

## **Expedition No. 7 to East Africa, Transcript**

Color Coding: Sorghum, Millet (No rice was seen on this expedition)

Expedition # 7 (East Africa – Nov. 1, 1969 – Jan. 13, 1970: 2 ½ months)

INTRO BY HVH2

This was to be the third phase of what I have called the African Trilogy. For Jack Harlan the pace of expeditions was picking up. Expeditions 5, 6 & 7 were all to Africa. Exp # 5 was to West Africa, Nov 24, 1967 – March 13, 1968 (3 months and 19 days); followed 6 months and 7 days later by an expedition which began in East Africa and swept across the savanna to West Africa and lasted from Sept 20 – Dec. 22, 1968 (3 months & 2 days). The third and final phase, after a break of less than a year, Expedition # 7, was to be concentrated in East Africa. It ran from Nov. 1, 1969 to Jan. 13, 1970 – a total of 2 1/2 months. From the beginning of the trilogy to its end Jack Harlan was at home only 65% of the time.

So, after about 11 months home after the African sweep (Exp. # 6) Harlan set out again. This time the objective was East Africa. Towards the middle of the previous expedition (See journal for October 28, 1968) he had speculated that the center of origin for Sorghum might lie in East Africa. When he got this revelation he was already finished with the East African phase of this expedition. He was in Nigeria and when he was making his evening journal entry for October 28, 1968 he just – out of the blue – asked himself: “Is sorghum East African?” He had spent the previous five days at the herbarium at the Institute for Agricultural research (IAR), in Samaru, Nigeria. He took notes from the herbarium directly into his journal, but then on Oct. 25 through 27 there are no dates. There are no pages missing. What he did was he spent those days in the herbarium taking notes in his journal and did not enter any dates; but he entered the herbarium on Oct. 24 and emerged on Oct. 28 with the question: “Is sorghum East African?” When he got back home, or before that, he began to adjust his schedule to return again, as soon as humanly possible to East Africa to look for the origin of domestication for the No. 4 world crop: Sorghum.

This is Harlan’s first visit to Egypt, his second visit to Sudan in two years and his second to Ethiopia. The first was in 1960. Harlan only spent 2 days in Egypt and most of that time was in the museums. He is looking for sorghum and what he finds in Sudan is some very unusual varieties, both wild and domesticated and interesting crossings going on between them. Uganda does not have a great amount of sorghum and Harlan concludes that there is no center of origin in this area. Although Harlan finds some wild and weedy sorghum in Kenya, again it does not qualify as a center of origin.

### **INDEX TO THE NATIONS VISITED ON EXP. NO. 7**

[Champaign](#) to London (Nov. 1-2: 1 day)

[London](#) (Nov. 2-7: 5 days)

[Egypt](#) (Nov. 7-9: 2 days)

[Sudan](#) (Nov. 9-14: 5 days)

JACK R. HARLAN EXP. SUMMARY NO. 7: NOV 1, 1969-JAN 16, 70 (2 ½ MONTHS)  
EAST AFRICA: EGYPT, SUDAN, UGANDA, KENYA, ETHIOPIA, SPAIN & PUERTO RICO

[Uganda](#) (Nov. 15-26: 12 days)

[Kenya](#) (Nov. 26 – Dec. 11, 1969: 15 days)

[Ethiopia](#) (Dec. 11, 1969 - Jan. 6, 1970: 26 days) (Second time to Ethiopia)

[Europe](#) (Jan. 7 - 13: 7 days)

[Puerto Rico](#) (Jan 13 - ?)

### **TRANSCRIPT OF EXP. NO. 7 JOURNAL**

#### **Notes on inside cover to journal:**

**[Left inside cover of journal]**

Home phone 217-356-4138

Office -333-4376, 4377

USDA Plant Inspection Station

14<sup>th</sup> St. and Independence Ave., S. W.

Auditors Bldg.

Washington, D.C.

Att. Miss. M. L. Haines

Dr. W. D. Clayton

TEA HOTEL, KERICHI, KENYA

Sorghum Meetings, Meyaguez, P. R. Jan. 13, 14, 15

I am on at 10:20 Jan 15.

Contact K. F. Sahertz, Dept Soil & Crop Sciences

Texas A & M University

College Station, Texas 77843

Also Fedrick R. Miller

JODA/ARS

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Federal Experiment Station

Mayagüez, Puerto Rico, 00708

D. Zohrey due in Addis Dec. 10-12

The Rockefeller Foundation

17, Kautilya Marg, Chanekyapuri

New Delhi, II, India

Also, R. F. P. O. Box 7543, Nairobi, Kenya

**[Right side - a blank page]**

At Kew

Chick locations of Selevcidus, & all species

Archaeobotanical Material from luianga et. al

Pennisctum X

Sorghum – cult races

Hordeum violaceum for Fikret Demirkan

Crop Resear4ch & Intro. Center

Ismir, Turkey

Conversions:

Egypt: 43 Piastres / Dollar

Sudan: 34 Piastres / Dollar

Uganda: 7 Shillings / Dollar

Kenya: do

Ethiopia: \$2.50 Eth / Dollar

Cash Transactions:

UK \$50.00

UAR \$30.00

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20.00

15.00

4.00

1.00

Sudan \$50.00

\$50.00

Uganda \$50.00

\$50.00

(also check for \$50.00?)

Kenya \$50.00

\$300

Ethiopia \$50.00

\$10.00

\$600

**[Backside of blank page]**

Vivi Tackholm

Botanical Museum

University of Cairo

Zaki Eskander

Cairo Museum

Rockefeller Foundation has an office in Nairobi

[Written along side of page:] Soils Course Contacts U of I

Mr. Hugh Diggett

East Africn Agriculture and Forestry Res. Org.

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(EAAFRO)

Serere, P. O. Soroti, Uganda

**[Page 1]**

ABDEL HAFEEZ A. EL-RUFAIE

ASIIA 5757 Woodlawn, Chicago Ill. 60637

[Written along side of page:] SUDANESE CONTACTS

Dean Mohamet A. Nour, Minister of Agriculture, Dean of Agric. U. of Khartoum, Shambat

Dr. Ali E. Kambal 33282 33804

Dr. El Saeed El Saeed (Agron.)

Mahmoud Ahmet Yousif (arranged trip)

Minister of Agriculture, Office of Foreign Relations

Dr. Kamal Agabawi Dean of Agric.

\_\_\_\_\_

Kurtz' 1963 Contact: Ballal Abdel Mottalib

Gezira Res. Sta., Wadi Medani, Sudan (U. of Arizona)

\_\_\_\_\_

Dr. Monem Balba, Dept. Soil Sci. & Plant Nutrition

College of Agric, U of Alexandria, Alex. U.A.R. (U of I Student)

\_\_\_\_\_

KENYA CONTACTS (also UGANDA)

Dr. Isaac MWAI, Dir. Of Agric. Box 30028, Nairobi, (Wheaton III)

Sam EYEDU, Dept. Agric. P. O. Box 7065, Kampala, Uganda

Aberi Augustine MUKASA-KIGGUNDU, Kwanda Res. Sta.

Box 7065, Kampala, Uganda

Christopher Assa ONYANGO, Soriba College, Private Bay

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P. O. Maseno, Kenya

Antonio Malaquias D'Costa, Siriba Training College

Box 20, Masena, Kenya

Mohammed Zulquarnain, P. O. Box 1485 Nairobi, Kenya

**[Pg 2]**

Sites of Sorghum aethiopicum K

Tendelai (Gosh Delta), Sudan K

Zaidub, No. Province, Sudan K

Adu Halil, Kilometer 8, Kordofan, Sudan K

Jubel Moya, Sudan K

Nagm Eldein, Sudan K

bet. Abu Hasheim and Karkou, Sudan K

Khor Remeile, Sudan K

Hadaleia (Gosh Delta), Sudan K

Jebel en Nasala, Khartoum – Kassala Road, Butanu Plain K

Wr. Dayra, Sudan

Bir Senj, Wadi Mugaddam, boundary of Kordofan – Thartoum Prov.,

El Glazalam, Sudan

Tonj, Sudan

?bel en Nasala on Kassala – Khartoum Rd. Gedarex Dst. Kassala Prov.

Nea?r Sonj, Wadi Magaddem; boundary Khartoum – Kordofan, Kordofan Prov., No. dist.

? w. Jebel Khurwa, W. of Sodiri 14° 28N; 28° 36E MAR

?? 4= Shambat Herbarium

?? 2R = Min. Animal Resources Herbarium,

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??PE in MB Kotschy "In campis sorghis vulgaris ad montem cordofanum Arasch – cool 10.10.1839"

**[pg 3]**

#### ETHIOPIAN CONTACTS

Mr. Monte Parr, American Mission, Dembidolo

Dr. Melak H. Mengesha, Dean College of Agriculture

Alemaya 3

Haile Selassie I University, P. O. Box 138, Dire Dawa

Dr. (Dag) Dagnatchew Yezcov, HSIU, College of Agric.

Debre Zeit, Ethiopia

Mr. Tesfaye Tessman, Debra Zeit

Dr. Makonnen Kebret (Formerly) Dean at Alemaya

Mr. Werqu McClure, Amer. Presbyterian Mission Addis Ababa

Rev. Harold F. Kurtz, do

Rev. William L. Murry, Baptist General Conference, Mission, do.

Mr. Hodges, Sudan Interior Mission, do

Ato KEBEDE W. SENBET (acting in charge)

Ato ZEWDUD OUOMER (MS. Kemer State)

**[pg 4]**

Wild sorghum noted in Ethiopia at:

Awash Valley nr. Metahara, S. Fantale Mountain

Bet. Dire Dawa and Mieso, edge of Ahmer Mts., abundant bet. Debra Sine and Combolcia (Kembolcha\*)

Tessenei & environs [opp. Kassala in Sudan]

Didessa R. NW Jimma

Didessa R. north & west of Nekempti

Also along Gibi R. nr. Jimma

\*Rachie impressed by this one.

Isabella numbers of wild sorghums fr. Ethiopia 68I 5792\*, 6317, 6319, 6321, 6322, 6327, 6328 [and 5983B] 68I 6496      \*This one for sure Saeth.

Lucas 1964 'Plant Remains of ancient Egypt' or something of the sort – 4 editions, the best cotton in 1<sup>st</sup> C.

Sesame mentioned only in 3<sup>rd</sup> C BC      no remains

Dr. Henri? Riyad

Rm 43 Case B 69902/3 Hemaka 5<sup>th</sup> living [?] Step Pyramid at Saqqasa [?]

Rm 12 Case I 2321 bread

2304 dates, revisions etc. Doum

Rm 49 case 138 4627? barley

### [pg 5]

Museum – items of interest – Model sawing timbers / flat rope – very modern in appearance / woven screen for cleaning grain / spindle whorls for flax! i.e. not necessarily for wool / models of fishing: two boats w. net between / priests ? wigs [here he has a little drawing of a face with a hat of some kind with small dots and then he continues] black & colored to be kindly why? – wig boxes / sandbags everywhere in US/AID sacks marked “Donated by the people of the United States of America nit to be sold or exchanged / medical instruments, incl. forceps, small knives, probes, fine scissors / weaving equipment w. ornamented bobbins & shutters, fine work / fine cloth-like strainer (fir beer?) / King Tut’s tomb had boxes of barley & small wooden bins of emmer / also boxes of a number of plant materials coriander, melon seeds, dates, a number of things I don’t know or don’t remember /

Scenes of everyday life at tome of Ti (?) sow beating sheaves of emmer against a post (stone?) and what looks like fishes & the men get them out again (I think) check in detail.

### [pg 6]

Saturday Nov 8 Retrospect by the banks of the Nile – Nov 1-2 got off ± on time. Kanti & Phil dropped by to see me off, which is more than my children did<sup>1</sup>. Feeling sluggish and depressed; may be partly the G-G shots. Anyway, it all had a deadly sameness: O’Hare, the stupid long wait; the stupid TWA & on into

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<sup>1</sup> In November, 1969 Sue was married in Rhode Island & Richard was away at school in Chicago. Harry and Sherry were living with their parents in Champaign and, yes, they should have done more to see their father off.



the night. Arr. London mid morning cloudy and very warm. Changed money and reconfirmed with Japan Airlines and requested that they make a hotel reservation in Cairo –NOT THE NILE HILTON – walked to bus stop, took shuttle to Hounslow West Station, underground to Turnham Green, transfer to District line & Kew Gardens, walked to hotel, put up in annex – large house, large double room, quite nice & more than necessary. Rounded a few familiar pubs in the evening & to bed. [Note: this pp had been inserted at the top of page 6, immediately followed by the Nov. 3 entry. The entries continue in order and on page 8 we see his Nov. 8 entry, which is much different from the one on page 6. My working theory about his entries is that he fills out his journal each night with a last drink of scotch back in his hotel room. But, he may have left room on page 6 at the top for some reason, which now cannot be recovered and came back on Nov. 8 and put his “Retrospect”. A reading of Nov. 8, below, does not seem to allow for some time on the banks of the Nile to have this retrospect, unless the hotel is on the banks of the Nile. But, this strange entry ends with him in London. This is hard to reconcile; however, it may have something to do with the reaction to the G-G shots he received. HVH2]

[Nov. 1-2 Departs Champaign for London. Jack Harlan is 52 years old.] PN Sunday Nov. 2  
Changed \$50.00 cash

Nov. 3 Kew in London [PN: at Kew, archaeological **sorghums** of Iniaugh<sup>2</sup> are there guinea corns // Khami Ruins<sup>3</sup>]

[I think we can say that Harlan was in London, at the Kew, from Nov. 3 to 7. Then he flew to Cairo.]

Nov. 3 (Mon) [in London] “No breakfast until 8:00. No matter. Didn’t wake up until nearly 9:00. Met Bos on the walk – walking vigorously despite his 70+ years. Saw Clayton & later Hubbard – all moved into the new wing – very fine. The library now in one place. Glenn Burton showed. Boghdan came over & invited us all to dinner at 5:00. All day on distr. of Cynodons. Intense but got only part way. Evening at Boghdan’s very [pg7] nice & pleasant.”

Nov. 4 (Tues) “Rained! & got pretty soaked on way to Herbarium – all day on Cynodons but more or less finished. Asked Hubbard about the Pennisetum<sup>4</sup> & he put me right on to it. It is P. schweinfurthii<sup>5</sup> after all – different part of genus & may not cross, it is true. Dinner at Star & Garter – not much.”

Nov. 5 (Wed.)” Guy Falwkes’ Day. It had cleared, bright & cold. Worked on sorghum until I got dizzy. Tried a tour of the garden but got thrown out at 4:30 after 15 minutes of it. Decided the hell with it. Hiked to Richmond in eve to see bonfires & fireworks. Not much. Dinner at the Bistro expensive & not all that good. Hiked back in a frosty night.”

Nov. 6 (Thurs) “Did a few more sorghums & ran down P. violaceum.”

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<sup>2</sup> I cannot determine what this word might mean. HVH2

<sup>3</sup> Khami Ruins west of Bulawayo. Zimbabwe, once the capital of the Butua Kingdom of the Torwa dynasty (Wikipedia),

<sup>4</sup> Pennisetum is a genus of grasses in the family Poaceae, native to tropical and warm temperate regions of the world. They are known commonly as fountain grasses (Wikipedia)

<sup>5</sup> Pennisetum schweinfurthii Pilg.: Sudan and Ethiopia (Africa & Madagascar)

*Pennisetum violaceum*

From Kew Gardens Web site on *P. violaceum*: (Wikipedia: HABIT Annual. Culms erect, or geniculately ascending, or decumbent; 30–300 cm long. Ligule a fringe of hairs. Leaf-blades 15–100 cm long; 3–25 mm wide. <http://www.kew.org/data/grasses-db/www/imp07819.htm>.

“If *Pennisetum* ‘X’ is out of it, must go back to the others. Clayton calls them annual purpleenums, but they are not all that close to me. Did a little library work & out to Clayton’s in eve. Also very nice, if a bit stilted. Neither one of us relax very well. He [pg 8] lives at Virginia water near Windsor & we stopped to see outside of castle & drove the grounds. Back by train, taking about one hour. Packed & sorted, bathed & to bed late.”

**Egypt (Nov. 7-9)**

Nov. 7 (Fri.) [in London] “Decided to go by public transport. So, up by 6:30, left by 7:10 in a drizzle. To Turnham Green, changed to Action Town, changed to Hounslow West. Got on bus to airport. Lugged bags in a drizzle to terminal 3. Took just over an hour, so lots of time. Checked in, breakfast, off late on Japan Airlines to Frankfurt (1 hr), Rome (1 hr), Cairo arr. after dark & dreading the formalities. Actually, all very nice & easy & by JAL bus to Nile Hotel & except for the forever tips & not having change, it was really very nice. Walk along the Nile with the usual pimps & hustlers, but I think not so bad as formerly. Big laundry & to bed.”

Nov. 8 [In Cairo] Found Egyptian Museum with a little trouble & Zolzi Eskander with less trouble. A very harassed man, but very kindly, courteous, etc. Either they don’t have anything or they gave me the run around. I was introduced to Director of the Coptic Museum and (I think) of the Islamic Museum. Chief Curator Dr. Henry (?) Riyad was to open any cases I wanted opened. There really wasn’t much (see p 4 plus King Tut’s material). There is a great deal in the museum and imported historical pieces, Ramses II in variety, King Zosher (he looks a bit African to me) and many authentic & genuine pieces. Still, you can get about as much out of British Museum or (almost) Field Museum, Chicago. One sarcophagus looks + like another etc. King Tut is featured, of course & should be. Imagine what treasure a king like Thutmose III or Ramses II or Amenhotep II must have gathered for their tombs! – looted & lost. Anyway, after bounding around a bit I decided to try & locate Vivi Tackholm. She is the one I should have contacted in the first place. Got nowhere, but in my search for the Science Museum was leached by an Arab & wound up paying 9.00\$ US., plus £ 1.50 for what is purported to be “pure” oil of Frankincense, Chypre, Attar of roses, and lotus to be sent to Illinois. Well, I’ve been suckered before. We shall see. Got ticket changed so as not to waste so much time & will leave in the middle of the night tomorrow.” Signed up for Luminere show & paid £ 1.75. At 6:30 nothing came & by 7:30 they put a French pianist & me in a cab & sent us. They wanted to charge PT 50 more. The Frenchman paid & I squalled & didn’t. We arrived late, but the show was pretty good – in French, which probably would not be as corny as English. The French musician didn’t

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like the music, but that is his field, not mine. Back about 9:00 pm & no dinner. Had sandwich & beer & let it go. Zakry Iskander<sup>6</sup> had given me a copy of his book (autographed) & I read until nearly 1:00 a.m." [Put Nov. 8 "Prospectus" here. His hotel is on the bank of the Nile.]

Sunday Nov. 9. "Up in fair season & signed up for tour No. 2, 4£. They arrived late as expected & the guy put on the hard sell to take tour No. 1 (£ 6.400). I refused & we went to the museum again. I left a note for Dr. Riyard not to bother about the seeds. It wasn't important. It was now apparent why the guide wanted me on #1. I was the only customer for # 2. We made a deal. I moved to be #1 for £ 1 extra. It turned out O.K. but not too special. Three Japanese, one Italian girl & 2 English girls. The Japanese were friendly. We went from the museum to Memphis, saw a colossal Rameses II, the 'alabaster' Sphinx, the step pyramid of Zoser from a distance and the tomb of Ti (?) with the scenes of daily life. Then to Giza & down into a pyramid & around the sphinx. Place swarming with school kids & about as many camel drivers as tourists. Tourism has fallen on hard times since the 'war'. From thence to the citadel & mosque of Mohammed Ali, a copy of Haga Sophia, said to be the best in Cairo. If so, the Egyptians don't have much imagination. Then to a couple of shops. No purchases & finally to hotel ca 4:30 pm with no lunch. Beer & sandwiches for supper. Rested. Settled Bill. Rested & set off in a taxi at 12:45 a.m. on 10<sup>th</sup>.

#### **Sudan (Nov. 10-14)**

HVH2 notes: The nation of Sudan underwent considerable economic and political turmoil its entire modern existence. A coup in May of 1969 brought in the Nimeiri era. In the 1960's Sudan was being seen as the future breadbasket of Africa; however, frequent drought in the 1970's and 80's plunged the country into crisis. The problems were concentrated in the Dafur region on the western side of the country and in the southern area, which had always been a half-independent area and finally. In 2011 South Sudan finally received full independence from Sudan. Jack Harlan's journey through Sudan kept him in relatively safe areas; however, the danger was always lurking in the background, although you could not tell it by his Journal notes.

Mon Nov 10: (PN: "to Khartoum") "Sudan Airlines bus to terminal & the usual stupidities. Slow, but got through it all. Plane late – ca 2 hr flight. Dawn spectacular with two planets<sup>7</sup> one over Venus & brilliant yellow horizon & the plane turned lavender for some reason. Slow customs, taxis to Sudan Hotel, taxi to Shambot & saw Ali Kambal<sup>8</sup> – Registered passport & took following notes at Univ. of Khartoum Herbarium.

Cynodon dactylon (only) Khertoum (T) / Gabel El Ahmer w. Cairo (A?)/

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<sup>6</sup> I cannot find an author by this name in the late 1960's, however Zacharia Iskandar or Iskandar Zacharia is a somewhat common name.

<sup>7</sup> The other planet was Jupiter. Harlan could not see it, but Mars was between Venus and Jupiter.

<sup>8</sup> Ali E. KAMBAL, (aka Ali Alkhidir Kambal), with the University of Khartoum from 1958 to 1979 in various positions, including Dean of Faculty of Agriculture and Head of the Department of Agricultural Botany; he was afterward an agricultural advisor in Yemen, Pakistan and Somalia. See:

[http://staffcv.uofk.edu/agriculture/Botany/aakambal%20?CURRICULUM\\_VITAE:Experience](http://staffcv.uofk.edu/agriculture/Botany/aakambal%20?CURRICULUM_VITAE:Experience)

The I arrdus<sup>9</sup> had very long internodes – certainly not T. Neytete, Jabel Murra (A) / Junction of Wadi Azum & Wadi Saleh **Sorghum virgatum: Silt islands m. Khartoum / Kosti, white Nile (very odd, but likely S. vergatum) / Suni, Jabel Marra (Wickens collection labeled S. lanceolatum, but is surely S. virgatum) / Nyerlate, Jabel Marra (Blair collection labeled S. Sudanese, but looks like S. virgatum unless very depanperate S. lanceolatum) / Golol, Jabel Marra (labeled S. macrochaeta, but rather a smutty head of the same S. virgatum of the mts. / Pennisetum darfuricuns Mr. Golol, Jabel Marra / P. mollisimum = violaceum ? Une Ruaba, Sudan / Jabel Simi, Jabel Marra / \* P. ochrops; Jabel Simi, rock crevices / Zalingei dominant shade, alluvial soils / do. common on flood plain, soils cropped in wet weather / **Oryza longistaminata: w. Debonei, Jabel Marra 12<sup>0</sup> 10' N 22<sup>0</sup> 46' E frequent round swamps in lower Azum. / #****

Hiked from University to Hotel – farther than I had remembered & took about 40 minutes. Beer, lunch & sack out. Trip is shaping up thanks to Ali Kambal. We shall see.”

Tues Nov. 11: “Got up at 6:00 & repacked, ready by 7:00 just in case. Had breakfast & waited about 10:00. Ali called and said the car would pick him up about 11:00 then get me. About 12:30 he came, but chauffeur had things to do. We left about 2:00 pm for a ride calculated at 10 hours. Sounds familiar. I am sure Ali put in a lot of effort to get the show on the road at all. Very, very flat country with flat-topped trees, overgrazed & small villages for miles & miles. Touched the Blue Nile from time to time & there was green & crops & larger villages. A sugarcane scheme that isn’t doing too well. Cane is thin. Then southeast & ruts got deep & **sorghum more common & taller as we went.** Finally dark & some jackals, a tea break, bread & cheese break, great expanses of grassland in the headlights, more jackals, more grass & finally lights in the distance. Gedaref (Google: Al Qadarif (B)<sup>10</sup>). 1<sup>st</sup> day of Ramadan & I fasted with the boys. The hotel food had given me a stomach ache. Stars incredibly brilliant at night. Could see spiral nebula of Andromeda without, and other than, my glasses [binoculars]. Arrived ca 12:00 midnight.”

Wed Nov 12<sup>11</sup>: “Up at 6:00 waited. Tea; Ali had none. As it was after sunrise. Waited. About 9:15 finally off in a Mr. Walsh (N.M.)’s land rover. He is UN<sup>12</sup> planning officer for the Simsim Project<sup>13</sup>. The locals were to provide transportation, but the driver didn’t want to go – Ramadan. **Sorghum fields here have a different combination of characters than I have seen before. Weed X cult often leads to a fully cultivated head type and plants with thick stalks & wide leaves, but the spikelets are a large drummondii and shatter. They volunteer all over. The natives do not harvest them & let the seeds shatter in the field. Even saw & photographed a crook-necked**

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<sup>9</sup> Not sure what this is. HVH2

<sup>10</sup> Gadaref (Al Qadarif) is a village on the Blue Nile about 450 km from Khartoum, which lies at the confluence of the White Nile and the Blue Nile.

<sup>11</sup> This entry (Nov. 12) corrected and edited by Adi Damania, 11-14-13

<sup>12</sup> ADS (Agricultural Development Service, with the World Bank). World Bank Report of July 17, 1968.

<sup>13</sup> The “Simsim Mechanized Farming Project” was one of 8 projects in Sudan conducted to test out different aspects involved with turning Sudan into the breadbasket for the Middle East and Africa. See:

<http://archive.unu.edu/unupress/unupbooks/80042e/80042E00.htm> and the World Bank Report of July 17, 1968.

type. Occasionally the non-shattering genes come though & you get a small, open head with small, black spikes. Covered seed, but non-shattering like some of the things grown in Ethiopia. Is the wild thing *S. aethiopicum*? If so does this recombination mean we are not getting preferential pairing with *S. aethiopicum*? Was Snowden<sup>14</sup> right after all? Collected a few pops & a little millet. At Simsim left Ali w. friends & Walsh & I toured project. The wild *S.* up to 15' tall in wadi bottoms only. Much wild X cult monkey business. Came back ca 2:00 for beers & lunch. Worked on collection through the heat of the day, then more beers, and next door to a 'Ramadan breakfast' at 5:30, after the sun went down. Indian food & only so-so. Then another beer & a whisky while waiting for car & Ali & finally off. Back at Gadaref about 10:00. We just had to eat again at the home of a friend of Ali's. To bed after 11:00, tired, but late meal did not set well & mosquitoes gave me fits. Not much sleep."

Nov 13: "This was a dandy! Up about 5:30 for 6:00 departure. Tea didn't arrive, so set out with no breakfast like a Ramadanner<sup>15</sup>. About Ornahidara village a wild sorghum (probably the same as at Shimsim) began to become abundant. Soon it was not only in the wadi bottoms but all over the upland. The land is like a table & wadis may be 20 miles or more apart. Sorghum is a dominant grass all over here – at first rather good thornbush savanna, later the trees dropped out & solid stands of *S.* for mile after mile as far as the eye can see. There was some cymbopogon<sup>16</sup> & other things, but Sorghum is the dominant for miles & miles. At water holes we could find some small, green, late plants that looked like *S. aethiopicum*<sup>17</sup>. The tall, upland material too immature & shattered to tell much. In late plowed fields, the small green one common, so they are probably the same. The general picture held all the way to Kassala<sup>18</sup>, although in the resettlement projects (Nr. Khasm-el-Girba) (Google: Airport (GBU), Al Fushqa, Al Qadarif) overgrazing had destroyed all grass. Kassala in the Gash Delta turned out to be far out of our way & unnecessary (3 hours lost), yet I am glad we went because now I know how far this stuff goes. Got to Kassala a little after 12:00 & I broke fast enough to have 1 Pepsi cola, 1 Fanta, 1 Camel beer. Ali & driver staunchly stuck to Ramadan. Back we went & across the length of the Kassala irrigation project<sup>19</sup>. The same wild *S.* evenproher<sup>20</sup> with & without irrigation. Made only one collection because it was important to get out of project before sundown – roads & canals too complex to negotiate at night – bad enough in daylight. We made it & emerged on the Botan Plains where all vegetation was removed by nomads. Sundown & welcome water! How those guys must have suffered. I drank more than they did. On we went through the dark. Got lost a little & drove the wrong way for a while. The driver & I both noticed about the same time. I was

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<sup>14</sup> J. D. Snowden proposed a scheme for the classification of sorghums in 1936 which had 156 varieties of cultivated sorghums. See "The Origin of African Plants", page 455. I do not know what Harlan's question was.

<sup>15</sup> The Ramadan fast usually includes a *suhoor* breakfast before dawn, depending on local customs.

<sup>16</sup> Cymbopogon is a species of grass sometimes called lemongrass.

<sup>17</sup> Aethiopicum is the correct name for this species of Sorghum

<sup>18</sup> This was written up in Crops and Man (1<sup>st</sup> Ed) page 92, 93

<sup>19</sup> Kassala is known for its rugged Taka mountains, under which is a large reservoir of water used now for irrigation of sorghum and other crops.

<sup>20</sup> I cannot find this term or anything like it. HVH2

watching the stars which are fantastic in Sudanese nights & should have picked this up sooner<sup>21</sup>.  
Anyway, we finally made Khartoum & I checked in about 1:30 am.”

Nov. 14: “At Sudan Hotel – nothing to eat since 11:00 the night before – but I cheated on the fluids.  
Ramadan can be rough! Nineteen ½ hours on the road – and what roads! Three of us in the cab  
of a cormer truck. It takes patience, endurance + stupidity, but it was a good day. I learned  
something.”

[ON THE TOP OF PAGE 18 WE HAVE ANOTHER NOV. 14 ENTRY.] Fri Nov 14: “Too tired to sleep well.  
Got up at 7:00, breakfast at 8:00 & the first food in 34 hours. Walked up town to get a map &  
instead got exactly the same run around I got last year. Khartoum Bookshop said they were out;  
go to Sudan Travel Agency; they said they don’t have maps; go to Survey Dept tomorrow. I did  
that last year & they don’t have them either. Around the Oasis hotel. It has no sign on it in  
English but the locals call it Funduk al Naliah\*. It does look nice and next time, if any, I’ll try it.  
Cab back to Sudan [Hotel]. Wrote letters, packed, fussed like an old hen. Lunch & then sack  
out, but not for long. Dr. Kambal came for me at about 5:00 & we went to his family place for  
‘Ramadan Breakfast’. Sat on rugs & paddled about with our right hands. Really rather nice on  
the tasteless side, **but the sorghum preparations of interest.** First is “Kisara” a flat bread made  
like injera with fermented batter & all. From this two kinds of Asbri of dried kissra & some  
seasoning steeped in water. The white Abi has chunks of kissara floating in it plus seasoning.  
The red rather strong tasting slightly sulfur & molasses-like, the white is wild but acid. “Acida” is  
a fine porridge or pudding a bit soggy & tasteless, but usually with a nice tasty sauce over it.  
“Nasha” is a sweet drink with sorghum base. “Marissa” is a beer, and “Aragar” is a distilled  
booze. Ali was kind enough to take me back early & gave me a small, not too useful, map of the  
Sudan. Finished writing, packing, sewing, etc. by about 10:00 pm & sacked out.”

#### Uganda (Nov. 15-26)

Sat Nov 15: “Up a little after 4:00. Airways bus to airport. The usual & off the ground only a little late.  
A long, long flight to Juba<sup>22</sup>. The Gezira<sup>23</sup> is immense! A tremendous project. Then an awful lot  
of nothing. Part of the route cloudy, probably mostly over swamp. Customs at Juba & then on.  
A vast region of hardly any settlement. Surprisingly few trees – endless rolling grassland a few  
roads, a few clusters of houses near them & endless nothing, empty, empty, empty. Wonder  
why? Is this a real barrier? Finally nearing Lake Victoria evidence of considerable population,  
but the agriculture here is tropical in aspect. Home gardens, well separated from the cereal  
culture of the north. At airport [Kampala?] picked up message from Hogett w. instructions.  
Followed them & arrived at Mekere College<sup>24</sup> guest house & a message from Rachie<sup>25</sup>. He came

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<sup>21</sup> My father was an amateur astronomer. He built his own telescope; but navigating by the stars in a strange and  
foreign country is astonishing. HVH2

<sup>22</sup> Juba is now the capital of South Sudan. HVH2m 2016

<sup>23</sup> Gezira Scheme (huge and moderately successful irrigation project in Sudan, south of Kartoum, had its beginning  
in the 1920’3 & 30’s.)

<sup>24</sup> Makerere College Kampala, Uganda

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in evening & we toured the farm & saw his work w. pidgeon [pigeon] pea, **pearl millet** X P. *purpureum*<sup>26</sup> crosses, *campens*, maize & etc. Met Collin Leakey a son of THE Leakey & saw his bean breeding: Interesting concept, beans in tropics bred for seeds (pulse) & in temperate zones bred for green beans (vegetable). This should mean rather different heredities & races & crossing the two might give interesting results. It does; but he is interested mostly in green beans. He also brews sorghum beer, buying the malt in the market & adding malt extract, sugar, etc. We sampled a glass & quite good if a little acid. The Rachies then fed me, gin & tonic made of local waragi (banana base). Delicious & then took me out to an Italian restaurant. All very nice & back to rest house 10:ish.”

Sun. Nov. 16: “Breakfasted & walked downtown where a hyatus (hiatus?) occurred that I had best forget. Let it go. Back at the guest house a note said that a P. G. Davis would collect me at 10:30 – it being 10:45. So, I dashed back & packed & paid the bill & he came & we took off in a VW station wagon to Sererere [Serere<sup>27</sup>]. Nice to be taken care of. I was delivered to Dr. Leroy Peters’ house & a nice welcome. In eve saw David Andrews briefly at their club. They have a rather nice one with a golf course with grass greens instead of browns, a swimming pool, etc. Not fancy, but nice. Then supper, a visit & to bed – obs. Peters working on my laundry that has fallen behind.”

Mon. Nov. 17: “Easy. Up ca 7, reshuffled the luggage & left the suitcase. Saw Andrews again briefly & Dean Barry an Entomologist working on borer, miage<sup>28</sup>, shout fly, etc. Shout fly by far the worst & of the borers *Chilo* is the bad one. Took off something after 9:00 & drove to Chobe in Murchison Falls National Park. **The pattern consistent the whole way – *S. vert*<sup>29</sup> scattered & in small stands the entire route. Not much sorghum, but most field show effects of *S. vert*. F1’s & backcrosses to cult more or less identifiable. Not much else & very different from Sudan. The pattern uniform.** Entered the Nat’l Park & drove slowly to lodge. Saw buffalo, giraffe, wart hogs, baboons, antelope (prob. Kob) , vulture nests, turtle, etc. Settled at lodge & worked up specimens. Took short ride in dusk. One group of >50 elephants & many others & took photos in fading light. On return the herd was crossing road & we treated them with respect. One threatened us twice & we gave way. Many small ones. Back for a shower, working up notes, etc. A good day, but I wonder why Hugh Doggett is at **Serene – this is NOT a sorghum belt.**”

Nov. 18 Tues. “Route – about Murchison Falls Nat’l Park.(A) – LALEM (B) – PAKWACH (C) – PARWERO – REGEM – MUTIR (D) TURNOFF – PAWOR INDG AJIA (Pawor – E) – OLEVU (F) – ARUA (G) &

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<sup>25</sup> Kenneth O. Rachie, a plant breeder working for the Rockefeller Foundation. He served in several countries in his career and had a particular theory about a center of origin for sorghum in Ethiopia. He met with Harlan a couple of times in Uganda and Harlan took a special seed collection trip in Ethiopia to try to find his “gene center” but could not find it.

<sup>26</sup> *Pennisetum purpureum* also known as Napier grass (Wikipedia)

<sup>27</sup> Serere is a district in Uganda north of Lake Victoria

<sup>28</sup> A midge is a small fly of one of several families of flying insects.

<sup>29</sup> “*S. vert.*” stands for *Sorghum verticillatum* Kuntze (a wild relative of cultivated *Sorghum bicolor*) Adi Damania, personal email.

vicinity – ARIVU (H) – NEBBI (I) – PARWACH (J), GULU<sup>30</sup> (K). -: The Nat'l Park deferred w. evident restricted burning. Grass tall, trees dying – they say from too many elephants. Maybe, lots of elephants, some buffalo, Uganda Kob (harems & bachelors) hartebeast [hartebeest], giraffe, etc. No *S. vert* in natural vegetation. This is found scattered, sometimes in fair abundance in fields, apparently a weed only – did not see it at all as a really wild plant except possibly a few plants in *P. max* stand in creek bottom. Otherwise a weed here. The *S.* is bicolor caudex, very lax, branches dangling, splits usually turtle-necked, often red, sometimes white. The interaction with *S. vert* is not spectacular. Apparent hybrids can be found & sometimes what looks like backcrosses both ways, but no great hybrid swarms, etc. Population not very heavy along the route. Two testing stations visited: Nr. Arva and at Nebbi. These trials not generally impressive, but you have to start somewhere. Much fuss over rooms at Acholi Inn, Gulu – finally settled.”

Nov. 19 Wed. “Route: GULU (A) – PABO (B) – ATIK (C) – PAKRLE (PAKELLE, EAST MOYO –D) – ADJUMANI (E)– FERRY – LAROPI(F) – DUFIL (G)- LARUPI (LAROPI) – MOYO (this is an area) – LAPOPI [he is returning the same way he came] – FERRY – same route to GULU -: the general picture the same. Same sorghum, mostly; some of the *S. vert* was a bit different w. many racemes/branch & dangling heavily a bit like the cultivated. The greatest amount seen N. of Albert Nile from Laropi to Dufil, Very little interaction with cult. Some improved short variety in a few fields. The whole trip very pleasant & interesting, but Uganda is no center of sorghum & we are out of range. The whole region is in cassava country now. What did they do before? NO YAMS at all. Probably inhabited by gatherers only with a little sorghum & millet. Neither are staff of life & more sorghum for beer than for food. Finger millet a possibility in first rains, especially, but the present agricultural system new & probably little or no agriculture in N. W. Uganda until lately. Finger millet widely used for beer also. Allen Tilman & a Mr. Ledger came in eve. & a long visit rehashing OSU. [THEN HE GAVE HIS ADDRESS IN NAIROBI, KENYA, WHICH I WILL FORGO, HVH2] also the Ford Found, P. O. Box 1081, Nairobi [Call Kikuyu 227 bet 8:00 & 6:15]”

20 Nov. Thurs.”Route: - GULU (A) – OGWAM (B) – OPIT (C) – AWERE (D) – JUNCTION – PURANGA (E) – OGUR (F) – LIRA (Exp. Sta.) (G) – AGWATA (H) – DOKOLO (I) – ATIRIRI (J) – SOROTI (K) (lunch) – SERERE (L).

From Gulu to Purango not a plant of *S. vert* seen. At Purango it was very abundant. Thence scarce & scattered to Lira and scattered mostly in villages & fields at edge of villages all the way to Serere, and more abundant than from Lira to Purango. The interaction is simply minor & apparently unimportant over the whole route. *O. longistaminata* in swamps e. of AGWATA & most other swamps from there on in.

A Dr. Tatums USDA and a Miller ? of Aberptummyth arrived inspecting & we had dinner at the Barrys with English couple Thomas?”

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<sup>30</sup> Gulu became their headquarters for several days. See separate page for description. It was & is the major metropolitan center of Northern Uganda with a University & poet laureate, Okot P'Bitek, who wrote his masterpiece, *The Song of Lawino* in 1966.



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Nov. 21 Fri. "Breakfast w. Tatum & Co. at Peter'. Off 10:ish in rain. Toured about in rain, not getting much & then on to Moroto. *S. vert* sporadic, mostly near villages, but no intro populations collected. Got a few weed & a few cult. Saw *S. vert* at Katakwi, but did not collect. Got run out of a field in IRIRI<sup>31</sup> & then entered Karanajo country. Interesting people dressing & acting something like Mossai. Near naked, arm bands, anklets, beads, labrettes, feathers in hair, carrying stools, bows & arrows & long spears, v. colorful, but wild & they say they spear other people rather often. The DC (African) said that in the two years he had been there, there were seven spearings in town. Rainfall low – acacia – and the town & roadsides seem to be covered with *Cola aridus* – at least that is my diagnosis. Easy day & not dusty because of the rains & feel a bit rested. Bought Karamajo handicraft 1 stool, porkupine necklace, banana seed necklace, snuff box & stone figure. Route: - Serere (A) – Soroti (B) – Arapai (C) – Amuria (D)– Akoramit (E) – Ashamvh (?)– Wera (F) – Katalawi (Katakwi – G) - Lothea (Iriri) (H) – Kokerls (?) – Moroto (I)."

Nov. 22 Sat. "Tried to get off early. Made it by 7:45. Route: - MOROTO – MATKEKILE? – LOKITANYA? (Kenya) – LORUKUMA? – 12 miles to East is Turkwell Irrigation Project<sup>32</sup> & return. Road very rough for 38 miles, then just washboard – beautiful views – acacia desert shrub – mts all about in the distance – a big sky w. lots of clouds. The Turkana look like the Karamajo but apparently aren't since they raid each other for cattle & spear each other. The whole lake Rudolph<sup>33</sup> basin out of range except for the Omo R. delta & a few patches along the rivers. The people profess not to like pearl millet & don't grow it – not much in Uganda either. At the project only 50 acres irrigated & water enough for only 100. A Perry Johnson in charge. A peace corps lad, Lynn Gallagher trying hard but crossways w. Johnson & probably others. They had been growing maize w. poor yields. Gallagher tried Doggetts *S.* tests & got yields up to 4500 lbs/A. So, went ahead with bigger acreage. The stem borers clobbered him. Only two applications DDT & there should have been 3 at least. Everyone blames everyone else. Near disaster. He had some collections from Omo R. Delta & some Turkana material also specimens of the borer & we got more. The hybrids he was growing look good otherwise & full of F1's with *S. vert* contamination in the production fields. Saw one *S. vert* plant on the project but only in bloom. The locals grow cowpeas – they are going to try soybeans developed in Belgian Congo. Not much else. Hot in aft. & arrived 5:ish & brought two knives & a beer straw from the local artcraft shop."

23 Nov. Sun: - "ROUTE: MOROTO(C) – KOKERIS (D) (Junction) – LOKOPO (E) – NYAKWAI (F) – MORULEM (G) – WIAWAR (Junct – now called ABIN, Google: Amin) (H)– ADILANG (I) – PATONGO (Junct.) (J) – A nameless crossroads – ORUMO (K) – OROMO (CF) – AMUGO (L) – ORUNGO (M) – AMURIA (N) – SOROTI (O)– SERERE (P)

At 15 miles w. KOKERIS saw WILD *S.* for first time. Looks like the thing in the Sudan & growing in thick strands of *Accacia Sahel* or at least the white-barked one. Again see & collected at 29 miles, also *Accacia sahel* (open) w. Kokeris, and a third time (swale w. palms) at 37 miles w. I

<sup>31</sup> (JRH Note) Village between the mountains on Moroto Rd. Nr. Lothaa of the map.

<sup>32</sup> The Turkwell (Turkana Irrigation Project) is in Kenya just on the Uganda border.

<sup>33</sup> Lake Rudolph is now Lake Turkana (Google)

think it continued to ABIM (WINWAR) and possibly as far as Adilang Probably crossing with cult, but everything so mature it is hard to say. Think I got shatter types at Morulem & that was the only population then no wild or weed until about Orungo, Amuria & Soroti & very little of this. The LABWOR HILLS material could be *S. aethiopicum*. At any rate, we have seed & will see.”

24 Nov.: “Notes on discussions: -

“LaRoy V. Peters: Finger millet 596 actually alive in world collection, but >800 numbers. Some 2185 numbers of Pearl millet but actual is much smaller. Finger millet is self-fertilizing - > ½ used for beer. Hot water emasculation 47° C for 7-10 minutes for Eleusine. Pensil used for *S.*<sup>34</sup>

“Doggett: - about 2 collections of guinea corn from West Nile Province but that is all. Uganda *S.* is ‘candatum’ – the male mess one continuous series. Certification may be impossible – too many intermediates / *S. aeth* & *S. vert* are different when crossed w. cult / *S. propingium* X cult gives Kaoliangs! / Field pops w. MS 3 50 top vars & attempt at random crossing. Selec. (female symb) Choice mess selection & alternate generations of selting & mass selection. / some wild characters show up. / will try to tune up the height. / Natural selection not considered satisfactory / 4 x pops. Auto x colch & later crossed w. *almium* to improve seed set. / These can yield 80-90% of a good diploid. / some pops sent to India & So. Africa. / another study: several thousand for World Collection reduced to ca 550 with M53 crossed w. realorer pollinaton bulk & the steriles marked for harvest so that all lines get included – good idea / M53 steriles may come out as low as 7-10% / To visit South Nyanya: Machalaos-Makereni. Majuau is there & also Tillman. A wild *S.* of macrochasta type in water courses along Athi R – along road to Arusha - / Much more but poor notes /

- A very fine visit w. Doggett & lunch at his place. I should have been listening instead of talking. In late aft. toured Pearl millet w. LeRoy – he is also using a population approach. Processed & packaged the collection 135 Nos so far. Saved out 3 key ones. In eve. The Doggetts and the De Silvas. Nice dinner. The De Silva’s are (he) Ceylonese – Portuguese name but no evident Portuguese blood (she) German from Munche & her mother who speaks little English. A boy & girl German – Ceylonese & very cute. Much gossip & all – little substance pleasant eve.
- Doggett doesn’t know *S. aethiopiaium* any better than we & may have the same accessions. He got his from Bill Rose (could be Jim Rose?)”

25 Nov. Tues “Repacked & reshuffled to get the loot in. To office & visit until car ready. Got off about 11:00 am. Driver did very well in the Peugeot until nr. Kampala & flagged by a pair of over officious cops. He is to go to court, but I think the cops were wrong & he’ll be O.K. Arrive Mekerere College<sup>35</sup> rest house after 4:00 pm. Room booked & message for driver to stay until Thurs & pick up Shumaker. Reviewed notes on the R. F. collection in Ethiopia. It doesn’t jibe

<sup>34</sup> In this section Harlan uses the / to organize his thoughts. I have used it in other places to denote a new paragraph, but here these are his /’s.

<sup>35</sup> Kampala

with my notes from Puerto Rico. We shall see if we can straighten it out. Maybe I could get off Thurs. instead of Fri. Now at 6:30 pm it's raining so I'll probably stay in tonight."

26 Nov. "Took seed to US Embassy & got them in the pouch (I hope). Got letter fr. Home & one about **Wener Gren**<sup>36</sup>. Went to Mekerare & did the herbarium (not much) & then out to Kamando herbarium (still less). Booked passage to Nairobi & finished off the red tape. More done than expected."

### Kenya (Nov. 27 – Dec. 11)

27 Nov. "(Thanksgiving) Visited w. Rachie briefly in morning. **He is very vague about the wild Sorghum** & said he never went to Tessenei – very little about that expedition jibes. Had an anxious moment over the late cab, but bus also late & no hurry. A WARAGI & tonic at airport to use up the coins not good in Kenya – an excellent drink that should really sell in US with promotion. The usual except no customs at all at Kenya frontier. Got to Norfolk Hotel & a room without bath – the place is jumping."

28 Nov. Fri. "Set out to find the herbarium & eventually got there via the Univ. Herbarium [Nairobi]. Met J. B. Gillett & introduced to the grass section. Lots of work ahead. Worked until late & hiked down hill to Norfolk. Called Allen Tillman & made date for tomorrow."

29 Nov. Sat. "Worked at herbarium all morning & out to Tillman's for lunch. Toured the Mogugu pastures, tried a set of bowls & killed aft. Then to town, changed clothes & Tillmans took me to dinner at the Pagoda – very good. Mrs. is Maigie ? the girls Beth, Ann & Jane, Connie married & Peter in geology somewhere. Some gossip about OSU & a little news about Schlehuber. Pastures appear to be *C. nlemfuensis* var. robustes<sup>37</sup> & carry a beast to 1 ½ acres."

30 Nov. Sun. Went to museum in A.M. Very good indeed – exhibits by the Leakeys, dioramas of mammals, stuffed birds, butterflies, shells, fish, reptiles, anthropology, geology, handicrafts & art etc. Well done. In aft took touristique tour of Nairobi Nat'l Park. Saw: hartebeest, wildebeest, Thompson gazelle, giraffe, zebra, ostrich (+ many small ones), baboons, blue monkey, other antelopes, lioness eating a hartebeest she had killed & vultures waiting for people to leave, warthogs & young & no doubt more I don't recall. Nice tour w. French couple plus another Frenchman & an American."

1 Dec. Mon. "To embassy & picked up mail. Three messages re: Less House, who wants to join me here – 'taint worth it. Wandered to US/AID & got little help, but they found RF for me & I went there & sent Lee a wire & a letter. Arranged to rent a car (got run-around from British High Commission) the morning shot. Aft to herbarium & finished it off. **Hiked stream valley to find**

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<sup>36</sup> The Wenner-Gren Foundation was instrumental in holding a World Conference on the Origins of African Agriculture in 1972, which became a book of the same title. Harlan is already organizing the W-G conference. The Preface to the book mentions a letter from W-G reaching Harlan in Ethiopia, not Uganda. HVH2

<sup>37</sup> C is for Cynadon.

the S. indicated & found a few spears, very green. Plotted distr. S. & made some plans to get some of it.”

2 Dec. Tue. (In Nairobi (A)) “Got the rented car - went to British High Commission w. letter trying to locate Less Picard. Probably wasted effort. Toured to Thika town<sup>38</sup>, saw & photographed the waterfalls, collected some wild (weed) S. Back to Nairobi, lunch & off on Arusha Rd (B). Vast plains with *C. nlemfuensis* v. common great herds of Massai cattle w. Massai carrying long spears. A very tall, very handsome people, proud & self reliant, self composed & confident. A fine looking tribe – plains also dotted with zebra, wildebeest, hartebeest, ostrich & other. The amount of *C. nlemfuensis* is amazing & probably artificial induced by grazing & burning activities of Massai. The S. in & about Nairobi is different from standard S. vert. Short & stocky, heavy stems w. much wax, few leaves, rather wide, few branches in panicles but recemes long & heavy, splits fairly large & mahogany, awned – may be the *macrochastium* race, always in disturbed habitats & not out in the ranges. Found in Nairobi, in Athi, in Thika & at muchek disturbed sites between. How can I get time for both Kitole & Momassa, where the *brevicarinatium* is?” Back to Nairobi (C)

3 Dec. Wed. “Off in the rented car at 8:00 to Magadi Lake (D), with stop at Ologesailie (sp.) the site of fantastic numbers of Acheulean handaxes. The rift v. dry & dusty. Massai moving out & into high ranges. Although S vert reported I could not find it & it is hard to believe it would be part of the natural vegetation. Massai very attractive & colorful people. Taller than Maramaja & Turkane, but otherwise very much like them. Friendly & serenely self-assured, they look at you with amusement and are the only people I’ve seen in Africa who ‘twinkle’. They seem to be amused at everything. There must be something satisfying about Massai life. Got back to town in a shower & went to RVP taxi service & bought a ticket to Kitale 30/-. Then to RF. No word from Lee House. Then to Ivory Safari & paid them off. Booked ticket to Addis & arrived at Hotel ca 4:00. Two messages: (1) call British High Commission. (2) Mr. Pickard will call at the Norfolk at 5:15 and 9:00. The reason for the times is that Mr. Pickard is playing in “Kiss me Kate” & is only free between performances. Showered & changed & met Les at 5:15. He hasn’t changed much; looks the same, same mannerisms, still single & still spends all his money. A very charming bum. Still building roads & running around a lot. Has been back to Lappland & says they now herd with snowmobiles, but the up county is still tough. I’ll have lunch with him tomorrow. Went to Padoda & spent too much on dinner, but upcountry should be cheaper.”

4 Dec. Thurs “Spent morning writing letters, bringing up notes, packing & reshuffling. Les came & took me to Allan Bobbe’s Bristo. Excellent, despite what the Tillmans said & not outrageous for price. Good visit with Les & back to hotel. Rift Valley Peugeot came a little early & I got a back seat with an African professional girl. Six hours in one position. A nice ride but my butt was sore. Arrived at Kitale Hotel about 8:30 – rather dismal – no doubt flourishing at one time. The white highlands impressive with sheep, dairy, wheat & forestry. Sacked out as soon as I could.” PN: “Agric. Dept. Kitale. National Agric. Research Sta. Box. 450 ph. Kitale 107. To Kitale”

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<sup>38</sup> Thika (pron. Bika) is an industrial town about 40 km (25 mi) northeast of Nairobi. Chania Falls is nearby.

JACK R. HARLAN EXP. SUMMARY NO. 7: NOV 1, 1969-JAN 16, 70 (2 ½ MONTHS)  
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- 5 Dec. Fri. "Called the Agric. Research Station as soon as I could get through. Not much enthusiasm from the Director, but Dr. Pevery, Iowa State corn man, came & got me. Got little from either the Director or the African in charge of forage work. Saw the 'living herbarium', of a few of the grasses Bogdan had collected. Not much help – only one K-number usable. Checked the specimens & got a few locations but almost no K-numbers. The numbering system is : (1) K for Kitale (2) two digits for the year of collection i.e. 51, 52, 59, 66, etc. (3) the accession number for that year. It looked hopeless, so saw Pevery for a bit. Went to town & changed \$50 & made reservations at RVP for return to Nairobi. Decided to cancel Kericho. Lunch at the Pevery's & at 2:00 a Mr. Boomman, a Dutchman doing grass seed work came & we looked at things. After hours we prowled through Bogdan's files & got a number of locations & some fairly sure identifications – also some chromosome counts of Scotty Forbes from letters in the file. Baouman was put out with the Africans, but the situation is very typical. It will be at least another generation before they can do research. (emphasis mine – HVH2) The training is O.K., but the attitude impossible. At Boomman's had bar & sandwiches & to hotel by 8:30-9:00. Concerned about election<sup>39</sup> eve, but the place was relatively quiet." PN: "Castle Hotel, Kitale" (Google: 397 km; 5 hr, 41 min. to NW of Nairobi.)
- 6 Dec. Sat. "- Up early, packed & checked out. Carried bags to RVP & got a better seat. Thought I might still go to Kenicho<sup>40</sup>, but at the junction at Nakuru they told me I would have to wait ca. 5 hours for the next taxi. To get in after dark & leave early next morning made no sense so I came on in to Nairobi. Stopped at New Avenue Hotel. Not as nice as Norfolk & much more expensive. Election activities very noticeable but orderly. The polls had been jammed all day with vast numbers of people waiting in line no doubt for hours. Went to Bobbe's Bristo & found food disappointing this time. Told Mr. Bobbe so & he was nice about it & charged only half price. Said I was quite right; it wasn't good & the cook had been out most of the day voting & this was the reason. To bed, tried after washing a couple of shirts." PN: "RF 28061 To Nairobi."
- 7 Dec. Sun. "Packed, checked out & took cab to Norfolk. Better room, but w/o bath. After lunch got wire from Lee House dated 4<sup>th</sup> Dec. Will meet me in Addis but wanted to know where. I wrote a note to R. F. Nairobi P.O. Box 7543 & mailed it. They should get it tomorrow & cable Lee. He should get it in time. Went to E. Afr Airways & asked to be booked at GHION hotel (in Addis Ababa). They may or may not." PN: "Nairobi / moved & shopped."
- 8 Dec. Mon "RVP to Mombasa (E) (Google: 483 km; 6 hr, 20 min.). The Nairobi race of *S. vert* found along the roadside for some 50 miles then faded out. Same race abundant from about 100 miles fr. Nairobi to 150 miles fr. Nairobi then no more to be seen. Dropped off at Castle Hotel, Mombasa, hot & sticky. Thought the *S. brevicarinatum* would be all over town & hiked about. All I got was a sweat bath. Wound up at Aceamic Hotel, had a couple gin & tonics & hiked back in the dark, still sweating. Dinner at Manor Hotel." PN: "To Mombasa"

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<sup>39</sup> Dec. 6, 1969 was the first general election in Kenya since independence in 1963. Jomo Kenyatta had become the entrenched President with a one party system in place.

<sup>40</sup> University of Kabianga is in Kenicho. Harlan probably wanted to visit this school.

9 Dec. Tue. "Hiked north across the toll bridge & through villages beyond. Lots of gardens, low spots, shady & sunny, every usual habitat, **but no S. to be seen**. Gave up & hiked back bathed in sweat and not feeling too well. Stopped nr. Bank of Baroda & had a couple of orangeades to recover, dry off a bit, then changed another \$50 at the Bank & hiked back to hotel. About 3:00 hired a taxi & went to **Mfwapa (F) where the S. brev was once collected. Hiked all over Mfwapa, woods, shore, nearby gardens, etc. Not to be seen**. Mtwapa ferry now discontinued & this may be the reason. That eve bought 3 Makonde carvings<sup>41</sup> & that's all to show for trip to Mambasa." PN: "Mombasa / To Mtwapa & back taxi"

10 Dec. Wed. "RVP to Nairobi. This time it took the **detour through Voi and I finally saw S. brev (?) in the distance. A weed of gardens & very localized. I should have had the taxi stop, but thought, again, it would be all around town. The taxi stopped in 'downtown' & I hiked furiously about through gardens, etc. but bad luck, it just wasn't in that section. Well I think it was just in bloom anyway, but I know one place it is and it is a garden weed, but not a very good one. These may have been more important when sorghum was grown more in Kenya**. Back in Nairobi I dashed to Embassy & got the news I am a grandfather<sup>42</sup> & all is well. Back at hotel & assembled suitcase, laundry & all that. Les had a ticket to 'K & K' that started at 6:00 so cleaned up, lifted a glass & went. A very well done show. Lots of enthusiasm, music excellent – a remarkable job for amateurs. Les took me to dinner at the Simba Club after & thence to bed by 11." PN: "To Nairobi"

#### **Ethiopia (Dec. 11, 1969-Jan. 6, 1970: 26 days) (Harlan's second trip to Ethiopia)**

11 Dec. "Paid bill to see how many shillings left. Then down to art shop to spend them. Got my devil and a witch doctor for 190/-. List price 240/- & he made plenty at that. Too big, but I like them. Five Makondes & v. small suitcase (fortunately expandable). Wrote Bob & Sue & J. M. J. - then the usual at Nairobi airport & Addis do. Taxi to Gihon hotel – found banking hours unusual in Addis (to 6:00 pm) so got \$300 changed on letter of credit (+ 50\$ at airport). Feeling stuffy and tried for a light snack at the Chinese place, but no will power." PN: "To Addis Ghion Hotel convenient."

12 Dec. Fri "A day of frustration. Tried calling both Debra Zeit and Alamaya. Enormous amounts of pushing & prodding. No results after an hour & a half, so took cab to U.S. Embassy. No mail. Found out that US/AID was back near hotel. After waiting a while for a taxi enquired about a bus and came back right to the doorstep for 15 cents Eth. – It cost \$5 Eth to go up. At US/AID got help from Ethiopian secretary. All morning no go. Got to Dire Dawa [by phone] but not to Alemaja. Finally got to Debre Zeit<sup>43</sup> Dr. Dagnatchew<sup>44</sup> is no longer there – working for some

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<sup>41</sup> I ended up with these and gave them to my son, David. HVH2

<sup>42</sup> This would be Mark Hughes, first son of Sue and Robert L. Hughes.

<sup>43</sup> Debre Zeit Experiment Station, as a part of the HSIU, established by OSU as part of the Point 4 Program.

<sup>44</sup> Dagnatchew Yirgu worked at the Debre Zeit Exp. Sta. and published, with R. B. Stewart, *Index of plant diseases in Ethiopia*. College of Agriculture, Haile Selassie University, Experimental Station Bulletin, 30: 1–67, 1967.

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enterprise in Arusha<sup>45</sup>. Tesfaye Tessman<sup>46</sup> is in U.S. on training. The present acting director was in Addis with a toothache. So cancelled the calls. No news from Lee so slacked off activities. Hiked to town & bought maps, etc. Ate in Chinese place again. No progress at all.”

13 Dec. Sat. [In Addis (A)] “Started no better. Went to US/AID for more help or at least a visit w. range management men. Nobody works Sats. So, took bus to H.I.H. Haile Selassie I Univ. Wrong campus. Trouble finding second campus because no signs. Eventually located Botany building, but locked solid & nobody there. Back to hotel and at door met with Lee House. We discussed situation & then walked to bus park near RR Station. Found bus for Debre Zeit ((B), Google: Bishoftu) & went down for \$1 each. There we hired a horse cart and after much wandering found the place. Nobody there. A Frenchman at the Veterinary Station very helpful. Took us to the assist director of his station who directed us to an Ato Solomon. Solomon not there. Went to Ras Hotel for lunch. Tried Solomon again. After much misunderstanding through three intermediaries we met at Ato Zewudu who works at Debre Zeit & has MS from Kansas state. He took us to the boss Ato Kebede, the one with a tooth ache. He took us to the office & tried to call Melak<sup>47</sup>. No go, but ordered up his landrover & a young man named Belsele Tullu. Eventually we drove back to Addis in the L.R. & set to go off tomorrow. Later Kebede called on phone & said all was O.K.; he had contacted Melak & Melak would call. Immediately after hanging up was Melak from Alemaya connection not very good, but all O.K. for takeoff. Things began to break after pushing a bit.” PN: “PD”

14 Dec. Sun. “Checked out & off by 8:00 across the high plateau, stopping often to see crops – emmer, wheat, barley, chickpea, tef, etc. Familiar & nice to see again. Very dry + people in trouble.<sup>48</sup> Finally the ‘Mussolini Pass’ & down to Debre Sina (C). A little beyond found weed sorghum & it soon became abundant. Abundant along roadside, that is. Got dark about Kanakarrie (CF, see Dec. 16 entry for alt. spelling) & we drove on to Dessie (D)- unnecessarily it turned out. The Hotel Crealsy & almost deserted – also very cold & shower water miserably cold. Otherwise ok. Long trip & tired.” PN: “Addis to Dessie C. Arth at Erobit PD”

15 Dec. Mon. “Tried Dessie Market, but too early. Pushed on to Kombalcha<sup>49</sup> (E) & thence eastward to Bati (F). No wild S anywhere. Stopped at several threshing floors & found great reluctance to part with anything at all. The people very suspicious & there seems to be a superstition about taking grain from the threshing floor. They say if any goes, all will go. There is something special about the floor. At Bati a fantastic market on top of a hill looking about to the plains on one side & towards the escarpment on the other. Desert folk with camels + women camel drivers dressed in topless style & many other kinds of people, very dense crowds, very colorful, the public gallows, etc. We went on to the plains & found nil. Everything overgrazed anyway.

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<sup>45</sup> Arusha, Tanzania

<sup>46</sup> Could not find this person on-line (9-29-16)

<sup>47</sup> See Exp # 2, Dec. 30, 31; Exp # 8, Nov. 10; # 9 pg 36

<sup>48</sup> 1970 marked the start of a severe drought in Ethiopia and all across Africa that lasted until 1985 (?)

<sup>49</sup> Kombalcha (Google spelling) will be their headquarters for several side trips.

Agriculture gave up about 15 km east of Bati. **We tried to get S. at extreme edge, but only boys home & got nowhere.** Bekele says they are an Adar tribe & they used to practice the genital trophy bit. We stayed more or less at my insistence at Bati. Nice little hotel in the middle of nowhere, irrigated citrus orchard (& other fruits). Hiked the town in evening. **S. going out by the truckload at \$16 Eth/100kg.** Good day." PN: "To Bati PD"

16 Dec. Tue. "Up & off to Kombolcha (F) & reserved rooms at Agip Motel, then south along Addis Road. At 22 km we picked up little Kilo and big Kilo<sup>50</sup>. Little kilo is small inoffensive roadside weed, sometimes in the fields gives no trouble, not competitive with cult S. & for livestock fodder when abundant enough. Big Kilo is something else again. As tall as cult & about as robust, tillering and branching considerably, produces lots of seed that shatter. Most conspicuous as volunteer in maize fields. Vast amount of it. A fair amount of variation in it but no intermediates seen. You have little kilo, big kilo and cult and nothing else. Followed the pattern southward to Karrakarrie (CF, see Dec. 14), which is about where we stopped collecting on Sunday. Had Wat & injera for lunch & visited the market. On way back had a blistering hot motor. Filled radiator with water, but motor missing a lot. At Kombolcha cleanup, dinner, walked the town & to bed." PN: "To Kombolcha PD"

17 Dec. Wed. "Off to the north on Osmara Rd. **Passed Desie & dropped down to Sorghum country.** Found fierce resistance to taking samples, but it is all the same as we had been getting anyway. No kilo at all – probably too high. Motor got worse & worse. At Mersa (H) we cooled it, saw the market & decided to go back. Didn't get far. Started taking the machine apart, Lee the mechanic. All combos of fuel line & screens fr. tank to carburetors & fuel pump. Everything in order. Ran about 1 km & stopped. Took carburetor apart, cleaned everything, put back together. Ran another km & stopped. Started an electric circuit. Cleaned battery posts when we could not get starter to work. Checked line & fuses, pressed it to start & ran about 2 km & stopped. No answer. Lee pushed & pulled all electric connections to brighten them & feeling very discouraged tried it once more. Ran fine except for cooling system. The whole thing due to a faulty connection somewhere. Stopped at Dessie market & Lee made some purchases. Nice blanket for very little (\$8.80 US) Kombolcha for the night." PN : "do PD"

18 Dec. Thurs. "Paid bill of \$96 ETH. Drove more or less directly to Debre Sina (A) adding water every 50 km, but lost much time due to (1) smoke from a swamp fire so dense we had to creep very slowly. Buses on the road had people trotting ahead to guide them. Very, very slow & very dangerous. Finally negotiated them and then (2) blew a tire. Not serious except that our lug wrench simply wouldn't turn two of the lugs. In Ethiopia, people stop to help each other. Busses, trucks et al. A gentleman in a landrover was the most help. He had a low jack that would get under the spring and a long pipe to put leverage on the lug wrench. So, changed the tire, finally, added water & on to Dabre Sina for refreshments & quick look at market. Nothing

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<sup>50</sup> "big kilo" and "little kilo" are wild/weedy forms of cultivated sorghum usually found growing along roadsides. (Adi Damania, Sept. 30, 2016)



much except great numbers of donkeys & some nice basketwork. Then over the pass to the plateau & on to Addis adding water every 50 km. Lee wanted a leather dinner pail so went to Addis market. Found a nice pail, but on return to the car found we had not locked a door & Lee's suitcase had been stolen. It's a wonder everything else wasn't gone, too. We could have lost passports, my letter of credit & everything. Nothing to be done, so back to hotel & check in. I got my jacket & suitcase I had left at hotel. Lee went uptown to buy a shirt & tie & some info about Ethiopia & I started to catch up on notes & etc.

"So what did we find in Rachie's gene center? (1) Sorghum and tef are the only major field crops. There are little patches of sesame, lathyrus, maize, safflower and home gardens, but people live on S. and teff. (2) The S. is nearly all big-headed, bold seeded durra of many colors. The yellows predominate, but orange, red, white, chocolate, brown purple (violet) are all common. All very tall & very long season (planted in April & being harvested in December) (3) There are a few other S-types – one field of candatum much as in Uganda – a fair amount of feterita – like verities and a fair amount of what may be a nevosium & some sweet stalked ones. Not much else in cult line. (4) Big kilo weed and (5) little kilo weed. Variation is impressive alright, but doesn't quite rate as a center of anything much unless it is tall, long season, large headed bold seeded durras." (GOOD REFLECTIONS ON CENTERS HVH2) PN: "To Addis"

19 Dec. Fri. "Lee left early. The Car was put in the shop. I wrote: Home, Wenner-Gren, Ali Kambel, LeRoy Peters, Hugh Doggett, Allen Tillman, Ken Roche. Went to Univ. herbarium. Not much. Met Mrs. Gillbert (sp), Sue. She & her husband may work on flora of Ethiopia. Car ready in eve. \$45.00."

(TOP OF PAGE) [Message to Bob Mum, Crow Seed Co. Watseka, Illinois (nr. Chicago) – call him for Melak Mengesha give regards & ask him to send notes.]

20 Dec Sat "Checked out & off 7:30ish to Debre Zeit. Got Ato Kebede out of bed & after some fiddle & indecision went up town & bought a tire & tube \$100.00, had it mounted & took off after 10:30 with two spare tires, two jerry cans of petrol and one of water. Did not see kilo in Debre Zeit area, but picked it up east of Nazareth. Cult left off ca 30 km E Nazareth. We found a wild kilo in Awash. At 21 km E. Awash a little patch of S. then no farming until 43 km E Awash where we climbed the first bench on the east side of the rift. From there farming more or less intensive the whole way. Did not see kilo on east side although it is there. Lunch at Awash at Pleasant Tirny Oasis of the R R Buffet. Drove much of the Chercher Highlands by moonlight. Arrived at (HSIU?) campus ca 8:30 (PM). Found Ato Melak's house, but they were at a Christmas party. Supper was served us + finally I went to bed in his guest room w/o seeing him. It turned out to be alright. Long & dusty day." PN: "To Alemaya"

21 Dec Sun. "Walked around campus before breakfast; toured it later w. Melak. Trees have grown tremendously. Upkeep seems good. A Bisrat had turned over a landrover after the Christmas party so much fiddle & went to see. The LR a mess but the boy reported O.K. Saw the little zoo, toured the farm w. Ato Barhane (1 yr at OSU) Met a Dr. Taye, Head of Plant Science, etc. Much

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talk & visiting & little else. Very pleasant, but only a little along the road. Melak serious about a germ plasm center in Ethiopia & it is a logical thing. Maybe it can be generated. The Izmir experience<sup>51</sup> may knock out FAO, but there must be other ways. Should consult Sir Otto.”

22 Dec. Mon. “Breakfast supposed to be at 7:45 but nobody stirred until about 8:20. Relaxed anyway. Went to Herbarium & met Dr. Tedesse Ebba. Checked specimens. Almost none I had not seen. Saw the ‘Damon’ collection, but it was only 35-40 & all ‘subglabressems’. Not much Cynodon; no Oryza & no Pennisetum of interest. **Toured farm again & got the weed S. – in fact two of them: one small seeded, the other w. medium sized sphts & poperry glumes. Very poor condition & they may be the same.** Talked to Plant Science majors in aft. Then changed clothes & went to Harar Markets; got some reference samples only & bought no souvenirs. Dinner at Taye’s (bachelor) & gave lecture to general group. Bekele had taken off in L. R. with my collection and suit case. Supposed to meet him in Addis. Melak gave him a hard time about Lee House’s suitcase – unnecessarily, I thought – but Melak is a leader.”

23 Dec. Tues. “Slow start then appears normal. Visited Tedesse again. Got two items from the Harar market identified. The round fruit is *Oncoba spinosa* & rather pleasant taste & odor: other is *Tamerindus indica*, the tamarind.

MOONEY, H. F. *A Glossary of Ethiopian Plant Names*, Dublin Univ. Press, 1963 & noted the following name transfers:

Surf (A) – Safflower and sunflower

Duht (A) – *Gossypium herbaceum* and *G. hirsutum*

Ater, Atter etc. (A) – *Cajanus cajan* and *Pisum sativum*

Ankerad (A) – *Avena abyssinica* and *Lolium temuentum*

Ater – Khijeh (T) – *Cicer arietinum* and *Arachis hypostan*

\*Dinich (A) – *Coleus edulis* and *Solanum tuberasm*

Gwaya (A) – *Vicia stiva* and *Lethyrus sativus*

Wushish (T) – *Coccinea abyssinica* and *Cucurbita pepo*

\*Note: Dinich-shuga (A) = sweet potato

Also the ‘Trungo’ we ate nr. Debre Berhan was *Citrus decumana* the sheddock or pumelo.

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<sup>51</sup> Not sure what the “Izmir experience” refers to, but Izmir is both a city & a province of Turkey. It must be that there was some attempt in the past to start up something in Turkey and it had something to do with Izmir and the FAO was to fund it. But, it blew up and they can’t go back to FAO for any more money.

Tedese says the Wallaga Prov. Lowlands almost completely dependent on sorghum. His home is there but he contributed only two collections to the 'Damon' Collection. They have very large seeds – durra type w. bicolor type heads – perhaps modified feteritas. – got quite a number of small samples from single heads recently collected by the staff – some toward Jijiga<sup>52</sup> & some on road to Addis. Of particular interest a striped-seeded one mutating & rectoring like dt or something. Lunch at Berhane's; picked up loot + Ato Josef (Harry's friend from OSU days). Drove us in a new VW to Dire Dawa – also Bisrat (?) who spilled the landrover at 2:00 am last Sunday. Got to DD on time to go back & change another US\$300 & to plane. It was full, however, & I got on but Berhane was bumped. This will set us back a day, but I can use the time. I hope Berhane doesn't mind. Nice flight in DC 3. Behele not there to meet me so took taxi to Ghion & will wait for him." PN: "To Addis A."

"24 Dec. Wed. No Bekele. Went to Embassy for mail. Got none. Bekele came eventually. Had fuel pump problems & had to stop at Awash overnight. Finally made it in about 10:30 with my suitcase etc. Too late for laundry so did it myself. Went to Inst. of Ethiopian Studies at HSIU<sup>53</sup> campus. Saw curator, Stanislaw Chojnachi<sup>54</sup> & he told me about C.R. Hallpike<sup>55</sup>, who lived in the Konso area for 2 years, learned the language & will publish a work on Agriculture of the Konso in January 1970. Must write to get it. Then went to National Museum. Not much. Berhane came in eve & we made plans to leave in a.m. A different Land Rover, etc. Bekele went back to Debre Zeit. Much repacking for trip. Found a sack at a local store that may hold the Ethiopian collection. Late getting things arranged because of slow drying of clothes."

25 Dec. Thurs. "Christmas. Berhane came late – but I expected him to. Put Jacket, suitcase & bag of seeds in Hotel store & we got off ca 8:00. Very smooth to Shashemene'. We then hit the gravel & a flat tire. Put on spare & within minutes it went down. Stuck! I waited with car while Berhane went to next town w. both tires. Waited 2 ½ hours. Finally he came back w. tires on a bus. Remounted & on our way. Road graded gravel & pretty good to Arba Mintch (Google: Arba Minch(A)) which we reached 7:00ish or so. Rented room at 'the Best', had injera & wat at a crumby place, but food pretty good. Messages finally located a Lago (Laho)<sup>56</sup> Alemaya<sup>57</sup> grad who went on in Education & Principal of the local high school – the only one in Gamu-Gafe. He

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<sup>52</sup> Jijiga is 154 km east and a little south of Dira Dawa, past Harar.

<sup>53</sup> **Addis Ababa University** (*Amharic*: አዲስ አበባ ዩኒቨርሲቲ?) is a [state university](#) in [Addis Ababa](#), the capital of [Ethiopia](#). Originally called the **University College of Addis Ababa** at its founding, it was later renamed **Haile Selassie I University** in 1962 after the Ethiopian Emperor [Haile Selassie I](#). The institution received its current name in 1975. (Wikipedia). For more on the Institute of Ethiopian Studies see: <http://www.aau.edu.et/ies/> So, in 1969 it was called HSIU.

<sup>54</sup> Stanislaw Chojnachi was originally from Poland, but lived, worked & loved in Ethiopia from 1950-75 as the curator at the Ethiopian Studies component of HSIU. See: <http://www.ethiopianreview.us/28323>

<sup>55</sup> C.R. Hallpike was a noted Anthropologist and author who lived in a remote village in Ethiopia for 2 years. See entry for Dec. 28. For more on Hallpike, see also: <http://hallpike.com/author.htm>

<sup>56</sup> This ? is Harlan's ?.

<sup>57</sup> Alemaya is home to [Haramaya University](#) (formerly Alemaya University). The University was originally established as an agricultural technical college, with assistance from Oklahoma State University. Although classes started 5 November 1956, the University was formally inaugurated by Emperor [Haile Selassie](#) 16 January 1958. By 1967 Alemaya had telephone service. (Wikipedia)

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was upset. He had been recently beaten up by students & the school closed. Disaster. High School students, too! Anyway he said our problem would be solved by a student named 'Chako Auto.' He would get him in the morning & why were we stopping at this crummy place when there was a good hotel across town? We went to the good hotel & let the \$5.00 Eth. go. Hot shower! Great!" PN: "To Arba Mintech"

26 Dec. Fri. "Off to the High School to get 'Chako'. Ominous squeal in the motor. Red light. Generator bearing frozen; belt slipping. Trouble at H. S. No Chako. Much talk & no action. Finally after much prodding got L. R. to Community Development Farm shop. They took apart generator & put in used bearing. Fiddled, collected weed sorghum & played ping-pong. Finally finished. It worked! Back to H. S. Chako had been found & sent to get ready. We followed & finally flushed him. He wasn't ready, so we went to hotel for lunch & came back for him. Looked for film for Berhane, filled up on petrol & 2 Jerry cans & at long last at about 3:00 p.m. took off for Konsoland [There is a Konso (B), Ethiopia in the southern area, 85 km south of Arba Mintch.] Took on a cargo of 4-count 'em 4 Konso boys on top of all the junk. Road a bit wild – up mountain to Gidole – but fun. Late & didn't collect. Regretted this later. Arrived at **Back'oule** (CF) long after dark. The Konso Hilton has 2 rooms – a tin shack, dirt floor + no shower. We took it." PN: "To Bscck'oule"

27 Dec. Sat. "No bugs. No mosquitoes, good night despite a very strange & lumpy mattress. Chako supposed to come by 7:00. Did not show by 8:00, so we went to Sub-governor's office. A police officer fussed at us. Why didn't we let them know we were coming? & all that crap. Eventually the purpose of the trip was recorded & we piled in the L. R. – Berhane, Chako, the police officer & me & drove to **Fasha** (C) – a village some 15 km west. A spectacular drive up mountain roads. This was market day but not until 2:00 p.m. – so we hiked the area & collected. Then westward to the village of Burjo. Thence to Kasorgo & back to Farsha. Long hike for me, but the villages fascinating: neat, trim with fine community center, etc. We saw a grave being dug & effigies in graveyards. Collected a number of sorghum types. Sorghum & cotton are kings. Men, women + children spinning. At Fasha, got some talla to quench thirst & then collected in the market. Rather colorful & interesting but nothing like Bati market. A few samples of Tej with the policeman, then back to Buik'oule & the Konso Hilton – and more drinks at the officer's expense. To bed a bit soggy." PN: "To Fash etc. & return"

28 Dec Sun. "Chako came & we hiked through several villages on way to Bousso (CF) – the village where Hallpike stayed for 2 years. The hike gave a good feeling for Konso country. Up & down the terraces huffing & puffing. Women working the fields. Village large trim, pleasant. Many community centers, which are cool & comfortable & always have superb views of the mountains. Finally made Bousso & were escorted to the house where Hallpike stayed. The people remembered him well & it is a beautiful house. Chako got us some 'local drink' & some bananas. Finally started back & on way passed a house with very strange wailing – Ho ho, he he sort of thing. Chako said someone had died & it was not polite to pass by so he stopped for a few minutes, climbed back up the hills & to Back'oule. I was corked. The Konso Hilton was a furnace. We tried to sack out. Berhane succeeded; I got a case of heat prostration. Very

uncomfortable, nausea, sweat pouring out, weak, thought I would faint. Thought I would chuck up. Finally, did none of these, got some air & hailed the bar boy for water which I poured over wrists & head & neck & recovered. It was a bit rough. Then came the forever policeman & drinks at his expense. Dinner of watt<sup>58</sup> & injera as usual. To bed feeling rocky.” PN: “To Bouso by foot tretorw”

29 Dec. Mon. “The idea for today was to kill time until market at 2:00 pm. We had a little spare petrol, so drove the road south toward Sagan River. Didn’t go far, not only because of the petrol limitation (none to be had S. of Arba Mintch) but because agriculture gave out in some 10-15 km away. The Konso Hilton could provide no breakfast because ‘they couldn’t find eggs’ but promised Doro watt for lunch. We got back about noon and the Watt was ready. Excellent! The best food we had. The forever policeman showed. More drinks. Then to Dakatu village [Google: Doku, 6 m west of Konso] almost next door<sup>59</sup>, where the market is held on Mondays. Not much & a disappointment. Great crowds of people pressing in at all times. Got a collection & left a bit after 3:00 pm. Took a low road this time & glad we did. **The most impressive sorghum of the whole trip is grown by Galla about due east of Gedole [Google: Gīdolē (D)] in the Rift Valley. Tremendous size of heads & thrifty plants. May have something here. Weed S. vert appeared & then dark.** Seemed like long drive but finally reached Arba Mintch by 8:00. Big invasion of tourists & we barely got a bed at all.” [Google: Doku to Abra Minch 620 km the long way or 100 km the short way; which is in the valley more than the long way. This sounds like the route they took. They stopped to collect along the way.] PN: “Down toward Sughm & edge of Konso To Arba Minted”

30 Dec. Tue. “Got a thirst I could quench only with water. They just didn’t seem to have any so I finally drank great gobs from a faucet they use to water the garden<sup>60</sup>. Breakfast & then brief visit to Leko (Logo?)<sup>61</sup> & on our way. Berhane wanted to try the new road to Addis via Hosana (Google: Hosaena) (E). I didn’t care. It was a sort of fiasco. We went the wrong way for a while. The unfinished road was rough. The ‘New Road’ wasn’t finished & dust so deep we scraped it with the bottom of the Land Rover. It was fantastic & we chewed dust for over 12 hours. No real trouble & we finally arrived in Addis. Berhane is pretty dark for an Ethiopian, but we arrived at the Ghion Hotel exactly the same color – Gray. The boys at the hotel fell out laughing. They really enjoyed the sight. It was a good day, though; only a broken fan belt & a skinned knuckle fixing it. Any trip you can walk away from in Africa is a good trip. It took a shower and a bath to get the dust off & all I own is gray.” PN: “To Addis”

31 Dec. Wed. “Wrote Jean re Puerto Rico & Fred Miller likewise & walked to the P.O. to get the letter off ‘express’. Then back to ETO & bus to US Embassy. Still no letters from home. Saw a Mr. Yost, Deputy of Mission about sending the seeds. He referred me to Lane Holdcroft at US/AID,

<sup>58</sup> This is usually spelled “wat”, or “Wat”. Harlan keeps using two t’s. I will be faithful to his manuscript. HVH2

<sup>59</sup> This seems to indicate that Back’oule is an old name for Konso village, today (Google).

<sup>60</sup> Excessive thirst could have been caused by the heat prostration (heat exhaustion) 2 days previously, but drinking from a hose in Ethiopia shows how desperate he was.

<sup>61</sup> Jack Harlan’s “?”

so I went down but he wasn't in. Back at Hotel entertained Berhane for lunch. After saw Holdcroft & we may have a deal about the seeds. He has a problem because of the 'cutbacks' in US/AID etc. Berhane sent over my Konso live [?] & a sacking needle. I put in for a trip to Lalibella for 2 Jan – up & back the same day which all Ethiopians say is 'impossible'. We shall see." PN: "Addis"

- 1 Jan. (1970) Thurs. "Had sat the new year in with most of a bottle of Arake as they call raki' here & felt a little raki myself. Sacked up the seeds anyway & took US/AID since Holdcroft said he would be in. He told me about Allan Temple & it dawned on me that he was the guy that started all this by flying me & Hugh Rouk<sup>62</sup> over southern Ethiopia 9 years ago. Not in, of course, & a little to do so walked to market & back. Quite a hike. Bugged by the hustlers but found I could bug 'em back & it wasn't so bad. Got a pair of earrings for holy ears & that's all. A very quiet night at the hotel after the night before. Decided to give it a try. Very expensive & not much good & will not do that again. Bad night with the stomach too."
- 2 Jan Fri. "The Lalibella thing fell through for lack of confirmation. Decided to try for Sunday. Went to US/AID to see Temple. Not in, but visited with Harlan Tulley, Range Management. They are trying to settle the nomads in Sidamo<sup>63</sup>. I wonder why. I can't really see the point, but he thinks of this as 'improvement'. Walked about a while & decided the hell with it & settled down to read Max Dimon't 'Jews, God & History'. Read all through the aft, eve & into the night. Cheese & crackers for supper & slept better."
- 3 Jan Sat. "Torn with ambition & worked on expense account. Hour after hour of stupidities. Finally couldn't stand it any longer, wrote Dr. Melach, Dr. Grahaue, Ato Kebede & Les Pickard thank-you letters & took to P.O. Lunch at the Ras which is at least cheap. Back at hotel found the Ethiop Airlines guy doesn't work on Sat. So, trudged up town again. They had me No 1 on standby so bought the ticket. Addis is not much of a city despite its size & setting & wish I could move on. The planes don't fly every day & it looks like a possibility of going with Temple on Tues, so I'll stick it out. Stupid, stupid, stupid!"
- 4 Jan Sun. "Up by 5:30 & ready by 6:00 No bus. Finally got someone to call Eth Airlines & they said 'coming'. It arrived 6:30 & they said they had no driver at 6:00 OZX! 6:30 about right, but why don't they say so? Anyway I waited for 'standby' formalities although there were plenty of seats on the plane. DC 3 stops at Dahu where it looks like C. aeth at airport & probably O. longistaminata in the swamps. Not certain, of course, but lots of papyrus, etc. Stop at Gandor & then Lalibella a little after 10:00. Much faddle w. tourists & off in landrover at 10:30, arriving at hotel by 11:00. Paid for & got a special tour of the 5 churches in Lalibella. Just about what I had thought they would be like from photos & Popper's descriptions. Impressive all the same, especially St. George. A very pleasant town despite beggars, lepers, pilgrims & an overly

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<sup>62</sup> See Exp # 2, 1960. There is definitely a "Hugh" who played a big role in Harlan's Ethiopian phase of this expedition, but no mention of Allen Temple.

<sup>63</sup> Sidamo is the name of a people with a long history in Southern Ethiopia and also the name of an administrative district in 1969. The political map was completely changed following the Revolution of 1974.

attentive boy who wanted money. A pilgrim entered St. Georges church in ecstasy, fell to his knees, rubbed the floor with his hands & then rubbed his face to transfer the magic. Repeated many times. Much kissing of doorways & crosses. The medieval magic still there. All churches built in XII, all in Lalibella by king Lalibella who had made a pilgrimage to Jerusalem and wanted to create a New Jerusalem in his kingdom. Churches understandably small, square & dumpy. Priests ragged & dirty. Decorations disappointing. Apparently, much painting lost to peeling & weathering. Still, the labor & devotion impressive. Finished by 12:15, had lunch & took L.R. back to airport. Got a few local seeds but unlikely to help Miss Donbrowsky much. Ride back very bumpy to Gondar, otherwise quite nice. A pleasant day's outing & why Eth Tour Org does not push one-day excursions I don't know. Started cleaning up my suitcases, washing & repacking. Will try carrying the 2 big Makonde's to save weight. Hope it works. Dinner at Ras. The young set seems to hang out there. PN: "Looks like C. aeth t Buhar Dahr chances are good for O. longistaustinata [?]. To Lalibella & the CHURCHES.

5 Jan Mon. "The idle day I had planned for seems to have arrived. Packed as far as I could. Washed shirts & handkerchief. Went to P.O. & wrote Croizat a 2-page, not very polite, letter, but nowhere near as vitriolic as his. Was going to write Les House but didn't have his address with me. Left sweater to be cleaned, ate lunch at Ras & since stores then closed, read the rest of Dimont. Spotly, but a massive & impressive history of the Jews – something I should have known more about." [THEN HE DREW A MAP OF AFRICA SHOWING NOTES ON] "**Speculations on Sorghum**" and then, he writes: "**Assume 1<sup>st</sup> S. produces a basic Roxbugh I; type Went East to India early & west where it became guinease & eventually margaritifera. But Durra is a Red Sea race. Where did it come from? Distribution in India may tell us something. Maybe Roxbuglium did not go along the coast from Ethiopia but directly from East Africa to India in later times.**

What happens if you cross:

Rox X verticilliflora in E. Africa?

Rox X virgata (Sudan) ?

Rox X arundinacea – W. Africa?

Rox X prosoletum – China?

"If Durra has been the Red Sea race since ancient times, why did sorghum not reach the Mediterranean until Roman times? Egypt might well be bypassed because of the time of the flood, but how could the Near East escape? (Winter rainfall? – no irrigation?) We can at least make the crosses".

Jan 6 Tues. "Supposed to have an appointment with C. Allan Temple at US/AID at 8:30. He had not come by 10:30 even though he knew I was there, so I left. Too late to fly anyway. Went to bank & bought \$200.00 traveler's checks. Did a little searching for things. No flute. Finally read Zeki

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Eskender's 'Ancient Egypt'. Frustrating & will be glad to get out. Thought of going to midnight mass since it is Christmas here, but when I turned on radio found services already begun before 11:00 pm (read later that they often start at 9:00 pm & last to 3:00 am). Decided to listen to it on radio & sure enough it went on to 3:00 a.m., ending with 9 gun salute. Very little spoken, nearly all chants & hour after hour chants get a bit monotonous. Yet, it built into a very impressive crescendo with the full congregation, choir, drums & solo voices soaring over the top. Well worth hearing but glad I didn't try to stand up 5-6 hours for it. Imagine learning 6 hours of music!"

**(Europe Jan. 7-13)**

Jan 7 (Wed. – flying out of Ethiopia to Athens) "Paid bill as I would know exactly how much money I had. Wasn't much because I had forgotten one day & actually had to cash \$10.00 travelers check to make it. Took bus to Embassy. Closed! (Christmas Holiday) One lone marine on guard. Couldn't check mail. Hiked to market. Closed! No chance to buy flute. Was picked up by a student who was a great pest, but probably desperate. I finally gave him some old clothes that I was going to jettison to save weight. Finally got rid of him, cleaned up & put on traveling clothes & killed time until bus came a little before 3:00 pm. Burned up the Eth \$ at airport with no trouble. Shop opened just before plane time & I bought, unheard, a record of Ethiopian music \$6.00 U.S. which I thought a bit too much, but hope it's good. Then at last out! Khartoum (thought of Ali Kambal & our good trip together) – Athens; bought a string of Majorica pearls & \$100 traveler's checks & ½ Scotch - Golden Beach Hotel arriving after some fuddle at airport at 11:30 pm local time. Guest of Alitalia (airlines) – nice of them. Pn: "To Rome"

Jan 8 (Thurs. Madrid) "Found hotel not on beach, but within sight of it. Rather nice Roman style. Started day nicely by pouring the scotch into the baby bottles & drinking the overflow. A coffee & roll on Alitalia & transport to airport. Changed another \$10.00 traveler's check to make the airport tax. Very little time to spend the excess, but quickly bought a bill fold & on board finished the lot with a tin of pipe tobacco. Caravelle to Madrid where it was raining<sup>64</sup>, windy & cold. Located a hotel Gran Via, changed \$40.00 cash & took cab because of the rain. A long ride & change only about \$4.00, so glad I did. Hotel just about right, small back room away from the roaring traffic out front. Reasonable. Recovered a little & hiked to the Prado. I've wanted to go to the Prado for years & finally there it was! As usual it was overwhelming & I couldn't take it all in. El Greco, Velasquez, Goya, Rubens & Bruegel featured. Tremendous collections of Bruegels – more impressive than even the El Grecos. The whole thing was too much & I'll have to go again. Cold & blustery. Booked out on the 12<sup>th</sup> to San Juan on Iberian. Supposed to get to SJ 11:00 a.m. & should made Mayazing if all goes well. Got 12 El Greco slides."

Jan 9 (Fri. Madrid) "Still raining. Went window shopping & bought collapsible umbrella. Looked at things for gifts & more or less decided on more pearls, a wine skin for Robert & another set of

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<sup>64</sup> Although Spain is usually pretty dry, if there is a rainy season it would be from November to February.



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earrings. Booked tour for Escorial<sup>65</sup> in aft. Cold, dark & pouring rain. Tour dismal. Too dark to see anything much. Groped around in the dark peering at tapestries in the gloom, etc. Franco's memorial to the end of the Civil War included on Tour. To think of all the guys who spilled their guts for that! A tremendous basilica in a tunnel inside a mountain, but sort of disgusting sheets of rain. The great cross above the monument sometimes out of sight because of the clouds. The tour pretty much a bust. Still pouring in eve so ate at hotel."

Jan 10 Sat. "Rain continued & decided I had best do my shopping since tomorrow is Sunday. Bought two pearl necklaces, a wine skin & a pair of earrings as decided. Blew about \$50.00 in the morning. Went to Prado again in aft. Got more out of it this time, but about 2 hours is all I can take. The El Grecos strangely a little disappointing. Don't know why. Hiking in the rain in eve finally found Spanish Food – of sorts. Food in Madrid simply not up to Rome or Paris. A little hole-in-the-wall serving muscles on the half-shell. Counter service. You stand at the counter, eat the muscles & throw the shells on the floor. About 8" shells next to counter. A small beer or a small wine goes with it. Two sauces available & poured liberally over all – lemon & picado – hot pepper. I managed to get the picado without knowing what I was doing. Delicious! Had one plate & stood & had another. Great! The total cost two plates & two beers 40¢ U.S. The restaurant across the cobble street only so-so. The wine in Spain is great, but the food nothing like Rome. More rain."

Jan 11 Sun. "Had booked a morning tour to Toledo. At 8:00 a.m. pitch dark & raining. Left the camera because there seemed no point in it. Left promptly at 8:30 with only 6 people & it began to clear. Toledo declared a National Monument so that all new construction within the walls must be in 16<sup>th</sup> C. style. The Alcazar destroyed in Civil War is being restored & almost finished. Very cold & windy but sun shone from time to time. This time the El Grecos were impressive. Saw the house where he lived for 34 years (He rented it.) Many paintings in the museum attached to his house. Most of a set of apostles unfinished & others. The cathedral very impressive also & in the sacristy a full set of completed apostles, a Christ, a Madonna et alia by El Greco, plus paintings by Goya & others. Toledo still the religious capital of Spain & the Primate Cardinal resident there. Portrait of all the cardinals since 6<sup>th</sup> C in a fine chapel with Moorish ceiling. Much Moorish influence everywhere & especially noticeable in the synagogue. This built under Hillel & made into a Catholic church after the expulsion of 1492. Queen Isabella, the Catholic, was a real bitch. The Synagogue was eventually abandoned as a church also & made into a museum in 1912. Except for being miserably cold, the tour was a good one. Toledo is impressive – not too much original perhaps, but kept in 16<sup>th</sup> C style & in good taste. Modern Toledo is across the river & looks as bad as any with blocks of apartments & factories etc. Went back to the muscle shop for a late lunch & then up the street a bit farther than last night & finally found a restaurant with good food. Really great! Back in the rain, stuffed, spent evening packing, paid bill etc, etc."

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<sup>65</sup> El Escorial is the Royal palace of the King of Spain

Jan 12 Mon. " Up early & to airport in the dark. Still raining. Met Lee House & Bill Young at airport & we flew to San Juan together W. stop at Las Palmas<sup>66</sup>. Cleared customs about 2:00 pm & after much indecision rented an Avis & drove over. Saw Henry Holby & Roy Quimby at S. J. airport & Dale Weibel, Chada, Dolms, Starlier (family in Uganda), Dogget, Eberhat et alia at Hilton. Finally found I was to be at La Palma & got there eventually. J M J also at La Palma, so good visit, but lousy night. Little sleep after 1:00 a.m. Stomach in trouble." PN "To San Juan"

### **Puerto Rico (Jan 13 – 16<sup>67</sup>)**

Jan 13 Notes on a meeting on **Sorghum** in Puerto Rico<sup>68</sup>:

S. meeting – Jan 13, Tues. –

RACHIE

Nucleus of WC (World Collection?). started in Mexico prior to 1957 by L. B. Pitner & K. O. Raeline – Then to India & more systematic assembly. India stocks on hand – then 1959-62. Indian collection made on a 'systematic' basis. 7 collectors, 100,000 miles & 2463 collections in 3 years – The Ethiopian collection 1500 items 1967-68.

Recommends: maintenance in 3 locations – India, Africa, the Americas & cold storage in 2 locations. Needed collections: Hinterland of Ethiopia – fringes of Sahara areas of E & S Africa, across the Himalayas – Mainland China.

MARMKE (subst. for Sporgues)

Early H dwarf in S for non-veurrent parent ca 1963 stated. Plant in Oct. produce F1, Plant F1 right away & send F2 to Texas. Large F2 pops not required. 4 genes for height & 3 for immaturity – but (non-segr?). Dwarf (4) ♀ – F1 planted individually F2 sent to Texas where early dwarfs are relisted & returned to P.R. for second cycle. 4 bachsevnes as ♀ to recover the cytoplasm (cytertmana) of original.

"World collection Notes Jan 15

Royburghii #1 open, verticillate, fairly short branches

Rox-Shaller #2 more spots/branch, branches a little stiffer, some moderately compact

Conspcimen #3 v. flat seeds that are large verticillate heads – guinea

large spelts, seed peeping out

Glumeanse #4 (1790 = Cond) too young to see well not a good selection

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<sup>66</sup> Las Palmas is the capital of Gran Canaria island, in the Canary Islands, a Spanish colony.

<sup>67</sup> Harlan's PN does not have an ending date, but correspondence (U/I # 30) has Jan. 13-16.

<sup>68</sup> I have tried in vain to find anything on-line about this meeting and cannot. HVH2, 10-7-2016.

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Margointiform #5 3 all doubtful

Membranaceum #6 oversize glums like tunicate

Nervosum #7 one ascension – stubby branches small spelts, well nerved glumes

Nevosum – broomconn # 9 broomson

Bicolor (sorgo) # 9 Theirs tend to be semicompact

kafir to rut-tailed w. small spelts ± symmetrical

some open – not consistent

Bicolor / Kafir #10 J.M.J says = Rex can't see this group.

Dochma #11 Mostlylike Bicolor or more open – some about like kafir

(ON PAGE 87 THERE ARE SKETCHES OF THREE PLANTS)

( LAST PAGE OF NOTEBOOK: WE HAVE THE FOLLOWING NOTES (UNDATED)

Left side:

S. aethiopicum Homan region

P.I.330 300

299

298 – Kimple

297

296

294

292

290

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276 different S. vert Awash Valley

271 small –seeded “Kilo” S. vert – Robi

Note: the note: “different small-seeded ‘Kilo’” refers to both 276 & 271

Right Side:

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Leslie Stuart Pickard / Sir Alexander Gibb & Ptns. / Box 30020 / Nairobi, Kenya tel 22544

Konso Crops<sup>69</sup>:

Sorghum (Prima)

Cotton (Important)

Barley

Yams

Coffee

Cowpea

Pigeonpea

Flax (little)

Banana

Hyacinthbean ?

Cabbage

Boabab

Anarant

Finger millet

Amorphophallus

Gourd

Safflower

Tef (little)

Also:

Sweet potato

Maize

Beans

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<sup>69</sup> This list is the list of crops that JRH saw on the 1969-70 Expedition.

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Peppers

Potato

No ensette

No lentils

No chickpea

No hoog

PN: "January 15 (Thursday) Criteria for evaluation of any world collection.

1. Numbers 12 ~~7~~ 9?
2. Geog. Distr. (unknown)
3. Systematic Dist (v. bad)
4. Genetic sampling (terrible)
5. Permanence (!)
6. Availability (o.k.)
7. Info. (not good)"

These must be notes from the Sorghum meeting in Puerto Rico. I.e. his evaluation of what someone presented. (HVH2)