

## Structural Dynamics: Forms, Networks, Numbers. (Meyer Fortes in the 1940s)

Keith Hart

University of Pretoria  
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### Introduction

This essay [1] seeks to place Meyer Fortes' approach to the development cycle in domestic groups (Goody 1958) in the context of his work during the 1940s when he produced the two Tallensi monographs (1945a, 1949a) and a major article on Ashanti, 'Time and social structure' (1949b). The main stimulus for this piece is a comment Meyer made to me when I asked him where the idea of the development cycle approach came from. His reply was, "From D'arcy Wentworth Thompson's *On Growth and Form* (1917, second edition 1942, 1116 pages).

I have since found this book to be a stimulating companion to Fortes' ethnographic works of the 1940s and after. Thompson was not impressed with the claims made for Darwinian evolution. He was a classicist, mathematician and zoologist (or morphologist) whose book has been called the best-written work of science in English. He sought to explain how the physical forces organisms were subject to shaped their forms and growth patterns. He was particularly keen to identify mathematical regularities in these processes – science being only science for Thompson (and Kant) when numbers are involved. He used the term 'dynamics' to describe the numbers on which empirical analysis is built; and, as a non-Darwinian, his focus on form was 'structural'.

Fortes received his PhD in psychology from the London School of Economics in 1930 and carried out research on culture-free cross-racial intelligence tests with East End adolescents. He was already going cool on this project when he switched to social anthropology in 1932.

He was associated at this time with Karl Pearson who set up the world's first statistics department at University College London and specialised in biometric studies of a Darwinian kind. Fortes later carried these interests over to his own special brand of structural-functionalism, insisting on rigorous empirical analysis of concrete social forms, quantified if possible, while seeking to identify the principles shaping them as manifested in observable data. The choice of the word Dynamics for his first book on the Tallensi was not casual. For Thompson, dynamics referred to the relationship between general forms and the changing numerical patterns through which they can be observed.

Fortes' engagement with West Africa in the 1940s was not just as a scientist. There was a war on and he was employed as an intelligence officer in the British armed forces. We are fortunate to have access to a detailed and systematic report that he published in *International Affairs* (Fortes 1945b). The style of this piece is far from that of his ethnography, being largely an exercise in political economy; but it serves as a counterpoint to it, revealing a side to his repertoire that his students in the 1960s, like me, certainly didn't see.

Why do I bother excavating this story? Because the Meyer Fortes who is best known today, the author of *Kinship and the Social Order* (1969), for example, took structuralism in an idealist direction. The legacy of the monographs and the *Development Cycle* collection is now largely forgotten, possibly because of their monumental empiricism. Stephen Toulmin (1990) defines a "radical conservative" as someone who is disgusted with the world he lives in and would reform it in the name of a past value. I would reform our discipline according to the value of Meyer Fortes' work at its peak. It is not just the published work, but the man too; and that is why we should know about his wartime experiences and what he thought about its consequences. Incidentally, Lévi-Strauss was a fan of D'Arcy Thompson too, especially for his insight into the geometric shapes produced by nature. But in the beginning, Fortes was a scientist and that is the legacy I want to explore here.

In what follows, I will first sketch Meyer Fortes' reflections on the war in West Africa; then some of the salient features of D'arcy Thompson on growth and form. Next I will consider briefly *The Dynamics of Clanship among the Tallensi*, paying particular attention to Fortes' sense of their society's fragility and fragmentation. *The Web of Kinship among the Tallensi* is a pioneering example of network analysis. "Time and social structure" is in many ways the culmination of this phase, both as a statistical analysis and as a theoretical reflection. I end with the embryonic development cycle approach, drawing on all three ethnographic works. The basic question unites them: how can social forms endure when their raw material is the chaos of human life – the seemingly random events that mark birth, copulation, sickness, injury and death?

### **The consequences of the war**

Meyer Fortes spent almost two years in Nigeria and the Gold Coast between October 1941 and August 1943. In the 1945 *International Affairs* article, he tried to assess the impact of the war on British West Africa. He starts from the situation of the late 1930s, when *laissez faire*

government policies led to a stand-off between indigenous cocoa producers and the foreign trading firms, known as the “cocoa hold up”. Left to its own devices, this situation would have got worse, but Fortes believed that war conditions improved matters. The collapse of Britain’s empire in the Far East meant first that a West African army had to be sent out there and West Africans were expected to make good, through their own production for export, the shortfall of raw materials caused by the loss of territory to the Japanese. West Africa became a staging post for transport to the Near and Far East. From having been an isolated backwater before the war, West Africa had joined the world more actively because of it. Construction, especially of airports, were another stimulus to the internal economy. All of this added up to a net economic gain for the region, even though losses of manpower in the Far East were significant.

Fortes paid most attention to the towns, since these were where modern politics was principally located. The educated townsmen would be strategic in any post-war settlement, he claimed. He examined the changing class structure of urban life, noting that labour unions had expanded in size and influence during the war. The position of African producers had undoubtedly been strengthened and wartime black markets had undermined price controls. He makes much, with good reason, of W. Hancock’s (1940) *Survey of British Commonwealth Affairs, 1918-1939*. Hancock describes a region driven entirely by the mechanics of commerce, referring to the “traders’ frontier” of fluctuating prices typical of the interwar period.

This situation was abolished by the war, says Fortes – by the export and construction booms, but above all by the adoption of interventionist policies by the colonial government which already was assuming a size and control that anticipated the developmental states of the post-war period and marked the ruin of *laissez faire*, something that the author heartily endorsed. The traders’ frontier had been replaced by the technological frontier that marked West Africa’s more complete assimilation in western civilization. Summarized brutally in this way, one could dismiss the article as a species of high end journalism. But I find it truly impressive, especially since its topic and style are so different from Fortes’ anthropological production at this time and indeed from the professor that I knew as a student.

### **On Growth and Form**

The central theme of D’arcy Thompson’s book is that biologists overemphasized evolution as the fundamental determinant of the form and structure of living organisms. He preferred to focus on the role of physical laws and mechanics as determinant forces in natural history. He has been accused by the Darwinians of retaining some elements of vitalism in his own approach (the idea that living organisms are distinguished by some non-physical element), but Thompson advocated structuralism in shaping the forms of species, with natural selection only a secondary factor. He drew on a mass of examples, both organic and inorganic, to show that biological forms and mechanical phenomena were similar, for example the shape of a jellyfish resembles drops of liquid falling into a viscous fluid. In ‘The Comparison of Related Forms,’ he showed, following the work of Albrecht Dürer, that

differences in the forms of related animals could be described by mathematical transformations. The book is largely descriptive: “(it) has little need of preface, for indeed it is ‘all preface’ from beginning to end.”

Thompson rejected the contemporary habit of explaining biological forms by an evolutionary teleology of final cause. Moreover, zoology then made little use of mathematics. He focused on the starting conditions of an organism’s formation which he sought to explain with ordinary physical laws. Thus he shows that an organism’s surface area and volume increase respectively with the square and cube of its length. In a few short equations he shows that the speed of a fish or ship rises with the square root of its length and there is a limit to the size of the tallest tree. He points out that all changes of form are phenomena of growth. He analyses growth curves for our species, noting rapid growth before birth and again in the teens, while adding curves for other animals. There are many spirals in nature; the mathematics is similar, but the biology differs. He compares the strength of bone and wood to materials such as steel and cast iron, likening the femur to the head of a building crane. He similarly compares the cantilevered backbone of a dinosaur to the girder structure of the Forth railway bridge.

Inspired by Dürer and mapping many fish on Cartesian coordinates, Thompson finds some striking and unexpected examples in a great variety of transformations (or deformations). He concludes with the hope that he has persuaded zoologists that mathematics may help them in their studies of form. ‘For the harmony of the world is made manifest in Form and Number, and the heart and soul and all the poetry of Natural Philosophy are embodied in the concept of mathematical beauty’.

### **The Tallensi monographs**

*The Dynamics of Clanship* and *The Web of Kinship* constitute a complementary pair, the first dealing with the political building blocks provided by the lineage system and the second with interpersonal relations between kin on the ground. Fortes (1945a: vii-viii) tells us that he intended to publish the two parts together, but war-time conditions prevented this. The Tallensi were then materially homogeneous in their extreme poverty and socially fragmented. Violence lay permanently close to the surface. Their society was at once stable and precarious. They were perennial victims of slave-raiding armies before colonial rule and quickly took to arms against each other.

The introduction to *Dynamics* insists that the conventional image of a simple stateless society bound together by lineage solidarity obscures the “large number of strands and elements whose interrelations make up a very elaborate pattern” (Fortes 1949a: vii). If D’arcy Thompson had any influence over Fortes’ scientific approach at this stage, it was for his huge range of qualitative examples of forms, meticulously documented, not as a mathematician. “Failing statistical devices, there is no alternative for an anthropologist who wishes to support his general statements with the evidence of observed fact, but adequate descriptive detail” (Ibid: viii). As a result, *Dynamics* is almost unreadable. His narrative is full of names –

of places, clans, lineages, families and persons – and the names are not easy to keep track of. But the author’s refusal to simplify by aggregation lends the book an air of tremendous authenticity. This particularism made the book a goldmine for indigenous readers who emerged after the war. Indeed, when he returned in the early 1960s, one local reader challenged Fortes on the description he gave of his father. Meyer told me: “I could no more have imagined this situation when I wrote the book, Keith, than you could imagine a Tallensi colony on the moon!”

“Nothing could be farther from the way of life of the Tallensi than a rigid regimentation of social behaviour...the segmentary principle operates right through the social system as a dynamic factor” (Ibid: x-xi). “Beneath the overt stability and integration of the social order lie continuous tensions. Indeed the stability of Tale society can only be understood as a product of these tensions, created and maintained by the social processes that resolve them” (Ibid: 9). This is the clearest possible statement of the position developed later by his Oxford colleague, Max Gluckman (1955).

*The Web of Kinship* is far more fully realised as a monograph. In addition to being a remarkably comprehensive fieldwork-based study, its final chapter offers a succinct summary of what became Fortes’ mature approach to kinship. Any author deserves more than sound bites as an illustration of his thinking and prose; so I will quote extensively from the text:

“The truism that facts only acquire meaning for science in the light of an adequate theory is especially relevant to the study of kinship...My chief teachers [Malinowski and Radcliffe-Brown] approached it with working hypotheses founded on the realities of field observation...I am concerned only with kinship in relation to the social structure...with the fundamental principles of Tale kinship relations as they enter into the organization of collective life...[In a homogeneous society like theirs] the common denominators of thought, feeling and action stand out very clearly” (Fortes 1949a: vii-viii).

“All kinship institutions have only two major facets or functions. They serve as a mechanism of organizing social activities and coordinating social relations...and they constitute the primary mould of the individual’s psycho-social development...Much futile controversy has turned on a confusion of these two aspects of social relations” (Ibid: 339).

[Why is kinship just as important] “...in the social organization of peoples with far more highly differentiated social systems than that of the Tallensi? The usual solution puts the emphasis on the facts of sex, procreation and the rearing of offspring... [but this is an] over-simplification. It is like trying to explain human thinking by the anatomy of the brain or modern capitalist economy by the need for food and shelter. Such explanations, which indicate the necessary preconditions of phenomena, short-circuit the real work of science, which is the elucidation of the sufficient causal or functional determinants involved in the observed data of behaviour. They are particularly specious in social science...To study Tale kinship institutions apart from the religious and moral ideas of the natives would be as one-

sided as to leave out the facts of sex and procreation... It is equally impossible to understand Tale religious beliefs and moral norms apart from the context of kinship...Kinship relations are essentially moral relations, binding in their own right. Every social system presupposes such basic moral axioms" (Ibid: 345-346).

The book also pioneered network analysis long before it was recognized as such. Lineage politics was defined and controlled by men, but women, especially mothers, were at the centre of personal networks criss-crossing Tallensi social geography, the same fractured map that featured so strongly in *Dynamics*. If the men, left to their own devices, could launch a conflict at the drop of a hat, the kinship ties sustained by women in a system of exogamous marriage always ensured the existence of interests committed to alliance and conflict avoidance. The ancestor cult expresses this complementary dualism. Thus, when a man establishes a new shrine for his father, he goes to his mother's lineage to learn their recipe for making a shrine, which includes many material and immaterial elements. In future, when he sacrifices, he connects with all the male ancestors in his patriline, but at the same time to another clan through his mother. Here too, Fortes relied mainly on qualitative description, but with some indications of the quantitative analysis that he chose to foreground in a simultaneous study of Ashanti.

#### **Time and social structure in Ashanti**

Fortes (1949b) begins the version of his essay included in a *Festschrift* for Radcliffe-Brown by noting a distinction recently made by the latter between "structure as an actually existing concrete reality (that is, the set of actually existing relations, at a given moment in time, which link together certain human beings)" and "structural form (that is, the general or normal form of a relationship abstracted from the variations of particular instances, though taking account of these variations)". The distinction is associated with "the continuity of social structure through time" particularly in a "relatively stable community". The structural form may change little, but the actual social structure is constantly being renewed and changed with the birth and death of members and their changing relationship with each other. So how is the norm established?

The distinction is wrong, Fortes suggests, because it conflates a number of theoretical issues in a single formula. For example, time is by no means a uniform factor, there being at least three separate functions: duration (sequence), continuity (or discontinuity) and genetic (or growth) processes. Similarly space may be location, ordered arrangement and controlled movement or change. A structure is a distinguishable whole with parts organized in time and space that can be studied. It is not visible in concrete reality. It is discovered by comparison, induction and analysis – *langue* not *parole*. It has constant and variable elements. There are general norms, but much is manifested as magnitude. Social anthropology may in time evolve from qualitative to quantitative analysis. The qualitative aspects of social facts are culture, whereas structure is susceptible to quantitative study. They are complementary ways of studying the same facts. He advocates the use of statistical techniques to study

societies outside Europe and the United States, both stable and changing.

Ashanti domestic organization is his topic. Ashanti is not a stable or homogeneous society and there appears to be no fixed norm of domestic organization. Two townships thirty miles apart make up the case study. The sample size is 1676 persons and involved a team of assistants. Urban contacts are stronger in one than the other. Both produce cocoa. Men and women are household heads. A woman and her children are the indissoluble core. Households are a man and wife or matrilineal or a mixture of the two. Male-headed households may be patrilocal (with the father), avunculocal (with the mother's brother) or a mixture of the two; female-headed households are either matrilineal (with the mother) or matrilineal (with a corporate kin group whose members are related through women only). Fortes deploys "elementary statistical analysis" of a very rudimentary kind, perhaps in order not to scare off the anthropologists. He concludes with some remarks on form and structure.

On a continuum from patrilocal to avunculocal, one town is in the middle and the other towards the patrilocal end. The time factor consists of wives and children. Domestic organization changes in ways analogous to growth. Since the rule of matrilineal descent and recognition of paternity in law are absolute, the gender of the household head is crucial. Discrete types or forms of domestic organization may be seen to be the differential effects of identical principles in varying local social contexts. Structure is an arrangement of parts brought about through the operation over time of principles of social organization with general validity in a particular society.

#### **Towards the development cycle in domestic groups redux**

To my mind, *The Development Cycle in the Domestic Groups* (1958) deserves resurrection as an anthropological paradigm. It is much more than an approach to kinship; or rather the vision of kinship it expresses is at once both political and domestic. Following the binary logic of his two Tallensi monographs, Fortes insisted that society was built on durable institutional foundations of a collective sort. Its action on its members was political, epitomized by the idea of citizenship in modern nations. But, in a reversal of *Dynamics* and *Web*, the chaos is located not at the political level, but in the stuff of human life, in an endless series of accidents surrounding birth, copulation, sickness, injury and death. He wanted to know how anything with a pretension to stability could cope with this interminable flux.

In its present form, this approach recapitulated Durkheim's (1912) question, in *The Elementary Forms of Religious Life*, concerning how society injects some measure of stability into everyday life. His answer there was through religion's twin mainstays of ritual and belief, with the much quoted "effervescence" of participation in ritual as the actual glue. Durkheim's source was Kant whose notion of the aesthetic was that "common sense", as both shared ideas and physical sensations, enabled people to internalise collective sentiments at a deep level. Meyer Fortes looked for something similar in the regularities of the life career and especially in rituals of transition like marriage, initiation and burial. The *Web* and "Time and social structure" both anticipate this move, especially the latter with its concept of social

structure as the differential effects of general ideas on people's movements in time and space, to be discerned principally through statistical analysis.

In my own fieldwork long ago, I came to see society as a translocal phenomenon bridging rural and urban areas in post-independence Ghana. I realised that it was impossible for most Tallensi (Frafra) to rely exclusively on either city or countryside for their needs at different times in the life cycle – to get a wife, to school the kids, to cope with illness and unemployment, to bury a close kinsman. Hence the extraordinary attention given by migrants to marriages and funerals. I have long believed that Fortes' inspiration was hobbled by the restricted vision of modern politics he relied on; and this means that how we think about kinship is likewise hobbled.

Heonik Kwon (2010), who organized the conference to which this paper was initially presented, has made a long-term bet as an anthropologist that the classical trinity of British social anthropology – kinship, politics and religion – could find new life through the study of Asian societies who suffered mass death during the Cold War. My own recapitulation of this idea has been more sporadic. What if we consider the collective quest for “the disappeared” in places like Argentina and Cyprus as a form of kinship in societies ravaged by civil war and state brutality? How would Fortes' paradigm have to be adjusted to meet such cases?

I needed to find out what Fortes might have garnered from D'arcy Thompson for his work in the 1940s. The results so far are equivocal. Meyer and I share an affinity for numbers which led in my case to a lifetime of engagement with statistics. (I entered the field aiming to develop new applications of non-parametric statistics). Thompson's rejection of evolutionary theory and preference for “structural dynamics” are promising. But at this stage I must register disappointment with the results of this line of inquiry. There were no doubt good reasons why Fortes abandoned a mathematical and scientific approach to social complexity for a more abstract structuralism. Perhaps statistics offered him only illusory gains, as they had in his PhD on intelligence testing which led him to abandon the project. There is something rather sterile and contentious about “Time and social structure” which makes its significance retrospective not prospective. Fortes' own contribution to the *Development Cycle* volume was an introduction where politics is modelled largely on the post-war nation-state, pointing to the generalizations he made in the 1960s that most people now identify as his intellectual legacy. Yet there was something brave, even revolutionary in his 1940s work. If only he had not hidden D'arcy Thompson's influence while building up his discipline as a self-sufficient social science after his own example as a supreme ethnographer turned wise old man.

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[1] Presentation to a conference, "The Legacies of Meyer Fortes", held at Trinity College, Cambridge, 30 June-1 July 2015. Notes towards an unpublished book-length memoir about Fortes, this sketch has not been substantially added to since then. Keith Hart studied the Tallensi and related groups at home and abroad in 1965-68 for a Cambridge University PhD. He lives in Paris and is International Director of the Human Economy Programme, University of Pretoria; email: johnkeithhart@gmail.com; webpage: <http://keith-hart.com>.