

U3A

HISTORY OF POLITICAL POWER SERIES

COURSE 2

IN THE BEGINNING

Don Fenton

October, 2017

In The Beginning

This course will attempt an overview of human development from the origins of modern humans to the establishment of the first cities. It will draw on a variety of disciplines to look at the ecological, economic, social, and political forces that combined to make us the dominant animal on the planet.

Course-notes are available for downloading from the U3A website, or from the office at a minimal charge, and should preferably be read before the course begins.

Reading List

There is a plethora of books and articles on human evolution and the early development of human society available in the public library system. These are of very uneven quality, and as research in this area is proceeding apace, many are well out of date. On the other hand, the “latest” publications are often a bit premature in their conclusions, and so need to be approached very critically. Try to avoid anything published more than ten years ago, unless nothing of substance has been published since on that particular topic. The internet is a good source of information (try *Google Scholar*) from reputable university sites, as well as for finding the latest publications on a topic (which you can then ask your library to order). Forget newspapers, they are unreliable, but some on-line sites such as *PLos* and *The Conversation* (in the independent Australian, US, Global, Canadian, French, Indonesian and the UK versions) are generally sound and at the cutting-edge of developments. Magazines, such as *New Scientist*, *Current World Archaeology*, and *Scientific American*, often have interesting and reliable articles.

Human Evolution and Early Development:

Stringer, Chris, *The Origin of Our Species*, 2012

Shreeve, J., *The Neanderthal Enigma*, 1995.

Pitts, M., & Roberts, M., *Fairweather Eden*, 1997.

Foley, R., *Humans Before Humanity*, 1997.

Palmer, D., *Neanderthal*, 2000.

Sykes, B., *The Seven Daughters of Eve*, 2001.

Mallory, J.P., *The Tarim Mummies: Ancient China and the Mystery of the Earliest Peoples From the West*, Thames & Hudson, London, 2000.

Barber, E.W., *The Mummies of Ürümchi*, London, MacMillan, 1999.

Papagianni, D., & Morse, M.A., *The Neanderthals Rediscovered*, Thames & Hudson, London, 2013

Websites: <http://www.therocksremain.org>

<http://johnhawks.net/>

<https://theconversation.com/how-our-species-got-smarter-through-a-rush-of-blood-to-the-head-73856>

INTRODUCTION

This series of courses will trace the development of Western political power from the Stone Ages up to the present day. Over the next few weeks we will be attempting to gain an overview of human development from the origins of modern humans to the establishment of the first cities. In this introduction, I am going to discuss some theoretical perspectives. The following week the origin, dispersion, and development of modern humans will be sketched out. The subsequent session we will look at hunter-gatherer society. In the following sessions we will discuss some of the issues involving the domestication of plants and animals and the ways in which it is thought this changed the nature of society and the distribution of power within society and between societies. We will then examine this "Neolithic Revolution" in the context of the first large settlements and the rise of the first cities.

It is important to point out here that each topic that we are going to look at is the subject of a vast library of specialist literature, so that the course is, necessarily, a sketchy overview. For instance, the topics touched on in this introduction alone are subjects of concern to some philosophers, political scientists, psychologists, sociologists, international relations specialists, economists, and historians, whilst the following weeks include much anthropological and archaeological material. Your local public libraries have a number of books for the general reader on each of the topics that we will discuss from the viewpoint of a variety of specialist disciplines (back issues of *Scientific American* are especially useful). Booksellers can obtain more professionally-oriented titles. And don't forget the Internet! Hopefully, this course will provide you with an incentive to read further on these specialist topics. Generally speaking, the ideas and information in books more than ten years old should be regarded as out-of-date unless they are accepted by the current literature, whilst the ideas and information in the most recent work should be regarded with a good deal of critical scepticism until they are generally accepted by professional opinion. The purpose of the course is to provide one framework (out of many possible frameworks) within which the subject matter can be viewed; the aim of the course is not so much to *answer* questions about human development as to *ask* such questions, and to hopefully suggest *probable* answers. Please remember that these notes are *notes*, and cannot substitute for wider reading.

"Theory" is a word that upsets a number of people. But theory is not really so dreadful: "theory" is just a way of telling a story or of attempting to explain the relationships between various data-sets. It is the framework alluded to in the last paragraph. Different theories purport to explain certain facets of the real world. The better a theory seems to fit the realities of phenomena, the better the theory. The more useful a theory is to explain the "real" world, the better the theory. During this course, a number of different theories will be used as tools to make sense of the historical events that we shall be examining, and this introduction will be devoted to looking at some important theoretical perspectives.

Theories are models of the real world: a model is an abstraction from the real world which is designed to highlight certain particular aspects of that world. For example, a street-map does not show the floor-plans of the houses in a given suburb; it does not even show the houses in that suburb; nor does it show the location of water, gas, electricity and telephone lines in that suburb. A *street-map* is a model of a suburb which is designed to show the relationships between *streets*, so that one can find one's way around, and all detail unnecessary to that particular end is left out. Theories are models in just this sense. "Grand theories" attempt to reconcile a variety of models within an inclusive model.

It is also important to know exactly what we mean when we use certain words, as many words are used imprecisely in everyday speech, often leading to confusion of both what is being discussed and of the results of the discussion. This "making certain" that people know what one means when one uses a word is called the "definition of terms". I propose to begin by first, looking at some definitions of "power", and then briefly discussing the theory of "power".

Dictionaries are a useful starting point for the definition of terms, but one must always remember that for the professionals in various fields, dictionary definitions are superficial and lacking in precision, because they delineate popular, or general usage, rather than specialist applications. For instance, there is a considerable body of literature on "power". Amongst the various definitions of "power" in *The Shorter Oxford English Dictionary*, are "ability (to do)" and the "capacity (of doing, to do)", also the "(possession of) control or authority over others; dominance". Power can be internal, as when an individual or group of individuals within a community dominates, controls, or has authority over the rest of the individuals in that community. Power can also be external, as when a community in some way dominates, controls, or has authority over another community or

communities. We can distinguish a number of different kinds of power. Social power is informal authority over others. Political power is formal authority over others. Military power is the capacity to dominate others by force of arms. Economic power is control over the supply of goods and control over the distribution of goods; sometimes it can be control over the consumption of goods. Ideological power is dominance over the way people think about certain things. All of these kinds of power can be internal or external. All of these kinds of power are linked and integrated in our daily lives. You will no doubt be able to think of forms of power that I have not mentioned. This is because I have not thought it necessary to complicate this model further.

"Ideology" is a term that needs some "unpacking". An ideology is a value-belief system, which is held in common by a group of people, that is regarded as justifying actions, and which is adhered to regardless of events. An ideology is a theory about how the world functions and, also, how it should function. Ideologies are not often subject to rational debate. In ancient Sumer, for instance, the "country", or culture, embraced a large number of politically-independent "city-states": the inhabitants believed in the same pantheon of gods, although each community held itself to be under the special protection of one particular god who "owned" the city, and the supposed dominance of this god justified making war on other cities. Thus each "city-state" had its own particular ideology, while, at the same time, Sumer, as a whole, had an ideology which distinguished it from the values and beliefs of the other surrounding areas. Religion is a form of ideology. Political ideology is important to this course from a modern point of view as well: the people who have written the books which you will find in your local public library are all ideologically-biased in some way. Despite occasional allegations to the contrary, political theories are also ideologically biased. The most important modern models of political ideologies are Liberalism, Socialism, Conservatism, Democracy, and Marxism. All of these ideologies have a number of variations, and all of these ideologies and their variations have, in addition, a number of feminist perspectives. In the real world, people's actual beliefs are often a mixture of two or more of these models of ideologies. These beliefs, or biases, affect the way in which the scholar tells the story, so that the same information can be interpreted in many different ways.

"Development" is another word that needs examination. We read in our daily newspapers about "developing countries", or "undeveloped countries", or "developed countries". Again referring to *The Shorter Oxford English Dictionary*, we find that "developed" means "mature", or

"economically advanced". In our contemporary world, this rather bigoted term sees the countries of Western Europe, Japan, and the United States, as "developed" and the countries of the so-called "third world" as "developing" or as "undeveloped"; the "second world" lives somewhere in an undefined "in between" area.. We will begin our story with a world wherein economic development has hardly begun, and where "countries", or "states", in the modern sense of these words, do not exist. Over the series of courses, we will trace the process of "development" from hunter-gatherer societies to the modern world.

"State", "country", and "nation" are terms which are often used interchangeably. Yet these words do have rather different meanings. A "country" is a region with distinct characteristics such as the language or institutions of its inhabitants. It may also refer to a region which is, for some reason, perceived to be geographically distinct from surrounding regions. A "nation" is an aggregate of people who are linked by a number of shared characteristics so that they can be identified as a distinct people, especially (but not only) when they occupy the same "country". A "state" is a political organization which forms the supreme government of a region or "country" or group of countries. An "Empire" is a political organization which is perceived to possess the ultimate political authority over a group of states. The communities which we are going to examine in this course do not fit easily into these definitions. The "land", or "country", of Sumer was divided into a number of quite small communities, sometimes referred to as "city-states", each city controlling an area - fairly small - around it, and constantly attempting to enlarge its territory. Subsequent larger units, empires such as those of Akkad, Assyria, Babylon, Egypt, and the Hittites and so on, ruled over territories which often comprised many "countries" and also had indistinct, fluctuating boundaries. In fact, the "nation-states" of modern Europe are historically unusual, with their generally-recognized common language, institutions, and central government, ruling over a defined geographic area with distinct borders: in the pre-modern world only Egypt (sometimes) satisfied all these criteria. In the ancient world, only Egypt can be characterized as a "nation state". And even Egypt had fluctuating borders.

HUMAN EVOLUTION

Modern humans exhibit the least sexual dimorphism by size of any of the upper primates, males being only 3% larger than females within most populations. Although the testicles are proportionally a little small, this factor is not sufficiently pronounced to lead to the conclusion that

human males are polygynous, in the sense that Orang-utans and Gorillas have harems. On the other hand, the penis is proportionately very large - an average length of 6" against 1" in the Orang-utan and Gorilla and 3" in the Chimpanzee - a circumstance that, having no primate parallels, cannot be used as a basis to assume any particular primate norms of sexual behaviour. Males in some populations may possess facial and body hair; baldness on the head commonly accompanies maturity. Females are more different in general appearance from the males than is usual in mammals generally. Subcutaneous fat (unknown in other primates) is present in both sexes, but to a much greater extent in females. Wide hips (which may be partially an evolutionary adaptation to reconcile the demands of parturition with bipedalism), enlarged buttocks, and breasts give the sexually-mature human female an appearance which is startlingly different from the appearance of males. Neither sex looks very like our assumptions about the appearance of our very early ancestors, which probably looked like miniature, upright Bonobos. Beginning about 4.5 million years ago, many hominid species evolved, and our knowledge of their general character, lifeways, and behaviour is necessarily limited. Cultural differences between modern human societies today are sufficiently extreme to serve as a salutary warning against the tendency to identify behaviours of any modern groups with the behaviours of early hominids and humans: modern hunter-gatherers have been developing their cultures for just as long as have the industrial societies.

The period between 2 million and 100,000 years ago in Africa was a time of considerable climatic fluctuation. Continent-wide extreme drought lasting tens-of-years fluctuated with long-lasting wet periods. It is thought that the *Homo erectus* (many scholars now use the term *Homo ergastus* for the African species) populations were many times alternatively isolated, decimated, subjected to genetic drift, and brought back into contact where gene-flow between populations was possible, resulting in a wide range of genetic variation and the evolution of modern humans. Genetic drift followed by genetic mixing over ten-to-hundred-year-or-longer periods forged the modern human species. Some specialists in human evolution have asserted that *erectus* populations throughout Africa and Eurasia evolved into modern humans more-or-less simultaneously, giving us the early-modern distribution of "races", with enough gene-flow between regions to prevent speciation; these specialists support their contentions with reference to skeletal characteristics which they say show gradual evolution from *erectus* to modern humans: this is called the "candelabra theory": this is now a minority view held by very few scholars. Against this view, the

DNA specialists claim that their findings show that modern humans evolved in Africa quite recently, and a small group left Africa and subsequently spread throughout the globe, replacing all *erectus* and *erectus*-derived populations: modern humans outside Africa are claimed to have very close genetic similarities, whilst Africa contains the most genetically diverse human populations. DNA research indicates that modern humans evolved a mere 120,000 years ago or perhaps a little earlier, and continuing research is refining the dates. It is now accepted that, outside Africa, modern humans hybridized to some extent with the Neandertals (probably in Iraq in the early stages of the “out of Africa” movement), and the populations of New Guinea, Australia, and Polynesia also show hybridization with the little-known or understood Denisovan people, known from the Altai Mountains in Siberia/Mongolia; another, unknown, archaic human line is also thought to have contributed to the genetic makeup of modern humans outside Africa. The fragmentary nature of our DNA inheritance from the Neandertals is reported to indicate that they were a different species and that the hybrids were not fully fertile. Amongst the physical marks of the modern human are the presence of a chin, the shape of the cranium, the thickness of the jawbone, and leg bones adapted for a striding walk over long distances. Despite the reconstructions frequently illustrated in texts, we have little idea of the physical appearance of pre-modern hominids: such details as body-hair and the shape and size of purely fleshy body-parts such as buttocks and breasts and genitals are unknown. Some scientists insist that all hominids should be regarded as “human”, especially since the acceptance of the hybridization of modern humans with Denisovans and Neandertals. Some scientists doubt whether the term "human" can be legitimately applied to populations of pre-modern hominids, a proposition which leads back to the perennial question of how to define "human".

The earliest modern human remains have been discovered at the Klasies River Mouth on the very tip of southern Africa and have been dated to between 105,000 and 90,000 B.P. where the people lived from the shoreline and it's hinterland and subsisted on shellfish, seals and eland, but not fish; some of the stone tools are very elegant and quite unique in design. Other finds in Palestine are dated to 100,000 B.P., where the people may possibly have co-existed with Neanderthals and used the same tool-kit. A startling find at Katanda, in north-east Zaire, revealed bone tools and harpoons, otherwise unknown before the full recent glacial period, which are dated to 82,000 B.P.: these tools indicate an increased reliance on fish in the diet at this place. The most recent glacial period began at about this time, an environmental change which lowered temperatures, built glaciers, and

dropped sea-levels on a world-wide scale, a situation which was exacerbated by the eruption of the volcano Toba on Sumatra in 75,000 B.P., that precipitated a world-wide "volcanic winter" which may have lasted for hundreds of years. The DNA specialists infer that modern humans passed through a "genetic bottleneck" at about this time which they assert reduced the modern human population to 10,000 breeding individuals *worldwide*. The slow extinction of the Neandertals may have begun at this time, coincidentally when their expansion had reached its greatest extent.

Current scientific controversy surrounds the question of whether modern humans broke "out of Africa": before or after the eruption of Toba. Howieson's Poort, in South Africa, was the home of fully-modern humans (with chins) who used imported stone to make a range of "upper Palæolithic" tools and may have practiced fire-farming at around 70,000 B.P.: these people harvested both the shoreline and the hinterland. Trends in human adaptation appear to have paid off in evolutionary terms by 60,000 B.P. in Eurasia, when DNA work indicates that substantial population increases were followed by a creative explosion in technology: in the frozen environment, where only small groups could survive within a large given area, and a bad season could mean extinction, co-operative interaction with other groups over a wide geographic area enhanced the survival success of groups. Without the physical cold-adaptations of the Neanderthal, these early-modern peoples responded to the environmental question with social and technological answers, rather than physical evolution. Gene-flow over wide geographic areas would have been promoted by this mobility. Stone for tool-making was carried for hundreds of miles. The world-wide extinction of much of the mega-fauna is also believed to have begun at around this period, and may have been partly a consequence of human activity: generally, the numbers of prey animals control predator numbers, rather than the reverse, except when the prey species is under environmental stress. This adaptability in the face of very marginal cold-climate conditions is in contrast to the Neanderthal's restriction to comparatively "warm" pockets of sheltered places within the frozen environment of ice-age Europe and the restricted range of Neanderthal groups. It is now accepted that the Neanderthal population was in decline as modern humans moved into the erstwhile Neanderthal ranges recent studies, utilizing the latest dating techniques, have shown that most Neanderthal sites had been abandoned before being used by modern humans. Co-operation between groups of modern humans was selective, not universal: the use by one Balkans community of stone which originated 300 miles away when there was perfectly good stone available locally is explained by the suggestion that another - hostile - group controlled the local resource. By 43,000 B.P., the dominant stone-tool

industry is called Aurinacian; it is certain that by this time the shapes, or styles, of things such as tools had become important: such factors transmit important social messages to strangers, such as the group to which the bearer belongs and the status of the bearer within that group. It is hypothesized that by this period language had become increasingly complex, the concept of time had been recognized, and ritual had begun to develop. Falling sea-levels enhanced migratory opportunities, and the earliest certain human occupation of Australia is dated to 33,000 B.P., recently plausibly back-dated to c. 60,000 B.P., much earlier than any definite dates for Western Europe. Sites in Czechoslovakia have revealed an apparent commitment of resources to spiritual matters: kilns were built, and figurines - carefully manufactured so that they would explode on being heated - were baked in them, and this at about 26,000 B.P., 16,000 years before the first known use of pottery for making vessels; the purpose of this, almost certainly ritual, behaviour is conjectural. The European glacial maximum occurred between 25,000 and 18,000 years ago: outside the tropics the European human population was compressed by the fierce cold into southern France and Spain and isolated from the populations of the Central Asian steppes; societies appear to have become more closed, to have turned to more consistently-reliable food-sources such as fish - especially salmon - against large mammals and to have asserted their spiritual life with cave art. It is at this time that humans may have entered the Americas, but recent work suggests possibly much earlier dates, although the firmest dates, at around 14,000 B.P. are much later. The extinction of the mega-fauna and the near-extinction of the larger predators in North America were to follow.

The retreat of the glaciers engendered far-reaching climatic change. Rising sea-levels flooded many erstwhile dry-land areas in the Mediterranean, the North Sea, and at the head of the Persian Gulf, as well as creating the Black Sea c. 10,000 B.C., and the desiccation of the Near East caused widespread deforestation, resulting in the spread of erstwhile forest grasses such as wheat in the now-open country. The proportion of vegetable foods in human diets began to increase, coincidentally with the extinction of much of the mega-fauna of Eurasia and the Americas, and the stage was set for the development of agriculture and the rise of civilization.

HUNTER-GATHERERS

We will now turn to a brief examination of hunter-gatherer society. Again I am model-building here: I am abstracting from the literature about the large number of hunter-gatherer societies known to exist or to have existed in order to achieve some sort of meaningful generalizations.

Hunter-gatherers tend to live in small groups of families (the size of the groups depends on the ecology of their range) which may sometimes break up seasonally into single-families, that come together on a seasonal basis with other, related or supposedly-related, groups. There may also be meetings for the purposes of trade on a seasonal basis between groups that are not considered (by them) to be related. These societies tend to be non-hierarchical, in the sense that they have no fixed formal arrangement for the dominance of any particular individual or group over other individuals or groups. Hierarchical social structures become more apparent with decreasing size of home range. Such dominance as does exist depends on a consensus of status for particular purposes. Elderly people are valued for their experience and wisdom; particular skills - such as tracking, planning hunts, or killing game, or a perceived ability to intercede, or interact, with the spirit-world - are valued attributes of the individual who possesses such skills. People will defer to the judgement of an individual with a particular skill where that person's skill is required and not at other times.

Hunter-gatherer societies have a sexual division of labour: men hunt and women gather. This division is not quite as hard-and-fast as it may appear, as women commonly procure a good deal of animal food in the process of their "gathering", and men will not pass up the chance to acquire vegetable food when they run across it, and some food acquisition may involve a whole community, or even several communities working co-operatively: generally, however, the acquisition of high-protein meat from large animals tends to be a male specialty. A more fundamental sexual division of labour is that men defend the group against dangers to the community, and women ensure the continuity of the group by producing offspring. Men take the main responsibility for the protection of the group from dangerous beasts and hostile humans. Men also tend to specialize in the ceremonial side of the group's life, protecting the group from the actions of maleficent spirits or soliciting the favour of beneficial spirits. This latter responsibility tends to restrict the amount of time that the men actually spend on hunting and commonly results in the women providing the bulk of a community's food. The manufacture of useful items (dwellings, string, clothing, tools, and weapons, etc.) is also subject to a sexual division of labour which varies from culture to culture. Women look after the children, and also prepare the bulk of the food for eating. The equitable sharing of resources, especially food and particularly meat, within the group is a characteristic of hunter-gatherer societies.

The stages of life and personal development are also different for each sex, although this is a factor which is common to most pre-industrial societies. Women look after the children until the male children reach about the age of eight, when the boys tend to hive-off into juvenile gangs and are socialized to "male" activities: the female children tend to stay with the women. Girls are regarded as women when they reach menarche, and are usually "married" about two years later. The age of menarche varies between individuals, and especially between populations living in different regions; diet can be a factor, as the often-poor and unbalanced diet of women in pre-industrial societies causes delays in sexual maturity, and commonly girls "marry" at between seventeen and nineteen years, co-incidentally when they have reached physical maturity. Societies have different rules about incest; the rules are different according to the social perception of relationships. The incest rules of any small-group society inevitably reduce the pool of possible marriage partners for any individual, a factor which often results in great disparities in age between marriage partners. Boys tend to drift to the periphery of the community, and undergo a series of initiations before they can be regarded as fully "men" and can "marry", at, usually, around age thirty. As the mortality-rate for male children up to the age of about eight years is much higher than for female children, and the mortality-rate for active, mature males in the thirty-five-to-fifty-five-year-old age group is also high (from hunting and fighting incidents), and as the years of child-bearing are periods of high mortality for women, there tends to be a heavy gender imbalance at certain ages. This imbalance is, together with the exclusion from breeding of males not considered to be fully "men", amongst the reasons why men commonly have more than one female partner at a time. Environmental factors appear to affect socio-sexual relationships. Roughly 50% of offspring will fail to reach the age of 15, while about 3% of the population will be aged over 60. A group of 100 individuals would probably include about 10 males over the age of 30. Adoption, or group-care, can result in successful child-rearing, even if the mother should die, if appropriate food is available at the time: this may permit expansion of a group's numbers.

There is a strong tendency for a culture (as I will call a set of related or supposedly-related groups characterized by common customs, language, technology, and outlook) to confine its search for food and other raw materials to a home range, as also may the smaller family groups. However, disasters such as famine, drought, floods, or pressure from human aggression, may force a culture to shift its range, which may also be extended if the population should rise after a number of good

seasons. The size of a group's range differs according to the local ecology and according to the manner in which the group exploits its local environment, and is affected by the presence and relative strength of neighbouring groups. In a richly-producing or geographically variable area, a group may normally not have to travel very far to find new resources or to exploit different environments. Indeed, some groups, such as the people from Lepinski Vir on the Danube, had such a stable food source (fish, in this case) that they lived in permanent settlements. Other groups followed the herds of their most bountiful prey animal, and became “nomads”, a term which is also used of peoples whose lifestyles have a very different origin, as we shall see later.

Stone-age cultures are called Palæolithic, the Old Stone Age, the Mesolithic, or Middle Stone Age, and the Neolithic, or New Stone Age. While the Palæolithic refers to ancient hunter-gatherer societies, and the Neolithic refers to the period, beginning about 8,000 to 10,000 B.C., when herding, agriculture and pottery were introduced, "Mesolithic", which also refers to hunter-gatherer groups, is a term of doubtful usefulness, and it is usually only used of European cultures; generally it refers to hunter-gatherer groups which lived in permanent, or semi-permanent, settlements. The lifestyles of modern hunter-gatherer societies, such as the Kalahari Khoi-San (!Kung), the Inuit of the Arctic regions, and the Australian Aborigines, are commonly used, with caution, to reconstruct the probable lifestyles of Palæolithic peoples: it must be stressed that modern hunter-gatherers have been evolving their lifestyles for as long as our own culture has, and that therefore such reconstructions must be treated with great caution.

Generally, hunter-gatherers are healthy and have a sound, well-balanced diet, although archæological studies have shown that some groups have suffered from pathological conditions associated with eating too much of the wrong sort of food (vitamin A poisoning from an excess of raw liver, etc.). United Nations studies have shown that the Kalahari San people have a diet far in excess of the United Nations standard of minimal nutrition: in fact, they eat very well, by world standards. So, how and why did some hunter-gatherer peoples become farmers?

THE TRANSITION TO “FARMING”

Again, it must be emphasized that the following discussion constitutes a theoretical model. The following discussion is a generalization which does not refer to any specific group of humans at any particular time or place. If the following discussion has any value, this value depends upon how well, or ill, the model conforms to the real-world cultures which you will find examined in the specialist literature.

The problem of how some human groups turned to agriculture and farming from the hunter-gatherer way of life is complicated, and has no one simple answer. Food security seems to have been the underlying dominant cause. Some of the factors include (a) the availability of goods (mainly food, at first) that could be stored for long periods, (b) the necessity to stay nearby and guard stored goods, (c) the need to protect growing crops, (d) the need to supervise and protect herds, (e) aggrandizement in interactions within groups and in interactions with other groups, (f) the food security engendered by a stable and long-lasting food-source and (g) general widespread human population growth.

Ecological systems altered as a result of changing climate patterns: the availability of meat as an energy-source lessened as the great herds of large herbivores waned along with the ice-age, and people turned increasingly to dependence on vegetable foods. As the population of a group rose, the presence of other groups, also with rising populations, prevented it from expanding its range, putting pressure on the group to increase the productivity of its territory. Rising human populations drove many prey animals away from inhabited areas. Climate change drove many (especially large) animals to extinction. Changes in subsistence patterns followed, together with intensification of the use of available resources. Our emphasis on understanding the domestication of food-crops tends to obscure the domestication of crops used for other purposes, such as fibres or containers. The term “farming” is probably a little misleading, if the word is taken in its modern context: “gardening” is more evocative of what these ancient peoples were doing.

Our major cereal grains (wheat, barley, rye [rye was found by early farmers growing as a weed in other crops]) are originally forest plants. A change in climate associated with the ending of the last ice-age about 14,000 years ago deforested the mountain slopes of the southern part of the "fertile crescent" (Syria, Lebanon, Israel) in the "Middle East", leaving the grain to spread over quite large

patches of land. The people of the more northern regions of the “Fertile Crescent” (North-East Syria, northern Iraq, and Southern Iran) were more predisposed to harvest legumes. Hunter-gatherers harvested the ripe grains in season, and may often have gathered a sufficient quantity to have a surplus to store. Storage of such food supplies meant that the group would have to remain in the vicinity of the stores, if possible, in order to protect the harvested grain from human and animal robbers. In other parts of the world, intensification of the exploitation of different wild grain and vegetable resources took place: sorghum, various millets, and sesame in sub-Saharan Africa; squash, marsh-elder and sunflower in eastern North America; amaranth, squash, avocado, maize, and sunflower in north-central America; rice in northern Thailand; sugar-cane and Taro in New Guinea.

Wild grains have the characteristic of shedding their seeds easily, but a proportion of the plants have a mutation that causes the stalk to retain the seed. This is an important step in the domestication of grain crops, as the statistical proportion of the grains that clung to the plant-stalks would be higher in the harvested crop that was taken back to the home-site than it would be in a natural distribution. In some parts of the world, the presence of prehistoric habitation sites is indicated by the existence of concentrations of certain wild grains: giant wild rye in North America, for instance.

The next step in the domestication-process for plants results from the untidy habits of early humans: the refuse generated by the group was usually deposited in the general area of the home-site, resulting, over the years, in rich humus favourable to plant growth. Any uneaten grain would have found this rich soil beneficial to growth, given sufficient water and sunlight, and the plants thus generated would have contained a higher proportion of those grains that clung to the stalk than are found in fully-wild populations. Other characteristics would also have been selected by the harvesters of the wild grain, such as larger seeds, the absence of a hull, and the more prolific seed heads. A hunter-gatherer group, in its usual seasonal movement through its home territory, would return to the normal base from which the wild grain would be harvested to find, as the years passed, that the grain growing at the camp-site itself was of better quality than the fully-wild grain growing elsewhere. From this stage, it is only a small step to the deliberate planting of crops, and a further small step to an initial weeding-around of the young plants.

However, while still at the hunter-gatherer stage, the increasing dependence on seed-crops engendered a variety of changes in the material culture, spiritual culture, economics, and politics of human life. New kinds of tools and techniques were developed to more efficiently harvest, store, process, and cook the grain. Natural selection favoured individuals who could best digest the large quantity of grains that had entered the diet, such as celiac-tolerant individuals. Probably fruits (figs are the earliest known domesticated plants) and other vegetable crops also began to grow more profusely, and to become semi-domesticated around camp-sites, adding to the productive base of the group, and also calling forth the production of specialist tools and techniques. Many highly toxic plants are used as food by hunter-gatherers and subsistence farmers, and these require often complex processing. Because vegetable foods grow in more or less fixed localities, the notion of the "ownership" of certain particular trees or areas of land and their resources by particular families or groups became more defined. The spirits of the crops on which the group was becoming increasingly dependent became more significant in the spiritual life of the group; and those individuals who were perceived to be able to influence those spirits gained status. If not earlier, it would have been at this time that the use of fermentation for producing alcoholic beverages was discovered, a powerful spirit indeed: it made the water safer to drink. The various yeasts, moulds, and bacterias used in food and beverage production may be reasonably regarded as domesticated organisms. Pottery, for the storage of goods, was developed about 10,000 BC. In Namibia, hunter-gatherer communities used large pots for the storage of gathered wild grains. The ability to store such a durable resource as grain and its products, and the increasing production of other vegetable foods in the vicinity of certain camp-sites, would lessen the group's need to "gather", increase the time available for other activities, increase the group's need to protect both growing crops and produce, and distort the social and political arrangements of the community in favour of those individuals who were best able to take advantage of the new economic and spiritual organizations. Some physical distortion of human bodies occurred as a result of repetitive-strain injuries; over-reliance on particular foods sometimes caused dietary imbalances. A drop in general community health was a trade-off for more stable food supplies and a reduction in "normal" mortality rates.

The spiritual life of these early peoples was focused on natural phenomena (rain, earthquakes, fertility and drought, etc.), sacred places, important food sources and their predators, and human characteristics (sexuality, courage, fear, etc.). Frequently, this spiritual life was mediated by

shamans. Shamans are charismatic individuals, occasionally born into any community, who possess a wide range of abilities not shared by the general community, and can be of either sex (or both): the shaman can be described as a specialist in the human soul, but, living and working like everyone else, they do not form a caste. Shamans are healers, seers, and visionaries who have mastered death. They are in communication with the world of gods and spirits. They are poets and singers, repositories, and sometimes initiators, of the oral traditions of the group. They are familiar with cosmic as well as spiritual geography. Above all, shamans are technicians of the sacred. The shaman is a magician and a doctor, and escorts the souls of the dead to the spirit world: the shaman is priest, mystic, and poet. In general, the shamanic cosmology is of the "world tree", "chain of creation" type, emphasizing the interdependence of all things.

The domestication of food animals was concomitant, but not necessarily concurrent, with the domestication of plants: at some places, and times, it would have occurred earlier, at others, later. Domestication of animals is thought to have preceded the cultivation of domesticated plants by thousands of years in Western Europe. Dogs, in many cultures a food source, were probably the first animals to become domesticated, when groups were still firmly in the hunter-gatherer stage of development. Dog-like animals, scavenging around human camp-sites, would have both become accustomed to the close proximity of humans, and the association of the flesh of (often otherwise unobtainable) large prey animals with the human presence: it would not have been strange for the superior senses of smell and hearing of dogs to persuade them to lead humans (who may have lost the trail in the hunt for their preferred food) to the quarry. One initial step in the domestication of such promising food sources as sheep, goats, pigs, and cattle, could have been the enclosure of a herd in a "blind valley", a valley with only one entrance and no other escape routes: once the valley-entrance was walled off, there would be no escape for the animals. If a human group should forebear to kill all the animals so trapped, and if the valley was environmentally suitable for the maintenance of a small herd, the initial killing of the more intractable animals would have laid the first stages for domestication. Another scenario is just as probable, and probably happened just as often: animals attracted by the first large-scale human-associated grain, and/or other vegetable food sources, became accustomed to the constant presence of humans and were controlled in the same way as indicated above, or merely herded: in both circumstances, dogs would have been a sometimes ambiguous aid in the herding process.

The initial domestication of animals would also have called forth a variety of tools and techniques for handling the animals and their products. At first, animals were used only for their meat and other products of their carcasses. A “second Neolithic Revolution” took place (c. 5,000 B.C. in Central Asia and the Middle East) when people began to use the products of the living animals: milk, wool, blood (from cattle and horses) and hair, and to utilise them as pack animals and as draught animals. Again, as with plants, natural selection would have favoured individuals who were best able to digest some animal products: lactose tolerance eventually evolved in some human populations where dairy products had become important food-sources. And increased status would also have accrued to those individuals who were best able to apply these new economic circumstances to their own advantage.

The gathering-in to a home base of both plant and animal genetic material, selected from all over the group's territory, led at first to a general widening of the genetic base of the various species, and sometimes to hybridization. This mixing of bloodlines gave the group the opportunity to select from a wide range of preferred characteristics. Perennial crops, such as fruit trees, were extensively modified by the destruction of the poorer-quality plants for fuel or craft use, and the nurturing of the valued individual plants: many fruit-trees, such as mangos, citrus, quinces, pomegranates, apple, pears, plums, peaches, and apricots were anciently domesticated and some (probably most) are hybrids whose wild antecedents are unknown. The distribution and/or domestication of many useful non-food plants (for fibres, drugs, and other purposes) were also very early developments.

Archæology has shown an increasing dependence on vegetable foods from the late Lower Palæolithic, leading eventually to farming becoming a way of life in the early Neolithic. However, the change from hunter-gathering to farming was not always without serious costs. It sometimes happened that overspecialization on a limited range of domesticated food-sources had serious consequences for the health of the group. Dietary deficiencies and disease were often the consequence of narrow specialization on too few food sources. Physical disabilities, such as back problems from grinding grain, were a frequent result of food-processing methods. Close physical proximity with domesticated animals resulted in some diseases jumping the species-gap and becoming transgenetic.

In some areas the domestication of plants and animals may have taken place at the same time. In others, plant-domestication may have co-existed with hunting for many generations. Again, domestication of animals appears to have co-existed with gathering in some areas. Hunting and gathering remained of considerable economic importance to many farming communities until very recent times, even in Europe.

THE FARMER'S LIFE

The social, economic, and political consequences of these changes in life-style were far-reaching. Women, as the predominant gatherers, were probably the originators of agriculture (or was it children at play?), and their already high status as the guardians of the group's reproduction must often have been enhanced by their control of the new techniques. Men, as the predominant hunters, were probably the originators of animal husbandry, (again, or was it children at play, rearing orphaned baby animals?) and their status as warriors and hunters would often have been enhanced by their skills as husbandmen. As aptitudes are unevenly spread around any given population, there followed an uneven distribution of status which often disrupted the traditional norms.

For a hunter-gatherer, possessions are limited to what can be carried, with the occasional exception, such as grinding stones for processing seeds, which are left at one site. Hunter-gatherers rarely have more than a very rudimentary notion of "mine and yours" in regard to 'property' within the group: a man may pick up any weapon that is handy, and take it out to hunt; if successful, a special portion of the kill usually goes to the "owner", and/or the maker, of the weapon. A sedentary lifestyle permits the accumulation of property. Property quickly became, not merely produce, but value-added goods made by individuals or families from the produce: leather, bread, cakes, beverages, yoghurts and cheeses, preserved foods, textiles, clothing, tools and other craft-goods, and so on. The accumulation of wealth presupposes some sort of exchange mechanism; gift-exchange and barter probably existed side by side. "Wealth" was some form of property; coinage (money) was not invented for thousands of years. Some individuals or families would specialise in the production of some particular good or related group of goods. Some individuals or families would produce goods which were more in demand than the productions of other individuals or families, leading to an uneven distribution of wealth. Status tended to become, partly, a function of wealth. And the number of conjugal partners that a person had began to be influenced by the ability

of the person, or the family, to support extra dependents, rather than being a mere function of the kinship system. And “arranged” partnerships with the aim of enhancing the social and/or economic status of the family became a factor in social relationships. But human society was, in economic terms, a distributive and redistributive system, and different cultures evolved different methods for ensuring that any accumulation of property was to the short-to-medium-term benefit of the whole community: commonly, well-off individuals or families would periodically give away their accumulated wealth, thereby gaining status and putting the recipients under an obligation.

The accumulation of property brought forth the need for some means of accounting for the amount of property in the possession of a family, and for keeping track of transfers of property. Knots in pieces of string, notches carved on sticks, pebbles, and small clay tokens are amongst the means of accounting adopted by various groups. Take careful note of this, for here is the origin of writing.

A fairly constant and expandable, usually-dependable, food supply permits population growth: thus, population growth led to the domestication of plants and animals, which provided the resources to fuel further population growth in a positive-feedback system. Instead of traveling in family groups, communities tended to coalesce around places where stable water supplies co-existed with other valued resources within easy walking distance. Places of spiritual significance to the group, analogous to the sacred sites of Aboriginal "dreaming", may also have provided a focus for settlement, where the other conditions apply. A pattern of settlement emerges, where a community lives in permanent homes in the "core area" (or in the case of transhumanescence, two or more seasonal residential sites make up a composite core) and exploits the core territory. Further away is the semi-periphery, which is less-regularly exploited, and which may also be exploited by other groups. Outside this area is the periphery, the home territories of other groups. This pattern can be modelled by imagining a group of circles, the "cores", each surrounded by another circle, the "semi-peripheries", with the semi-peripheries overlapping. Each core is a part of the other cores' periphery. The small size of these subsistence-farming communities needs to be emphasized: settlements may be as small as a single family of up to 25 individuals, but rarely larger than 8 or 10 families totalling 160 individuals; a number of related settlements within a geographical area would form a single community, or culture.

At this point it is reasonable to discuss political organization. The politics in which the group could become involved can loosely be termed "internal politics" and "international relations". Internal politics is about how the community is governed, or governs itself, and how individuals compete for, or are recognized to have, status. "International relations" is about how the community interacts with other communities. "Politics" is about whom, which individuals or groups, makes decisions about how the community will act.

The "international" situation can loosely be divided into three kinds: "neutral", "hostile", and "friendly". "Neutral" groups are those living in noticeable proximity with which there is little interaction, beyond some occasional trading. "Friendly" groups are those that exist in a set of relationships, which may be formal, or informal, or defined by real or imagined blood-relationships, or by trading ties. Hostilities can break out between such groups, but the common relationship is always accepted. "Hostile" groups are those which the group classifies as "the other": defined by a different basic culture and thoughtways or a tradition of continual hostilities, hostile groups are considered prey, not as humans. Note that a group does have a relationship with known hostile groups: even a tradition of enmity is a relationship. Enmity with near neighbours, combined with friendship with more distant (and therefore less threatening) groups, is common.

When population growth above the carrying-capacity of the group's territory causes some members of the group to attempt to establish a new centre in territory used, or even "owned", by another group, usually the semi-periphery, hostilities are more than likely. Settlement of hostilities may be arrived at by negotiation, often involving payment, the exchange of goods, and often by the exchange of young women, or sometimes young men. Serious warfare may result in the annihilation of a hostile group, or at least its males. A reluctance to go to such extremes may give rise to slavery, the use of a defeated enemy as a labour-source; in such a case, the slave is commonly accepted as a group member after a period of socialization. Rules are commonly agreed on, either objectively or subjectively, for the governance of interactions, both peaceful and hostile, between groups that have a common relationship. A perceived departure from any of these accepted rules of intercommunity behaviour is likely to lead to hostilities more violent and vicious than normal warfare, even when the relationship is a traditionally hostile one. The commonest cause of a breakdown in international relations, of warfare, is disputes over the control of resources. Either famine or plenty can create the conditions for disputes over resources: increasing population

due to a run of good seasons may force a group or some of its members into territory claimed by another group, and famine or other disasters may cause a group to shift its range from the home territory (and therefore into someone else's) in order to find the necessities of life.

Internal politics is characterized by competition for status. Status is a function of the perception, by the group as a whole, of the importance of a family or individual in relation to the rest of the group. Since the family was a social and economic unit, the status of the family and that of its individual members was interconnected: a high-status family, in general terms, would confer high status on all its members regardless of their individual abilities, while an exceptionally gifted individual would bring increased status to his or her entire family. There is, therefore, a tendency for status to be hereditary, a tendency which is opposed by a tendency to recognize merit and ridicule egotistical behaviour or incompetence: these opposing tendencies, in an ever-changing environment which calls for different skills to meet particular circumstances, maintain considerable social fluidity and accompanying social tensions. Problems arising from social tensions can split the community, so that a new community is formed, or problems may be resolved by community meetings or by recourse to the advice of the spirit world, as interpreted by the shaman. However, most communities evolve traditional formulas for dealing with recurrent social problems.

A settlement can also be described in terms of core and periphery. At the centre of the settlement, the core, will be the focal-point of the community: a place for public meetings and/or worship, and perhaps a market, or the home of the ruler (if there is one). Adjacent to the centre will be the dwellings of the highest status families, while the lowest status families reside furthest from the core.

THE OVERALL VIEW

As this series of courses progresses, there will be repeated mention of peoples, usually referred to as "nomads", coming into violent conflict with, and often conquering, the existing centres of civilization and students often ask: "where did all these peoples come from?" Take a look at a map of Eurasia. The area under consideration lies from roughly longitude 300 in the west to longitude 1050 in the east, from the north coast of the Black Sea through the mountains of Turkey and Iran, Afghanistan, and the southern edge of the Tibetan massif through the Himalayas to the northern

part of Vietnam. Follow this geographical spread northwards to Siberia. This enormous, and still often-little-explored, area was the powerhouse of civilization, as shall be seen in future courses.

Much of this area is extremely mountainous. The mountains are high, and the valleys correspondingly deep. The land area encompassed by many of these valleys, if opened out flat, is large enough to comprise a fair-sized country. Consider the ecology of these valleys. The environmental spread ranges from relatively warm, even tropical, forest in some places, through deciduous forest to coniferous forest to permanent snow in a single valley. This large range of environments in close proximity provides a wide variety of resources for the exploitation of humans.

South-west China, together with the northern reaches of Vietnam, Laos, Thailand, Burma, Assam, and the south-east edge of Tibet, comprises a very small part of the area under discussion. Yet as late as the beginning of the 20th century, this heavily-valleyed locality was known as "the land of a thousand peoples", with considerable justification. Any given valley was likely to be the home of a distinct culture, with its own language, customs, and even technology.

Magnify this diversity over the whole of the area under discussion. We are unlikely to ever know the total of the huge number of ethnically-distinct peoples who have lived in this section of the globe. In the relatively small area of the Caucasus about 40 distinct languages are spoken *even today*. Cultural distinction was promoted by the low carrying-capacity of much of the land in terms of human population, the difficulty of travel and the lack of frequent communication.

As we have seen, modern humans were present in the Middle East c. 90,000 B.P. By the peak of the last ice-age, we can expect that they were distributed, although very thinly, over much of central, west, and north Eurasia. While Western Europe lay in the grip of glaciation, with humans confined to small pockets of southern France and Spain, the Central Asian steppes, South-East Asia, India, and Australia were home to large numbers of very small groups of hunters. Due to the harsh environmental conditions, each small community needed to range over quite a large land area. Palæontology has shown that the ecology supported assemblages of animals which would not today be expected to share the same environment, an indication that there is much which we do not know about the climate.

It is important here to reiterate the typical size of hunter-gatherer communities. Under the best of environmentally-favourable conditions, a single community is unlikely to number more than 160 individuals, and few localities could support such a large number all together for any significant length of time. Should a run of good seasons result in consequential population growth, the group will fission, split into two or more communities which share the same culture and whose relationship to each other will be remembered for many generations. Normal ecological conditions will ensure that the individual families which make up the community will forage independently for most of the year, the community coming together to exploit major food-sources on a seasonal basis. Regular gatherings of a number of communities also occur seasonally. Such gatherings of people were opportunities to hold ceremonies, exchange goods, re-affirm alliances, and arrange conjugal unions. Much the same arrangements apply to small-group societies of settled "farming" peoples.

It is a little doubtful whether hunter-gatherer liaisons can be called "marriage". Such arrangements were about the equitable sharing of resources, in this case sex and/or reproduction, within each particular culture's perception of the biology of conception. Each woman needed sexual access to at least one male which was formalized to minimize social tensions within a context where adult males were a scarce resource; each male needed sexual access to females within a context where rivalries between males could threaten the solidarity of the male group in its dangerous dealings with the spirit world, the hunt, and warfare: incest taboos further limited a choice which was already narrowed by the small size of communities. An individual's partner was pre-determined by the kinship system. The general shortage of adult males often resulted in men having more than one consort. Some cultures perceived descent as passing through the female line; in these matrilineal cultures a man would commonly join his consort's family, pass from the care of his mother into the care of his woman. Other cultures saw descent as passing through the male line; in these patrilineal cultures a woman would commonly join the man's family, pass from the protection of her father into the protection of her man. A very few cultures accepted the notion of descent through both male and female lines. Occasionally a blood relationship was established between far-flung communities by the transfer of an individual from one group to another. A person entered the community of a foreign people by adoption into their kinship system. Such relationships often had political and economic implications, as the marriage-alliance was also a

political alliance. Traders gained protection by adoption and marriage into the various communities along their trade-routes.

Power-distribution within societies is partly culturally determined. Political power is always in the hands of the male group, despite the occasional prominence of individual women. Ideological power is also predominantly male. Social power is culturally determined, but tends to be in the hands of women, more especially in matrilineal societies where this power may circumscribe the political power of the men. Economic power is also culturally-determined, but tends to be in the hands of men in patrilineal societies and of women in matrilineal societies: there are exceptions in both cases.

As populations rose, communities were forced to find subsistence for more people within ever-more confined territories. The gradual extinction of the large game animals put further pressure on human groups to enlarge their resource-base. Vegetable foods gained an increasing importance. "Property", the "ownership" of particular localities which produced valuable crops or other important resources, entered the human social spectrum, and created "marriage", the formal means by which property is passed from one generation to the next. People produce goods and services, and are therefore economic factors; control over economic factors is a source of direct benefit and power; therefore control over people is an important social, political and economic factor. The forms of family produced by marriage are almost as numerous as cultures, and may have been partially determined by ecological factors. In high, cold, mountainous regions around the world, where community resources are highly circumscribed, polyandry is common: this may take the form of a woman marrying two or more brothers; polyandrous societies are flexible in their conjugal arrangements and may adopt other forms of marriage according to circumstances. In general, polygyny is the human norm, and where a male surplus arises, extra women have to be obtained from outside the group, often through capture: if the group's territory cannot carry the increased population, territorial expansion or emigration may be attempted. By and large, in settled societies, the number of marriage-partners that a person has is dependent on the family's ability to support them, bearing in mind that larger economic groups may often have a heightened efficiency.

Within the context of highly-intensive exploitation of vegetable resources, a wide variety of often-complex means of processing an extensive spectrum of (frequently poisonous) foods were

invented. It has been common to ascribe human progress to the generic "man", or sometimes the specific "man". Over recent years, feminists, mindful of the dominance of women's labour in food-production, have stressed the probability of human progress being ascribable to women, particularly in the sphere of the domestication of plants and the processing of foods. In all probability, however, women were too busy to waste time with flights of invention where long-term, complicated processes were concerned: much of the progress in the domestication of plants, and possibly animals, as well as many of the complex procedures involved in food-processing, can be reasonably ascribed to the efforts of children at play; adults tend to be too conservative to attempt to eat many of the things that children will try.

The technology of domestication, as well as the domesticates themselves, spread unevenly: west to the Mediterranean and Europe, northwards as far as Siberia, and east, through Afghanistan to India. Further species were domesticated in turn. Other technologies were also spread, and new ones invented. A second Neolithic Revolution occurred in Central Asia, when domesticated animals began to be used for products apart from meat, hides, sinews and so forth, and began to supply people with milk, wool, blood, hairs, eggs, and other products which did not necessitate killing the animal.

Some communities continued to follow the wild herds of those animals which were able to adapt to the changed climatic conditions, and eventually the beasts were tamed, if not actually domesticated, by the continued close proximity of humans and the systematic culling of recalcitrant animals: these "nomads" include the reindeer-herding peoples. True domestication of animals, which often took place independently from that of plants, was a consequence of the more or less controlled selective breeding of captive populations of animals. The droving of these domesticated herds in the continual search for pastures resulted in another form of nomadism and, eventually, tremendous pressure on "civilized" cultures.

The domestication of wild grains - rice in the South-West China/Northern Thailand region, and other grains in the mountains of northern Syria, Lebanon and Israel - quickly spread wherever cultivation was possible.

THE FIRST CITIES

Early farmers from the Iranian Highlands spread into the Tigris-Euphrates river system c. 6,000 B.C. and, finding that the rich alluvial soil and abundant wildlife made a satisfactory environment for their lifestyle, rapidly spread evenly over the better parts of the area in households. As the population rose, poorer land was settled and, in time, even quite marginal land was under cultivation. A run of bad seasons brought hardship to the area, dependant as it was on the periodic flooding of the rivers. The marginal cultivations failed, the poorer areas were devastated, and some fighting for scarce resources ensued. The bulk of the population sought assistance from their gods at the sacred sites in the cores of their territories. Some of the people took their herds and drove them out into the wilderness and deserts in search of pasture, without losing their kinship-ties to their still-settled brethren: these became “nomads”, and their way of life still persists.

Temples began to be built on the sacred sites: the earliest date that we have is for the temple at Uruk, made of mud-brick and dated c. 5,000 B.C.; earlier temples were undoubtedly made from reeds. The unpredictable birth of talented and idiosyncratic individuals, who, as shamans, could guide the people in times of stress, was not sufficient to support the spiritual needs of people in need of constant spiritual support through long years of environmental uncertainty, with the consequent economic and social upheavals. Rather than spirits, gods, elemental forces, began to be seen as controlling the cosmos to humanity's good or ill. A professional priesthood emerged, trained in ritual and tradition to maintain the proper worship of the often-angry gods. A formal social hierarchy emerged, with specialist priests, warriors, craftsmen, and farmers. The temples were redistributive centres, taking the people's produce and distributing it around the community.

Technological feedback was also transforming the lives of the people: pottery (the earliest known is from c. 10,000 B.C.) gave rise to the invention of the wheel and, through improvements in kiln-technology, to the development of metallurgy; the Bronze Age began c. 5,000 B.C., independently

in Northern Thailand and Central Europe, and in Central Asia; the technology spread quite rapidly. Another momentous step was the invention of writing.

Sites from central Anatolia in the north to Egypt in the south, and eastwards to Iraq, have yielded small clay tokens which can be dated to as early as 9,000 B.C. Each token stood for a certain quantity of a good, shown by the pattern of marks on its surface. The tokens were a primitive accounting system which could be "filed" by stringing them on a cord or thong like beads. When a token was pressed into wet clay, the impression left was identical to a character of the first known writing. The earliest writing was, therefore, composed of abstract symbols, pictograms came later. Written records, dated to c. 4,000 B.C., were made by impressing the cut end of a reed into a tablet of wet clay, and writing was, originally, for the purpose of keeping accounts. This cuneiform writing system was a syllabary, each sign standing for a syllable. Such a complicated system could only be mastered after long years of study by professional scribes, and ensured that access to written records remained the monopoly of the caste of priests. The language is known as Sumerian, and has no affinity with any other known language.

Irrigation, long practiced by early farmers where conditions were appropriate, was absolutely necessary for the exploitation of the riverine environment. The priests of the settlements which grew up around the temples, the first "cities", controlled the construction and maintenance of the irrigation systems, the distribution of seed, the collection and redistribution of crops, and trade, all through their monopoly of the use of the written word. Timber, stone, and metals were rare in the river systems, and could only be obtained through trade or expeditions into the hinterland. Such trading contacts led to the generation of similar "civilizations" in Egypt and, a little later, the Harappan culture of the Indus river (in modern Pakistan) evolved, to be followed by similar events in China. Little is known about the Harappan culture, as its writing has yet to be deciphered, but it may have been even more regimented than the other cultures. The Egyptians never developed a truly urban culture. The earliest developments which led to civilization in China are still obscure.

Each of the Tigris-Euphrates cities was quite small, forming a core which controlled a small semi-periphery of irrigated and cultivated land: from the temple of a given city, one could see the temples of neighbouring cities. The priests wielded ideological power through their control of religion over the people subject to their rule. The priests wielded economic power through their regulation of the supply and distribution of resources. The priests possessed formal political power over their subjects. Through their control of these other forms of power, the priests wielded military power. The various "city states" were at fairly constant war with each other. The "land" of the Tigris-Euphrates basins was called Sumer, the people, Sumerians, and whilst the Sumerians believed in the same pantheon of gods, each city was "owned" by a particular deity. The temples were the central places of urbanized cores: the land of Sumer was a land of quite small cities, each surrounded by its attendant towns and villages, each ruled by the high priest of the local chief god. Warfare between the cities was endemic - usually over control of the irrigation systems - and warrior-leaders, generally credited with sacred attributes, began to usurp the political power of the priests. In time, these priest-kings gave way to more secular monarchs, but kingship always retained its sacred character.

Each city was, then, a core of power which dominated its immediate surrounds. On a larger scale, the land of Sumer was a core of power, with such lands as Elam and Akkad, as well as the nomadic desert-dwellers, on the semi-periphery. Raw materials, such as metals, stone, and timber, were extracted from the periphery in exchange for manufactured goods. The economic power of Sumer was felt over wide areas.

Trade between the periphery and the core, passing through the semi-periphery, enriched - through tolls, taxes and brigandage - the semi-peripheral peoples with ideas and technologies as well as goods, and eventually Akkad became strong enough to conquer Sumer and incorporate it into the first known empire. This pattern of events re-occurs throughout history.

