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Symbols in African Ritual

Victor W. Turner

No one who has lived for long in rural sub-Saharan Africa can fail to be struck by the importance of ritual in the lives of villagers and homesteaders and by the fact that rituals are composed of symbols.

A ritual is a stereotyped sequence of activities involving gestures, words, and objects, performed in a sequestered place, and designed to influence preternatural entities or forces on behalf of the actors' goals and interests. Rituals may be seasonal, hallowing a culturally defined moment of change in the climatic cycle or the inauguration of an activity such as planting, harvesting, or moving from winter to summer pasture; or they may be contingent, held in response to an individual or collective crisis. Contingent rituals may be further subdivided into life-crisis ceremonies, which are performed at birth, puberty, marriage, death, and so on to demarcate the passage from one phase to another in the individual's life-cycle, and rituals of affliction, which are performed to placate or exorcise preternatural beings or forces believed to have afflicted villagers with illness, bad luck, gynecological troubles, severe physical injuries, and the like. Other classes of rituals include divinatory rituals; ceremonies performed by political authorities to ensure the health and fertility of human beings, animals, and crops in their territories; initiation into priesthoods devoted to certain deities, into religious associations, or into secret societies; and those accompanying the daily offering of food and libations to deities or ancestral spirits or both. Africa is rich indeed in ritual genres, and each involves many specific performances.

Each rural African society (which is often, though not always, coterminous with a linguistic community) possesses a finite number of distinguishable rituals that may include all or some of the types listed above. At varying intervals,

from a year to several decades, all of a society's rituals will be performed, the most important [for example, the symbolic transference of political authority from one generation to another, as among the Nyakyusa (1) of Tanzania] being performed perhaps the least often. Since societies are processes responsive to change, not fixed structures, new rituals are devised or borrowed, and old ones decline and disappear. Nevertheless, forms survive through flux, and new ritual items, even new ritual configurations, tend more often to be variants of old themes than radical novelties. Thus it is possible for anthropologists to describe the main features of a ritual system, or rather ritual round (successive ritual performances), in those parts of rural Africa where change is occurring slowly.

The Semantic Structure of the Symbol

The ritual symbol is "the smallest unit of ritual which still retains the specific properties of ritual behavior . . . the ultimate unit of specific structure in a ritual context" (2, p. 20). This structure is a semantic one (that is, it deals with relationships between signs and symbols and the things to which they refer) and has the following attributes: (i) multiple meanings (significata)—actions or objects perceived by the senses in ritual contexts (that is, symbol vehicles) have many meanings; (ii) unification of apparently disparate significata—the essentially distinct significata are interconnected by analogy or by association in fact or thought; (iii) condensation—many ideas, relations between things, actions, interactions, and transactions are represented simultaneously by the symbol vehicle (the ritual use of such a vehicle abridges what would verbally be a lengthy statement or argument); (iv) polarization of significata—the referents assigned by custom to a major ritual symbol tend frequently to be grouped at opposed se-

mantic poles. At one pole of meaning, empirical research has shown that the significata tend to refer to components of the moral and social orders—this might be termed the ideological (or normative) pole of symbolic meaning; at the other, the sensory (or orrectic) pole, are concentrated references to phenomena and processes that may be expected to stimulate desires and feelings. Thus, I have shown (2, pp. 21–36) that the muddy tree, or milk-tree (*Diplorrhyncus mossambicensis*), which is the focal symbol of the girls' puberty ritual of the Ndembu people of northwestern Zambia, at its normative pole represents womanhood, motherhood, the mother-child bond, a novice undergoing initiation into mature womanhood, a specific matrilineage, the principle of matriliney, the process of learning "women's wisdom," the unity and perdurance of Ndembu society, and all of the values and virtues inherent in the various relationships—domestic, legal, and political—controlled by matrilineal descent. Each of these aspects of its normative meaning becomes paramount in a specific episode of the puberty ritual; together, they form a condensed statement of the structural and communal importance of femaleness in Ndembu culture. At its sensory pole, the same symbol stands for breast milk (the tree exudes milky latex—indeed, the significata associated with the sensory pole often have a more or less direct connection with some sensorily perceptible attribute of the symbol), mother's breasts, and the bodily slenderness and mental pliancy of the novice (a young slender sapling of muddy is used). The tree, situated a short distance from the novice's village, becomes the center of a sequence of ritual episodes rich in symbols (words, objects, and actions) that express important cultural themes.

Ritual Symbols and Cultural Themes

Opler has defined a theme as a part of a limited set of "dynamic affirmations" that "can be identified in every culture" (3, p. 198; 4). In the "nature, expression, and relationship" of themes is to be found the "key to the character, structure, and direction of the specific culture" (3, p. 198). The term "theme" denotes "a postulate or position, declared or implied, and usually controlling behavior or stimulating activity, which is tacitly approved or openly

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promoted in a society" (3, p. 198). Every culture has multiple themes, and most themes have multiple expressions, some of which may be in one or more parts of the institutional culture (5, p. 164). Ritual forms an important setting for the expression of themes, and ritual symbols transmit themes. Themes have multiple expressions, and ritual symbols, such as the *mudyi* tree (and thousands of others in the ethnographic literature of African ritual), have multiple significata (6). The major difference between themes and symbols is that themes are postulates or ideas inferred by an observer from the data of a given culture, while ritual symbols are one class of such data. Ritual symbols are multivocal—that is, each symbol expresses not one theme but many themes simultaneously by the same perceptible object or activity (symbol vehicle). Symbols *have* significata, themes may *be* significata.

Themes, in their capacity as significata (including both conceptions and images), may be disparate or grouped, as we have seen, at opposed semantic poles. Thus the *mudyi* signifies aspects of female bodily imagery (milk, suckling, breasts, girlish slenderness) and conceptions about standards of womanhood and motherhood, as well as the normative ordering of these in relation to group membership, the inheritance of property, and succession to such political offices as chieftainship and village headmanship through matrilineal descent. There are rules of exclusion connected with the *mudyi* in this ritual context—all that is not concerned with the nurtural, procreative, and esthetic aspects of human femaleness and with their cultural control and structuring, is excluded from the semantic field of *mudyi* symbolism. This is a field of themes with varying degrees of concreteness, abstraction, and cognitive and orrectic quality. The impulse that leads advanced cultures to the economical use of signs in mathematics finds its equivalent here in the use of a single symbol vehicle to represent simultaneously a variety of themes, most of which can be shown to be related, logically or pragmatically, but some of which depend for their association on a sensed likeness between variables rather than on cognitive criteria. One is dealing with a "mathematics" of sociocultural experience rather than with a mathematics of logical relationships.

Ritual symbols differ from other modes of thematic expression, particu-

larly from those unformalized modes that arise in spontaneous behavior and allow for individual choice in expression (3, p. 200). Indeed, it might be argued that the more ritualized the expression, the wider the range of themes that may be signified by it. On the other hand, since a ritual symbol may represent disparate, even contradictory themes, the gain in economy may be offset by a loss in clarity of communication. This would be inevitable if such symbols existed in a vacuum, but they exist in cultural and operational contexts that to some extent overcome the loss in intelligibility and to some extent capitalize on it.

Dominant Symbols in Ritual Cycles

Rituals tend to be organized in a cycle of performances (annual, biennial, quinquennial, and so on); even in the case of contingent rituals, each is performed eventually. In each total assemblage, or system, there is a nucleus of dominant symbols, which are characterized by extreme multivocality (having many senses) and a central position in each ritual performance. Associated with this nucleus is a much larger number of enclitic (dependent) symbols. Some of these are univocal, while others, like prepositions in language, become mere relation or function signs that keep the ritual action going (for example, bowings, lustrations, sweepings, and objects indicative of joining or separation). Dominant symbols provide the fixed points of the total system and recur in many of its component rituals. For example, if 15 separate kinds of ritual can be empirically distinguished in a given ritual system, dominant symbol A may be found in 10 of them, B in 7, C in 5, and D in 12. The *mudyi* tree, for example, is found in boys' and girls' initiation ceremonies, in five rituals concerned with female reproductive disorders, in at least three rituals of the hunters' cults, and in various herbalistic practices of a magical cast. Other dominant symbols of Ndembu rituals, as I have shown elsewhere (7), recur almost as frequently in the ritual round. Each of these symbols, then, has multiple referents, but on each occasion that it is used—usually an episode within a ritual performance—only one or a related few of its referents are drawn to public attention. The process of "selectivity" consists in constructing around

the dominant symbol a context of symbolic objects, activities, gestures, social relationships between actors of ritual roles, and verbal behavior (prayers, formulas, chants, songs, recitation of sacred narratives, and so on) that both bracket and underline those of its referents deemed pertinent in the given situation. Thus, only a portion of a dominant symbol's full semantic wealth is deployed in a single kind of ritual or in one of its episodes. The semantic structure of a dominant symbol may be compared with a ratchet wheel, each of whose teeth represents a conception or theme. The ritual context is like a pawl, which engages the notches. The point of engagement represents a meaning that is important in the particular situation. The wheel is the symbol's total meaning, and the complete range is only exposed when the whole cycle of rituals has been performed. Dominant symbols represent sets of fundamental themes. The symbol appears in many rituals, and its meanings are emphasized separately in many episodes. Since the settings in which the themes are ritually presented vary, and since themes are linked in different combinations in each setting, members of the culture who have been exposed to the entire ritual cycle gradually learn, through repetition, variation, and contrast of symbols and themes, what the values, rules, behavioral styles, and cognitive postulates of their culture are. Even more important, they learn in what cultural domains and with what intensity in each domain the themes should apply.

Positional Role of Binary Opposition

The selection of a given theme from a symbol's theme assemblage is a function of positioning—that is, of the manner in which the object or activity assigned symbolic value is placed or arranged vis-à-vis similar objects or activities. One common mode of positioning is binary opposition, the relating of two symbol vehicles whose opposed perceptible qualities or quantities suggest, in terms of the associative rules of the culture, semantic opposition. Thus when a grass hut is made at the Ndembu girls' puberty ceremony for the seclusion of the novice for several months, the two principal laths of the wooden frame are made respectively from *mudyi* and *mukula* (blood tree) wood. Both species are dominant sym-

bols. To the Ndembu, mukula represents the husband whom the girl will marry immediately after the puberty rites, and the mudyi stands for the bride, the novice herself. Yet when mukula is considered as a dominant symbol of the total ritual system, it is found to have a wide range (what has aptly been called a "fan") of significata (8, 9). Its primary and sensory meaning is blood—the Ndembu point to the dusky red gum secreted by the tree from cracks in its bark to justify their interpretation. But some bloods, they say, are masculine and some feminine. The former include blood shed by warriors, hunters, and circumcisers in the call of duty; the latter represents blood shown at menstruation and parturition. Another binary opposition within the semantic field of blood is between running blood and coagulating blood. The latter is good, the former is dangerous. Thus, prolonged menstruation means that a woman's blood is ebbing away uselessly; it should coagulate to form fetus and placenta. But since men are the dangerous sex, the blood they cause to flow in hunting and war may be good—that is, beneficial for their own group.

Mukula symbolism is adroitly manipulated in different rituals to express various aspects of the human condition as the Ndembu experience it. For example, in the *Nkula* ritual, performed to placate the spirit of a dead kinswoman afflicting the female patient with menstrual troubles causing barrenness, mukula and other red symbols are contextually connected with symbols characteristic of the male hunting cults to convey the message: the patient is behaving like a male shedder of blood, not like a female conserver of blood, as she should be. It is her "masculine protest" that the ritual is mainly directed at overcoming and domesticating into the service of her female role (9, pp. 55–88). Mukula means many other things in other contexts, when used in religious ritual or in magical therapy. But the binary opposition of mudyi to mukula restricts the meaning of mudyi to young mature femininity and that of mukula to young mature masculinity, both of which are foundations of a hut, the prototypical domestic unit. The binding together of the laths taken from these trees is said to represent the sexual and the procreative union of the young couple. If these meanings form the sensory pole of the binary opposition as symbol, then the

legitimated union by marriage represents the normative pole. In other words, even the binary opposition does not stand alone; it must be examined in the context of building the novice's seclusion hut and of the symbolic objects comprising the hut and its total meaning. There are, of course, many types of binary opposition. The members of pairs of symbols may be asymmetrical ($A > B$, $A < B$); they may be like or unlike but equal in value; they may be antithetical; one may be thought of as the product or offspring of the other; one may be active, the other passive; and so on. In this way, the Ndembu are induced to consider the nature and function of relationships as well as of the variables being related, for nonverbal symbol systems have the equivalents of grammar, syntax, accidence, and parts of speech.

Sometimes binary opposition may appear between complexes of symbol vehicles, each carrying a system of dominant and secondary symbols. Thus, in the circumcision rites of the Wiko, in Zambia (10), one group of masked dancers may mime opposition to another group; each mask and headpiece is already a combination of multivocal symbols. Yet one team may represent protectiveness and the other, aggressiveness. It is, in fact, not uncommon to find complex symbol vehicles, such as statues or shrines, with simple meanings, while simple vehicles, such as marks drawn in white or red clay, may be highly multivocal in almost every ritual situation in which they are used. A simple vehicle, exhibiting some color, shape, texture, or contrast commonly found in one's experience (such as the whiteness of the mudyi or the redness of the mukula), can literally or metaphorically connect a great range of phenomena and ideas. By contrast, a complex vehicle is already committed, at the level of sensory perception, to a host of contrasts that narrow and specify its message. This is probably why the great religious symbol vehicles such as the cross, the lotus, the crescent moon, the ark, and so on are relatively simple, although their significata constitute whole theological systems and control liturgical and architectural structures of immense complexity. One might almost hypothesize that the more complex the ritual (many symbols, complex vehicles), the more particularistic, localized, and socially structured its message; the simpler the ritual (few symbols, simple vehicles),

the more universalistic its message. Thus, ecumenical liturgiologists today are recommending that Christian ritual be essentially reduced to the blessing, distribution, and partaking of bread and wine, in order to provide most denominations with a common ground.

Actors Experience Symbols as Powers and as Meanings

The second characteristic of ritual condensation, which compensates in some measure for semantic obscurity, is its efficacy. Ritual is not just a concentration of referents, of messages about values and norms; nor is it simply a set of practical guidelines and a set of symbolic paradigms for everyday action, indicating how spouses should treat each other, how pastoralists should classify and regard cattle, how hunters should behave in different wild habitats, and so on. It is also a fusion of the powers believed to be inherent in the persons, objects, relationships, events, and histories represented by ritual symbols. It is a mobilization of energies as well as messages (11). In this respect, the objects and activities in point are not merely things that stand for other things or something abstract, they participate in the powers and virtues they represent. I use "virtue" advisedly, for many objects termed symbols are also termed medicines. Thus, scrapings and leaves from such trees as the mudyi and the mukula are pounded together in meal mortars, mixed with water, and given to the afflicted to drink or to wash with. Here there is direct communication of the life-giving powers thought to inhere in certain objects under ritual conditions (a consecrated site, invocations of preternatural entities, and so on). When an object is used analogously, it functions unambiguously as a symbol. Thus, when the mudyi tree is used in puberty rites it clearly *represents* mother's milk; here the association is through sight, not taste. But when the mudyi is used as medicine in ritual, it is felt that certain qualities of motherhood and nurturing are being communicated physically. In the first case, the mudyi is used because it is "good to think" rather than "good to eat" (12); in the second, it is used because it has maternal power. The same objects are used both as powers and symbols, metonymically and metaphorically—it is the context that distinguishes them.

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The power aspect of a symbol derives from its being a part of a physical whole, the ideational aspect from an analogy between a symbol vehicle and its principal significata.

Each symbol expresses many themes, and each theme is expressed by many symbols. The cultural weave is made up of symbolic warp and thematic weft. This weaving of symbols and themes serves as a rich store of information, not only about the natural environment as perceived and evaluated by the ritual actors, but also about their ethical, esthetic, political, legal, and ludic (the domain of play, sport, and so forth in a culture) ideas, ideals, and rules. Each symbol is a store of information, both for actors and investigators, but in order to specify just which set of themes any particular ritual or ritual episode contains, one must determine the relations between the ritual's symbols and their vehicles, including verbal symbolic behavior. The advantages of communication by means of rituals in nonliterate societies are clearly great, for the individual symbols and the patterned relations between them have a mnemonic function. The symbolic vocabulary and grammar to some extent make up for the lack of written records.

The Semantic Dimensions

Symbols have three especially significant dimensions: the exegetic, the operational, and the positional. The exegetic dimension consists of the explanations given the investigator by actors in the ritual system. Actors of different age, sex, ritual role, status, grade of esoteric knowledge, and so forth provide data of varying richness, explicitness, and internal coherence. The investigator should infer from this information how members of a given society think about ritual. Not all African societies contain persons who are ready to make verbal statements about ritual, and the percentage of those prepared to offer interpretations varies from group to group and within groups. But, as much ethnographic work attests (13), many African societies are well endowed with exegetes.

In the operational dimension, the investigator equates a symbol's meaning with its use—he observes what actors do with it and how they relate to one another in this process. He also records their gestures, expressions, and other nonverbal aspects of behavior and dis-

covers what values they represent—grief, joy, anger, triumph, modesty, and so on. Anthropologists are now studying several genres of nonverbal language, from iconography (the study of symbols whose vehicles picture the conceptions they signify, rather than being arbitrary, conventional signs for them) to kinesics (the study of bodily movements, facial expressions, and so forth as ways of communication or adjuncts and intensifiers of speech). Several of these fall under the rubric of a symbol's operational meaning. Non-exegetic, ritualized speech, such as formalized prayers or invocations, would also fall into this category. Here verbal symbols approximate nonverbal symbols. The investigator is interested not only in the social organization and structure of those individuals who operate with symbols on this level, but also in what persons, categories, and groups are absent from the situation, for formal exclusion would reveal social values and attitudes.

In the positional dimension, the observer finds in the relations between one symbol and other symbols an important source of its meaning. I have shown how binary opposition may, in context, highlight one (or more) of a symbol's many referents by contrasting it with one (or more) of another symbol's referents. When used in a ritual context with three or more other symbols, a particular symbol reveals further facets of its total "meaning." Groups of symbols may be so arrayed as to state a message, in which some symbols function analogously to parts of speech and in which there may be conventional rules of connection. The message is not about specific actions and circumstances, but about the given culture's basic structures of thought, ethics, esthetics, law, and modes of speculation about new experience.

In several African cultures, particularly in West Africa, a complex system of rituals is associated with myths (14). These tell of the origins of the gods, the cosmos, human types and groups, and the key institutions of culture and society. Some ritual episodes reenact primordial events, drawing on their inherent power to achieve the contemporary goals of the members of the culture (for example, adjustment to puberty and the healing of the sick). Ritual systems are sometimes based on myths. There may coexist with myths and rituals standardized schemata of interpretation that may amount to theo-

logical doctrine. But in wide areas of East and Central Africa, there may be few myths connected with rituals and no religious system interrelating myths, rituals, and doctrine. In compensation, there may be much piecemeal exegesis of particular symbols.

Foundations of Meaning

Most African languages have terms for ritual symbol. The Nyakyusa, for example, speak of *ififwani* (likenesses); the Ndembu use *chijikijilu* (a landmark, or blaze), which is derived from *kujikijila* (to blaze a trail or set up a landmark). The first connotes an association, a feeling of likeness between sign and signified, vehicle and concept; the second is a means of connecting known with unknown territory. (The Ndembu compare the ritual symbol to the trail a hunter blazes in order to find his way back from unexplored bush to his village.) Other languages possess similar terms. In societies that do not have myths, the meaning of a symbol is built up by analogy and association of three foundations—nominal, substantial, and artifactual—though in any given instance only one of these might be utilized. The nominal basis is the name of the symbol, an element in an acoustic system; the substantial basis is a symbol's sensorily perceptible physical or chemical properties as recognized by the culture; and its artifactual basis is the technical changing of an object used in ritual by human purposive activity.

For example: At the start of a girl's puberty ritual among the Nyakyusa of Tanzania (15), she is treated with a "medicine" called *undumila*. This medicine is also an elaborate symbol. Its nominal basis is the derivation of the term from *ukulumila*, meaning "to bite, to be painful." The substantial basis is a natural property of the root after which the medicine is named—it is pungent-tasting. As an artifact, the medicine is a composite of several symbolic substances. The total symbol involves action as well as a set of objects. Wilson writes (15, p. 87) that the root "is pushed through the tip of a funnel or cup made of a leaf of the bark-cloth tree, and salt is poured into the cup. The girl takes the tip of the root in her mouth and pulls it inward with her teeth, thus causing the salt to trickle into her mouth." The root and leaf funnel, together with their ritual use,

constitute an artifact. These three bases of significance are substantiated by the Nyakyusa Wilson talked to. One woman told her (15, p. 102): "The pungent root is the penis of the husband, the cup is her vagina, the salt, also pungent, is the semen of her husband. Biting the root and eating the salt is copulation." Another woman confirmed this: "The *undumila* is put through the leaf of a bark-cloth tree, shaped into a cup, and it is a sign of man and woman, the penis in the vagina. It is similar to the plantains which we give her when we wash her. The plantains are a symbol of the husband. If we do not give her . . . the *undumila*, she constantly has periods and is barren." A third informant said: "It is the pain of periods that we symbolize in the sharpness of the *undumila* and salt." Thus *undumila* is at once a symbol of sexual intercourse, a prophylactic against pain in intercourse and against frequent or painful periods, and (according to other accounts) a ritual defense against those who are "heavy"—that is, those actively engaged in sexual intercourse, especially women who have just conceived. If a heavy person steps over the novice's footprints, the novice will not bear a child, but will menstruate continually. These explanations also demonstrate the multivocality and economy of reference of a single dominant symbol. The same symbol vehicles can represent different, even disparate, processes—marital intercourse and menstrual difficulty—although it may be argued that the Nyakyusa, at an unconscious level, regard a woman's "distaste" for intercourse as a cause of her barrenness or menorrhagia.

Symbols and Cosmologies

Similar examples abound in the ethnography of subsaharan Africa, but in the great West African cultures of the Fon, Ashanti, Yoruba, Dahomeyans, and Dogon, piecemeal exegesis gives way to explicit, complex cosmologies. Among the Dogon, for example (16, 17), a symbol becomes a fixed point of linkage between animal, vegetable, and mineral kingdoms, which are themselves regarded as parts of "un gigantesque organisme humaine." The doctrine of correspondences reigns—everything is a symbol of everything else, whether in ritual context or not. Thus the Dogon establish a correspondence between the different categories of minerals and the organs of the

body. The various soils in the area are conceived of as the organs of "the interior of the stomach," rocks are regarded as the bones of the skeleton, and various hues of red clay are likened to the blood. Sometimes these correspondences are remarkably precise: one rock resting on another represents the chest; little white river pebbles stand for the toes of the feet. The same *parole du monde* principles hold true for the relationship between man and the vegetable kingdom. Man is not only the grain of the universe, but each distinct part of a single grain represents part of the human body. In fact, it is only science that has emancipated man from the complex weave of correspondences, based on analogy, metaphor, and mystical participation, and that enables him to regard all relations as problematical, not preordained, until they have been experimentally tested or systematically compared.

The Dogon further conceive of a subtle and finely wrought interplay between speech and the components of personality. The body constitutes a magnet or focus for man's spiritual principles, which nevertheless are capable of sustaining an independent existence. The Dogon contrast visible and invisible ("spiritual") components of the human personality. The body is made up of four elements: water (the blood and bodily fluids), earth (the skeleton), air (breath), and fire (animal warmth). There is a continuous interchange between these internal expressions of the elements and their external aspects. The body has 22 parts: feet, shins, thighs, lumbar region, stomach, chest, arms, neck, and head make up nine parts (it would seem that Dogon reckon double parts, as they do twins, as a unit); the fingers (each counting as a unit), make up ten parts; and the male genitals make up three parts. Further numerical symbolism is involved: there are believed to be eight symbolic grains—representing the principal cereal crops of the region—lodged in the collarbones of each Dogon. These grains represent the mystical bond between man and his crops. The *body* of speech itself is, like the human body, composed of four elements: water is saliva, without which speech is dry; air gives rise to sound vibrations; earth gives speech its weight and significance; and fire gives speech its warmth. There is not only homology between personality and speech, but also a sort of functional interdependence, for words are selected by the

brain, stir up the liver, and rise as steam from the lungs to the clavicles, which decide ultimately whether the speech is to emerge from the mouth.

To the 22 parts of the personality must be added the 48 types of speech, which are divided into two sets of 24. Each set is under the sign of a supernatural being, one of the androgynous twins Nommo and Yourougou. Here I must draw on Griaule and Dieterlen's extensive work on the Dogons' cosmogonic mythology (16). The twins are the creations of Amma. Yourougou rebelled against Amma and had sexual relations with his mother—he was punished by being changed into a pale fox. Nommo saved the world by an act of self-sacrifice, brought humans, animals, and plants to the earth, and became the lord of speech. Nommo's speech is human and can be heard; the Fox's is silent; a sign language made by his paw marks, and only diviners can interpret it. These myths provide a classification and taxonomy of cosmos and society; explain many details of ritual, including the forms and color symbolism of elaborate masks; and, indeed, determine where and how houses are constructed. Other West African cultures have equally elaborate cosmologies, which are manifested in ritual and divinatory symbolism. Their internal consistency and symmetry may be related to traditions of continuous residence and farming in a single habitat, combined with exposure to trans-Saharan cultural elements, including religious beliefs, for thousands of years—ancient Egyptian, Roman, Christian, Neo-Platonic, Gnostic, Islamic. The history of West Africa contrasts with that of Central Africa, where most societies descend from groups that migrated in a relatively short period of time across several distinct ecological habitats and that were then exposed to several centuries of slave raiding and slave trading. Groups were fragmented and then combined with the social detritus of other societies into new, temporary polities. There were conquests, assimilations, reconquests, the rise and fall of "kingdoms of the savannah," and temporary centralization followed by decentralization into localized clans. Swidden (slash-and-burn) agriculture kept people constantly on the move; hunting and pastoralism compounded the mobility. Because of these circumstances, there was less likelihood of complex, integrated religious and cosmological systems arising in Central Africa than in West

Africa. Yet the needs and dangers of social and personal survival provided suitable conditions for the development of rituals as pragmatic instruments (from the standpoint of the actors) for coping with biological change, disease, and natural hazards of all kinds. Social action in response to material pressures was the systematic and systematizing factor. Order, cosmos, came from purpose, not from an elaborate and articulated cosmology. It is an order that accords well with human experience at preindustrial technological levels; even its discrepancies accurately reflect the "facts of life"—in contrast to consistent and harmonious cosmologies whose symbols and myths mask and cloak the basic contradictions between wishes and facts.

The Continuing Efficacy of African Ritual Symbols

Nevertheless, from the comparative viewpoint, there are remarkable similarities among symbols used in ritual throughout sub-Saharan Africa, in spite of differences in cosmological sophistication. The same ideas, analogies, and modes of association underlie symbol formation and manipulation from the Senegal River to the Cape of Good Hope. The same assumptions about

powers prevail in kingdoms and nomadic bands. Whether these assemblages of similar symbols represent units of complex orders or the debris of formerly prevalent ones, the symbols remain extraordinarily viable and the themes they represent and embody tenaciously rooted. This may be because they arose in ecological and social experiences of a kind that still prevails in large areas of the continent. Since they are thus sustained and since there is a continuous flux and reflux of people between country and city, it is not surprising that much of the imagery found in the writings of modern African novelists and in the rhetoric of politicians is drawn from ritual symbolism—from which it derives its power to move and channel emotion.

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NEWS AND COMMENT

Technology Incentives: NSF Gropes for Relevance

A year ago, on 16 March 1972, President Nixon announced in his first technology message a new plum for the National Science Foundation (NSF), an ambitious sounding scheme known as the Experimental R & D Incentives Program or ERDIP. The message directed the NSF, together with the National Bureau of Standards (NBS), to investigate ways in which the government could "improve the climate for technological innovation" through experimenting with alternative policies to achieve this goal.

The incentives programs were heralded as a possible step toward improv-

ing industrial productivity and, ultimately, the trade balance through a more sophisticated tuning of the private R & D establishment. In its own minor way, then, NSF was given a chance to contribute something to White House policy-making on vital national interests—a promise that at present is not being fulfilled.

A year later, however, the NSF has only received and obligated about \$2 million of the \$18.5 million which Congress warmly appropriated for the fiscal 1973 program. The rest has been withheld by the Office of Management and Budget (OMB). A spokesman there

said, "They've made presentations to us and submitted plans which we've been going over with a fine tooth comb. . . . We were disappointed with some previous plans." NBS's share of the program—known as the Experimental Technology Incentives Program—is in the same boat, with most of its funds impounded except for a small allotment for planning purposes.

Impoundment of ERDIP's funds by the OMB is surprising in view of the fact that the program is one of the few tasks that has ever been directly assigned to the NSF by presidential initiative. Although it is hard to assess a program that has produced so little, the first anniversary of its announcement would seem a justifiable time to inquire exactly what had been accomplished so far.

Conversations with the program's staff, with industrial and academic consultants to ERDIP, and with knowledgeable officials in other agencies suggest that ERDIP so far has no clear idea as to how technological innova-