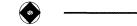*Notes from the Field*

Malangali and the Cyberians: Reflections on the *Internet Living Swahili Dictionary*

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Martin Benjamin

Malangali, Tanzania, with no electricity, no telephones, not even a laptop computer, is not the sort of retreat where you would expect to write an article about the Internet. As I watch maize drying in the fields across the valley and listen to my neighbor prepare food and drink for a peanut-shelling party she is hosting this afternoon, only the strands of Swahili conversation carried on the wind provide any link to my other life as a lexicographer in cyberspace. Yet, just yesterday I was 150 kilometers away in Iringa town completing installation of a tender e-mail link over scratchy phone lines to Nairobi and, by ethernet, to the "electronic village" beyond.

There are links between Malangali and Cyberia, two villages in which I live as a participant-observer. Many of these indirect connections are real, others only potential, and certainly not all are unabashedly positive. Most writings about Africa and the Internet, however, focus on the technological obstacles and opportunities, not on what the technology means in people's lives. In this article I use my often discordant experiences as general editor of the Kamusi Project's *Internet Living Swahili Dictionary* and as a field researcher in economic anthropology as bases to reflect on Africa and the "Information Age." First I describe the project and then move to a wider discussion of issues it has caused me to consider.

The Kamusi Project (*kamusi* is Swahili for dictionary) grew out of frustration with existing reference materials for Swahili-speaking students of English and English-speaking students of Swahili. The major existing Swahili-English dictionaries were completed in 1936; more recent works are either out of print or generally unavailable.[1] Swahili teachers at Yale found themselves unable to recommend any dictionary other than the *Kamusi ya Kiswahili Sanifu,* a valuable Swahili-only resource but suitable mostly for advanced Swahili students. Yet the economics of publishing in African languages defeats most attempts to

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replace Johnson's *Standard* dictionaries. Publishers cannot pay the salaries of enough scholars for enough years to see a comprehensive dictionary through to completion, and undertaking such a task in anticipation of royalties would be madness. Most of the tens of millions of Swahili speakers cannot afford the price of so much as a break-even publication. Only the faculty of the Institute of Swahili Research (TUKI) at the University of Dar es Salaam dared the challenge, with completion date and distribution arrangements uncertain. The TUKI work promises to be an in-depth lexicography with thorough research on every word. The Kamusi Project decided to take an alternate route, pulling together a diverse group of Swahili speakers and scholars to produce a broad, rough, and, crucially, ready database that could be refined over time.

The Kamusi Project has been an exercise in improvisation. We overcame the economic obstacles by designating the project not-for-profit and relying largely on volunteer labor. A series of grants from the Consortium for Language Teaching and Learning paid for equipment and the graduate student labor necessary to manage the work. We put out a call in various Internet fora for participants who could help build and hone our data. We soon had a thriving discussion group called Kamusi-L, which continues to grow. As originally conceived, the work of assembling and editing the new dictionaries would be parceled out to Kamusi-L participants. The work was to be pulled together, revised for consistency, sent out again for editing by a volunteer group of Swahili scholar-referees, and finally presented to the public to use or ignore. The actual course of the project was somewhat different: it turned out that the on-line world is one where people express a great deal of enthusiasm in principle but are committed to, or distracted by, many other things. The dictionaries grew largely because of the contributions of a scattered core of scholars and Swahili devotees and the work of a dedicated team of graduate student staff (all but one enrolled at Yale). This group of about twenty people was supplemented by volunteer computer support, smaller contributions, and general encouragement from a much wider network logging in from around the world. The project grew in several directions at once, from technical vocabularies to multimedia applications, from general on-line Swahili reference materials to a thousand-page draft set of printed translation dictionaries. Work is ongoing, with copy now being prepared for formal print publication of a first edition. A great deal of work remains to be done. People interested in participating in any capacity are always welcome, and everybody is invited to examine and use the project's resources (see sidebars).

The experience of coordinating this project, under the supervision of linguist Ann Biersteker, was an exhilarating lesson in the possibilities technology opens up for cooperative scholarship. The time between Biersteker's original proposal to the Consortium and my September 1995 handing of the project's daily management to Charles Mironko and

Finding the Kamusi Project

The easiest way to access the project is through our World Wide Web site. Users with a Web browser can visit http://www.cis.yale.edu/swahili/ to use or download the dictionaries, find out about current activities, or link to other Africa- and language-related sites on the Internet. A talking pronunciation guide and a grammatical primer are also available.

Gopher users can navigate directly to the *Swahili Dictionary Gopher,* which is under "Yale Related Gophers" under "Yaleinfo" in Connecticut, USA. The entire dictionary can be browsed or downloaded directly from the Gopher site. Limited project information is also available there.

Internet users with FTP access can download the entire database in their choice of formats—text only, Postscript (ready for immediate laser-printing and binding), Word for Windows, Excel for Windows, and the prototype Access database—all as zip-compressed files. In addition, all the packs are available as uncompressed Excel files through the FTP site. Point your FTP program at minerva.cis.yale.edu/pub/swahili.

You can also receive the database as text files by subscribing to Kamusi-L (see next sidebar).

Anne Geoghegan was only ten months. In this time the project grew from a 3,000-word basic glossary compiled from teaching materials by Biersteker, Tom Hinnebusch, and Lioba Moshi, to, on my departure for Tanzania, a 21,400-entry dictionary in multiple print and computer formats. This simply could not have been accomplished without the communications and production shortcuts opened up in the past few years. Nor could it have occurred without the spirit of cooperation fostered by an emerging Internet culture. The result is a resource that, to my greatest satisfaction, is available free on-line to anyone—except, to my great frustration, almost all of the nearly fifty million Swahili speakers from Zaire to Zanzibar.

Internet *Ujamaa*

Early in the project Ellen Contini-Morava sent along a disk with about 4,000 Swahili nouns. This disk contained the fruits of a huge amount of

her own work. In addition to the drudgery of extracting all of the Swahili words and their English glosses from printed material (mostly Johnson's dictionary), she included her entire original labor analyzing these nouns. Her caveats? There were none; we were free to do with her data as we pleased. Other lists, from several hundred to several thousand words, would similarly appear in my box from Nairobi or Switzerland or North Dakota. In July of 1995 Elena Bertoncini sent along another completed teaching glossary including 3,000 words, example sentences culled from Swahili literature, and detailed linguistic information. This was material just readied for publication, the result of intense scholarship airmailed on disk pre-press from Naples, without reference to copyright or attribution considerations. Meanwhile, Catholic University Press of America gave us blanket copyright permission to incorporate the entirety of Charles Rechenbach's 600-plus-page out-of-print *Swahili-English Dictionary.*

The usual culture of the academy militates against such brazen cooperation. The twin career imperatives to publish and to be first cultivate a

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Joining the Kamusi Project

The best way to participate is by joining the Kamusi-L discussion group. Send an e-mail from your regular address to listserv@yalevm.cis.yale.edu reading "subscribe kamusi-l Your Name" (without the quotation marks, making the obvious substitutions). Kamusi-L subscribers may also have the entire database sent to them as e-mail. A subscriber sends a mail message to listserv reading, for example: get pack1.txt. The current database is divided into 42 packs. Packs 1 through 21 are the Swahili-to-English dictionary, and Packs 31 through 51 are the English-to-Swahili dictionary. Each pack contains roughly 1,000 entries, so getting the entire database by this method involves repeated e-mail messages: get pack2.txt, get pack3.txt, get pack4.txt, and so on. Kamusi-L is moderated, which means that subscribers receive only e-mail that is related to Swahili dictionary development.

We also welcome other correspondence. The direct e-mail address for the project is swahili@minerva.cis.yale.edu. The postal address is: Kamusi Project, Program in African Languages, Box 6891, Yale University, New Haven, CT 06520-6891, USA.

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secretive and proprietary attitude toward one's work. In an era of tight funding and dwindling teaching opportunities, anticompetitive behavior that does not even appear on a curriculum vitae should not occur. That it did occur I attribute to one thing peculiar to East Africa, one to the Internet, and one to their particular nexus:

1. The huge, pent-up demand felt by so many students of Swahili for thorough, user-friendly reference materials. We receive numerous letters documenting this need.

2. An unrecognized urge by computer users to be involved in something useful. So many of us invest the time and money into getting on-line, only to find that, aside from being better correspondents with friends who have scattered around the galaxy, there is not much purpose to all this commotion. The Kamusi Project, by appealing for help from people at all levels of Swahili knowledge (beginners keep us honest, reminding us of the basic needs a dictionary must meet for learners; life-long speakers and career scholars provide depth, accuracy, and currency) taps a vein. No longer is your modem connection just a way to bypass a trip to the post office or the library. Now it becomes *important* to log on and use all this equipment—a project bigger than any individual's capabilities provides gravity against weightless drifting in cyberspace.

3. A recognized urge by many students of Africa to give something back. Participants know that we seek to make project resources widely available and that we are forgoing profit. For many the project represented a voluntary charitable organization dedicated to a unique and worthy cause, a linguistic Habitat for Humanity. Even the few hasty "flame" attacks—"Another good idea ruined by you Europeans"—support the basic premise. None of us, however, has ever defined exactly what benefit we think East Africans will derive from our work. Certainly secondary students in Tanzania, who are taught in English after a primary curriculum almost exclusively taught in Swahili, will benefit if we are able to produce dictionaries that are cheap enough for them to access. Others seeking to trade or visit internationally also stand to gain. We have all left wider questions of the roles of English and Swahili in East African societies entirely to the side, assuming for the moment that the production and dissemination of educational materials is in itself for the greater good.

We meet in a second-floor office on College Street in New Haven, Connecticut. Our neo-Gothic bay windows overlook a street bustling with students. The office is filled with old furniture, shelves of books on languages from HTML to Xhosa, and powerful ivory-colored computer equipment. The main Pentium is fired up. The staff arrives by foot or bicycle, by way of Tanzania, Kenya, and Boston. Others arrive as disem-

bodied electrons from Canberra, Oklahoma City, La Paz, Moscow, Muscat, Helsinki, Tuskegee, Hiroshima, Nova Scotia, Mexico City, Los Angeles, Tel Aviv, Chicago, Nairobi, Warsaw, the Londons, Atlanta, and Papua New Guinea. We might be discussing noun classification: how should we systematically represent the eighteen Bantu noun classes in a way that is consistent with other works on African languages, is useful and understandable, and provides for the many animate nouns that are shaped and pluralized as if they were in a different class from the animate (1/2 or *a-/wa-* or *mtu/watu* or *huyu/hawa*) nouns that they follow for grammatical concordance? From southern France the experts are interrupted with a plea not to forget students of Swahili still getting a handle on using nouns in sentences. After a week's discussion, a consensus starts to emerge. For the time being, we use the standard numbers but indicate animate nouns with the additional notation "an." We can always change or supplement the system later, or an individual can modify the database at will in just ten minutes on the Pentium-90.

Another discussion might be about Swahili terms for homosexuality, or for concepts relating to Islam. A computer programmer in Zurich

Using the Dictionaries

We invite you to download, print, and distribute the data we have compiled. The work is copyrighted property of the Yale Program in African Languages in trust for project participants. Therefore, any copies you distribute must include our copyright notice and list of participants. Further, you may not make any content changes to the data or make any profit from selling it.

We ask all users to keep track of any errors and missing, insufficient, or out-of-date entries. Please send back any corrections or additions you feel we should make. We will put your suggestions through the editorial process and update the database accordingly. We will also add you to the list of project participants. Only through your active participation will these remain "living" dictionaries.

We are pursuing formal print publication of Swahili-to-English, English-to-Swahili, and Swahili-only dictionaries. These will be easier to use and nicer to read than the computerized versions. They will also be cheaper than printing your own copies. Any royalties from sales of project products will be used for further Swahili-language scholarship.

offers to help on a Web search engine. A graduate student in Los Angeles, back from Zanzibar, offers her vocabulary list for *taarab* music. A linguistics instructor in Canada sends a flashcard software program he and his son designed from our database. A Danish couple wants help naming their newborn. A man in Ireland wants advice on setting up a similar project for Gaelic. Milton Bradley asks about the Swahili origins of their game "Jenga." Often letters will arrive from AmericaOnLine subscribers or other novice Netsurfers with simple requests: "I need to know the Swahili word for *giraffe.*" We have a form letter set up to reply to longer demands for us to do someone else's research, but for mail like this, rather than suggesting they look it up in the on-line dictionary, we have found it easier to send back a brief reply: "*twiga.*" Unsolicited mail is half the fun.

What is more, I like generating or expanding interest and knowledge about things East African. One of my goals in designing our Web interface has been to bring in people who know next to nothing about this part of the world. Through our resources and the links we provide to other Internet sites, people elsewhere can know that this is a real place with real people speaking a real language; and that it is complicated, current, interesting, and important. This is pedagogy for the information elite. Partly in the hope that an informed public will create informed policy, partly to make an assault on ignorance, much of our work has been done explicitly to prevent knowledge from and about East Africa from being entirely overshadowed. The Cyberian culture canonizes as real what is digitized. Students who cannot be bothered to go to the library write entire essays from whatever data happens their way through a Nexis or Webcrawler search. People who never write to their congressional representatives become instant activists when a political Internet forum provides an easy form e-letter. Total strangers get caught up in a banal on-line chat session and miss real-life appointments. Friends you have not heard from in years discover your address, and suddenly you are trading baby pictures and planning visits. Via e-mail I was corresponding with dozens of people on a daily or weekly basis; to most of these people I ceased to exist the day I left for Africa and became . . . off-line. Cyberia is, in one respect, an ideological echo chamber. We tell each other how clever we are to have arrived and how wonderful things are now that we are here. Dissenting voices are not heard, almost by definition, since people who are not entranced by the medium usually avoid it. Also not heard are people with no financial or physical access to the technology, including almost everybody in East Africa. The prospect of putting Swahili speakers on the Cyberian map, with the help of dozens of Africans logging on from the networked world, is an enticing antidote to the alternative—virtual oblivion.

Rural Africa on the Net

Life in Malangali causes me to ask, does putting African information on-line matter? Objectively, whether a cartoon enthusiast in Toledo (either one) can translate the names of his favorite *Lion King* characters through a CompuServe connection will not make the slightest bit of difference in the lives of anyone I work with here. Even the ripple effects of, say, a graduate student in the Netherlands logging in as she pursues her degree in development studies are likely to be too small to notice. Yet the Internet increasingly becomes more than a repository of knowledge and esoterica. It becomes a conduit of wealth and power for the wealthy and the powerful. A New York investment banker who did much of the pro bono programming for our database recently sent me some of the reports her group compiles. This group conducts research on many Latin American economies, determines trends, and then makes recommendations. The recommendations go two ways: investors are advised about where to put their money, and finance ministers participate in conference calls and learn what actions they should take if they want to improve their countries' bond ratings. The information available to these bankers, then, quite literally affects the prices of beans in Mexico, Colombia, and Brazil. Similar groups work on Africa. The ripple effects of the information found by a person who has the ear of an International Monetary Fund (IMF) mover *will* be felt by my neighbors when they buy imported fertilizer in December. I agree with critics that a team of researchers at a U.S. university should not be the ultimate arbiters of what information about a part of Africa makes its way on-line. However, on-line information matters, even if my neighbors have no way to contribute or make use of it.

More perplexing questions arise when considering the potential of the Internet becoming readily accessible here. The fact of its arrival is inevitable. At the offices of AfricaOnLine in Nairobi there is, as of April 1996, a hard-wired ethernet link to the World Wide Web. More than the simple e-mail that can be had by those with a telephone, patience, and cash, this Web link means full access to any corner of the Internet. For the first time people in East Africa can order airline tickets, keep track of their stock portfolios, and even look up Swahili words via computer in real time. Afrocentric efforts of great local or international interest that will make the Kamusi Project pale in comparison can now be initiated in Africa by anyone with the right equipment. Though current phone links preclude anyone taking immediate advantage of this breakthrough in Tanzania, Phillips will be upgrading the telecommunications infrastructure of Iringa and neighboring Mbeya regions in the next five years, at a cost of $30 million. Digital cellular technology and the upcoming Motorola satellite telephone system make it possible, even likely, that

one could log into whatever supersedes the Web right from Malangali within a decade.

I have two concerns. First, despite the ethos of technology as the vessel of happiness in my own society, we have arguably slipped our social moorings. Much discussion of the Internet holds that people flock to it because it supplies something we have lost—a sense of community. In Cyberia a quilter in Boston can meet a quilter in Billings, a railroad buff in Tupelo can find like minds across the continents, and two lonely hearts can meet and flirt. Although these prospects may be exciting, they mask a deeper social pathos. The openness displayed in the Kamusi Project is noteworthy precisely because it is the exception to the human interactions we have come to expect. An e-mail correspondence is but a thin substitute for the quilting circles that for some still provide a weekly excuse for friends to gather and gossip. Are there not quilters in Boston? Are we too busy or too alienated for face-to-face friendships, for train spotters to meet at the stockyards, for romances in which we can see our partners' eyes and sense their perspiration? Computer fora are symptomatic of, not alone responsible for, our loss of social contact. Other symptoms include the countless hours we spend in front of televisions, our obsession with guns to protect our privacy and possessions, our peculiar predilection to acquire a lifestyle through selective shopping and mail-order-group membership. While we make a fetish of individuality, our courts, psychiatrists' offices, and computer superstores are filled with unhappy people suing, crying, or buying in a blind grope for something missing from our lives. Yet we have available to us in the United States the best technology and greatest concentration of expertise in the world. The silicon marvels that obscure our social pathos also exacerbate them. Why go to the video store or talk with a clerk when we can summon electronically everything from pornography to pizza and have it delivered to our door? The overworked on-line quilter, with a vague excuse *not* to seek a local group of fabric-philes, becomes ever more isolated behind a patchwork of fiber-optic nodes. I have seen offices where co-workers sitting 10 feet apart communicate silently all day via local e-mail, as a matter of policy. We will soon be able to modem home commands to turn on security lights, feed the goldfish, and set the VCR. We have everything, including great social malaise. Much of this malaise—hate groups, obsessive consumerism, anomie—is magnified by the very electronic pathways along which it travels.

Malangali is not Shangri-la, though in my subjective experience it does not suffer from these particular social ills. Malangalians, however, do not desire to restrict information access even if it were possible; many participate in the larger world at every opportunity. Yet the practical aspects of communications issues today must be addressed while African parents, teachers, and policymakers, rather than DisneyMurdochTimeWarner,

have the voices that matter. An Internet pipeline will bring to Malangali all that is good (teaching materials, access to news and opinion, more perfect information about the world of capital in which the IMF and national leaders insist residents should compete) along with much that is dubious—a more perfect vehicle for the weak to be milked by the powerful. That there has to be a life better than the daily worry about food and basic health, this people here keep expressing to me. But Cyberia provides no blueprint for general happiness and unencumbered prosperity. An increased immersion in global culture *will* have unforeseen consequences in Tanzania, as elsewhere.

Sample Dictionary Entries

Internet users will find entries such as the selection below. The semicolons that separate each part of an entry allow the data to be imported easily into a database or spreadsheet. Blanks between semicolons indicate incompleted or inapplicable data categories for that entry—for instance, many words do not have plurals, and we still have lots of work to do on examples. Numbers indicate noun classifications.

  ujamaa; n; *ujamaa;* 14; *jamaa* N; brotherhood
  ujamaa; n; 14; *jamaa* N; familyhood
  ujamaa; n; ; 14; *jamaa* N; relationship
  ujamaa; n; ; 14; *jamaa* N; Socialism
  ujamaa vijijini; n; ; 14; *"jamaa* N, *kijiji* N"; communal villages (in Tanzania: governmental)

The second concern is economic. There is every reason to think that people in Malangali will come out on the short end of the stick in any encounter with international corporate culture. Most valuable consumer goods that make it here come from abroad; bicycles and radio cassette players are two of the biggest household investments after metal roofs and cattle. The town of Mafinga, 70 kilometers away, recently connected to the national electrical grid and now spends thousands of dollars a year for televisions and VCRs. People's desire for machine artifacts is hard to satiate, in Iringa or Indiana. Before I left for a recent quick trip home, I was deluged with paying orders for watches, cameras, textbooks, refillable pens, and pocketknives. One order became a test of wills between me and a friend with three small children—he desperately wanted a $19 watch, for which I equally did not want to see him go into debt. (Nor, for

several reasons, could I buy him the watch.) His wife supported the purchase, forcing me to yield. The result was an early sale of much of their bean harvest at the lowest price of the year. Of course, trade liberalization and banking reforms mean that the Web will not be the only avenue by which Malangalians will realize a whole new set of urgent demands. All such avenues will lead to a soaking up of what is politely called "consumer surplus" in the purchase of new imports. As I was taught in a business school microeconomics class, the goal of all great corporations ought to be nothing less than the capture of every available penny, peso, or shilingi.

This is not a colonial goal. The colonial experience, at least here in Tanzania, was an effort to extract the fruits of local labor. Microsoft-SonyToyota does not in the least wish the headaches of the labor market here, cheap as labor may be. The corporation would rather target people as consumers and let them struggle on their own to pay off their bills. Marketing is a multi-billion-dollar business that uses well-developed techniques of persuasion. For example, Pepsi is currently running a Tanzanian promotion centered around bottle caps with computer-generated winning numbers. The scheme is so complicated that people spend hours debating how it works while talking about Pepsi. Although I do not know if overall soda sales have increased much as a result, the game has certainly increased Pepsi's market share; I have not been to a wedding where Coke has been served in the past two months. Just as nobody can convince some American teenagers that they do not need to surrender their cash to the cosmetics industry, many people here will not choose to resist the advances of RJR-IBM. Again, people here often explain to me that they want these things, that in their lives it would be awfully nice to have a few luxuries and technological conveniences.

Malangali's exclusion from the Cyberian world, though, would have consequences as real as its immersion. Herein lies the real problem: although a good case can be made that we do not need the trappings of the wired society here, this too is the sort of case made mostly by outsiders. Here people know that the miracles of computers exist and that they have no access to them. At the least, the choice of whether or not to introduce the technology should be made here; currently Tanzanians are almost entirely excluded from a discussion that unarguably affects them. Regardless, sooner or later the technology will arrive. At that point, the question of how it will arrive will be supplanted by another concern, that computerization will greatly exacerbate the existing disparities between rich and poor. Imagine the imbalance between the cattle trader with a cellular modem connection to regional beef and credit markets and the man urgently selling him a cow at the monthly market to pay for his daughter's medicine. Many similar scenarios—whether among Tanzanians or involving multinational corporations—could come to pass, usually

to the disadvantage of most village residents. Whether or not to prevent such disparities involves policy decisions that will have profound ramifications here if acted upon and equally serious implications if not.

Not Quite Ricardo

How should people in East Africa gain access to computers? The benefits of having computers here, especially the ability to compete in the world into which the General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO) and structural adjustment programs (SAPs) are forcing everybody, seem to me to outweigh the perils. The ability to provide and receive information and, especially, to have a voice in policy that has local ramifications is something that both I and my neighbors agree is for the better. Yet every purchase of a computer system for, say, $3,000, represents the annual income of between twenty and thirty Tanzanians. Purchase of this equipment means the direct transfer of years of labor from East Africa to Japan, the United States, and Europe. Even in my experience with the Kamusi Project, it is impossible for me to say that a computer is worth thirty years of human labor. (The same computer in the United States represents less than a month's worth of work for most buyers, who stayed out of the market when the price was higher.) Add in the telecommunications and network costs, and the idea of most Africans buying into the Internet is untenable. Rather, the technology ought to be given away, with due consideration to the sorts of

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Future Directions

The project has received continued funding through the 1998–1999 academic year. Aside from continuing to develop the basic dictionary, including work on Swahili definitions of Swahili words, we will also continue to develop related resources and prepare our work for publication. We are still trying to program an on-line search engine that will enable users to find a word by typing it in, rather than scrolling through the database. We are also working on a CD-ROM that will include images of culturally specific artifacts, each Swahili word as spoken by an East African, and perhaps a little music.

What further directions the project takes depend on inspiration and participation. We welcome your contributions.

issues outlined above. Current policy in Tanzania, Kenya, and Uganda and at donor and lending agencies is geared relentlessly toward forcing Africans into the "free market." Yet, how free can a market be when information availability is so radically skewed and the costs of entry to some are so prohibitive?

I think about Cyberia as I greet a woman at her home here. We sit on stools on a packed dirt floor under a roof of thatch. She is young, two years older than I. As she tends the fire beneath the cooking pot, we talk. She does all the farming for her family. Her youngest child is four, his older brothers in elementary school, their father usually away at the Mufindi tea plantations. The husband confirms, when we talk later, that he is able to bring home somewhat over $20 a month. Much of this money pays for the chemical fertilizer that she says increases maize yields more than 150 percent. The price of this fertilizer has risen several-fold as government subsidies have ended and the shilling has been intentionally devalued. Other families without a migrant wage earner had to forgo fertilizer this year and will, at best, have no surplus to sell, but this family is relatively well-off. She and her husband both say they want their children to go as far as they can in secondary school, though they think they probably will not be able to pay school fees for all three. She has one main source of occasional cash income, selling a deep-fried Munchkin-sized bean snack called *bagia* (or *bajia*) for ten shillings each. On the best of days—Christmas, the monthly market—she can earn a few dollars. She is never going to grow enough maize or sell enough two-cent *bagia*s to do more than see her children through school, nor will her husband's income stretch beyond a metal roof, cattle, and saving for the boys' bridewealth. If the children are able to get some of the few secondary school seats available to qualified students, and if the international price of tea does not plummet and force their father out of a job, they will go to a school with few books, no audiovisual equipment, and so few resources that this month (as before) the students were sent home before the term ended because the kitchen had run out of maize meal. I recount this woman's tale, not of woe but of wishes for her children to have advanced job qualifications (*"Nataka wapate kazi nzuri baadaye"*), to make the point that, given the constraints facing her family, realizing her ambitions will be extremely difficult.

I am tempted sometimes to see life here as close to ideal, save for such material scarcities as food and medicine. For example, in an unscientific sample last week of several people gathered around a pot of bamboo wine, only one person could remember ever having an anxious dream about being late. The recurring dream many of them did recall awakening from involves their getting "a lot" of money. At night or in their daydreams, people are pretty consistent in what they would do with such riches: build a house of kiln-fired brick, send their children through

Organization of the Dictionaries

We have tried to make our work both easy to use and compre-
hensive. All entries are alphabetized where you would expect to
find them, rather than having you "see under" the root to find
your word. We list a part of speech for each word. All Swahili
nouns are listed with their plural form and noun class. We have
also begun including information on word derivations. A field
we crudely call "dialect" provides a place to indicate regional
variations or words that belong to a specialized vocabulary such
as nautical terms.

For computer reasons, we found it easier to list each of a
word's meanings on a separate line. People in Tanzania often
remark that this format is easier to use than others they have
seen. We appreciate feedback about layout as well as content.

The current English-to-Swahili version has some organiza-
tional quirks because we edited the entire database from
Swahili to English and included a hidden field to later sort the
English entries. Miraculously, the conversion worked flawlessly.
However, some entries might appear in odd locations due to
sloppy editing. Mea culpa. If you help fix an error, you will take
the credit.

The present incarnation of the database still slants toward
helping the English-speaking learner of Swahili, leaving African
students of English to figure out for themselves grammar,
usage, and conjugations. We welcome suggestions on how to
rectify this imbalance (as well as volunteer help translating the
Swahili usage examples) for the major revisions that will get
underway in 1997.

school, buy a car to transport passengers to the nearest market town, and
start buying more luxuries. "No," the Okonkwo in me wants to say, "don't
open Pandora's box!" But the box is long since opened—many here say
thankfully so.

People here want material prosperity, something beyond reliance on
maize farming and migrant labor. The government and the member
nations of the IMF say their policies promote "sustainable develop-
ment." Development initiatives in Malangali include teaching school-
children and their parents farming techniques for incremental increases
in maize yields and similar "low-input" approaches to other aspects of

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Malangali's First E-Mail

Jon Ngomeley is an artist based in Dar es Salaam. He inherited
his father's farm in Malangali in June 1996 and has since started
building a house there. We visited in Dar in July, but I left the
city sooner than expected. He gave the following unsolicited
message to a friend working at an embassy, who relayed it to me
via the Internet (I have loosely translated it below):

> Salaam!
> Nilipenda tuonane lakini bahati mbaya. Niltaka nikupe
maagizo ili ufikishe kwa mama pamoja na askari wa shamba.
> Ujumbe: Tafadhali wafahamishe kwamba nitafika huko
tarehe 05/08/96. Askari atayarishe kile chumba cha nyumba ya
shambani ili wakati huu nifikie hapo. Pole na shughuli nyingi za
kila siku. Mimi naendelea vizuri na kazi, mambo siyo mabaya
sana, tutaongea zaidi nikirudi huko.
> Ahsante! Mimi Jon Ngomeley

> Greetings!
> I'd have liked to see each other again, but bad luck. I wanted
to give you a message to bring to my mother and the man guard-
ing the farm.
> Message: Please let them know that I'll arrive there on the
fifth. The guard should prepare the room in the farmhouse so I
can stay there then. Sorry about all your daily business. My work
goes well; things aren't too bad; we'll talk more when I get there.

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their lives. Compare a U.S. or Japanese school where every classroom has
computers to accelerate every skill. Compare the opportunity to reach
multimedia references for French, astrophysics, and veterinary medicine.
The sort of education that many parents in the United States see as their
basic right is not even the remotest possibility here. Yet such educational
possibilities exist, they hold the keys to economic opportunity for many,
and these opportunities are desired by people here. People will try to
join the Information Age even if it requires extraordinary expenses. My
argument is that such expenses assumed on the "open market" involve a
perverse aspect of the "invisible hand," the wealthy picking the pockets
of the poor at every step. Buying the prerequisites for competition
(always at a markup, always several years behind the technological

curve) is perfectly "sustainable" so long as the fields here keep pushing up enough maize to sell for hard currency. It is also unreasonable and absolutely inconsistent with the dominant equal-access concept of a free market. I cannot say here who exactly should provide the hardware, software, and communication links that I feel should exist for every secondary school that wants the technology. Perhaps a small tax to "level the playing field" raised under the auspices of the WTO, anywhere but from the knotted *kanga* (a cloth worn by women) cash hideaways of the people of Malangali. Such a transfer should not be considered aid but equity. This is the only way for the advocates of the free market to be consistent with their rhetoric that opposes protectionist trade policy and government social spending in the name of "structurally adjusting" people here out of material poverty and into life in the global economy.

The technology and whatever comes with it will arrive here whether or not the reader or my neighbors approve. The question is, who will gain from Africa's involvement in the Information Age and who will lose? Within an hour of my completing the Iringa e-mail link, people were knocking at the office door with urgent requests to make use of it. Life here in Malangali is tranquil without the pressure to transport ourselves daily to Cyberia. Already, however, people in Malangali are providing vocabulary that gets submitted regularly to an international Swahili dictionary project, perhaps a prototype for exciting Internet contributions from here yet to come. They are trying to make decisions about malaria treatments for their children while their doctors have no access to recent medical research. They are about to sell their maize harvests in a market heavily influenced by computerized futures trading. Cyberia sporadically pushes her limits ever closer. Twenty years from now a researcher could well choose to examine the changes associated with another two decades of local/global interaction. However, the interaction is already underway. Though we have no phones, electricity, or computers, it is not too early to begin examining the ways these two villages do and might relate.

Notes

1. Swahili dictionaries include Gerald Feeley, *Friendly Swahili-English Dictionary* (Arusha: Training Centre for Development Cooperation, 1991); Frederick Johnson, *Kamusi ya Kiswahili* (Nairobi: Oxford, 1935); Frederick Johnson, *A Standard Swahili-English Dictionary* (Nairobi and Dar es Salaam: Oxford,

1939), and *A Standard English-Swahili Dictionary* (Nairobi and Dar es Salaam: Oxford, 1939); Ludwig Krapf, *A Dictionary of the Swahili Language* (New York: Negro University Press, 1969 [originally 1882]); Arthur C. Madan, *English-Swahili Dictionary* (Oxford: Clarendon, 1894), and *Swahili-English Dictionary* (Oxford: Clarendon, 1903; French and European Publications, 1992); D. V. Perrott, *Concise Swahili and English Dictionary* (Kent: Hodder and Stoughton, 1965); Charles Rechenbach, *Swahili-English Dictionary* (Washington, D.C.: Catholic University of America Press, 1968); R. A. Snoxall, *A Concise English-Swahili Dictionary* (Nairobi: Oxford, 1958); and *Taasisi ya Uchunguzi wa Kiswahili, Kamusi ya Kiswahili Sanifu* (Dar es Salaam: Oxford, 1981).