forced to conclude that tight geographic constriction, while greatly aiding state formation, is not absolutely essential to it.

Having accepted this fact, I still would stress that, where environmental circumscription existed, it *did* give an enormous impetus to state formation. States, and chiefdoms before them, did emerge and develop *more rapidly* in that kind of environment than in un-circumscribed areas. Indeed, the world's first states – without exception – arose in areas marked by environmental circumscription. Thus referring to it as the *circumscription theory* is not altogether inappropriate.

Something more should be said in addition to what was noted in 1970 regarding just how environmental circumscription promoted state formation. The role it played can best be illustrated by means of an analogy – that of a *pressure cooker*. One can boil water in an open vessel, but it will boil *faster* if the water is entirely enclosed within the walls of a container, thus preventing the escape of the mounting steam pressure. What happens within an area of environmental circumscription is quite analogous to what happens in a pressure cooker.

When population is growing in a region tightly hemmed in by physical barriers such as mountains, deserts, and oceans, the pressure exerted by this growing population is prevented from dissipating by escaping into surrounding regions. The initial effect of this heightened pressure was to increase the frequency and intensity of warfare as villages competed for scarcer and scarcer land. The ultimate effect of this warfare was to bring about a categorical change in the political structure of the enclosed population. Most salient among these changes was the breaking down of the political autonomy of the villages involved and their welding into *supra-village polities*.

These newly minted polities – at first no bigger than minimal chiefdoms – were better able to compete successfully in the almost continuous warfare engendered by the growing population pressure. As a matter of fact, the rise of even a single chiefdom spurred the formation of others, since the greater size and strength of a chiefdom would have given it a distinct advantage in competing against those societies which had remained as autonomous villages. Natural selection then would have greatly favored the initial emergence of chiefdoms and their subsequent proliferation.

In general terms, the process at work can be summarized as follows. Population pressure on villages in an impacted region caused them to press against each other with greater force than would have been the case in an uncircumscribed area. As a result, the series of steps that led to the formation of multi-village polities – first chiefdoms and then states – took place faster here and culminated sooner, than would have been the case had circumscription been absent.

But now, if the constricting effect of the physical environment, while accelerating chiefdom and state formation, was not abso-

lutely essential to it, what was? Here I return to the premise I began with, namely, that *coercion* – warfare, essentially – lies at the very heart of the process. It was the one thing that could have led to the surmounting of village autonomy and the creation of supra-village polities. Warfare is the fuel – the propellant – that powers political evolution. It does so by breaking down old small-scale structures, allowing for the building up of larger, more inclusive and more complex political units. Nor is this a mere hypothesis, but an established fact. It is borne out by an overwhelming body of empirical evidence from history and ethnography. Indeed, I have yet to find a single example of a historically or ethnographically known chiefdom or state having arisen *without* warfare having played a significant role at some stage of the process.

At the base of this assertion lies the stubborn fact that autonomous political units, be they tiny hamlets or huge empires, never willingly surrender their sovereignty. They must be compelled to do so. To be sure, it is true that while the surmounting of political autonomy was generally achieved by military means, cases are on record in which a large and powerful state, confronting a smaller, weaker one, found *intimidation* sufficient to achieve its expansionist goals. A prime example of this (already cited in my earlier article) involved the mighty Inca empire. According to the Spanish chronicler Garcilaso de la Vega, ‘it was an explicit policy of the Incas, in expanding their empire, to try persuasion before resorting to force of arms’ (quoted in Carneiro 1970: 738, n. 22). And with the powerful Inca armies poised and ready to strike, a neighboring petty state usually found ‘persuasion’ quite enough to make it yield to Inca demands. As a rule, capitulation of this sort entailed the loss of political autonomy and incorporation into the growing Inca empire. Except for such cases, though, open warfare and outright conquest were the usual means of political expansion, not just for the Incas but elsewhere as well.

The starting point of our analysis of state formation takes us back to a time when (aside from a sprinkling of bands left over from pre-agricultural times) human societies were organized almost entirely as autonomous villages. In certain parts of North America larger tribal associations existed, but these were generally seasonal and short lived. Moreover, since chiefdom and states are, by definition, *permanent* multi-village aggregates with an over-

arching political structure, tribes did not constitute a significant structural advance over autonomous villages.

For uncounted millennia of human history, most villages remained autonomous – doggedly so. Thus, it was essential to overcome this tenaciously-held autonomy before the next major step in political evolution could take place. When at last this step was successfully achieved, villages, which were once invariably autonomous, now became sub-units of newly emerging larger polities – the *simple* chiefdoms. The very next step in the development of political organization involved the fusing together of these simple chiefdoms into more inclusive entities – complex chiefdoms. Or, as I prefer to call them, *compound* chiefdoms. The next major step after that was, of course, the emergence of the state.

As readily accepted as the chiefdom is today as the intermediate stage between autonomous villages and the state, it was not always so. For much of the 20<sup>th</sup> century, in fact, only an uncertain and ill-defined gap existed between the two forms of polity. The insertion of a new evolutionary stage to fill this gap – as obvious and necessary as it seems to us today – was unlikely to occur in the climate of entrenched anti-evolutionism that prevailed in anthropology for more than fifty years. The chiefdom, as a distinctive and important political category, was not formally introduced into anthropology until 1955. That year saw the publication of Kalervo Oberg's article *Types of Social Structure among the Lowland Tribes of South and Central America* (Oberg 1955), in which the chiefdom played a very prominent role. However, what Oberg described as only a structural *type*, Elman Service correctly recognized, a few years later (Service 1962), as an evolutionary *stage*.

It might not be out of place here to note that Aristotle, as interested as he was in the political organization of Greek city-states, nevertheless did not see the need for the category of chiefdom as the immediate predecessor of the city-state. He thus failed to bridge the chasm between autonomous villages and the state, writing that in the development of human society, 'The final association, formed [directly] of several villages, is the state' (Aristotle 1981: 59). Evidently, as an evolutionary stage, the chiefdom had been so thoroughly transcended in ancient Greece by Aristotle's time that no clear trace of it remained.

As I have argued repeatedly, here and elsewhere, success in war was the primary – indeed, the only – avenue that led from autonomous villages to the chiefdom. Nevertheless, there are still those who question that warfare was an indispensable element in the process. This skepticism, though, can hardly be maintained in the face of the accumulated evidence. Already at the autonomous village level, well before the chiefdom was even on the horizon, war was endemic among primitive societies around the world. And not only endemic, but well-nigh unremitting and universal. Look, for example, at Amazonia and New Guinea before pacification, areas where chiefdoms were largely absent. It is hard to find among them a single village in whose history warfare had not played a significant role.

Now, for the circumscription theory to be true, it is unnecessary for us to establish *why*, at this level, warfare was so widespread. Here we need only accept the *fact* that it was. Thus, we can state with assurance that even before the rise of chiefdoms, warfare was *already* present and active in the relation among villages. It was the mechanism, ready and waiting, which was to power societies forward from autonomous villages to the next level of political organization.

The question we now have to face is: What was it about warfare that enabled it to permit autonomous villages to aggregate into larger political units? Why, at a certain point in history, were these larger units the inescapable result of those unending conflicts? Why was *this* the outcome of warfare instead of merely ‘fight and flight’ as had been the case up to then?

Some critics of the circumscription theory persist in arguing that while warfare may already have been present at this stage, it was not what fueled the rise of pristine chiefdoms and states. Jan Vansina, as we have seen, claimed that the states of sub-Saharan Africa were, first and foremost, *conceptions in the mind*, rather than the product of outright military conquests. But, however strongly asserted, this contention is directly challenged by the observations of Eleonora L'vova, who, like Vansina, is a specialist in the native polities of sub-Saharan Africa. Speaking of such Congolese kingdoms as those of the Baluba, Balunda, and Bakuba, she notes that ‘[t]he first rulers of these states mentioned in oral traditions ... were war chiefs. Luba, Lunda and Kuba states were based on territorial conquests...’ (L'vova 2004: 288).

This is not the place to argue the point any further. The evidence for the role of warfare at every level of political development is overwhelming. I will proceed, therefore, with the understanding that warfare is the mechanism *par excellence* which enabled the chiefdom, and its successor, the state, to emerge.

Here, though, I must report a change in my opinion of just how warfare gave rise to the first chiefdoms. My earlier view was that chiefdoms arose by direct and successive military conquest of one village after another by the strongest one among them. And some chiefdoms may indeed have arisen in this way. More recently, though, I have come to question that this was the way in which most chiefdoms arose. Today I am more inclined to believe that while warfare was still the mechanism involved, it produced its effect in a somewhat different way.

I would now focus on the actions of the *ad hoc* war leader of a village who, acting as the head of an alliance, repeatedly and successfully led a group of villages in military actions against their enemies. Indeed, so important was the role of this special war leader in welding together and directing the warriors of a multi-village alliance – an alliance which eventually crystallized into a chiefdom – that he deserves a special designation. And the title I propose to bestow on him is that of *pendragon*. This term derives from the name given to a temporary war chief among the medieval Welsh. It will be familiar to those acquainted with the Arthurian legend as an epithet accorded to King Arthur's father, Uther Pendragon.

The scenario I consider most likely to have led to the emergence of chiefdoms is as follows. From ethnographic accounts, it is well known that an *ad hoc* war leader of the kind just described usually enjoyed almost unlimited power over the warriors of the allied villages he commanded. And his mandate included the greatest of all powers, the power of life and death. Great as these powers were, however, they usually lasted only during war time. As soon as the fighting ceased, they lapsed, the war chief relinquishing virtually all of them.

However – and here I propose a new sequence of events – as war continued to be waged, becoming increasingly frequent and intense, allied villages tended to remain on a war footing much of the time. The war leader – the *pendragon* – thus came to have repeated oc-

casions not only to exercise his war powers, but to enhance and cement them as well. And – most important of all – to hold on to them *after* hostilities had ended. Backed by a coterie of redoubtable warriors who, after serving under his command time after time, and benefitting from this service, had become personally loyal to him. Through their support the temporary war leader was able eventually to establish himself as the *permanent* chief – politically as well as militarily – of the villages he had successfully led in war. Whatever resistance there might have been to his retaining and extending his plenary powers beyond wartime, his loyal warriors enabled him to overcome.

In this way, the *pendragon* became the first supra-village *paramount chief*, and the assemblage of villages now permanently subordinate to him became the first chiefdoms. With the passage of time and the crystallization of this new political arrangement, the once *ad hoc* war leader, who through his military prowess and strength of character had imposed himself as paramount chief *de facto*, came to be recognized as paramount chief *de jure*. And if his legitimacy as chief was not fully recognized initially, that distinction was probably accorded to his immediate successor, most likely his son (for a fuller treatment of this proposed sequence of events see Carneiro 1998).

One qualification needs to be introduced here. If the person who repeatedly and successfully led allied villages in war was not actually a specially designated war chief, but was the regular village chief, elevated in time of war to the position of military commander of an alliance of villages, with his powers augmented accordingly, the scenario outlined above would still hold.

The sequence of events just posited is not mere conjecture. It was historically documented among various groups in parts of what are now northern Venezuela and Guyana, societies which in the 16<sup>th</sup> century were almost constantly at war (Carneiro 1998). Simply to become the regular chief of a village in that region, a man had to undergo a series of tests so severe as to warrant being called ordeals. For example, to prove his extraordinary fortitude, a candidate for the village chieftainship was subjected to such tests as drinking a gourd full of hot pepper juice, being flogged unmercifully, being subjected to ‘roasting’ by hanging for hours in a ham-

mock over a low fire, or having to lie in a hammock with dozens of stinging ants crawling over him.

Through it all, he had to demonstrate an almost superhuman stoicism and hardihood by not flinching or showing any sign of pain. Only if he passed such tests would he be considered sufficiently endowed with the necessary toughness to become chief and be able to lead his warriors into battle (see Schomburgk 1923, II: 344; Gumilla 1963: 337–340; Whitehead 1988: 60–63). Clearly, such a man was ready to expand his political horizons beyond his own village.

Turning to warfare itself, initially the usual motives for going to war among autonomous villages were much the same as those underlying the wars fought by the natives of New Guinea or Amazonia in the recent past. They were wars over familiar offenses like murder, accusations of witchcraft, wife stealing, and the like – motives that no doubt go back well into the Paleolithic. Wars of this kind often involved temporary and shifting alliances, as among the Yanomamö today. As a rule, in the wars fought by these alliances the warriors of each village were led by their own village chief rather than by a chief chosen especially to lead the combined forces of several villages.

At some point in the evolution of war, however, with population pressure acting as an especially effective trigger, a categorical change took place in the sorts of causes that engendered war. It now began to be waged, not just for the reasons cited above, but also for ecological advantage and economic gain. Specifically, war became *redirected* to the taking of arable land, which, as population grew, was becoming increasingly scarce. An early stage of this kind of warfare occurred in the highlands of New Guinea where the Mae Enga (Meggitt 1977: 14) drove a defeated enemy from his land and appropriated it. However, while defeated on the battlefield and often forced to flee, the losers in such conflicts were not yet incorporated into the polity of the victors. That outcome came about only at a later stage, when the pressure of human numbers on the land had grown even greater.

Perhaps, the most common criticism made of the circumscription theory is that in certain places where chiefdoms arose, population pressure – the central element of the theory – cannot be said to have existed. This objection, however, is open to question. In the

first place, critics who raise it are often unaware that an incipient form of population pressure may be present but in such a subtle form as to escape detection. Particularly was this true among societies practicing shifting cultivation.

Swidden cultivators normally must fallow an abandoned garden plot for something like 20 years before it can be recultivated. However, if the demand for arable land is pressing enough, no longer can an abandoned plot be allowed to lie fallow for that long. It may become necessary to begin clearing and planting it again after only, say, 12 to 15 years. Under such conditions, the practice of *bush fallowing* may come to replace the traditional and preferred form of *forest fallowing*. And once this step has been taken, a mild form of population pressure can be said to exist, even if not readily discernable by an outsider.

Thus, a casual observer, walking through the territory of a village that had reached this stage, might be struck by the fact that most of the village's land was still under some form of forest cover. And from this he might conclude – erroneously – that there was no evidence of population pressure. Yet since the village had been forced to do something it would not otherwise have done – that is, shorten its normal cycle of clearing and planting – it had already been affected by the growth of human numbers. In an unobtrusive way, then, population pressure had indeed begun to assert itself.

Now at this early stage a village might already begin acquiring what it deemed to be a necessary amount of arable land by turning to war. This, as we have seen, is precisely what the Mae Enga had done. At this stage, then, warfare may appear to the members of a village as the surest and certainly the quickest way to augment their diminishing supply of land.

Driving an enemy off his land and taking possession of it, but without absorbing the enemy himself into one's polity, seems to have continued into at least the earlier stages of chiefdom-level warfare. At least this was still the practice among many of the chiefdoms of the Southeastern United States. According to the ethnohistorian Charles Hudson, 'the Natchez, and Mississippian people in general were expansionist', but 'the purpose of this expansion was to acquire new land, not to conquer and incorporate their enemies...' (Hudson 1994: 240).

To recapitulate, then, population pressure, even though initially only slight, may provide the first inducement for a society to take over a neighbor's land by force of arms. And as villages grew in size and number, thus impinging even further on each other's territory, the heightened pressure on the land would become an even more compelling reason to go to war.

It should be noted, however, that warfare for the taking of land may begin even before population pressure has begun to assert itself. Societies well endowed with arable land may still compete over particularly fertile soil. In my article of 1970, I pointed out that native peoples along the Amazon River fought over *várzea* – the rich alluvial soil found along the banks of that great river. And years later, as I learned more about the Olmec of Mexico, it became clear that in the region of San Lorenzo, in the Olmec territory, levees containing soils of very high quality flanked the Coatzacoalcos River, much as they did along the Amazon. So sought after in fact, were these rich soils that dwellers in that region soon began competing over them. Michael Coe, an archaeologist specializing in the Olmec, has called the San Lorenzo Olmec ‘the gift of the river’ and argued that these levee soils were so coveted that, at a certain stage, they became a leading cause of war (Coe 1981: 15).

It would appear, then, that in regions lacking environmental circumscription but blessed with especially rich soil, peoples may already go to war over choice land. And we would expect that such warfare would lead in time to the creation of chiefdoms and states.

Moreover, as Coe also noted, inter-village competition among the Olmec may have occurred over resources *other* than levee soils. Deposits of obsidian, jade, or some other prized commodity might have engendered conflicts as people strove to obtain them. And as long as this competition resulted in the subjugation of some groups by others, the net effect would have been much the same as if the fighting had been caused by population pressure. Warfare over any valued resource, then, might reasonably be incorporated into the theory, alongside a shortage of arable land, as giving rise to conquest warfare and its political consequences.

Already in 1970, I had introduced *resource concentration* as one of the auxiliary factors capable of inciting the kind of warfare that resulted in territorial conquests. However, at the time I did not assign it the importance I now see it deserves. Not being fully

aware of this importance, I failed to point out that most of the circumscribed environments where the earliest archaic states arose were *also* areas of resource concentration. The great fishing grounds off the coast of Peru, for example, made it possible for sizable populations to settle along this coast and for chiefdoms to emerge there, seemingly before the appearance of agriculture, and certainly before farming had become well established.

Another example of the co-occurrence of these two factors – environmental circumscription and resource concentration – is provided by ancient Egypt. Egypt was indeed, in the familiar words of Herodotus, ‘the gift of the Nile’, a river whose bountiful waters had already in pre-agricultural times attracted considerable numbers of people to its banks. And Egyptologists have not failed to point out the great cornucopia of aquatic resources that the river provided to its earliest inhabitants. ‘Fish abounded in both the Nile and in Egypt's one true lake [Moeris] located in an area called the Fayum...’ says one source (Brier and Hobbs 1999: 102), while another one tells us that ‘[t]he migration of birds to the reed banks of the Fayum in winter is still an impressive event, but in antiquity the wealth of pond fowl and fish ... was even more prodigious’ (Aldred 1987: 50). By helping to build up human numbers, eventually bringing about population pressure, *both* factors – resource concentration and environmental circumscription – contributed, each in its own way, to the emergence of a unified Egyptian state.

It should be emphasized, though, that even without environmental circumscription, resource concentration may provide conditions conducive to the growth of complex societies, with a corresponding political structure. The continent of Africa, south of Egypt, affords several examples of this.

In West Africa, the ancient kingdom of Ghana sat astride the middle Niger, a river so rich in aquatic resources that even today it exports thousands of tons of fish to the Ivory Coast (Hopkins 1973: 246). In the 16<sup>th</sup> century, subject peoples like the Sorkawa and the Bozo, living along the Niger, ‘paid their taxes to the rulers of the Songhai empire exclusively in dried fish’ (*Ibid.*: 43). Kanem, another early West African state, was located adjacent to Lake Chad of which it is said that ‘[f]ish abound in its waters’ (Britannica 1910: 787). And if this is true today, after the lake has shrunk

considerably in size, how much truer must it have been centuries ago when early populations first began gathering on its shores.

Similarly, in East Africa the interlacustrine region lying between such lakes as Victoria, Albert, and Kyoga, gave rise to several native states, such as Buganda, Bunyoro, and Ankole (Fallers 1965: 23). To be sure, these states were all of relatively recent origin, but they appear to have been built on an older economy whose base was the aquatic resources provided by these lakes. Indeed, the existence of sizable concentrations of people in this region was apparently of long standing, for according to a leading historian of Africa, 'In ... [this] land of lakes and rivers, lived thriving Stone Age fishing communities' (Shillington 1995: 13).

Be it noted, however, that a striking contrast confronts us when we move *eastward* from the interlacustrine region into the open grasslands of Kenya and Tanzania, a region where neither resource concentration nor environmental circumscription was to be found. Unlike the interlacustrine area, native chiefdoms and states never developed here, societies in this region having risen no higher than the tribal level.

Now, it may even be the case that under certain circumstances – albeit unusual ones – resource concentration may actually *trump* environmental circumscription in giving rise to chiefdoms and states. I say 'trump' in the sense of acting *faster*, and thus producing its effects *sooner*.

Let me present a possible example of this occurrence. If chiefdoms, and perhaps even states, did in fact arise in the Olmec area of southern Mexico *before* they did in the Valley of Oaxaca further to the west, an area of environmental circumscription, this development might be attributable to the exceptionally great concentration of aquatic food resources in the Olmec region. Such resources, however, were decidedly lacking in the valley of Oaxaca. The concentration of wild food resources enjoyed by the Olmec seems to have led to an early build up of population, followed (as we have seen) by competition over its choicest parts. The result appears to have been conquest warfare, with all its familiar political consequences.

The point to be emphasized here is that this development seems to have occurred *earlier* in the Olmec area than in Oaxaca. Even if, at their highest point, Olmec polities were no higher than

complex chiefdoms, their development still shows what resource concentration can give rise to even when unaccompanied by environmental circumscription.

Additional examples of chiefdoms (if not states) arising primarily under conditions of resource concentration are associated with major rivers such as the Amazon (Omagua and Tapajós), the Mississippi (Cahokia), and the Red River of northern Vietnam, as recent archaeological work by Nam Kim and his Vietnamese colleagues has shown (Kim *et al.* 2010).

It should be pointed out, though, that resource concentration, acting alone, while enabling large and complex societies to arise, generally does so more *slowly*. To show why this is so, something more needs to be said about just how resource concentration operates in giving rise to population pressure. It does so by bringing about *social* circumscription – a concept akin to *geographic* circumscription, first proposed by Napoleon Chagnon (1968: 251). It did not take me long to see the applicability of this concept to certain instances of political evolution and to incorporate it in the theory.

The crowding together of villages as they grow in size and proliferate in number in an unbounded area produces a similar effect as crowding in an area of environmental circumscription. But there are also significant differences. Without a physically circumscribing perimeter to provide tight constriction to the enclosed population, it simply takes longer for the population to completely fill an area. But when population does reach this point, it brings about what can be considered *social circumscription*. With human settlements now so closely packed, an impediment to the easy movement of people now exists. The effect is much the same as where physical barriers are in place. However, there is an important difference. With social circumscription, the degree of constriction on the impacted population is generally *less tight* than with physical circumscription, allowing a certain amount of ‘leakage’ to occur. That is to say, a few of the villages most acutely affected by the squeeze, especially if they are located near the peripheries of the area, may manage to push their way out through the interstices between surrounding villages. By thus partially reducing the pressure affecting those villages remaining in the impacted zone, the leakage may act to reduce the incidence of warfare, and therefore delay the onset of

the usual political consequences of such fighting. Chiefdoms and states may ultimately emerge in such a region, but it will take longer. Western Europe, the Congo, and the Peten in Mexico and Guatemala may be cited as areas where states eventually arose, but did so substantially later than in regions of marked environmental circumscription, such Egypt and Mesopotamia.

In actual fact, as already noted, *both* factors – resource concentration and environmental circumscription – are generally found together. And they worked in tandem, each in its own way contributing to the eventual outcome. They did so by creating and increasing the population pressure that is key to the workings of the theory. Resource concentration drew people to an area, and by providing the conditions for the population to grow, eventually led villages to impinge on one another.

With resource concentration acting alone, however, there was always the possibility that some portion of the growing population could make its way out of an area lacking physical boundaries. Environmental circumscription, however, by sealing off any easy means of escape for the confined population, prevented this pressure from being relieved. Thus, the sequence of events leading to warfare and conquest ensued, and did so more rapidly. And with *both* factors working together, political evolution was bound to be greatly accelerated.

Let me digress for a moment and point out that environmental circumscription is not a matter of all or nothing. There are *degrees* of it. And though appearing relatively minor, the varying degrees of circumscription may result in noticeable difference in political development. As an example, let us compare Egypt and Mesopotamia. The Nile is a single river which cuts a sharp and narrow gash through the Egyptian desert. Environmental circumscription, then, was at its maximum here. Mesopotamia, on the other hand, offered something of a contrast. Two paired rivers, the Tigris and the Euphrates, running roughly parallel courses, with their small branches often interbraiding, created a broader swath, a wider flood plain. Moreover, the Syrian desert through which those rivers flowed formed less well defined and less tightly circumscribing margins than did the Egyptian desert around the Nile.

The physiographic difference between the two regions was reflected in the history of their respective political developments.

While chiefdoms appear to have arisen in Mesopotamia earlier than in Egypt, the political unification of the Nile Valley preceded that of the Tigris-Euphrates. Moreover, once achieved it was more stable, the kingdom of Egypt having remained unified a good deal longer than did Babylonia. It seems reasonable to suppose, then, that the Nile Valley's sharper circumscription than that of the Tigris-Euphrates was a significant factor in accounting for their differing political histories.

Also to be borne in mind is that the physical features of environmental circumscription that initially may constitute barriers to human settlement may, in time, no longer be so. Population pressure may become so great as to lead to the invention of a technology capable of overcoming or transforming these barriers. For example, the steep slopes of certain parts of the Andes that at one time were an impediment to agriculture, and thus to human settlement, became less so once terracing and irrigation were introduced. Indeed, these techniques made Andean slopes not only habitable but highly productive.

Another issue relating to degrees of environmental circumscription deserves mention as well. Some critics have argued that the choice *várzea* land lying along the Amazon River should be regarded as being *circumscribed* by the *terra firme* flanking it on either side. However, I would resist such a characterization. Since the interior forests bounding both sides of the *várzea* can readily be cleared and planted and can yield reasonably good crops, they are far from constituting an unproductive circumscribing element. What we have here then is nothing like the knife-edge circumscription afforded by the Egyptian desert. Undeniably, *várzea* is more productive than the surrounding hinterlands. Nevertheless, I prefer to regard this as an example of an *ecological gradient* rather than of environmental circumscription.

In conclusion, let me say that the introduction of such auxiliary factors as resource concentration and social circumscription, and the recognition of their greater role in political evolution than I had originally assigned to them, does not *dilute* the theory. In fact, by taking account of more elements which, acting in concert with environmental circumscription, were instrumental in giving rise to the state, it actually *strengthens* it. The theory is now able to ac-

count more fully for a wider range of cases of chiefdom and state formation. The *core* of the theory, though, remains the same. It can be encapsulated in the following proposition:

*A heightened incidence of conquest warfare, due largely to an increase in population pressure, gave rise to the formation of successively larger political units, with autonomous villages being followed by chiefdoms, the process culminating in certain areas with the emergence of the state.*

Despite the modifications introduced in this paper, the heart of the theory is still what it was. Whatever shortcomings may remain in the theory, it need not be *abandoned*, but only *supplemented*. Perhaps it might even be *renamed*, if a term could be found that would better encompass the nexus of causal factors that together prompted rise of the state. And even though, up to this point, the theory has proved itself reasonably successful, if some previously unrecognized element were to be found which served to increase the incidence of war, with all its cascade of consequences, the new factor could no doubt be readily accommodated within the essential framework of the theory. Indeed, it would be welcomed into it as enhancing its explanatory power.

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