A Theory of the Origin of the State

Robert L. Carneiro

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INSTITUTE FOR HUMANE STUDIES, INC
1177 University Drive
Menlo Park, California 94025

Born in New York City in 1927, the author earned his doctoral degree in anthropology from the University of Michigan in 1957. He has taught at the University of Wisconsin, Hunter College, Columbia University. the University of California at Los Angeles. and Pennsylvania State University. Since 1969 he has been curator of South American ethnology in the Department of Anthropology at the American Museum of Natural History, New York, N.Y.

In addition to publishing a number of articles, principally in the fields of cultural evolution and Amazonian ethnology, Dr. Carneiro is also the co-editor of *Essays in the Science of Culture in Honor of Leslie* A. *White* (1960), and editor of *The Evolution of Society; Selections from Herbert Spencer's Principles of Sociology* (1967).

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For the first 2 million years of his existence, man lived in bands or villages which, as far as we can tell, were completely autonomous. Not until perhaps 5000 B.C. did villages begin to aggregate into larger political units. But, once this process of aggregation began. it continued at a progressively faster pace and led. around 4000 B.C., to the formation of the first state in history. (When I speak of a state I mean an autonomous political unit, encompassing many communities within its territory and having a centralized government with the power to collect taxes, draft men for work or war. and decree and enforce laws.)

Although it was by all odds the most far-reaching political development in human history. the origin of the state is still very imperfectly understood. Indeed, not one of the current theories of the rise of the state is entirely satisfactory. At one point or another, all of them fail. There is one theory, though, which 1 believe does provide .a convincing explanation of how states began. It is a theory which I proposed once before (I), and which I present here more fully. Before doing so, however, it seems desirable to discuss, if only briefly, a few of the traditions1 theories.

Explicit theories of the origin of the state are relatively modern. Classical writers like Aristotle, unfamiliar with other forms of political organizatic il. tended to think of the state as "natural," and therefore as not requiring an explanation. However, the age of exploration, by making Europeans aware that many peoples throughout the world *lived. not* in states. but in independent villages or tribes. *made* the state seem less natural. and thus more in need of explanation.

Of the many modern theories of state origin5 that have been proposed we can consider only a few. Those with a . . . basis, for example, are now so thoroughly discredited

that they need not be dealt with here. We can also reject the belief that the state is an expression of the "genius" of a people (2), or that it arose through a "historica! accident." Such notions make the state appear to be something metaphysical or adventitious, and thus place it beyond scientific understanding. In my opinion, the origin of the state was neither mysterious nor fortuitous. It was not the product of "genius" or the result of chance, but the outcome of a regular and determinate cultural process. Moreover, it was not a unique event but a recurring phenomenon: states arose independently in different places and at different times. Where the appropriate conditions existed, the state emerged.

Voluntaristic Theories

Serious theories of state origins are of two general types: *voluntaristic* and *coercive*. Voluntaristic theories hold that. at some point in their history, certain peoples spontaneously. rationally. and voluntarily gave up their individual sovereignties and united with other communities to form a larger political unit deserving to he called a state. Of such theories the best known is the old Social Contract theory, which was associated especially with the name of Rousseau. We now know that no such compact was ever subscribed to by human groups. and the Social Contract theory is today nothing more than a historical curiosity.

The most widely accepted of modern voluntaristic theories is the one I call the "automatic" theory. According to this theory, the invention of agriculture automatically brought into being a surplus of food. enabling some individuals to divorce themselves from food production and become potters, weavers, masons, and so on. This, ushering in extensive division of labor. Out of this occupational specialization there arose political integration which united a number of previously independent communities into a state. This argument was most frequently by the late British archeologist Vere Gordon Childe (3).

The principal difficulty with this theory is that agriculture does *not* automatically create a food surplus. We know this because many agricultural peoples of the world produce no such surplus. Virtually all Amazonian Indians. for example, were agricultural, but in aboriginal times they did not produce a food surplus. That it was *technically feasible* for them to produce such a surplus is shown by ths fact that. under the stimulus of European settlers' desire for food, a number of tribes did raise manioc in amounts well above their own needs, for the purpose of trading (4). Thus the technical means for generating a food surplus were there; it was the social mechanisms needed to actualize it that were lacking.

Another current voluntaristic theory of stats origins is Karl Wittfogel's "hydraulic hypothesis." As I understand him, Wittfogel sees the state arising in the following way. In certain arid and semiarid areas of the world. where village farmers had to struggle to support themselves by means of small-scale irrigation, a time arrived when they saw that it would be to the advantage of all concerned to set aside their individual autonomies and merge their villages into a single large political unit capable of carrying out irrigation on a broad scale. The body of officials they created to deviseand administer such extensive irrigation work5 brought the state into being (5).

This theory has recently run into difficulties. Archeological evidence now makes it appear that in at least three of the areas that Wittfogel cites as exemplifying his "hydraulic hypothesis" – Mesopotamia, China, and Mexico – full-fledged states developed well before large-scale irrigation (6). Thus, irrigation did not play the causal role in the rise of the state that Wittfogel appears to attribute to it (7).

This and all other voluntaristic theories of the rise of the state founder on the same rock. the demonstrated inability of autonomous political units to relinquish their sovereignty in the absence of overriding external constraints. We see this inability manifested again and again by political units ranging from tiny villages to great empires. Indeed, we can scan the pages of history without finding a single genuine exception to

this rule. Thus, in order to account for the origin of the state we must set aside voluntaristic theories and look elsewhere.

Coercive Theories

A close examination of history indicates that only a coercive theory can account for the rise of the state. Force, and not enlightened self-interest. is the mechanism by which political evolution has led. step by step, from autonomous villages to the state.

The view that war lies at the root of the state is by no means new. Twenty-five hundred years ago Heraclitus wrote that "war is the father of all things." The first careful study of the role of warfare in the rise of the state, however, was made less than a hundred years ago. by Herbert Spencer in his *Principles of Sociology* (8). Perhaps better known than Spencer's writings on war and the state are the conquest theories of continental writers such as Ludwig Gumplowicz (9), Gustav Ratzenhofer (10). and Franz Oppenheimer (1 1).

Oppenheimer. for example. argued that the state emerged when the productive capacity of settled agriculturists was combined with the energy of pastoral nomads through the conquest of the former by the latter (I 1, pp. 51-55). This theory, however. has two serious defects. First, it fails to account for the rise of. states in aboriginal America. where pastoral nomadism was unknown. Second. it is now well established that pastoral nomadism did not arise in the Old World until after the earliest states had emerged.

Regardless of deficiencies in particular coercive theories. however. there is little question that. in one way or another, war played a decisive role in the rise of the state. Historical or archeological evidence of war is found in the early stages of state formation in Mesopotamia. Egypt. India. China. Japan. Greece. Rome. northern Europe. central Africa. Polynesia. Middle America. Peru. and Colombia. to name only the most prominent examples.

Thus. with the Germanic kingdoms of northern Europe especially in mind, Edward Jenks observed that, "historically speaking, there is not the slightest difficulty in proving that all political communities of the modern type [that is, states] owe their existence to successful warfare" (12). And in reading Jan Vansina's *Kingdoms of the Savanna* (13), a book with no theoretical ax to grind, one finds that state after state in central Africa rose in the same manner.

But is it really true that there is no exception to this rule? Might there not be, somewhere in the world, an example of a state which arose without the agency of war?

Until a few years ago. anthropologists generally believed that the Classic Maya provided such an instance. The archeological evidence then available gave no hint of warfare among the early Maya and led scholars to regard them as a peace-loving theocratic state which had arisen entirely, without war (14). However, this view is no longer tenable. Recent archeological discoveries have placed the Classic Maya in a very different light. First came the discovery of the Bonampak murals, showing the early Maya at war and reveling in the torture of war captives. Then, excavations around Tikal revealed large earthworks partly surrounding that Classic Maya city, pointing clearly to a military rivalry with the neighboring city of Uaxactún (15). Summarizing present thinking on the subject. Michael D. Coe has observed that "the ancient Maya were just as warlike as the . bloodthirsty states of the Post-Classic" (16).

Yet. though warfare is surely a prime mover in the origin of the state, it cannot be the only factor. After all, wars have been fought in many parts of the world where the state never emerged. Thus. while warfare may be a necessary condition for the rise of the state. it is not a sufficient one. Or. to put it another way, while we can identify war as the *mechanism* of state formation. we need also to specify the *conditions* under which it gave rise to the state.

Environmental Circumscription

How are we to determine these conditions? One promising

approach is to look for those factors common to areas of the world in which states arose indigenously – areas such as the Nile, Tigris-Euphrates, and Indus valleys in the Old World and the Valley of Mexico and the mountain and coastal valleys of Peru in the New. These areas differ from one another in many ways – in altitude, temperature, rainfall, soil type, drainage pattern, and many other features. They do, however. have one thing in common: *they are all areas of circumscribed agricultural lam!.* Each of them is set off by mountains. seas. or deserts, and these environmental features sharply delimit the area that simple farming peoples could occupy and cultivate. In this respect these areas are very different from. say, the Amazon basin or the eastern woodlands of North America, where extensive and unbroken forests provided almost unlimited agricultural land.

But what is the significance of circumscribed agricultural land for the origin of the state? Its significance can best be understood by comparing political development in two regions of the world having contrasting ecologies – one a region with circumscribed agricultural land and the other a region where there was extensive and unlimited land. The two areas I have chosen to use in making this comparison are the coastal valleys of Peru and the Amazon basin.

Our examination begins at the stage where agricultural communities were already present but where each was still completely autonomous. Looking first at the Amazon basin, we see that agricultural villages there were numerous, but widely dispersed. Even in areas with relatively dense clustering. like the Upper Xingú basin, villages were at least 10 or 15 miles apart. Thus. the typical Amazonian community, even though it practiced a simple form of shifting cultivation which required extensive amounts of land. still had around it all the forest land needed for its gardens (i 7). For Amazonia as a whole. then. population density was low and subsistence pressure on the land was slight.

Warfare was certainly frequent in Amazonia. but it was waged for reasons of revenge. the taking of women. the gaining of personal prestige, and motives of a similar sort.

There being no shortage of land. there was. by and large. no warfare over land.

The consequences of the type of warfare that did occur in Amazonia were as follows. A defeated group was not. as a rule, driven from its land. Nor did the victor make any real effort to subject the vanquished, or to exact tribute from him. This would have been difficult to accomplish in an} case, since there was no effective way to prevent the losers from fleeing to a distant part of the forest. Indeed. defeated villages often chose to do just this. not so much to avoid subjugation as to avoid further attack. With settlement so sparse in Amazonia, a new area of forest could be found and occupied with relative ease, and without trespassing on the territory of another village. Moreover, since virtually any area of forest is suitable for cultivation, subsistence agriculture could be carried on in the new habitat just about as well as in the old.

It was apparently by this process of fight and flight that horticultural tribes gradually spread out until they came to cover. thinly but extensively, almost the entire Amazon basin, Thus. under the conditions of unlimited agricultural land and low population density that prevailed in Amazonia. the effect of warfare was to disperse villages over a wide area. and to keep them autonomous. With only a very few exceptions, noted below, there was no tendency in Amazonia for villages to be held in place and to combine into larger political units.

In marked contrast to the situation in Amazonia were the event\ that transpired in the narrow valleys of the Peruvian coast. The reconstruction of these events that I present is admittedly inferential. but I think it is consistent with the archeological evidence.

Here too our account begins at the stage of small. dispersed. and autonomous farming communities. However. instead of being scattered over a vast expanse of rain forest as they were in Amazonia. villages here were confined to some 78 short and narrow valleys (18). Each of these valleys. moreover. was backed by the mountains. fronted by the sea.

and flanked on either side by desert as dry as any in the world. Nowhere else, perhaps, can one find agricultural valleys more sharply circumscribed than these.

As with neolithic communities generally, villages of the Peruvian coastal valleys tended to grow in size. Since autonomous villages are likely to fission as they grow, as long as land is available for the settlement of splinter communities, these villages undoubtedly split from time to time (19). Thus, villages tended to increase in number faster than they grew in size. This increase in the number of villages occupying a valley probably continued, without giving rise to significant changes in subsistence practices. until all the readily arable land in the valley was being farmed.

At this point two changes in agricultural techniques began to occur: the tiiiing of land already under cultivation was intensified. and new, previously unusable land was brought under cultivation by means of terracing and irrigation (20).

Yet the rate at which new arable land was created failed to keep pace with the increasing demand for it. Even before the land shortage became so acute that irrigation began to be practiced systematically. villages were undoubtedly already fighting one another over land. Prior to this time. when agricultural villages were still few in number and well supplied with land. the warfare waged in the coastal valleys of Peru had probably been of much the same type as that described above for Amazonia. With increasing pressure of human population on the land. however. the major incentive for war changed from a desire for revenge to a need to acquire land. And. as the causes of war became predominantly economic. the frequency. intensity. and importance of war increased.

Once this stage was reached. a Peruvian village that lost a war faced consequences very different from those faced by a defeated village in Amazonia. There. as we have seen. the vanquished could flee to a new locale. subsisting there about as well as they had subsisted before. and retaining their independence. In Peru however this alternative was no longer open to the inhabitants of defeated villages. The mountains, the desert. and the sea – to say nothing of neighboring villages – blocked escape in every direction. A village defeated in war thus faced only grim prospects. If it was allowed to remain on its own land. instead of being exterminated or expelled, this concession came only at a price. And the price was political subordination to the victor. This subordination generally entailed at least the payment of a tribute or tax in kind. which the defeated village could provide only by producing more food than it had produced before. But subordination sometimes involved a further loss of autonomy on the part of the defeated village – namely. incorporation into the political unit dominated by the victor.

Through the recurrence of warfare of this type. we see arising in coastal Peru intsgrated territorial units transcending the village in size and in degree of organization. Political evolution was attaining the level of the chiefdom.

As land shortages continued and became even more acute. so did warfare. Now, however. the competing units were no longer small villages but. often. large chiefdoms. From this point on, through the conquest of chiefdom by chiefdom. the size of political units increased at a progressively faster rate. Naturally. as autonomous political units increased in size, they decreased in. number, with the result that an entire valley was eventually unified under the banner of its strongest chiefdom. The political unit thus formed was undoubtedly sufficiently centralized and complex to warrant being called a state.

The political evolution I have described for one valley of Peru was also taking place in other valleys in the highlands as well as on the coast (21). Once valley-wide kingdoms emerged, the next step was the formation of multivalley kingdoms through the conquest of weaker by stronger ones. The culmination of this process (22) of all of Peru by its most powerful state, the Inka, was the formation of a single great empire. Although empires may have occurred once or twice before, the Inka empire was achieved most notably and [illegible] (23).

While the aggregation of villages into chiefdoms, and of chiefdoms into kingdoms, was occurring by external acquisition, the structure of these increasingly larger political units was being elaborated by internal evolution. These inner changes were, of course? closely related to outer events. The expansion of successful states brought within their borders conquered peoples and territory which had to be administered. And it was the individuals who had distinguished themselves in war who were generally appointed to political office and assigned the task of carrying out this administration. Besides maintaining law and order and collecting taxes, the functions of this burgeoning class of administrators included mobilizing labor for building irrigation works. roads, fortresses. palaces, and temples. Thus, their functions helped to weld an assorted collection of petty states into a single integrated and centralized political unit.

These same individuals, who owed their improved social position to their exploits in war, became, along with the ruler and his kinsmen, the nucleus of an upper class. A lower class in turn emerged from the prisoners taken in war and employed as servants and slaves by their captors. In this manner did war contribute to the rise of social classes.

1 noted earlier that peoples attempt to acquire their neighbors' land before they have made the fullest possible use of their own. This implies that every autonomous village has an untapped margin of food productivity. and that this margin is squeezed out only when the village is subjugated arid compelled to pay taxes in kind. The surplus food extracted from conquered villages through taxation. which in the aggregate attained very significant proportions. went largely to support the ruler, his warriors and retainers. officials, priests and other members of the rising upper class. who thus became completely divorced from food production.

Finally. those made landless by war but not enslaved tended to gravitate to settlements which. because of their specialized administrative commercial. or religious functions

were growing into towns and cities. Here they were able to make a living as workers and artisans. exchanging their labor or their wares for part of the economic surplus exacted from village farmers by the ruling class and spent by members of that class to raise their standard of living.

The process of political evolution which I have outlined for the coastal valleys of Peru was, in its essential features, by no means unique to this region. Areas of circumscribed agricultural land elsewhere in the world, such as the Valley of Mexico. Mesopotamia, the Nile Valley, and the Indus Valley. saw the process occur in much the same way and for essentially the same reasons. In these areas: too, autonomous neolithic villages were succeeded by chiefdoms, chiefdoms by kingdoms? and kingdoms by empires. The last stage of this development was, of course, the most impressive. The scale and magnificence attained' by the early empires overshadowed everything that had gone before. But. in a sense. empires were merely the logical culmination of the process. The really fundamental step, the one that had triggered the entire train of events that led to empires, was the change from village autonomy to supravillage integration. This step was a change in kind: everything that followed was, in a way. only a change in degree..

In addition to being pivotal. the step to supracommunity aggregation was difficult. for it took 2 million years to achieve. But. once it was achieved, once village autonomy was transcended. only two or three millennia were required for the rise of great empires and the flourishing of complex civilizations.

Resource Concentration

Theories are first formulated on the basis of a limited number of facts. Eventually. though. a theory must confront all of the facts. And often new facts are stubborn and do not conform to the theory. or do not conform very well. What distinguishes a successful theory from an unsuccessful one is

that it can be modified or elaborated to accommodate the entire range of facts. Let us see how well the "circumscription theory" holds up when it is brought face-to-face with certain facts that appear to be exceptions.

For the first test let us return to Amazonia. Early voyagers down the Amazon left written testimony of a culture along that river higher than the culture I have described for Amazonia generally. In the 1500's, the native population living on the banks of the Amazon was relatively dense, villages were fairly large and close together. and some degree of social stratification existed. Moreover, here and there a paramount chief held sway over many communities.

The question immediately arises: with unbroken stretches of arable land extending back from the Amazon for hundreds of miles. why were there chiefdoms here?

To answer the question we must look closely at the environmental conditions afforded by the Amazon. Along the margins of the river itself. and on islands within it. there is a type of land called *várzea.* The river floods this land every year. covering it with a layer of fertile silt. Because of this annual replenishment, *várzea* is agricultural land of first quality which can be cultivated year after year without ever having to lie fallow. Thus, among native farmers it was highly priced and greatly coveted. The waters of the Amazon were also extraordinarily bountiful, providing fish, manatees, turtles and turtle eggs, caimans, and other riverine foods in inexhaustible amounts. By virtue of this concentration of resources, the Amazon, as a habitat, was distinctly superior to its hinterlands.

Concentration of resources along the Amazon amounted almost to a kind of circumscription. While there was no sharp [illegible] productive and unproductive land, as there [illegible] was at least a steep ecological gradient. So [illegible]warding was the Amazon River than adjacent [illegible] did it become as a habitat, that people [illegible] it from surrounding regions. Eventually [illegible] along many portions of the river, leading [illegible] of river front. And the losers in war,

in order to retain access to the river, often had no choice but to submit to the victors. By this subordination of villages to a paramount chief there arose along the Amazon cl-iefdoms representing a higher step in political evolution tnan had occurred elsewhere in the basin (24).

The notion of resource concentration also helps to explain the surprising degree of political development apparently attained by peoples of the Peruvian coast while they were still depending primarily on fishing for subsistence, and only secondarily on agriculture (18). Of this seeming anomaly Lanning has written: "To the best of my knowledge, this is the only case in which so many of the characteristics of civilization have been found without a basically agricultural economic foundation" (25).

Armed with the concept of resource concentration, however, we can show that this development was not so anomalous after all. The explanation, it seems to me, runs as follows. Along the coast of Peru wild food sources occurred in considerable number and variety. However, they were restricted to a very narrow margin of land (26). Accordingly. while the *abundance* of food in this zone led to a sharp rise in population. the *restrictedness* of this food soon resulted in the almost complete occupation of exploitable areas. And when pressure on the available resources reached a critical level, competition over land ensued. The result of this competition was to bet in motion the sequence of events of political evolution that 1 have described.

Thus, it seems that we can safely add resource concentration to environmental circumscription as a factor leading to warfare over land, and thus to political integration beyond the village level

Social Circumscription

But there is still another factor to be considered in accounting for the rise of the state

In dealing with the theory of environmental circumscription while discussing the Yanomamo Indians of Venezuela,

Napoleon A. Chagnon (27) has introduced the concept of "social circumscription." By this he means that a high density of population in an area can produce effects on peoples living near the center of the area that are similar to effects produced by environmental circumscription. This notion seems to me to be an important addition to our theory. Let us see how, according to Chagnon, social circumscription has operated among the Yanomamö.

The Yanomamo, who number some 10,000, live in an extensive region of noncircumscribed rain forest, away from any large river. One might expect that Yanomamö villages would thus be more or less evenly spaced. However, Chagnon notes that, at the center of Yanomamd territory, villages are closer together than they are at the periphery. Because of this, they tend to impinge on one another more, with the result that warfare is more frequent and intense in the center than in peripheral areas. Moreover, it is more difficult for villages in the nuclear area to escape attack by moving away, since, unlike villages on the periphery, their ability to move is somewhat restricted.

The net result is that villages in the central area of Yanomamo territory are larger than villages in the bther areas. since large village size is an advantage for both attack and defense. A further effect of more intense warfare in the nuclear area is that village headmen are stronger in that area. Yanomamö headmen are also the war leaders. and their influence increases in proportion to their village's participation in war. In addition, offensivand defensive alliances between villages are more common in the center of Yanomamo territory than in outlying areas. Thus, while still at the autonomous village level of political organization. those Yanomamö subject to social circumscription nave clearly moved a step or two in the direction of higher political development.

Although the Yanomamo manifest social circumscription only to a modest degree, this amount of it has been enough to make a difference in their level of political organization. What the effects of social circumscription would be in stron-

where it was more fully expressed should, therefore, be clear. First would come a reduction in the size of the territory of each village. Then, as population pressure became more severe, warfare over land would ensue. But because adjacent land for miles around was already the property of other villages, a defeated village would have nowhere to flee. From this point on, the consequences of warfare for that village, and for political evolution in general, would be essentially as I have described them for the situation of environmental circumscription.

To return to Amazonia, it is clear that, if social circumscription is operative among the Yanomamo today, it was certainly operative among the tribes of the Amazon River 400 years ago. And its effect would undoubtedly have been to give a further spur to political evolution in that region.

We see then that, even in the absence of sharp environmental circumscription, the factors of resource concentration and social circumscription may, by intensifying war and redirecting it toward the taking of land, give a strong impetus to political development.

With these auxiliary hypotheses incorporated into it. the circumscription theory is row better able to confront the entire range of test cases that can be brought before it. For example, it can now account for the rise of the state in the Hwang Valley of northern China. and even in the Petén region of the Maya lowlands, areas not characterized by strictly circumscribed agricultural land. In the case of the Hwang Valley, there is no question that resource concentration and social circumscription were present and active forces. In the lowland Maya area, resource concentration seems not to have been a major factor. but social circumscription may well have been.

Some archeologists may object that population density in the Petén during Formative times was too low to give rise to social circumscription. But, in assessing what constitutes a population dense enough to produce this effect, we must consider not so much the total land area occupied as the amount of land needed to support the existing population

And the size of this supporting area depends not only on the size of the population but also on the mode of subsistence. The shifting cultivation presumably practiced by the ancient Maya (28) required considerably more land. per capita, than did the permanent field cultivation of, say, the valley of Mexico or the coast of Peru (29). Consequently, insofar as its effects are concerned, a relatively low population density in the Petén may have been equivalent to a much higher one in Mexico or Peru.

We have already learned from the Yanomamo example that social circumscription may begin to operate while population is still relatively sparse. And we can be sure that the Petén was far more densely peopled in Formative times than Yanomamo territory is today. Thus, population density among the lowland Maya, while giving a superficial appearance of sparseness, may actually have been high enough to provoke fighting over land, and thus provide the initial impetus for the formation of a state.

Conclusion

In summary, then, the circumscription theory in its elaborated form goes far toward accounting for the origin of the state, It explains why states arose where they did, and why they failed to arise elsewhere. It shows the state to be a predictable response to certain specific cultural. demographic, and ecological conditions. Thus, it helps to elucidate what was undoubtedly the most important single step ever taken in the political evolution of mankind.

NOTES

1. R. L. Carneiro. in The *Evolution of Horticultural Systems* in *Native South America: Causes and Consequences: A Symposium*, J. Wilbert, Ed., *Antropológica (Venezuela)*, Suppl. 2 (1961), pp. 47-67, see especially pp. 59-64.
2. For example, the early American sociologist Lester F. Ward saw the state as "the result of an extraordinary exercise of the rational faculty" which seemed to him so exceptional that "it must have been the emanation of a single brain or a few concerting minds." [*Dynamic Sociology*] (Appleton, New York, 1883). vol. 2, p. 224].
3. See. for example, V. G. Childe, *Man Makes Himself* (Watts, London, 1936) pp. *82-83; Town Planning Rev.* 21, 3 (1950), p. b
4. I have in my files recorded instances of surplus food production by such Amazonian tribes as the Tupinambá, Jevero, Mundurucú, Tucano, Desana, Cubeo, and Canela. An exhaustive search of the ethnographic literature for this region would undoubtedly reveal many more examples.
5. Wittfogel states: "These patterns [of organization and social control – that is, the state] come into being when an experimenting community of farmers or protofarmers finds large sources of moisture in a dry but potentially fertile area. a number of farmers eager to conquer [agriculturally, not militarily] arid lowlands and plains are forced tc invoke the organizational devices which – on the basis of premachine technology – offer the *one* chance of success: they must work in cooperation with their fellows and subordinate themselves to a directing authority." [*Oriental Despotism* Yale Univ. Press, New Haven, Conn., 1957), p. 18].
6. For Mesopotamia, Robert M. Adams has concluded: "In short, there is nothing to suggest that the rise of dynastic authority in southern Mesopotamia was linked to the administrative requirements of a major canal system." [in *City Invincible, C.* H. Kraeling and R. M. Adams, Eds. (Univ. of Chicago Press, Chicago, 1960). p. 281]. For China, the prototypical area for Wittfogel's hydraulic theories, the French Sinologist Jacques Gernet has recently written: "although the establishment of a system of regulation of water courses and irrigation, and the control of this system. may have affected the political constitution of the military states and imperial China. the fact remains that, historically, it was the pre-existing state structures and the large, well-trained labour force provided by the armies that made the great irrigation projects possible " [*Ancient China, from the Beginnings to the Empire*. R. Rudorff, Transl. (Faber and Faber. London. 1968). p. 92]. For Mexico. large-scale irrigation systems do not appear to antedate the Classic period, whereas it is clear that the first states arose in the preceding Formative or Pre-Classic period.
7. This is *not* to say, of course, that large-scale irrigation. where it occurred. did not contribute significantly to increasing the power and scope of the state. It unquestionably did. To the extent that Wittfogel limits himself to this contention. I have no quarrel with him whatever. However, the point at issue is not how the state increased its power but how it arose in the first place. And to this issue the hydraulic hypothesis does not appear to hold the key.
8. See *The Evolution of Society. Selections from Herbert Spencer's Principles of Sociology*. R. L. Carneiro, Ed. (Univ. of Chicago Press. Chicago. 1967). pp. 32-47. 63-96. 153-165.
9. L. Gumplowicz. *Der Rassenkampf* (Wagner. Innsbruck. 1883).
10. G. Ratzenhofer. *Wesen und Zweck der Politik* (Brockhaus. Leipsig. 1893).
11. F. Oppenheimer. *The State*. J. M. Gitterman. Trans. (Vanguard. New York. 1926).
12. E. Jenks. *A History of Politics* (Macmillan. New York. 19[illegible]. p. 73

13. J. Vansina, *Kingdoms of the Savanna* (Univ. of Wisconsin Press, Madison, 1966).
14. For example, Julian H. Steward wrote: "It is possible, therefore. that the Maya were able to develop a high civilization only because they enjoyed an unusually long period of peace; for their settlement pattern would seem to have been too vulnerable to warfare." (Amer. *Anthropol.* 5 1, 1 (1949), see p. 17].
15. D. E. Puleston and D. W. Callender, *Expedition 9* No. 3, 40 (1967), see pp. 45, 47.
16. M. D. Coe, *The Maya* (Praeger, New York, 1966), p. 147.
17. See R. L. Carneiro, in *Men and Cultures, Selected Papers of the Fifth International Congress of Anthropological and Ethnological Sciences,* A. F. C. Wallace, Ed. (Univ. of Pennsylvania Press, Philadelphia, 1960). pp. 229-234.
18. In early agricultural times (Preceramic Period VI, beginning about 2500 B.C.) human settlement seems to have been denser along the coast than in the river vallevs, and subsistence appears to have been based more on fishing than on farm&. Furthermore, some significant first steps in political evolution beyond autonomous villages may have been taken at this stage. However, once subsistence began to be based predominantly on agriculture, the settlement pattern changed, and communities were thenceforth concentrated more in the river valleys, where the only land of any size suitable for cultivation was located. See E. P. Lanning, *Peru Before the Incas* (Prentice-Hall. Engleuood Cliffs, N.J., 1967), pp. 57-59.
13. In my files I find reported instances of village splitting among the following Amazonian tribes: Kuikuru, Amarakaeri. Cubeo. Urubú, Tupari, Yanomamo, Tucano, Tenetehara, Canela, and Northern Cayapó Under the conditions of easy resettlement found in Amazonia, splitting often takes place at a village population level of less than 100, and village size seldom exceeds 200. In coastal Peru, however, where land was severely restricted, villages could not fission so readily, and thus grew to population levels which, according to Lanning [*Peru Before the Incas* (Prentice-Hall, Englewood Cliffs, N.J., 1967). p. 64], may have averaged over 300.
20. See R. L. Carneiro, *Ethnograph.-archäol. Forschungen 4, 22* (1958).
21. Natural:!, this evolution took place in the various Peruvian valleys a: *different rates* and to *different degrees*. In fact it is possible that at the same time that some valleys were already unified politically, others still had not evolved beyond the stage of autonomous villages.
22. Not every step in empire building was necessarily taken through actual physical conquest. however. The threat of force sometimes had the same effect as its exercise. In this way many smaller chiefdoms and states were probably coerced into giving up their sovereignty without having to be defeated on the field of battle. Indeed. it was an explicit policy of the Incas. in expanding their empire, to try persuasion before resorting to force of arms. See Garcilaso de la Vega. *Royal Commentaries of the Incas and General History of Peru.* Part I. H. V. Livermore, Transl. (Univ of Texas Press. Austin, 1966), pp. 108, 111, 140, 143, 146, 264.
23 The evolution of empire in Peru was thus by no means rectilineal or irreversible. Advance alternated with decline. Integration was sometimes followed by disintegration, with states fragmenting back to chiefdoms and perhaps even to autonomous villages But the forces underlying political development were strong and, in the end. prevailed Thus, despite fluctuations and reversions the course of evolution in Peru was unmistakable it began with many small simple scattered and autonomous communities and ended with a single vast complex, and centralized empire

24. Actually, a similar political development did take place in another part of Amazonia ~ the basin of the Mamore River in the Mojos plain of Bolivia. Here, too, resource concentration appears to have played a key role See W. Denevan, "The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia," *Ibero-americana No. 45* (1966), pp. 43-50, 104-105, 108-110. In native North America north of Mexico the highest cultural development attained, Middle-Mississippi, also occurred along a major river (the Mississippi) which, by providing especially fertile soil and riverine food resources, comprised a zone of resource concentration. See J. B. Griffin, *Science* 156, 175 (1967), p. 189.
25. E. P. Lanning, *Peru Before rhe Incas* (Prentice-Hall, Englewood Cliffs, N.J., 1967), p. 59.
26. Resource concentration, then, was here combined with environmental circumscription. And. indeed, the same thing can be said of the great desert river valleys, such as the Nile, Tigris-Euphrates, and Indus.
21. N. A. Chagnon, *Proceedings, VIIIth International Congress of Anthropological and Ethnological Sciences* (Tokyo and Kyoto, 1968), vol. 3 (*Ethnology and Archaeology*), p. 249 (especially p. 251). See also N. Fock, *Folk* 6, 47 (1964), p. 52.
28. S. G. Morley and G. W. Brainerd, *Thr Ancient Maya* (Stanford Univ. Press, Stanford. Calif.. ed. 3. 1956). pp. 128-129.
29. One can assume. I think, that any substantial increase in population density among the May a was accompanied by a certain intensification of agriculture. As the population increased fields were probably weeded more thoroughly, and they may well have been cultivated a year or two longer and fallowed a few years less. Yet, given the nature of soils in *the* humid tropics, the absence of any evidence of fertilization, and the moderate population densities, it seems likely that Maya farming remained extensive rather than becoming intensive.