THE KYOTO SCHOOL OF ECOLOGICAL ANTHROPOLOGY: A SOURCE OF AFRICAN AREA STUDIES AT KYOTO UNIVERSITY

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ABSTRACT One important formative element in African Area Studies at Kyoto University is that of ecological anthropology, the focus of which is on the ensemble of intimate interactions between human life and the environment. The Kyoto School, a team of researchers based at Kyoto University who work in ecological anthropology and who are led by Junichiro Itani and Jiro Tanaka, among others, stands out because of its long-term fieldwork conducted in different areas of Africa, as well as in other parts of the world. However, the work of the Kyoto School has often been misunderstood in that its members have not always clearly explained the theories upon which their research was based or elaborated fully the implications of their conclusions. This paper examines the development of the theories of ecological anthropology that have flourished in the Kyoto School and points to areas for future research. The trends that have characterized the works of the Kyoto School to date are classified into the following five categories: evolution of primate sociality; society as a form of adaptation to the environment; ecosystem and human society; environment, cognition, and culture; and subsistence economy and ethics.

Key Words: Hominization; Environmental adaptation; Ecosystem; Ecological knowledge; Action research.

INTRODUCTION

When I started working on my task for this special issue, namely, introducing the distinctive features of African Area Studies at Kyoto University, I found myself surrounded by a wealth of intellectual enterprise and initiative, much of which haven't been fully described yet. Nevertheless, if I were to choose only one feature to highlight, it would surely be the school's ecological anthropological approaches to African Area Studies, which I discuss in the present article.

Soon after World War II, a group of researchers from various parts of the world began to engage in intensive fieldwork on subsistence activities in societies that were deeply involved with their natural environments. The approach of these researchers was holistic, and involved working to understand the lifestyle of the peoples studied using detailed empirical observation. Their work came to be designated as ecological anthropology. The products of this discipline examine the ensemble of intimate interactions between human life and the environment. Although workers in this field differ significantly in their approaches, given that common academic interests are shared and there are networks of mutual influence, we refer to them as forming schools of ecological anthropology.

The Kyoto School, a unique group of researchers led by Junichiro Itani, Jiro

Tanaka, Mitsuo Ichikawa, and Makoto Kakeya, among others, with Kyoto University as its center, is distinctive for its holistic approach to investigating societies, based on grounded long-term fieldwork that usually lasts at least one year and takes place during PhD study. During this period, students are expected to learn the vernacular language and conventions of the fieldwork site and carry out a range of empirical research among the local people to develop a profound and empathetic understanding of local society. Many scholars continue conducting fieldwork in the same field after receiving their PhD. Scholars who have worked in the same field for more than twenty years are not exceptional in this school.

For the historical reasons given below, the field research of the Kyoto School has particularly focused on various areas of Africa. The Laboratory of Human Evolution Studies, which was opened in 1981 within the Graduate School of Science, and the Center for African Area Studies (CAAS), which was established in 1986, have provided institutional bodies to support the work of the Kyoto School. Researchers then explored other areas of the world, including southeast Asia, Oceania, and Australia. This is in stark contrast to the other leading school of ecological anthropology in Japan, the Tokyo School (whose work is largely derived from human ecology), which has sent far fewer scholars to Africa. These schools, which have both contributed greatly to the flourishing of ecological anthropology in Japan, created the Society for Ecological Anthropology, an academic association that held its 23rd annual conference in March 2017.

Although the works of the Kyoto School have received special attention from academia and the public, it is fair to say that they have often been misunderstood. For example, I have heard complaints (often made informally, after a seminar or conference) that researchers in the Kyoto School have contented themselves with avidly collecting quantitative data with little in the way of theoretical vision, and that they have had relatively little engagement with theoretical trends in broader academia. I consider this complaint to be ill-founded, and I believe there are several reasons for this communication breakdown. Many researchers whose work derives from the Kyoto School have not always expressed the theoretical concerns on which their works were based or elaborated the conclusions implicit in their work. Instead, they have been eager to exhibit the detailed information that they have devoted their energy to for so long and have tended to restrict themselves to this alone. *African Study Monograph* (hereafter *ASM*), which is the flagship journal of CAAS and one of the major academic platforms for publishing the ecological anthropological studies of the Kyoto School, has strongly supported the publication of such data since the early days.

This paper provides an understanding of the transitions in the (sometimes implicit) theoretical concerns that have characterized the works of ecological anthropology from the Kyoto School. It also identifies current directions in the field. These trends can be classified into the evolution of primate sociality; society as a form of adaptation to the environment; ecosystem and human society; environment, cognition, and culture; and subsistence economy and ethics. For each trend, I examine several concrete examples, mainly from papers published in *ASM*, which include two series, namely, regular and supplementary issues. For the former, any papers are accepted that are “original, multi-disciplinary, academic

articles in all fields of African studies" < http://jambo.africa.kyoto-u.ac.jp/asm/INFORMATION%20FOR%20CONTRIBUTORS.pdf >, while the latter deals strategically with a specific topic in African Studies proposed by the editors of the volume. All papers that are included in both the regular and supplementary issues are publicly accessible through the journal's website <http://jambo.africa.kyoto-u.ac.jp/asm/index.html>.

EVOLUTION OF PRIMATE SOCIALITY

According to Tanaka (1984), Japanese ecological anthropology was born where four neighboring domains of research intersect, namely, cultural ecology, theories of cultural evolution, human ecology, and primatology. Among others, the large influence of primatology makes the Kyoto School unique.

Junichiro Itani is a founder of the primatology connection. Starting from an ecological and sociological study of Japanese macaques, he conducted a number of research expeditions exploring the social structure of great apes living in Africa. Although his intellectual curiosity spread to almost all living creatures, his academic interest was rooted in the hominization process of primates. This led him to establish CAAS in his later career.

Influenced by the work of Kinji Imanishi (e.g., Imanishi, 1961, 1970), primatology in Japan has described the social structure of primate species, or, put differently, it has conducted a comparative sociology of primate species. Grounded by large amounts of empirical data on the social lives of primate species, Itani developed a theory of the dialectical process of hominization. This theory is summarized in Itani (1986), a paper based on the lecture he gave on the occasion of his receiving the Huxley Memorial Medal in 1984. Itani (1986) argued that all diurnal non-human primates have a basic social unit in their society, whose composition is species specific. There are two main types of the basic social unit, the pair type, a unit composed of a male, a female, and their offspring, and the troop type, a unit composed of a matrilineal genealogical group and one or several adult males. This basic social unit plays an important part in regulating the flow of individuals and acts as a regulator of incest avoidance. The transition of the organizing principle of sociality across primate species can be ordered as follows.

Original equality; the equality seen in societies where only the pair type unit is recognized (e.g., the lemur). Except for the formation of the nuclear family unit, individuals of such species avoid encountering each other.

Transcendental inequality; the inequality seen in societies where the troop-type unit is developed. Individuals of the species form a larger group that maintains social order through a naturalistic order of dominance. This inequality is rooted in the matrilineal structure of group.

Conditional equality; the equality based on the denial of the principle of transcendental inequality. This is seen in the societies of great apes and the early hominins. Regardless of the order of dominance, individuals can groom or play with each other and share food.

Social inequality; the inequality seen in various forms of human society where resources are unequally distributed. This is the inequality that Rousseau (1755/1933) elucidated. Resources owned by individuals are used as social capital in this type of society.

Itani's (1986) argument was developed further in later works of Japanese primatology. For example, Kitamura (1989) deals with the interactions of bonobos (*Pan paniscus*, a.k.a. pygmy chimpanzees) that involve mutual contact of the anogenital regions between two individuals, referred to as genito-genital (GG) contact. Bonobos have unique forms of GG contact; ventro-ventral copulation, GG rubbing between females, and rump-rump contact between males. Moreover, various kinds of GG contact occur in various combinations of participants, including all age–sex classes. Most forms of contact show a typical pattern for each age–sex combination. However, the role distribution in these interactions, which occur in arbitrary dyads of each combination, cannot be explained using the behavior patterns exhibited by each participant according to its biological attributes. The regularities seen in how GG contact occurs appear on the level of interaction patterns determined by whether the interactions are intra-set or inter-set. This suggests that we can find a syntax for interactions in such a social system. Kitamura (1989) suggested that such a syntax will point to that observed among humans: "[I]nteractions in which the participants perform identical acts are typical forms for those between any two elements of the same set. For example, greeting interactions among humans include bowing among the Japanese, hand-shaking, embracing, or kissing among Westerners" (Kitamura, 1989: 63).

Idani (1990) described inter-group relations of wild bonobos in an environmental setting at Wamba, former Zaire (present Democratic Republic of the Congo). Members of two habituated unit-groups were frequently observed to intermingle, mainly at artificial feeding sites, but also in natural vegetation. During such encounters, various affinitive behaviors, such as GG rubbing, copulation, and peering, were observed between members of different groups. Affinitive interactions between females of different unit-groups were particularly prominent and appeared to ease the tension caused by the encounter. Males interacted with members of the other group much less frequently than females. Aggressive interactions between members of different groups were rare. Young nulliparous females were observed to transfer between unit-groups during encounters.

These observations suggest that bonobos have a regional society above the unit-group level, which is unique among nonhuman primates for which comparable data are available. Friendly inter-group relationships distinguish bonobos from chimpanzees, their evolutionally closest species. Such relationships allow considerable flexibility to bonobo society for temporarily fusing unit-groups while retaining their unit-group structures, which are resumed after the fusion. This flexibility contributes to the formation of a regional society, which has been said to be a criterion that distinguishes human society from other animal societies (Imanishi, 1961). Idani (1990) ascribed the difference between bonobos and chimpanzees to the fact that in the latter's habitat, large food patches are rarely available, whereas the former live in a forest habitat where large food patches are available continuously throughout the year and more than one unit-group can

feed in one food patch at a time.

As Idani (1990) suggested, the availability of natural resources might have mid-term (differences in groups or cultural patterns) to long-term (evolutionary changes) effects on primate behaviors. Researchers have worked to clarify the quantity and quality of natural resources in primate habitats. For example, Yamagiwa and his colleagues (1995) estimated primate densities and forest structure in the Petit Loango Reserve, Gabon. The tropical forest of the reserve consisted mainly of primary vegetation characterized by poor *Marantaceae* or *Zingiberaceae* undergrowth, which are keystone foods for apes in other habitats. Despite the absence of such herbs, seven diurnal primate species were found at relatively high densities. Unlike Lope Reserve in central Gabon, which is known as a good habitat of primate species, some important food tree species for apes were found at higher densities in Petit Loango Reserve, which may be a suitable habitat for frugivorous primates.

Resource scarcity can be a source of inter-species conflict, particularly conflict between human and non-human primates. To avoid such conflict and promote sustainable resource management, Sugiyama and Koman (1992) compared plant uses between humans and chimpanzees at Bossou in the southeastern corner of the Republic of Guinea, which is a well-known habitat of wild chimpanzees surrounding a village of agriculturalists. The researchers identified 664 plant species from 392 genera as the flora of Bossou. According to the authors, Bossou must have once been covered with primary and mature forest. However, due to forest destruction, 60% of the 265 tree species identified were small trees less than 10 m tall, with 55% found mostly in secondary forest. Chimpanzees use 246 items (parts of plants) from 200 different plant species for food, while humans use only 83 items from 76 species for food. A characteristic feature of human plant use is traditional medicine, which uses 113 items from 81 species. Humans also use certain species of plants as material for house construction, furniture, and other purposes, to make human life more convenient and comfortable. The diversity of plant species and their different uses by these two species allow both to coexist in this relatively narrow area.

SOCIETY AS A FORM OF ADAPTATION TO THE ENVIRONMENT

Early works of the Kyoto School reflected the above concerns of hominization and the use of environmental resources. Because humans have largely relied on hunting and gathering natural resources since their divergence from other species, researchers believed that characteristics intrinsic to human society must be associated with the hunter-gatherer lifestyle. Attention focused on contemporary hunter-gatherer populations, such as the San in Southern Africa and the Pygmies in Central Africa. These groups were believed to hold the key to understanding the characteristics of prehistoric hunter-gatherers.

Tanaka (1980) is an outstanding proponent of this approach. Even in the 1960s, when he began his field research, of the approximately 60,000 San at that time, only a few thousand were entirely dependent on hunting and gathering in a few

small groups. Among these, he focused on the G|ui (notated as G|wi in the original book) and the G‖ana, two closely related groups living in the central part of the Kalahari Desert. He conducted synchronic analyses of livelihood activities and social structures, and determined what adaptations had been made to the arid natural environment. Division of labor by sex was seen in subsistence activity: Hunting was undertaken by men, and gathering was performed by women. Over 50 species of animals, primarily mammals and birds, were hunted. Representative hunting methods included shooting large game with bows and arrows, catching small antelopes in snares, and hunting the springhare with hooked poles. The G|ui/G‖ana collected over 80 species of plants. Although they ate many kinds of plants and animals, a closer analysis of their diet revealed that they intensively utilized only parts of many items. A comparison of the relative amounts of plant and animal food in their diet indicated that the ratio of plant food was overwhelmingly large, 80% of the total diet. To live on wild plants, people moved from place to place in accordance with seasonal changes and the distribution of staple food species. They moved approximately 300 km each year, changing campsites every one to six weeks. Coupled with a mode of subsistence that relied entirely on limited natural resources, nomadism was a major factor limiting the size of the society. The flexible membership of the G|ui/G‖ana residential group ranged from a single family to over 100 people, according to seasonal or other conditions. G|ui/G‖ana society had no highly developed organizations, such as lineages, clans, or chiefdoms, to unite the whole society. Social integration was maintained by extremely loose ties among kin. Social groupings were not fixed but flexible, with frequent fission and fusion in the process of migration. The nuclear family, which was the smallest social unit, was the only permanent unit. There were no leaders or occupational differentiation. Egalitarianism was realized in sharing and cooperative behavior in social life.

Soon after researchers started engaging in ecological anthropological studies of humans, they recognized and were deeply intrigued by their great flexibility with regard to livelihood, depending on available resources. Their academic concern shifted from discussing the hominization process to appreciating the diverse forms of human adaptation to various environments. Tanaka (1982) compared modes of living on the African continent and discussed human adaptation to arid environments. Using detailed ethnographic studies of the San (the G|ui/G‖ana) and the Rendille, camel pastoralists of an arid area in northern Kenya, he compared them with other hunter-gatherers, pastoralists, and agriculturalists inhabiting less arid habitats. He found that pastoralism was suited to a drier environment and agriculture was suited to a wetter environment, whereas a hunter-gatherer economy is widely adaptive to both. By examining the land and resource utilization, material culture, demographic features, and social organization of the San and the Rendille, whose society is primarily regulated by camel management and is characterized by a dual structure of residence (the human settlement and the camp for livestock), he concluded that extensive land utilization accompanied by frequent migration—common to both peoples—should be interpreted as an adaptation to an arid environment, and that quantitatively limited material cultures, elaborate processes of demographic regulation, and flexible social structures are

notable characteristics of societies in arid regions.

Uses of available natural resources are mediated through folk wisdom, which is accumulated across generations and is sometimes institutionalized in culturally distinctive ways. The camel trust (*maal*) system among the Rendille is a good example. Sato (1992) collected valuable case materials on the camel trust system, and analyzed its fundamental characteristics. For the Rendille, camels symbolize the well-being of the herding way of life as a whole. Sato showed that transactions of camels were mutually binding and were closely interrelated with the social structure of the Rendille. Personal camels were donated by one individual to another on a basis of generalized reciprocity, and this was vested with a social significance that defines the peculiarity and solidarity of effective kindred. Reciprocal transactions of personal camels maintained and reinforced the internal structure of effective kindred, structured by the unity of a father with his first son, the peculiar relation of a mother's eldest brother to a sister's eldest son, and the relation among the first sons within patrilateral, parallel close agnates. By contrast, trust camels were transferred widely among members of society, including members who did not belong to the same kindred group, and vested with the social significance that stands for individual and dyadic association (or friendship) on the basis of balanced reciprocity (Sahlins, 1972). In the legal management of trust camels, the group of patrilateral, parallel close agnates and clansmen constituted a corporate group, and the solidarity of patrilateral, parallel cousins and of clansmen was emphasized. Thus, there was a contrast between legal disposal, reciprocity, and the effective social category of personal camels and trust camels. However, both categories of camels were legally managed within the structural framework set up by effective kindred relations and relations of patrilineal descent. Camels were thus not only legally managed in accordance with the social structure but they also functioned to reinforce it.

ECOSYSTEM AND HUMAN SOCIETY

As demonstrated in the previous section, humans show great flexibility and plasticity in adapting to diverse natural environments. Moreover, their activities have a considerable impact on the features of the natural environment. This fact lead the researchers to focus on the bidirectional influences between humans and their environment, and then to consideration of the ecological system within which human society is situated. Growing national and international concern about the sustainability of the global environment has reinforced this trend.

Ichikawa (2001) argued that, while the dependence of Mbuti hunter-gatherers on the forest has been relatively well documented, it is not clear how their activities and habitation influence the forest environment in which they live. His analysis of the distribution of food plants and human-induced secondary forests in the Ituri Forest of Congo suggested that the forest, as a hunter-gatherer habitat, may have been improved by the interaction of Mbuti hunters, Bantu and other farmers, with plants and animals. He showed that most of the major food plants of the Mbuti are light-demanding trees that grow well in secondary and disturbed

vegetation regenerated from fields and abandoned campsites, where food plants also germinated from discarded food. Large quantities of minerals and organic matter were concentrated at camps as food and fuel, which, after consumption, also accumulated in the form of ashes and human waste, thus enriching soil nutrients in the vicinity. The activities and habitation of the Mbuti are thus a part of the large recycling system of the forest ecosystem.

Based on these findings, Ichikawa (2001) argued that peoples in the forest, the Mbuti in particular, do not simply benefit from the forest, nor are they destroying its ecosystem. They are a part of that ecosystem and contribute to maintaining it by facilitating the circulation of resources and materials in the forest. The plants absorb nutrients from the soil, and the nutrients accumulated in the plants are concentrated at settlements and returned to the soil by the activities and habitation of the Mbuti. Therefore, in dealing with the problems of conservation, the ecological role these people have been playing for centuries should be taken into consideration. Historical ecology explores the history of interactions between humans and the environment: Within this discipline, the dichotomy between nature (as represented by a wildlife sanctuary) and culture (as represented by development areas), which is rooted in modern Western thought, is thought too simplistic for understanding the process of the landscape formation of tropical forest.

Ichikawa's approach to historical ecology is further deployed in Ichikawa (2012). Recent studies have claimed that virtually all contemporary hunter-gatherer groups in tropical rainforests maintain exchange relationships with neighboring agricultural groups and depend, in part, on agricultural products for sources of food energy. Moreover, no archaeological remains found so far have suggested an early existence for hunter-gatherers in tropical rainforests. Some have argued that there is not enough wild food in the forest to support human subsistence throughout the year, particularly in the lean period of the dry season, when fruit and honey are rarely available. These claims led to the so-called wild yam question: Are wild yams the key food for hunter-gatherer subsistence in the forest?

However, newly found archaeological investigations have suggested the existence of early habitations of hunter-gatherers in the forests of central Africa. Recent field research in Cameroon by Yasuoka (2006, 2009) showed that the key food that sustained human life in the forest was that of wild yams with annual stems, which were gregarious and found only at limited sites, presumably created by human influence. Other forest food species were also found more in secondary forests than in mature forests, as reported in previous studies. Moreover, there is increasing evidence showing the distribution of a variety of human-induced vegetation throughout the equatorial forests of Africa. Therefore, Yasuoka argued, it is necessary to examine the implications of human-induced vegetation to understand the history of the region enough to be able to sufficiently answer the wild yam question. Moreover, showing the long history of human habitation in forests as well as co-existence with the forests would provide a legitimate basis for the rights of existing peoples to their forests.

ENVIRONMENT, COGNITION, AND CULTURE

When considering the macroenvironment for human activity, including the ecological system, it is possible to lose sight of how local people engage with their environment. Early visitors to African societies brought home amazing anecdotes illustrating the surprisingly rich knowledge local people had of their environments. Ecological anthropologists have greatly appreciated such knowledge and tried to capture its content and features in more detail. Long-term commitment to the field, which is a distinctive feature of the Kyoto School, has also facilitated this approach. In the 1980s and 1990s, along with the growth in studies on ethnosciences and cognitive anthropology, researchers devoted much time and energy to explicating the folk taxonomies of African peoples.

For example, Ohta (1984) examined the way the Turkana, an east African pastoral society famous for its cattle complex, recognize, classify, and cope with livestock disease. In that article, 37 livestock disease categories of the Turkana were examined, with special attention paid to their curative means, etymology, and etiology. The Turkana listed 13 plant species as medicine for 15 diseases. All medicines were utilized in the same manner. Further, 12 kinds of materials derived from animal products were medicinally used for eight diseases. Surgical treatment without medicines was conducted as follows: Opening the affected parts and pressing out the pus; washing the affected parts with water, sand, or salt; pulling out thorns; scraping the hooves; pressing heated stones or branding irons on the affected parts as a compress; castration of males; and cutting off the top of female tails. All of these treatments coped directly with symptoms. It appeared, therefore, that the Turkana did not have a diverse store of curative measures.

The etymology of names of disease among the Turkana could be classified into the following two categories: 10 names were derived from terms that indicate a part of the body, and 18 names had their origin in general terms that had no connection with the diseases themselves. Ohta (1984) thus argued that the Turkana selected names for livestock diseases by paying attention to the abnormalities actually found in the animals. For most diseases, they had no pathogenic explanations. Although naturalistic etiology was applied to some diseases, the etiology of most diseases was unknown or attributed to God. Thus, etiology was only a minor consideration in dealing with livestock diseases. Instead, only the classification of diseases attained significant development. In their system, what was classified was not the disease, as the cause of a disorder, but what was conspicuously unusual, visible on the animals' bodies. Because the names of diseases had their origins in the substances of the disease (symptoms), referring to the morbid condition of the animals, they also functioned as a diagnostic process. The above findings suggest that this is a distinctive way of thinking on the part of the Turkana. In a general sense, the etymology of disease names and the substance and diagnoses of diseases are distinct issues, because in human language, the relationship between the signifier (disease name) and signified (substance of disease) is arbitrary. However, in the Turkana's classification of livestock diseases, the name of each disease has a direct relation to the matter of the disorder.

Studies of folk taxonomy examined the semantic structure of the understand-

ing of the world of focal peoples by determining how things are classified among them. However, it is difficult for such studies to fully discuss the important roles of local knowledge in the dynamic livelihood of the focal peoples. Later studies thus examined the pragmatic aspect of communication: Researchers started scrutinizing how people achieved mutual understanding by using language and other modes of communication in natural settings. Kitamura (1990) was an early example of this approach: Kitamura, who had shifted his academic attention from primate to human communication, examined how the Turkana people managed their involvement (Goffman, 1963) in situational activities of begging. The Turkana often begged one another for things. When begging, they became intensely absorbed in their emotion. The beggar's behavior was dually characterized, in a way that appears inconsistent. First, it was childish, and the beggar appeared to be without sufficient control over the self. Kitamura (1990) notes that it was not rare for a beggar to express anger or aggression while begging. Then there were behaviors of tactical negotiation. Beggars soon established absolute dominance over addresses and urged them to react cooperatively. Further, in situations beyond begging, the Turkana were often deeply involved in immediate interactions of persuasion. They, as participants in the interaction, persisted in having their way and displaying their unperturbed selves. These behaviors, which appeared to be calculated but not pretended, indicated that the participants refused anything provisional about themselves. Further, within the level of assumed reality that was sustained by those present at gatherings, they persisted in refusing anything provisional. In other words, in such a situation, the Turkana never admitted a dual reality. They affirmatively accepted whatever was presented. They were never concerned with whether the reality was true or false. While they lived within the reality shared by all, they were in all situations required to be deeply involved in their own activities. This distinctive way of conducting situational activities among the Turkana is analogous to the way serious players enter into a game in the West.

Several researchers have further analyzed conversation in vernacular language based on detailed transcripts of everyday conversation collected in natural settings. Explorations of the philosophy of language, conversation analysis, and linguistic anthropology have strengthened the theoretical framework of this approach. Sugawara (1996) analyzed several samples of G|ui (notated as |Gui in the original article) conversations to examine basic methodological and theoretical issues in this approach. The analysis of the logic of irony and implication reveals that a principle-centered understanding of conversation, such as Grician theory (Grice, 1975) in the philosophy of language, is not sufficient to capture the actual process of moment-to-moment understanding in G|ui reality. The analysis of the sequential organization of interactions in the social context (Sacks et al., 1974; Schegloff, 2007) is especially important when undertaking this task.

Sugawara (1996: 154) defined the formalization of conversational interaction as "a systematic differentiation into the complementary roles of speaker and hearer and their alternation in relatively a long cycle." The formalization of conversational interaction shows a particular pattern of turn-taking (i.e., issuing relatively long turn without invoking the rule that the current speaker selects the next

speaker; Sacks et al., 1974) among the G|ui. By contrast, frank argument is well characterized by an immediate, reflexive responsiveness, which Sugawara (1996) claims to be the most fundamental aspect of ordinary human conversation.

Applying these concepts to actual social relationships, the conversation analysis of vernacular language, such as that of the G|ui, allows us to examine the claim for the universality of conversational rules and to reconsider the validity of ethnographic conceptualization, such as the model of the joking-avoidance relationships (Silberbauer, 1981; Barnard, 1992). Regarding the latter, Sugawara (1996) argued that joking and avoidance are not dichotomous concepts, nor are they complementary to each other at the same level of social structure. Rather, among the G|ui, we can find the continuous construction of a joking relationship through ordinary conversation, which is penetrated by an immediate, reflexive responsiveness, while that of the avoidance relationship is achieved by means of the formalization of conversational interactions.

Inspired by the works of Sugawara and his colleagues, Akira Takada attempted to analyze how the conversation of the G|ui/G‖ana is embedded in the structure of their environments. In a region of scant rainfall, which varied greatly by location and year, the G|ui/G‖ana developed a vast body of ecological knowledge that allowed them to acquire ample bush foods by moving frequently and flexibly within their immense living area, now encompassed by the Central Kalahari Game Reserve (CKGR) (Takada, 2016a; 2016b). Their multi-scaled movement strategy, which integrated their ecological knowledge and allowed them to fuse nature and culture, is summarized as follows. (1) An understanding of where ground obstacles are located (Takada, 2008). The G|ui/G‖ana quickly find determine the route with the least exposure to ground obstacles when moving through the bushveld. (2) An immense knowledge of specific trees, which are used as landmarks in the bushveld (Takada, 2006). When the G|ui/G‖ana move from one place to another, they often use particular trees, typically located a few hundred meters apart from each other, as landmarks between these places. (3) An understanding of woodlands and basins as environmental nodes that provide valuable resources (Takada, 2006). When the G|ui/G‖ana travel long distances, they transit through nearby woodlands or basins. (4) A conceptualization of dry valleys composed of sequences of woodlands or basins, which are used as routes for long-distance movement (Takada, 2016a).

However, their ecological knowledge was greatly impacted by rapid social change. Since the implementation of Botswana's development program in the 1970s, which encouraged permanent settlement in villages, the lifestyle of the G|ui/G‖ana has altered. By 1997, most CKGR residents had moved to a new settlement founded outside the reserve. Takada (2016a) thus examined how the G|ui/G‖ana applied their ecological knowledge in this new geographical setting. Due to their lack of knowledge of landmarks, the scarcity of traditional foods, and the promotion of other subsistence activities, their foraging activities appeared to have declined. Nevertheless, several G|ui/G‖ana people remained eager to form foraging excursions. These hunters began accumulating knowledge of trees as landmarks (i.e., [2] above), as they had in their previous living area. They also used the trail of Tswana merchants as a frame of reference to ascertain their rel-

ative location. The use of this trail is analogous to the G|ui/G‖ana's use of *|qāā* (a dry valley), an important landform for wayfinding in their previous living area (i.e., [4] above). The analysis of conversations recorded during foraging excursions indicates that the G|ui/G‖ana showed a keen sense of the environment through their distinctive use of utterances, gestures, and other signs. This sense was necessary to use both *|qāā* and the Tswana merchant trail as frames of reference in the relatively flat terrain of the Kalahari. Moreover, this sense motivated the G|ui/G‖ana to transform a new geographical setting into their personal environment.

SUBSISTENCE ECONOMY AND ETHICS

Over the course of their long-term commitment to the same field, the ethical attitudes of the researchers have been inevitably questioned, both in the field and in their home country. The simple dichotomy between those who study and those who are studied does not capture the reality in the field. In fact, the two sometimes fuse. Many of the Kyoto School researchers have taken these situations seriously and promoted participatory action research. Among others, the late Makoto Kakeya and his followers have eagerly pursued this direction. Kakeya et al. (2006) examined the social processes and mechanisms of agrarian changes based on a longitudinal socio-ecological study of Bemba villages in northern Zambia spanning 23 years (1983–2006).

The Bemba have engaged in a unique shifting cultivation system called *citemene* in *miombo* woodlands. Villagers have sustained a *citemene* system, the produce from which does not greatly exceed the amount required for subsistence. They have also maintained a leveling mechanism of distribution and consumption that promotes equity among the people, which might, at times, deter innovative change. Beginning in the mid-1980s, semi-permanent maize cultivation with the use of chemical fertilizers (*faamu* cultivation) quickly spread in the villages, due to agricultural policies. By the mid-1990s, most villagers had begun to build a stable system wherein *citemene* cultivation for subsistence coexisted with *faamu* cultivation for cash crops. However, from the mid-1990s, the national economic policy, including the Structural Adjustment Program, shifted strongly toward market liberalization, and *faamu* cultivation ceased to be viable in the outlying rural areas. Villagers returned to a greater dependence on the *citemene* system. Nevertheless, the government Resettlement Project, which focused on the resettlement of large-scale commercial farmers, reached full implementation near the villages in 2000. Consequently, it expelled villagers and *citemene* cultivation from parts of *miombo* woodland. People held firmly to *citemene* cultivation as they engaged in trial and error methods to obtain better opportunities for cash income.

Kakeya et al. (2006) classified these rapid changes into five periods, namely, the subsistence economy based on *citemene* cultivation (–1985), the spread of *faamu* cultivation (1986–1990), the expansion of *faamu* cultivation (1991–1994), the return to *citemene* (1995–1999), and the search for a new livelihood (2000–2006). Based on these findings of the socio-economic changes in a rural village in Tanzania, Kakeya et al., (2006) argued that the leveling mechanism, which

normally works to control excessive economic activity by certain individuals and restrict change in villages, may also work to promote more rapid responses, if circumstances encourage the interaction of external and internal factors. In brief, a leveling mechanism based on the sharing principle could provide a driving force for significant social change.

This long-term research has nurtured relationships and deepened mutual understanding among local communities, the researchers, local research institutes, and developmental agencies. It bore fruit in a unique collaboration project to reconsider the African pattern of rural development. The researchers recognized the importance and necessity of the perspective gained from the field and wished to promote further understanding of the realities of rural areas with a multidimensional and interdisciplinary approach. In May 1999, the SUA Center for Sustainable Rural Development (SCSRD) was launched to create a sustainable method for rural development (the SUA Method), to be developed through practices in two model areas in Tanzania. Following this, several grants, mostly from the Japanese government, have supported the research and practices for sustainable rural development in other areas in Tanzania (Itani & Araki, 2007).

Araki (2007) exemplifies the beneficial effects of the collaborative project. The rural economy and livelihood in the Matengo Highlands of the Mbinga District, Tanzania, used to depend on coffee as a cash crop. However, due to the weakening economy following economic liberalization in 1990s, coffee production declined, and farmers faced problems. Their lives became increasingly difficult. Facing a crisis, they began searching for economic opportunities and information, and this created the need to work together to solve problems. Through the SCSRD project, the Sengu Committee and the farmers' groups emerged to address the crisis. The Sengu Committee was formed during the construction of a hydro-mill. Its name is from the Matengo word that means a place where villagers assemble to discuss various issues and work together with one aim. Many committee members participated in the SCSRD project during the project period. The formation of the Sengu Committee and its subsequent activities led to the establishment of farmers' groups, which carry out activities related to environmental conservation and the diversification of economic activities. The Sengu Committee and the farmers' groups became the central force in promoting environmental conservation and managing the tree nursery center to promote afforestation by using the benefits from the hydro-mill and providing tree seedlings to villagers free of charge or at a low cost. There also arose problems associated with power politics in the village, in response to the empowerment of the Sengu Committee, and relating to overwork. Although it took time, those problems were solved. Some groups engaged in reciprocal labor as part of group activities, whereas others diverted capacity built through group activities into other activities, such as construction of a water supply and a mini hydro-mill. Participatory activities took different forms according to the context. This example of capacity building, in which qualitative change occurred, can also be considered participatory and as an end result in itself (Oakley, 1991).

Another example of participatory action research, orienting rural development, should be noted. Shuichi Oyama conducted a socio-ecological study of Bemba

villages. He broadened his research area to south-central Niger. The increase in the human population in this area has led to dramatic consequences for Sahelian countries, including food shortages, farmland expansion, and conflicts over land and natural resources.

According to Oyama (2014), although West African herders and farmers have long coexisted in a symbiotic relationship, as farmers in south-central Niger increasingly tried to use the same land as herders, herders began to have more and more difficulty finding suitable grassland for grazing their livestock during the rainy season. Fulbe and Tuareg herders grazed their livestock on the barren plateau to avoid damaging crops, and the farmers planted millet on land with fertile soil. Nevertheless, particularly during harvest season, the relationship between farmers and herders deteriorated, due to livestock-induced crop damage. Hausa elders and pastoral Fulbe or Tuareg individuals living in the village engaged in negotiations to avoid direct confrontations between herders and farmers. The disputes concerned whether crop damage had been caused by cattle and, if so, whether it was intentional or the result of carelessness by the herdsman. Hausa society set the rate of cash compensation for intentional crop damage at the *ramuko* rate and that for crop damage attributable to carelessness at the *bana* rate, which is half of the *ramuko* rate. Which rate applied in which cases was determined by negotiations between farmers and herders. If negotiations were broken off, some herders or farmers could resort to violence, and the situation could escalate to murder.

In light of the above, Oyama (2014) initiated a pilot project designed to prevent livestock-induced crop damage and farmer-herder conflicts. Based on indigenous knowledge and the daily practices of Hausa farmers, the author promoted the use of trash for land rehabilitation and to obviate conflict. Together with Hausa and Fulbe villagers, he built two 50 × 50 m fenced plots and brought urban trash to the degraded land, which had been communal pastureland used by herders. Then he asked individuals to manage the fenced pastureland and to graze livestock inside it. Although it is still in an early phase, this practice could be useful for preventing livestock induced crop damage and conflict between farmers and herders.

CONCLUDING REMARKS: ON AREA STUDIES

I have classified the trends that have characterized the Kyoto School so far: Evolution of primate sociality; society as a form of adaptation to the environment; ecosystem and human society; environment, cognition, and culture; and subsistence economy and ethics. I have provided a brief description of each, with several concrete examples, mainly taken from papers published in *ASM*. Needless to say, these examples are only the tip of the iceberg of the works of the Kyoto School. Moreover, the socio-historical aspects of academia and society in general, which are associated with the trends in the Kyoto School, remain to be analyzed. However, I believe that the examples I have cited demonstrate the emancipated atmosphere of this unique school. In 1996, the Division of African Area Studies

was opened within the Graduate School of Human and Environmental Studies, Kyoto University. I enrolled in this course as one of the first graduate students. Two years later, the Division was restructured within the newly established Graduate School of Asian and African Area Studies (ASAFAS). Most graduate students and post-graduate researchers who studied human-environmental relationships at the Laboratory of Human Evolution Studies at the Graduate School of Science were also officially or informally incorporated into the Division of African Area Studies. CAAS continued to promote research and accumulate research materials. Although the Division of African Area Studies has taken steps to create a new school of area studies with its institutional siblings, namely, the Division of South Asian Area Studies and the Division of Global Area Studies, the legacy of the trends nurtured in the Kyoto School of ecological anthropology vividly lives on in the Division of African Area Studies.

Given the process of rapid globalization, the attempt to promote area studies is driven by a need to transcend existing disciplinary boundaries and allow a better understanding of divergent areas in the world. ASAFAS nurtures specialists who possess detailed and intimate knowledge of their chosen areas and who are equipped with a global perspective. For this purpose, ASAFAS has emphasized the importance of fieldwork, which has been a hallmark of the Kyoto School of ecological anthropology. Such work constitutes a unique contribution to the domain of area studies in the world, although it would require another full paper to delineate fully the range and quality of the contribution of African Area Studies within ASAFAS with reference to other area studies.

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