

DIARY OF JOSEPH F. ROCK
1921-1922

From December 30, 1921 to May 10, 1922
Journey from Chiengmai to Li-chiang, N.W. Yunnan

December 30, 1921

Left Chiengmai by motor from Doi Saket, 12 miles. At Doi Saket Haw caravan stopped for the night of December 29-30, 1921. Left together (29 ponies, 5 bearers, cook, boy, pony boy). Went through Dipterocarp forest consisting of *Dipterocarpus tuberculatus*, *Dipt. obtusifolius*, *Randia tomentosa*, *R. spinosa*, several species Lagerstroemias, *Strychnos nux vomica*, *Str. potatorum*, *Str. spinosum*, several species of *Zizyphus* (a small one – *Zizyphus oenoplia*), a red-flowering *Sterculia* (very handsome flowers in large terminal panicles), *Xylia dolabriformis*, *Caesalpinia* (climbing), two species of *Tectona*, a species of *Albizzia*, *Hopea odorata*, small *Ardisias*, also *Pinus Merkusii* (two-needle), a bignoniaceous tree, *Mayodendron igneum*, a climbing asclepiadaceous plant with long fruits, Orchidaceae on trees, no. 1551 – *Bridelia monoica* (Laur.) Merr., several species of *Desmodium*, *Cassia tora*, *Spatholobus Roxburghii*, *Phyllanthus* trees, a flowering bamboo called Mailai (Lao) (*Oxytenanthera albociliata* Munro), a *Canavalia*, *Mangifera* sp.?, several species *Ficus* (strangling figs), a large species of *Amoora* (*A. gigantea* – collected previously along Meh Ping last year), *Irvingia malayana* (very common), *Terminalia arjuna*, *Palaquium* (a milky sapotaceous tree), *Spondias mangifera*, *Bauhinia* sp.? (undershrubs), *Barleria cristata*, *Homonoia riparia* (in streambed) and *Grewia*. Followed along the Me Lai stream and arrived at the Chow-luang's place, Ban Me Wan, at 6 p.m. Elevation of Ban Me Wan 1,450 feet; laterite formation.

December 31, 1921

Left Ban Me Wan at 8 a.m. after a miserable night, people talking, burning fires etc. Glad to leave the barking dogs behind. Followed the valley of the Meh Kuang or Lampoon River to its headwaters and crossed the divide at Doi Nang Keo Hi Luang. Elevation 3,350 ft.;

distance to Chiengmai – 55 km; to Chiengrai – 117 km. The legend says that the above-mentioned princess, Nang Keo Hi Luang (Vagina magna) was unable to find a man to satisfy her strong sexual desires and consequently went mad and is said to now haunt the hill named after her, for a subduer. The natives make offerings of penises of all sizes made crudely of wood, leaning them against telegraph poles, trees etc. along the trail. This is done to appease the goddess as otherwise she would bring disaster upon any man passing her way. Most of these penis-offerings are made by married women in order that their husbands may escape the vengeance of the unsatisfied princess. We arrived at Phang kai camp at 6 p.m.

Saw the following trees and plants. Several species of bamboo – one small-leaved one in fruit called Mai Sang, and Mai-lai; also a larger species called Mai bong (*Dendrocalamus strictus*) with lateral horizontal branches. Bamboo was very common for quite a distance – several miles. After that we came into laterite country with *Hopea odorata*, *Dipterocarpus*, Compositae, a grove of very narrow-leaved trees of beautiful shape and large trunks, *Ficus* sp.?, *Duabanga* sp., along streams *Dillenia* sp.? (probably *indica*) and tall elephant grass. All the trees are very tall, some of them bare of leaves as *Bombax malabaricum* with red flowers (a very tall tree), a smaller *Bombax* with white flowers, *Erythrina suberosa* just coming into flower, also *Butea* sp.?, *Congea* sp.?, *Bauhinia malabarica*, *Bridelia retusa*, *Glochidion velutinum* trees, *Phyllanthus emblica* (very common), *Caesalpinia*, *Toona*, *Magnolia* (or *Michelia*), *Quercus*, *Castanopsis indica*, a species of *Prunus* with beautiful pink flowers, and *Anneslea fragrans*. Along the stream were ferns, also *Brainia insignis*; on the trees, *Pleopeltis*, *Platynerium* sp.?

The camp is situated at the headwaters of the Meh Lao which flows into the Mekok and the latter into the Mekong. Elevation at Pang Kia (Pine-tree Camp) 2,900 ft., – the highest point between Doi Nang Keo Hi Luang and Chiengrai. Also saw *Leea*, *Rhus*, *Solanum verbascifolium*, *Thunbergia laurifolia*, *Loranthus*, *Callicarpa arborea*, etc.

Specimen nos. 1562-1592.

January 1, 1922

Pine ridge or Pang Kié. Pang Kié is in a small valley in the headwaters of the Meh Lao. To the left, looking southeast, is a ridge covered with two species of pines, *Pinus Merkusii* (with a dark deeply

furrowed bark) and *P. Khasia* (with a smooth, brown, flaky bark). With them grow species of *Quercus*, *Anneslea* sp.?, a small bushy bamboo which the natives called Mai Phio. In the scrub grew a species of *Phoenix* much resembling *Ph. Robelini* and tall grasses as are found on the pine ridges of Doi Saket Chang near Chien-mai. At the foot of the ridge grew *Randia* sp.?, leguminous vines (probably *Mucuna*), yellow-flowered Compositae, a tree called Mai Pao with red leaves (very soft wood), *Loranthus* sp. and (on it) a species of *Viscum*. Photographed (1606) trunk of *Pinus Merkusii* with Dr. Mason – a view of the mountain. Doi Naw ngün (Silver sprout) facing Pang Kié with *Castanopsis acuminatissima* (Bl.) Rehd. and *Pinus Merkusii* in foreground, also a small *Pinus Merkusii* with *Quercus* and a Lao boy. It is said that when a boy is tattooed, the spaces between the tattoo marks grow wider as the boy grows older and then the spaces are filled in again with tattoo marks. The boy photographed is a native of Chieng-mai district.

January 2, 1922

Left Pang Kié at 8:15 a.m.; following the valley of the Meh Lao, passing the Pong nam ron – hot sulphur springs. The trails led through Dipterocarp forest. Passed through several villages and finally emerged on to the Wieng Papao plain with low hills ranging north and south. Passed through a village called Ban meh chedi, Crossed the plain to the village of Meh Kha chan elevation 2.000 ft., arriving at 4:15 p.m. Stopping in a new Sala.¹

The valley extending around the pine ridge at Pang Kié is densely wooded with tall trees of many species. Huge *Bombax* trees occurred, many *Erythrina suberosa*, *Engelhardtia spicata* Bl. (1618), several species of *Ficus*, *Pipturus*, etc., long stretches of bamboo forest, followed by Dipterocarp or Eng forest – Mai hiang being the most common tree –, with it grew several species of *Strychnos* (1646 – *Strychnos Nux-vomica* L.)(3 species), *Terminalia*, *Desmodium*, *Spatholobus Roxburghii* Benth. (1645), *Entada scandens*, etc. see collection.

Specimen nos. 1611-1658.

¹ Sala ist das Thai-Wort für (Holz)-Haus, Gebäude. Rock gebraucht das Wort wohl für das Amts/Empfangshaus des Ortes.

January 3, 1922

At Ban Tung Ha, 6 km from Wieng Papao, and 23 km from Ban Meh Kha Chan.

We crossed dry forest composed of *Strychnos spinosa*, *St. potatorum*, *Lagerstroemia macrocarpa*, also a rubiaceous tree, very common, resembling a *Nauclea* – *Monauclea* (*Nauclea*) probably *purpurea*), several species of *Ficus*, a few clumps of Bamboo, *Hoya* sp.?, *Dipterocarpus* sp.? (Mai hiang), and *Terminalia*. Finally emerged onto the Wien(g) Papao plain and ricefields. We passed through the latter to Ban Tung Ha where we arrived at 5:15, making camp under a *Phyllanthus* covered with *Loranthus*, along the bank of the Meh Lao.

In dry forest, collected specimens of various species beginning with no. 1659-1669 inclusive.

January 4, 1922

Left Ban Tung Ha („Village of 5 rice-plains“), at 8:30 a.m. for Meh Soi (pretty water) – distance 32 km. The path led through dry forest over a spur and gradually passed through damp valleys with huge trees and underbrush. The trees were mostly so tall that it was impossible to collect them or make out what they were. Many species of strangling figs, *Engelhardtia spicata*, *Albizzia*, *Markhamia stipulata*, *Dolichandrone*, *Milaceae* [!], *Quercus*, etc. The forest gradually changed into Eng forest with *Dipterocarpus* sp.?, *Terminalia* etc.

Elevation at Meh Soi 1,600 ft. Arrived at 6 p.m. Passed several villages, last one called (Meh) Ban Nam Prik.

Specimen nos. 1670-1703.

1681 – *Oxytenanthera albociliata* Munroe in flower, a bamboo (Mai-lai), negative no. 22935 and 22936.

January 5, 1922

Left Meh Soi at 8:30 a.m. passed over a hill where we met 10 elephants of which 8 were wild. One of them was partially white. We also met a Lao who had been pinned down by a tusker and one tusk going into his side near the arm pit, tearing a hole in his shirt and penetrating his nipple. One of the elephants had a baby. After passing over the hill, we descended into a valley with bamboo and tall trees, many *Erythrina suberosa*, huge *Alpinias*, *Maranta* sp.?, *Quercus*, several species of ferns, *Clerodendron*, tall Pampas grasses and others as are found on Doi Chom Chang.

Later we passed through secondary jungle, mostly bamboo forest, the Mai Pung, Mai Sang (with glaucous stems) and Mai Lai. Thence we passed over a nice plain where we stopped for lunch at Ban Pong Pu Fuang. Later we passed into Eng forest and stands of *Pinus Merkusii*. Opposite the village where we had lunch is a large ridge covered with pines.

We arrived at our camp after passing through more or less uninteresting forests with bamboo and huge species of strangling *Ficus*. Later we descended to the village of Ban Hue San along the Hue San creek. Elevation 1,650 ft. The pine ridge where I collected *Pinus Merkusii* was 1750 ft. above sea level.

Specimen nos. 1832-1854

January 6, 1922

Left Hue San at 9 a.m. Crossing over small hills and Eng forest, composed mostly of *Dipterocarpus obtusifolius*, *Strychnos* (a large leaved species – a small tree), several species of bamboo (as Mai lai, Mai Sang, etc.), many climbers as *Dioscorea* (nearly all in fruit at this time), *Randia* (the very large fruited variety); *Schima* sp.?, and various other plants and grasses. Especially common are the *Ficus* species (strangling figs and non-epiphytic species), also *Garcinia*, vitaceous vines, Convolvulaceae, etc.

We reached Sun Dawk at 11 a.m. and had lunch under a huge fig tree *Ficus* sp.?, with cauliflorous figs. From there, the road passed through rice-fields and scrub forest of *Lagerstroemia* etc. We reached Chieng Rai at 4:30 p.m. and went to Mr. Bachtell's house.

Specimen nos. 1808-1831.

January 7, 1922

Dried the plants and unpacked.

January 8, 1922

Developed films taken at Pang Kia. Changed blotters and repacked. Called on the Governor of Chiengrai in the afternoon and visited several temples.

January 9, 1922

Left Chieng Rai for Soon Dawk and Hue San for the trip to Doi Chang. Had 6 horses and 5 carriers, cook, boy, and Pao Puer. At Soon Dawk I got a guide for Doi Chang, through the kind office of Kun

Phra, Governor. Collected a few plants on the way, stopped again at Soon Dawk for lunch under the big fig tree along the river. Between here and Hue San, in the Eng forest, I found a large bamboo in fruit but immature – the flowering stalk about 45 ft. or more in height, the culms short-jointed about 8 inches, glaucous with horizontal branches at the lower nodes. The Lao boys called it Mai Sang. Arrived at Hue San at 4:40 p.m., elevation 1,650 ft.

Specimen nos. 1855-1859.

January 10, 1922

Left Hue San at 8 a.m. for Doi Chang. The old guide was absolutely useless. He wanted to take us along a new road but missed the trail and we were wandering over paddy fields and water buffaloes' camping places which means mud. Finally we struck the trail crossing the stream Hue San. We passed through evergreen forest, tall trees 150 ft. in height with enormous boles. The valley of the Hue San was full of *Musa*, gingers, undershrubs and vines. We passed then into bamboo jungle which lasted to over 2,500 ft. elevation of the natives called it Mai lai. It grows rather crooked and slender, reclining and forming dense thickets, the culms lying almost horizontally. A species of *Phlogacanthus* (*curviflorus*) with large leaves was found in the marshy places at the foot of Doi Chang. The trail went through open country along the outskirts of the forest till finally we entered jungle again with huge Mai Hok bamboo 100 ft. in height with large culms of considerable diameter, (elevation 3,500 ft.).

Ficus spp. were very common also many leguminous vines, especially *Mucuna* with purple flowers. The trail was rather steep. *Callicarpa* trees were common also *Erythrina suberosa* (but lower down). Large areas of the thatch grass was encountered which Laos were collecting and tying into cylindrically shaped bundles, four to one bamboo pole. We came to one small village of Miao and finally passed through the main village a little higher up. The dirt and filth is undescrivable. The people wear dark blue home-spun cloth with a long narrow blue apron in front. The women wear a much pleated, short skirt reaching to the knees; nearly all wear heavy silver rings around the neck. The pattern of the skirt is of white figures and the basal part is ornamented with red stripes. They never wash their faces or bodies and the accumulated filth of years adheres to them. Several of them were insane or idiots. I took several pictures of the village; of a group of men in the jungle, several men standing near a house, and

Dr. Beech took one with myself standing with a group of dirty Miao near a house. Photographed a very primitive corn grinder and took another picture of a spinning wheel. The girl working the spinning wheel ran away on our approach as did all the women. They hid themselves in their houses and refused to come out. I managed to snap an old woman hunting lice on the head of a little child. We are camping above the Miao village where we pitched our tent.

We practiced shooting with my revolver and Dr. Beech's gun and two Miao came running up to see the shooting, and eagerly picking up the empty cartridges.

Above our camp is a deserted cornfield. Their corn bins are full of corn infected with weevils, red corn, white and mottled.

The moon is straight overhead. It is cold and I have to stop writing. Tomorrow we are going to climb to the summit of Doi Chang. Elevation at the camp is 4,200 ft.

Specimen nos. 1704-1746.

1721 – *Dioscorea rockii* Praisn & Burk. type.

1722 – *Bauhinia tenuiflora* Watt. cited in Brittonia 4:92.

1744 – *Celastrus hindsii* Benth., see Brittonia 4:103.

January 11, 1922

Left for Doi Chang (Elephant Mountain) summit at 9 a.m.. went through clearing and secondary forest and passed through a jungle of wild banana – Koi pâ. Thence through jungle of tall trees and Zingiberaceae, *Maranta*, *Carex baccans*, a few ferns etc. Finally we ascended a very steep ridge coming to the foot of the neck of the Chang (Elephant) where I took two photos. The trees were mainly *Quercus Junghuhnii*? We climbed to the summit of the ridge through undergrowth of *Amomum*, *Alpinia*, Rubiaceae (with red fruits resembling *Psychotria*), *Smilax* (a very spiny species with small leaves and fruits). Gradually the slope became bare of undergrowth and only species of *Castanopsis* and *Quercus* (1755 – *Quercus daichangensis* Camus) covered the ridge. There was some undergrowth, myrsinaceous plants, *Carex*, blue flowered Acanthaceae, *Evodia triphylla* (but only small plants 3 feet in height and fruiting), *Schima* sp.?, *Osbeckia* sp.?, and a shrubby *Pithecolobium*, *Gleichenia linearis* and *Brainea insignis* were about the only ferns save for no. 1757 – *Hymenophyllum exsertum* Wall., on trunks of *Quercus daichangensis* (see negatives in U.S. Dept. Agr.) which covered the trunks of *Quercus* etc., also the roots of a Polypod

(on trees) and many orchids (also terrestrial ones).

I took two photos of the top without undergrowth. The trees are mostly *Quercus* and *Castanopsis*, also two tree trunks covered with the above *Hymenophyllum*.

We left Doi Chang summit, which according to aneroid was 5,350 feet, and descended to the neck of the elephant and climbed to the head through much spiny *Smilax* (1752). At the top of the head (5,125 feet), there was a beautiful view of the plain below and we could see Chiengrai in the distance. A Miao with two Miao boys appeared with bows and poisonous arrows. They were out for deer and birds. I tried to photograph them but every time the shutter of the camera clicked, they put their heads together and looked into the lens. Result – no picture. I bought a bow and arrows but he would not sell the poisoned ones. He said they were hard to get. They bought the poison from the Mo-so tribe.

We returned to the camp in the late afternoon. Dr. Beech and I talked till the midnight hour; fireflies came into the tent and, outside in the jungle their light made one believe that it emanated from the eyes of lurking tigers. We finally went to sleep, with curious noises around us, to wake up at 6 a.m.

Specimen nos. 1747–1807.

1755 – *Quercus daichangensis* Camus.

1757 – *Hymenophyllum exsertum* Wall., on trunks of no. 1755, see negatives in USDA.

1791 – *Castanopsis armata* Spach, negatives 22955 in USDA.

January 12, 1922

Owing to my indisposition (having the bother of a boil) and to the condition of the forest on Doi Chang, the Miao having cultivated the mountain slope and destroyed the forest, I decided to return to Chiengrai. I left the Miao village about 8 a.m. collecting on the way *Pterospermum acerifolium* with peltate large leaves was common, species of *Macaranga*, a white flowering climbing *Bauhinia*, also *B. purpurea* or *variegata* (it was not in flower but the tree had the aspect of either species), a beautiful *Argyreia* with whitish-lilac petals and deep purple center about 4 inches across, several species of *Ficus*, a *Bignonia* tree with reddish corolla tube, leaves with narrow oblong lanceolate leaflets. The tall timber bamboo called Mai Hok (Mai Hooak as Kerr spells it and which, according to him, is *Thyrsostachys siamensis* Gamble). It is of the latter that the Miao construct their

dwelling houses. Lower down we found again the Mai Lai, dense tangles of this species found flowering on the road to Chiengrai.

Met Mr. Lee going up to Miao village.

We returned by the Sun Dawk trail which follows a gorge with tropical forest emerging into Eng Dipterocarp forest and on to the Chiengrai road at a telephone pole bearing the number 2461.

Reached Chiengrai at 4:30 p.m.

The thatch-grass cut by the natives for their houses is *Imperata arundinacea*.

Specimen nos.

1793 – *Senecio acuminatus* Wall. forma *breviligulata* H.-M., type.

January 17, 1922

Left Chiengrai at 4 p.m., crossed on ferry over Me Kok River and rode as far as Ban Du where we found the Haws (Chinese caravan men) waiting. We have now 15 horses and 8 carriers.

We are sleeping in a Wat. A small Buddha sits enthroned on a bamboo altar. Our table is right under some Buddhist draperies. A lot of boy-priests are standing around looking and watching our doings. They are amused at our gas lamp. No collecting on this trip (day). Beyond the river is mostly teak forest and dry scrub. The village we are staying in is in teak forest. We are waiting for Mason (tomorrow). Mr. Baer is now with me.

January 18, 1922

Early this morning the priests came into the Wat to bring water to the Buddha who was dressed in yellow cotton. A little later a woman came in with a wash basin full of rice covered with banana leaves, banana skin and 2 little candles. A priest came and took the wash basin, stuck one lighted candle into the rice, the other before the Buddha. He began to recite Pali texts Namu amida Buddha, etc. The woman kneeling behind. It was cold and the priest was shivering and pulled his yellow robe over his shaven face. I watched the whole procedure from my camp bed and from behind the mosquito net. They did not mind at all. My table and chair was in front of the altar, set ready for breakfast.

We left at 9:30 a.m., passing through dry jungle and paddy fields. Had lunch at Ban Hue Pû and finally went on through more paddy, and Eng. forest as well as bamboo and then entered a beautiful bit of forest on the spur of a mountain. There we stopped and collected

ferns, *Mussaenda* etc. Rattan (*Calamus*) and Zingiberaceae as well as Araceae are common. The trees were all *Dipterocarpus alatus*, Meliaceae etc. After passing through teak forest, we entered the village of Ban Meh Ki on the Meh Chan, the village of Ban Meh Chan is on the other bank and both are known as Chieng Sen Luang. The Ampur had sherry and dinner with us and I as usual, worked till late putting away my plants.
Specimens nos. 1860–1879.

January 19, 1922

Left Ban Meh Ki (Chieng Sen Luang) at 9:30 a.m., hunting for horses. The trail passed paddy fields and dry secondary savannah forest composed of *Nauclea sessilifolia*, species of *Randia*, *Tectona*, *Strychnos nux-vomica*, *Str. potatorum*, *Zizyphus* sp.?, *Imperata arundinacea*, or Elephant grass, *Randia* with large fruits, several huge *Ficus* (one I photographed), also large bamboo called Mai Pio at Ban Ba Sang, and *Ficus*. Among the large trees found there, were members of Sapindaceae and Anacardiaceae. We passed thence through teak forest of small growth, *Garcinia* sp.?, *Elaeocarpus*, *Amoora Rohituko*, *Pterospermum semisagittatum*, etc.

We stopped for lunch on the banks of the Nam Kham where I packed my plants. The village on the other side of the river was Ban Nam Kham, followed by grassy Savannah jungle with much *Nauclea* and *Randia*. All this plain was formerly under cultivation (about 75 years ago or more). The natives were carried off by a former King of Chiangmai as prisoners and made slaves of them in the latter place.

We followed along the foot of Doi Tum and the whole mountain range all afternoon. The mountains are very steep and intersected by deep valleys. Limestone out-croppings are visible. On Doi Tum there is a celebrated Wat and place of pilgrimage. We are stopping now under Mai Yang trees at a village called Hue Bong. We are now 12 km from the Shan border, altogether 60 km from Chiang Rai.
Specimen nos. 1880–1897

Januar 20, 1922

Left Ban Meh Pong at 7:30 a.m., where we camped in our tents for the first time on our trip. The dew was exceedingly heavy as it sounded like heavy rain from the teak leaves. The Haw horses had a free fight, turning their behinds to each other and kicking for all they were worth. A bullock caravan came along and caused a great

commotion – the Haws yelling and spluttering. We passed through a big swampy plain with numerous rushes, *Cyperus*, *Scirpus*, *Clerodendron*, *Desmodium*, Scrophulariaceae and *Carex*, etc. We then passed through a paddy field with the mountain range of Doi Tum to our left, before reaching the last village with a gendarmery, Ban Chong. I took two photos of the last mountain, Doi Chong (Umbrella Mountain), in Siamese territory. We passed the gendarmes and entered quite a tropical grove of large trees. The mist had risen and the whole range of mountains was clear. In the grove of large trees were several *Ficus*, yellow-fruited Meliaceae, a tree with catkin-like inflorescence was very common, also many *Strychnos* trees, *Randias*, *Imperata arundinacea*, etc. We came then to a small river called Hue Sai which flows into the Me Huak and both into the Mekong. The Hue Sai forms the boundary between Siam and Burma or the Keng-tung State proper.

The first village in Shan territory is Taki-lek where we stopped for lunch and where I dried my blotters. Here in Shan territory, the natives put up permanent paddy field fences, while in Siam they take them up after harvest and pile them way up in the forks of tall trees to prevent them from being stolen. The people here wear mostly top-notches or long hair but Lao is spoken.

We passed a large village called Hong-luck. At Ban Wieng Kean, I bought a coconut just before getting into Hong-luck. Priests are very scarce here but they carry swords which is not to be found in Siam. We reached Ban Meh Huak, crossing the stream of the same name and are now camping on an island in the Meh Huak. The vegetation is mostly rattan, *Caesalpinia* and ferns. Elevation about 1,500 ft.

Specimen nos. 1898–1922, still in Siam.

Specimen nos. 1923–1928, collected in Burma. S.E. Shan States

January 21. 1922

Left Ban Meh Huak at 8 a.m. passing through paddy fields and villages. We passed by a mountain range at the foot of which was said to be hot springs called Muang Ko. At 11 a.m. we stopped for lunch, crossing the Meh Niu, and lunched at Ban Ta Kaw. This was the last village.

We entered much of bamboo jungle – many species from very tall ones to the Ma Lai and very slender ones. The glaucous Mai Sang was common as well as Mai Bong Pa. I photographed one fine clump of bamboo called Mai Pio (two exposures). After crossing several

streams, we entered evergreen rain-forest with tall trees – species of *Calamus* or Rattan, *Caryota* palms, Zingiberaceae, tall Marantaceae and ferns. The trail led over a mountain range inhabited by Akas or Kaw people (their language is said to be akin to Chinese?). The mountains have been much cleared by these people – many of the various hillsides being absolutely barren, cleared for planting, others abandoned and taken possession of by tall grasses. We passed what seemed to be a surveyed road on which we found many Akas working. We pitched camp at a place crowded by bullocks. A large caravan had already taken possession of the place – the open space in the jungle. There is much yelling and shouting and calling. A large crowd is sitting not far from our tent gambling. We are peacefully situated along a babbling brook at Ban Ki Hat, in the midst of the jungle. The Akas are passing with torches through the forest and the shouting continues. One single woman is with that whole crowd of men. She looks for the world like an American Indian, wears a sort of tam-o-shanter decorated with silver, bone, etc., wears a short skirt and, in front, a sort of kilt. They are all around with bows and arrows and also with long knives, and are a cruel-looking people. I shall be glad when this night is over. There may be a free-for-all fight for they have drunk liquor and are now gambling – some sixty of them and we are only three. There are no police nor gendarmes nor officials of any kind in this region and all is so different from peaceful Siam. One would expect a lot of lawlessness in this region. Three Shans from Muang Yang paid us a visit and said they wanted to talk. They had been on the road one month and came from Muang Yan. They reported a band of 500-600 bandits working on the Shan-Yün-nan border at Muang Len.

To-morrow is Sunday and we are going to stop and visit a Kaw or Aka village. The collection on today's stage, was rather poor. Specimen nos. 1929–1968, Burmese territory.

January 22, 1922

Sunday – Today we stopped all day at Bang Ma Ki Hat. Early this morning we were awakened by a lot of noise. Near our camp, there sat under a bamboo shed a Shan chief surrounded by his counsellors, holding in his hand a rattan stick. Before him sat a crowd of Kaws. In their front rank there were three who did the arguing. They yelled and shouted at the top of their voices, The chief struck one of them with the bamboo rod, and instantly he kept quiet. The chief visited

our camp and asked for a cathartic, which I gave him. He was surrounded by a group of Kaw onlookers. They wear blue turbans and short jackets, are armed with knives, wear thick silver bracelets and smoke out of silver pipes. I photographed them as they were at our camp. I also photographed a group of Kaws who passed by to work on the road as the British Commissioner is said to come next month. Kaw women passed and I took their pictures at the order of the Shan official. They carried paper-bark (*Broussonetia papyrifera*) on their back. Some of the Kaws ran away when I took the black cloth and tried to focus the camera. I had to discard the focusing cloth as they were afraid of it.

About noon they began to make music with drums and gongs while the chief weighed opium in a scale, the weight used being a silver rupee. They seemed to be all contented.

In the afternoon Baer and I went for a walk into the jungle following a small stream where I found ferns, and urticaceous undershrubs. Much bamboo was seen and very tall, buttressed trees between huge lianas. I photographed a tree trunk (2 views) also vegetation along the stream looking down and up with huge bamboo (Mai Bong Pa). We followed the creek bed till we came out on to a clearing or Hai made by the Kaws, of which clearing I took photos. It must take an enormous amount of work to clear such tremendous forests as we passed through with trees 150 ft. in height, enormous bamboos, *Calamus* and other spiny palms as well as *Pandanus*. There was not much in the collecting line, but we spent a very interesting day in this big evergreen jungle among the most curious people.

Many came for medicines, one wanted to buy quinine for a rupee. He was going to make money by so doing as he would sell each pill for twice the amount he would pay for them. We refused to sell any.

One Kaw came with bamboo-reed organs and played and danced to his tune. It was very amusing. Their hair is cut rather short, save a small patch on the very center of the head which they let grow long. Their jackets are short, blue, and have red and white borders. They are filthy but not nearly so as the Miao. Many of them have goiters. The women are very much decorated with beads and millet seeds which are sewn on the cornucopia-like (conical) headdress. Much silver ornament is worn.

To-morrow we leave for Muang Len.

January 23, 1922

Monday – Left camp at Pang Ki hat at 8:30 a.m. after saying good-bye to the chief of Muang Len, who still held a conflagration with the Kaws.

Our road passed through much of Mai-lai bamboo and interesting scrub and weeds. After an hour's march, we came into dense bamboo jungle of Mai pong? where we met some Kaws working on the road. I stopped them and took three photos of them. One old man with long hair was exceedingly dirty. They all smoked large pipes. Shortly afterwards, we passed through a large grove of magnificent trees of which *Dillenia* formed a large proportion, many smaller shrubs and trees forming the undergrowth. We also passed many Hais, i.e. cleared land, which had been cultivated by the Kaws and, according to Dr. Mason, was in opium two years ago. Much thatch-grass occupies it now with *Broussonetia papyrifera* of which the people of this region make paper. We had a difficult crossing over the Meh Len River, the bank on the other side being very steep and exceedingly muddy, with a pool of mud at the foot of the bank. We crossed over paddy fields and entered Muang Len at 1:30 p.m., halting near the entrance of the village in a neat little sala or rather a little hut with an altar and a wooden Buddha in a corner where priests sit in meditation. The posts are red and gilded, the walls are red and the roof is of heavy tiles. After getting settled, we took a walk through the village. Today was market day and the filth on the village road is indescribable, mangy dogs lying about with pigs and waterbuffalos. Two Kaw men, as filthy as can be with their long hair full of maggots, were driving two pigs through the village trying to sell them – 30 rupees for two large sows. We went to the headman's house and found a group of men playing the coconut game. They were all sitting on the mat and shaking coconuts listening to the water in the nut and weighing it in their hands, while a pile of rupees and French piasters were lying in the center of the circle which the players formed. The one who guesses the largest coconut inside the husk wins. The nuts are opened and the meat weighed, the one who guessed the heaviest nut gets the money. We left ere the game was finished. On the way back to the Sala we stopped at a native drug vendor and asked him for Kalaw (*Taraktogenos kurzii* Chaulmoogra). He had very old seeds and said that they were called Maw Kalaw in this region and that it occurred two days before reaching Keng Tung. We entered two wats, very poor ones with cheap-looking, smiling Buddhas wrapped in yellow cloth.

The building is of mud bricks, stuck together with mud. Old wooden figures were lying on the ground in the temple yard which reminded one of two lepers we met in the village street. In the evening I developed the pictures taken at Pang Ki hat and in the bamboo jungle on the road.

Mosquitos are bothering me so I am going to bed.

Specimen nos. 1969–1989.

January 24, 1922

Left Muang Len with a guide and three Kun-haps (carriers) for the Mekong River. We passed between lanes through the village of Muang Len out into the paddy fields and then entered a grove of tall trees and huge bamboos (the Mai Hok) with enormous glaucous culms. We then came to a small village on the Meh Len which river we crossed in a boat, the horses swimming. Thence we went through more paddy fields and gradually came to the foothills covered with low lying Mai lai bamboo. The ridge was rather open and covered with much *Scleria scrobiculata*. The trees were a *Schima*?, *Quercus truncata*, *Quercus fenestrata* (the small seeded variety), two species of *Castanopsis* and Mai lai bamboo in flower. The trees on the very steep, upper ridges were mostly *Quercus* (several species) and theaceous trees (*Eurya groffii*, *Eurya acuminata*) etc. Ferns were common as a species of *Cibotium* (2004 – *Cibotium barometz* (L.) Thn.) of which I took a photo (no. 30056). It is trunkless – the leaves coming directly from the ground. A simple-frond fern, with creeping rhizome, was common on the sandy quartzzy ridges (*Oleandra cumingii* var. *longipes*) while a *Gleichenia* covered the exposed slopes. After climbing to about 4,000 ft. elevation, we descended into the valley of the Mekong. *Livistona* palms were very common on the slopes of the ridges of the Mekong valley but not on the Meh Len side. The forest changed from the deciduous *Quercus*-type to evergreen rainforest with tall trees such as *Dillenia*, Meliaceae, many aroids (*Pothos scandens*) one of which I took a photo on a *Dillenia* tree, also a general forest view of another aroid, probably a species of *Philodendron*. There were Zingiberaceae, Marangaceae, *Musa*, *Calamus*, *Caryota* and *Arenga* palm (with small, narrow leaflets), *Pinanga* probably *Pinanga gracilis* (the common terrestrial fern found in wet low forests), also *Asplenium nidus* on trees, and many other fleshy plants as *Pandanus* etc. Gradually the forest gives way to Mai lai bamboo until we reached the streambed of the Mekong. The

riverbed is about a mile wide but at this time contained little water. Enormous rocks fill the whole riverbed which produce terrific rapids. The vegetation in the streambed is *Homonoia riparia* and a low stout shrub (2002 – *Syzygium abortivum* (Gagnep.) neg. 22988), bent in the direction of the current, this plant which I photographed is submerged in many feet of water for the greater part of the year. I took a photo of the plant, also 5 of the Mekong up and down stream and one of the guide in the Mekong river against a rock. The heat was terrific. We found large tiger tracks in the muddy riverbed. They led to the river and were quite dry; they must have been there quite a time ago. We ascended again the steep ridge and returned the same way we came. Photographed a Kaw village on the top of a hill in the distance. We reached camp about 7 p.m.

The photos of the Mekong were taken near the deserted village of Tang Oh or Tah Aw, a trail leads from there to Muang Sing in French Territory.

Specimen nos. 1990–2030.

1995 – (*Quercus*) *Lithocarpus fenestrata* (Roxb.) Rehd.

2002 – *Syzygium abortivum* (Gagnep.), neg. no. 22988

2004 – *Cibotium barometz* (L.) Thn., negative 30001. USDA

January 25, 1922

Left Muang Len about 10 a.m. stopped at the Paper-village and took photo of their paper drying racks. Also bought 33.75 rupees worth 2250 sheets of paper made of the bark of *Broussonetia papyrifera* for the plant specimens. The trail led through uninteresting bamboo jungle onto a surveyed road which follows the Meh Len. The scenery along the Meh Len is very beautiful, evergreen rainforest. We stopped about half way between Muang Len and Pang Kah Luang. Many of the trees are very tall and have pinnate leaves either Sapindaceae or Meliaceae. *Duabanga sonneratioides* is very common. On one tree of that species I found a large fern (*Drynaria coronans*, neg. 30059 in USDA), which I collected. Bamboo of the large timber variety is also common besides *Pandanus*, Zingiberaceae, Marantaceae, and of palm, *Calamus*, *Caryota* and *Arenga*, besides many climbing ferns (*Lygodium*). In the streambed are many shrubs, and *Ficus* (2034 = *Ficus gibbosa* Bl.; 2035 = *Ficus comosa* Roxb., large trees, 2037 = *Ficus pyriformis* Hook & Arn., a shrub, is also very prevalent but mostly large trees). Leguminous vines and aroids cover the trees and form huge entanglements. *Musa* may be seen everywhere. *Homonoia*

riparia forms large shrubs with thick knotty trunks growing in the riverbed between the rocks in the water. They are submerged for a great part of the year. I took several (3) photos of the Meh Len showing the vegetation of its banks, also the *Homonoia* shrubs in the water. Much of the trail had been cleared owing to the Commanding Officer visiting along the road. We met him in the Sala at Pang Kah Luang. He is Col. Shelton Smith, a very dry and droll individual. I asked him how many white people there are in Chieng tung and he answered „One and he is away“. This Sala is quite a substantial building with a verandah of hard wood and a room built in the center. Taung gyi, whence he came, is 25 stages from Chieng Tung with a beautiful road and Dak Bungalos all along the way. Taung gyi is 20 miles from the railway.

Specimen nos. 2031–2039

2031 – *Pteris ensiformis* Burm., negative no. 30059, USDA

2034 – *Ficus gibbosa* Bl. (large trees)

2035 – *Ficus comosa* Roxb. (large trees)

2037 – *Ficus pyriformis* Hook. & Arn., shrub

January 26, 1922

Left Pang Kah Luang (the big thatch camp) at 8:30 a.m. We saw the Colonel off and then started ourselves. The trail led through dense rain forests along the bank of the Meh Len. Enormous trees towered for 150 feet above the other smaller trees, many ferns grow along the small rivulets emptying into the Meh Len, as well as on the banks of the trail – collected many plants among them no. 2040 – *Laportea crenulata* Gaudich. var., with stinging hairs which are still smarting me. We stopped for lunch on the banks of the Meh Len. The trail led away from the Meh Men upwards to 2,000 feet elevation into dry bamboo jungle (2053 – *Melocalamus compactiflorus* B. & H., 2066 – *Dendrocalamus birmanicus* A. Camus) with *Bauhinia malabarica*, bignoniaceous trees with spathaceous calyx (*Dolichandrone caudafelina*), etc. We arrived at Muang Hpyak at 5 p.m. We looked for the house built especially for the Colonel and when we arrived, we found it occupied by Shans, who bolted with all their belongings as fast as they could go. We took possession of the place and are quite comfortable. We are sitting under a tamarind tree. The air is cool and damp. Muang Hpyak is on a fairly large plain between two mountain ranges. The plain is well cultivated. All the rice has been harvested and the fields are brown. The village is scattered over the plain rather

more detached than one village. Across the creek is a temple rather primitive, where we found a number of Buddhist priests – their chests tattooed with red, their legs and abdomen black. They are all a very civil lot. So far we have had nothing stolen.

Today I took one photo (neg. no. 22995) of a species of fern (2041 – *Alsophila glabra* (Bl.) Hook.), with a trunk 6 feet in height; the frond measured 10 feet. It grew along a creek which emptied into the Meh Len.

The scenery along the river was magnificent.

Specimen nos. 2040–2071.

2040 – *Laportea cranulata* Gaudich. var.

2041 – *Alsophila glabra* (Bl.) Hook., neg. no. 22995

2051 – *Pittosporopsis kerrii* Craib. cited in Brittonia 4:67.

2053 – *Melocalamus compactiflorus* B. & H.

2066 – *Dendrocalamus birmanicus* A. Camus nov. spec.

January 27, 1922

Early this morning I took a photo at Muang Hpyak of the girls sitting and spinning on the platform in the middle of the road of the village. These girls are eligible and expose themselves to the view of boys looking for wives. The boys select the girls after inspection and take them home.

We left Muang Hpyak about 9 a.m., the trail passed through dry scrub vegetation and, just outside the village on the edge of a paddy field, I found a large *Castanea* tree with old fruits. It has entire leaves but is a true *Castanea*. Bamboo gave way to scrub forest such as is found on the outskirts of the villages. We soon entered the gorge of the Meh Len River and dense forest with tall trees and lianas. The trail is very winding and it is a continuous up and down. The forest became denser and ferns very numerous; tree ferns were observed and Nai In swam across the Meh Len to cut down one large tree fern (2097 – *Alsophila glauca* (Bl.) J. Sm., neg. nos.: 22950, 22996, 22998, 22999). He succeeded and brought it toward the rapids where he secured it before reaching the current. The trunk was 35 feet tall about 6-7 inches in diameter, blackish, the fronds about 15 feet long with 36 pinnae or 18 alternating pairs of pinnae, and an additional tip of 3-4 inches in length. The scenery is grand. Ferns became very numerous and the trail reached an altitude of 2,300 feet. It began to get dark when we reached our camping place, called Pang Sop Lao (The mouth of the Meh Lao) which we crossed just before entering a

small village. It is pitch dark as I write. Lao Puer is playing his flute and the water of the Meh Len is rushing madly over rocks toward the Mekong.

It is time to go to bed.

Specimen nos. 2072–2112.

2097 – *Alsophila glauca* (Bl.) J. Sm., neg, nos, 22950. 22996. 22998. and 22999,

January 28, 1922

Stopped at Pang Sop Lao for the day. After breakfast we climbed the ridge facing our camp to investigate the Pine trees on the top of it. We had to climb through tall grass and over a burnt area till we reached the pine trees which proved to be *Pinus Khasia*. With it, we found growing a species of *Andromeda* (2118) – *Vaccinium sprengelii* (G. Don) Sleumer (cited by Merrill in Brittonia 4:156, (1941) and by Sleumer B. J. 71: 462, 1941, but by Sealy in Curtis Bot. Mag. vol.164: pl. 9658, 1944, it is discussed as similar to *V. brachybotrys* (Fr.) H.-M. Rehder) again determined it as *V. mandarinorum* Diels det. Rehder. *Gleichenia* was common and covered the ground; also Compositae, *Rubus*, *Carex*, *Rhynchospora*, and the common grasses found on Doi Sooteop with the pines. I took two photos, one looking towards the tall mountains on the other side of the Meh Len, the other looking across through pines down into the valley. After lunch I went along the trail back to the tall tree ferns which are the same as the one found on the other side of the Meh Len (2097 – *Alsophila glauca* (Bl.) J. Sm., a tree fern attaining a height of 35 ft., frond 15 ft., 36 pinnae in dense rain-forest of the banks of the Meh Len, photo, USDA neg. no. 22950, 22996, 22998, and 22999.) I took four exposures, also a *Phlogacanthus pubinervius*, neg. no. 30003. We followed the creek by the tall tree ferns and found quite a number of species not collected yesterday. On the return trip to the camp, I took a photo up stream with the mountains in the distance. After a bath and swim in the cool waters of the Meh Len, we walked along the banks and collected quite a number of species of ferns. Our camp is under a *Dillenia indica*, the fruits have been dropping frequently but no one got hurt.

Specimen nos. 2113–2144

January 29, 1922

Left Sop Lao at 8:30 a.m. The trail led through dense forest along the

Meh Len and just before crossing the river over which the bridge was washed away, we struck a grove of pine trees – *Pinus Merkusii* which I photographed. The whole hillsides on both sides of the river were clothed in pines. After crossing the stream, the trail ascended to the top of the ridge which was mainly covered with huge pines (2155 – *Pinus Merkusii* Junghuhn & De Vriese, USDA neg. no. 30008) and Mai Sang bamboo (2154 – *Dendrocalamus strictus* Nees, see above neg. Oaks (*Lithocarpus spicata*) and *Castanopsis* were also common. All the pines on the north side of the ridge were *Pinus Merkusii*. The trail led to an elevation of 3,000 feet at the divide, but the mountains above it were all covered with pines up to about 3,600 feet elevation. The mountains opposite, which I photographed yesterday, must be about 6,000 feet elevation. The bamboo we photographed was collected (2154 – *Dendrocalamus strictus* Nees., see neg. no. 30008 – Mai Sang). Accompanying the pines was *Phyllanthus emblica*, *Quercus* (2172 – *Lithocarpus spicata* (Sm.) R. & W.), etc. The trail descended again into the valley of the Meh Len. The south side was covered with pines but *Pinus Khasia* with only very few of *Pinus Merkusii*. The trunks of *Pinus Merkusii* are deeply furrowed but those of *P. Khasia* are covered with a flaky or flat, scaly bark. Although very old, *P. Merkusii* show their furrowed-bark characteristic only at the base. The cones of *P. Merkusii* are longer, as are also the needles, than those of *P. Khasia*. From the summit of the ridge a wonderful view could be obtained over the valley. The Kaws have ruined much of the forest by clearing the land which, set off by commas after abandonment, is taken possession of by tall grasses and *Rubus* (2151 – *Rubus elongatus* Sm.). The trail descended into dry Mai Sang bamboo jungle and gradually rose again into dry forest with *Strychnos*, and spiny *Randia*.

We had lunch at a most awful place full of bull dung and dry and dusty – most of it burnt-over area. It is known as Bang Tong. We passed afterwards through more or less open jungle, the Meh Len getting smaller all the time. We entered a little valley with an affluent of the Meh Len where we collected many ferns. The altitude at our camp which is Ban Hka is 3,100 feet. On our way to the camp we found *Prunus* trees (2177 – *Prunus salicina* Lindl. in full flower. They were gorgeous to behold and reminded one of home. We were all very angry on account of a package of dry plants having disappeared.

We encountered much *Engelhardtia* (2174 – *Engelhardtia spicata* Bl.

tree 80–100 ft., tr. 3 ft in diam.) – one very tall tree, and climbing *Mussaenda*, *Compositae* etc.

Specimen nos, 2145–2191

2154 – *Dendrocalamus strictus* Nees, see neg. no. 90008 – Mai Sang

2155 – *Pinus Merkusii* Junghuhn & de Vriese; USDA neg. no. 30008

2172 – *Lithocarpus spicata* (Sm.) R. & W.

2174 – *Engelhardtia spicata* Bl. tree 80–100 ft., tr. 3 ft. in diam.

2177 – *Prunus salicina* Lindl., see Brittonia 4: 89,

January 30, 1922

Before leaving Ban Yang Kha, I went down the road and photographed a lovely tree of a Yün-nan pear – it was all in flower with ascending branches. I also photographed a branch spread along the trunk (2191 – *Pyrus pashia* Ham.). The trail led along the Meh Len which here was rather small, resembling a brook; along it grew many pear trees, one with small fruits which we collected. Further along, we came across two other *Prunus*, one with small flowers (white), and one with deep pink flowers and stout ascending branches (2199 – *Prunus persica* (L.) Batsch). It looked as if cultivated, as it grew in a deserted field. We entered rather dry forest with *Ficus* trees, *Strychnos*, spiny *Randia* with yellow fruits and a real *Prunus* (2195 – *Prunus puddum* Roxb.) with pink flowers resembling a Japanese cherry. The trunk was clean and not attacked at the base as are the cherry trees in Washington, D.C.

The Meh Len became smaller and smaller, the hills were bare having been cleared by the Kaw people and everything looked like desolation. The Kaws are ruining the state of Keng Tung by their Hai-methods. We passed several huge chestnut (*Castanopsis*) trees with large spreading crowns and large trunks 3 feet in diameter; the branches were drooping (2201 – *Castanopsis hystrix* A. DC., neg. no. 22977 USDA). We could see Loi Mwe on the hills. Bare hills they are with brick buildings. A little beyond the tall chestnut trees, the Meh Len divided and we followed a branch known as Pi Bang – the Ghost divide.

One hour's ride along the banks of this small branch brought us to our noon stop at Pang Bi Bang. I decided to stop and dry the numerous plants collected. We built a large fire and put up a frame scaffolding to use for hanging the plants over the fire. 15 parcels are drying on the frames over a ripping fire.

It is time to change plates and go to bed.

Specimen nos. 2192–2204

2192 – *Pyrus pashia* Ham.

2195 – *Prunus puddum* Roxb.

2199 – *Prunus persica* (L.) Batsch.

2201 – *Castanopsis hystrix* A. DC., neg. no. 22977 USDA

January 31, 1922

Shortly before breakfast this morning, two Kaw women came to the camp – spinning while they were walking. One (an old one) we persuaded to pose for a picture in a spinning attitude; the younger one refused. The old one carried a baby on her back and every now and then she shook as if she were cold – it was meant for the baby.

We left and passed through oak and chestnut forest – a rather semi-dry region. I photographed a *Castanea* tree (2252 – *Castanopsis hystrix* D.C.) with Noi Lot standing at the foot of the tree. We followed a small streambed up to its source (elevation 4,450 feet) through dense and magnificent forest; the air was glorious cool, and the scenery wonderful. We left Loi Mwe behind us encircling the ridge on which it is situated. We found wild peaches with deep pink flowers (2240 – *Prunus persica* (L.) Batsch) growing near the summit of the pass. The trail descended rather steeply through drier jungles and at about 3,500 feet elevation, *Quercus* and *Castanopsis* species became numerous. It became very hot. The lower slopes were mostly covered with small oak trees with large spikes and large leaved oaks (2218 – *Lithocarpus fenestrata* (Roxb.) Rehd. & Wils.; 2219 – *Castanopsis indica* A.DC.). *Phyllanthus emblica* was very common, also *Buddleia asiatica* and numerous trees as *Schima* (2220 – *Schima wallichii* Choisy (det. Rehder)) etc. We stopped for lunch at Muang Chen where I dried blotters etc. We left nearly as late as four p.m. The trail passes through paddy fields and open timber known as Mai Ki Lek (Fire wood). It looked, for the world, like an orchard. The branches are cut for fire-wood and all the trees had a pruned appearance. Very common is a large tree with very stout and crooked (twisted) branches which had very light green foliage – just appearing, although it was flowering (specimen nol. 2248 – *Quercus acutissima* Carruth.).

We came to a village called Peng Sai and there we stopped at the temple – a very crude affair made of sun-baked mud-bricks. The abbot is a deformed chap but very kind. We made our beds in the temple before the altar. The priest came and recited Pali texts while

we were listening. A tiny home-made candle burnt on bullock horns in front of the altar.

Bed time.

Specimen nos. 2205–2252.

2214 & 2221 *Quercus brandisiana* Kurz

2218 *Lithocarpus fenestrata* (Roxb.) Rehd. & Wils.

2219 *Castanopsis indica* A. DC.

2220 *Schima wallichii* Choisy (det. Rehd.)

2236 *Clematis acuminata* D.C., cited by Nurrile

2237 *Celastrus monosperma* Roxb. In Britt. 4: 104 but det. as *Celastrus Bentharii* Rehd. & Wils. Other name for it is *C. championi* Benth.

2240 *Prunus persica* (L.) Batsch

2248 *Quercus acutissima* Carruth.

2252 *Castanopsis hystrix* D.C. photographed this spec.

February 7, 1922

We left the Dak Bungalow about 10:30 went to the post office and thence to the big market (neg. no. 30026, Keng Tung market). There were not quite so many people as five days ago, however, the place was crowded. Many Chinese were there, Kaw women, Shans, Wa, Lahus, etc. The Lahus wear jackets with red and green triangular strips of cloth sewn onto them. On the right, below the shoulder, they wear a silver rosette-buckle resembling the Japanese chrysanthemum crest. The Kaw dress in dark blue, without any ornaments, though some of their women are overloaded with silver rings around the neck. Their cap is covered with millet seeds and those of *Coix lachrima jobii* but the elongate variety. I photographed two Kaw women who were absolutely ignorant of what was going on. They looked straight into the camera. I also took photos of the various temples – one of the temples is situated within the Sawbwa's palace (walls) with a Wa standing in front (neg. no. 30044). In the temple opposite I photographed the Library; masonry covered with stucco; the priests standing in front (neg. no. 20037); an interior view of the temple with many Buddhas, all covered with yellow cloth. We said good bye to Mrs. Thelford, the Baptist Missionary, and went to see the old stone, covered with old Siamese characters.

The trail led through paddy fields over the circular plain of Keng Tung. We stopped for lunch on the banks of the Meh Lap – having lunch rather late (3:20 p.m.). Not far from the Meh Lap, there grew a

large *Pyrus pashia* Ham., full of fruits and covered with white flowers. We collected the fruits and specimens (2253 – *Pyrus pashia* Ham.). The native name is Mai Kaw Ki Kai. The trail led through several villages and paddy fields. We passed a Haw caravan loaded with tea from Muang Hai, Yünnan. They said that they met with no robbers. The sun began to set and the hills to the left were a rich blue which was strangely contrasted with the dull yellow paddy fields; the red hills to the right bathed in the red fading light of the setting sun. Large bamboo groves announced the site of the village Ban Saa where we are stopping now in the Wat Ban Saa. The abbot of the temple, a rather intelligent individual, came to interview us and admire our benzine gas lamp – in fact all the women came from the village to gaze at this marvelous lamp. We had to turn it on and off to show them; they gazed at it for hours and could not understand the brightness. We told them the cost of it and they said for that price they can build a house with a lot of wood in it. The cost would be 30 rupees – today's exchange (358 to 100 dollars) as per Rangoon cable. A nice old woman who said she was seventy years old, had eye disease and Dr. Mason treated her with blue-stone (copper sulphate). The electric torch-light amused them greatly and, shortly after the women left, the men came and wanted to see the light which was not hot – also the photographs of Mason's family. They are a very nice lot of people. They all watched us eat and sounds of surprise went up as we used forks and knives. They could not get over it. It was like a theater. We poured brandy on our pudding and lighted it and the fun was great for them. Later, some more old women came – one a shrew with a hard mouth of the thickness of a string and straight, and with eyes that pierced. She gazed at the lamp. Another woman was ugly beyond description. We finally told them that it was bed-time but they wanted to see us go to bed – how we did it. Our beds are in the temple, banners for departed spirits are hanging down and paper decoration on the wall representing elephants, cows and horses. Buddha, a very ugly statue covered with gold-leaf and yellow cloth, sits enthroned and surrounded by numerous little ones. On the sides are white paper umbrellas and on the ground (in front) are small elephants made out of wood, carrying on their backs banners covered with tinsel. The posts, which are evidently chestnut wood, rest on stones to preserve them from the termites. It is real cold.

Mason told us that, when he went up last time, they were told to sleep in a Wat but the place was so dirty that they slept under a large

tree. This happened to be a spirit tree and in the morning the people came gazing and remarking „Why they are still alive“. Mrs. Thelford said that they would encircle the whole town with a string to keep the spirits out and place offerings outside the string for the spirits. Her Wa tribal servants, she said, once remarked when they slaughtered sheep, that that was the way they cut the heads off humans when they still lived in the hills.

We are going to stop tomorrow as I want to send mail back to Keng Tung.

Specimen nos. 2253–2257

2253 *Pyrus pashia* Ham.

2270 *Castanopsis tcheponensis* Hick & Camus (see neg. no. 30071)

February 8, 1922

Stopped all day at Ban Saa. Developed plates exposed in Keng Tung of market, wats etc.

Afternoon climbed the dry hill to the left of the village. The whole hill has been cut over and is now occupied by secondary jungle – mostly Mai Sang bamboo, some *Quercus*, *Castanopsis*, *Schima*, a beautiful leguminous shrub (*Indigofera elliptica*) with pink flowers; one of the most common shrubs was rubiaceous with large panicles of cream-colored flowers and simple leaves, the old ones of which turned red (no. 2269 – *Wendlandia glabrata* D.C.), *Desmodium* and a few pine trees was about all. The *Pinus* was *P. insularis* but some had four needles as well as two and three on the same tree. Along the creek-bed below the village which is really situated on the hill-top, the vegetation is mostly bamboo, and a rubiaceous tree with fragrant flowers which we also found planted as a fence near and at Muang Len. I sent a large package of the fruits of *Pinus insularis* to Washington. Also photographed the village of Ban Saa, where there is a small bronze Buddha in the Wat of the same name.

Specimen nos. 2258–2270

2269 *Wendlandia glabrata* D.C.

2270 *Castanopsis tcheponensis* Hick. & Camus, USDA neg. no. 30017.

February 9, 1922

We left Wat Ban Saa early this morning, the night was very cold and it was hard to get out of the warm bed. The trail led along a dry hill with bamboo and oaks and paddy-fields on the other hand, and

gradually ascended to a ridge on which we found a fine bamboo in flower – they called it also Mai Sang but it was much smaller, the culms thinner and less tall (specimen no. 2280 – *Dendrocalamus strictus* Nees). The whole hillsides had been cut over for fire wood and now bamboo and scrub-oaks have taken possession of the country. The view from the top of the ridge was magnificent over the Keng Tung (valley plain) towards Ban Saa and again up the valley of the Meh Lui. The hills were rather bare except the steep ridges, fires were burning on the steep slopes and in the rarified air Kaw villages could be seen distinctly on the top of the hills.

I took two photos – one over the plain towards Keng Tung, the other into the distant Meh Lui valley with pine trees in the distance. *Pinus insularis* was quite common but as isolated individuals. Near a bog at 4,500 feet elevation we found a species of *Pyrus* (*pashia*) in flower, it was about 30 feet tall. I photographed the tree and a flowering branch pinned against the trunk. From there the trail descended gradually, winding through bamboo jungle and much *Quercus* and *Castanopsis*? and *Schima* with here and there a pine. We had lunch under a large species of *Ficus* with *Quercus truncata* (specimen no. 2295 – *Lithocarpus truncata* (King) Rehd.) and *Vaccinium* (2296 – *Vaccinium sprengelii* (G. Don) Sleumer) trees near by. We met much Mai Lai bamboo also Mai Pok, Mai Sang, Mai Hok and others. At a bend in the trail we came across a family of Sam Tao, a Buddhist Tai hill-tribe, who have adapted hill costumes and also part of the hill language especially much of Chinese, although they all understand Tai. The dialect spoken in this district is Khu(r)n but Chieng-mai dialect is understood everywhere in this region. We met several Haw caravans with camphor and tea from Muang Rai. They all carried Winchesters and Mauser pistols.

The trail led through everlasting bamboo jungle with *Quercus* and *Schima* and very few ferns. It descended into the valley of the Meh Lui at a steep grade through much bamboo, *Musa* and tall trees. The forest near the banks of the Meh Lui is lovely consisting of large trees, tall and erect with many lianas. On the very banks of the swift flowing Meh Lui, which is larger than the Meh Len, there were huge species of *Ficus* which made a beautiful effect. We crossed the Meh Lui on two dug-out canoes which were tied together. The pack loads were taken over in the boats while the horses swam the stream which is very swift and deep in the center. I took several photos of the banks and upstream. The ford where we crossed and where we are staying

for tonight is called Ta Ping. The house is a brick building, white-washed and covered with figures and writings. The roof is nearly caved in and dirty straw is on the dusty floor.

Bauhinia variegata is very common on the ridges and valleys at elevation of 4,000 to 4,500 feet. I photographed (neg. no. 30048) a tree in flower (2272).

10 p.m. It is cold and while I was putting away the specimens, noise like gun-fire was and still is heard every few minutes. It is the exploding of green bamboo joints in camp fire. This is mostly done in order to keep wild animals away.

Specimen nos. 2271–2296.

2272 *Bauhinia variegata* L., neg. no. 30048

2274 *Lithocarpus spicata* (Sm.) R. & W.

2295 *Lithocarpus truncata* (King) Rehd.

2296 *Vaccinium sprengelii* (G. Don) Sleumer

February 10, 1922

We left our prison-like brick-building camp on the banks of the Meh Lui early this morning. The whole valley was filled with fog. The trail passed through a large grove of beautiful tall trees along a little brook where there grew many ferns, some very tall ones (but not trunks) – the leaves measuring about ten feet. We climbed the rather steep trail to the top of the ridge at an elevation of (about) 3,600 feet only to descend again to the banks of another stream, the name of which we could not learn. The jungle was composed of several species of oaks and much bamboo, also *Pinus insularis* was very common (with male flowers). The undergrowth was formed mostly by *Gleichenia*, *Braynia insignis* often with trunks 3 feet in height, also a stout fern which we collected on the ridge between Muang Len and the Mekong. A *Cibotium* was very common. I photographed one chump (specimen no. 2298 – *Cibotium barometz* (L.) Thn.; neg. no. 30056) – the only photo taken today. Bamboos increased in numbers – several species, especially Mai Sang, and a small one which they called Mai Lai (2322 – *Dendrocalamus hookeri* Munro; 2304) Where we had lunch under a bamboo chump, I found a peculiar species which seemed not to die after flowering – small branches of the inflorescence appeared from the axils of the leaf-bearing culms. They drooped in long whip-like slender branches from the lower axils. The stipules have a very long tip even longer than the actual sheath. We saw a great deal of *Cibotium*, also many large species of *Ficus*

obtusifolius (one 12 feet in diameter), also smaller species *Ficus hirta* Vahl var. *roxburghii* King, growing in company with araliaceous trees, etc. The trail descended again to 2,600 feet elevation through much bamboo, over swampy ground where we found again *Pyrus pashia* with *Smilax prolifera* Roxb. and much *Congea velutina*. We finally struck a paddy-plain and a small village with a miserable temple. We did not stop but moved on to the larger village of Muang Mah – one stage from the Chinese border. We are stopping in a bamboo *Salah* with wooden walls. The floor is flattened-out timber-bamboo (split). After arrival, we called on the Kun (or headman) of the village, a congenial old man. He was making thatch for roof while his daughters were drying some yarn which they had dyed blue with the leaves of an acanthaceous bush (*Strobilanthes flaccidifolius*). The leaves are steeped and the yarn dipped into the blue stew of leaves and young twigs. After several dryings and soaking the result is a nice deep blue. The women wore nothing above the waist but short skirts below. Around their arms, above the elbow, they had many silver rings for about five inches. The rings were evidently placed there when they were still small girls as they constricted the upper arm considerably. After a few pleasant remarks, we left again to make ourselves as comfortable as possible in the dingy *Salah* surrounded by dust and pack-animals. About a dozen of the Sawbaws soldiers were being drilled by a Siamese ex-soldier from Chieng Rai. They are dressed in natural-brown cotton trousers (knee-breeches), coats of the same material, yellow turbans and blue cotton puttees.

Tomorrow we shall sleep in Chinese territory.

Specimen no.

2288 & 2289 *Oxytenanthera albociliata* Munro (a bamboo)

2298 *Cibotium barometz* (L.) Thn., neg. no. 30056

2304 small clump Mai Lai and 2322 *Dendrocalamus hookeri* Munro.

February 11, 1922

We left our Bamboo *salah* at Muang Mah early and followed on the edge of the paddy-fields through jungle. The forested hills were to our left and the terraced plain to our right. The hills had been much cut over and covered with bamboo, on the upper and middle slopes. Along the margins of the paddy-plain the forest is left undisturbed, only along the actual path (or mule-trail), the vegetation is stunted. Meliaceae are quite common as *Toona* sp.?, also a larger number of

Ficus of various species (as *F. Benjamina*, and several small fruited species) and many bamboos (as the Mai Hook and Mai Sang). We passed through several villages and paddy-fields. Found a fine specimen of *Pleopeltis* on a tree trunk which I photographed with N. Keo standing beside the trunk. *Quercus* was met with, also *Garcinias*, etc. The trail followed practically all along the Nam Mah – a tributary of the Nam Lam which flows by Chieng Law.

The dry jungle gave way often to beautiful groves of large trees with innumerable vines and huge woody climbers forming dense tangles. In these large groves we met with large specimens of *Cibotium barometz*, also of the other dark-scaled fern *Alsophila glabra* with trunks of 6-7 feet in height. I photographed one specimen (two exposures); neg. no. 30057, 40058 USDA). Also photographed an orange (Mandarin) grove with tall slender trees, not at all pruned or otherwise taken care of.

At a village which we passed, all the women came out dressed (or rather undressed) similarly as the women at Muang Mah, with silver rings above their elbows. They sold us Mandarins but when I tried to photograph them, they all ran away like deer. At about 5 p.m. we reached the Chinese-Burma border at Chieng-law. A much faded Chinese flag was implanted almost in the center of the road. To the left of it was a bamboo-wooden shanty where the Chinese official, a small unwashed fellow but with a kindly smile, gave us rather a nice reception. He had a few soldiers with him dressed in dirty white, with narrow red borders along the seams of the trousers and brass buttons. Several Chinese were sitting about dressed in blue. They brought out stools for us, and entered into a lively conversation. The official whose name is Wai Kia-ki (like the beach in Honolulu) knew Mason and, without asking for any passports or anything, we were shown the way to Chieng Law. He gave Mason some money to send down quinine. He had been on this border for seven years. I took a photo of Mason and Baer standing by the flag, while Mason took one of me standing with the official near the Chinese flag. He also gave us a letter to take to the Chow Fah of Chieng rung (Keng hung). We followed a narrow trail through bushes of *Vitex* (specimen no. 2325 – *Vitex trifolia* L.) and spec. no. 2347 – *Justicia adhatoda* L. to the ford of the Naw Law. We are staying at a poor miserable temple with two little alabaster Buddhas and a small wooden one in the back. The name of the Wat is Ban Ta Ngua („the crossing of the buffalo“). The Wat was crowded with Lüs a tribe of the Tai people. They were again

much interested in our lamp and the electric flashlight. They watched us eat and when I put my plants away, they were so crowding around me, coughing and belching all around and on top of me – I could stand it no longer. Many wanted medicines – one for an epileptic boy, the other for asthma, and many other ailments. We finally drove them all off telling them we were now going to bed.

The moon rose shortly before our arrival at the Wat. The sun was just setting and the hills in the distance were purple, the sky slightly hazy and the full moon was gently riding on the pale lilac haze, herself a pale silver disc, with the land-masses clearly showing. It was a wonderful sight. It is now very cold and I must stop writing. All the rest are asleep.

Specimen nos. 2325–2348

2325 *Vitex trifolia* L.

2332 *Ficus altissima* Bl.

2335 *Ficus obtusifolius* Roxb.

2341 *Alsophila glabra* (Bl.) Hook., neg. USDA 30057-30058

2347 & 2348 *Justicia adhatoda* L., Chinese plants from Chieng-law border

February 12, 1922

Left Chieng Law while the heavy fog was still lying over the valley or alluvial plain. We are traveling without escort. There is a noticeable difference in the road. There is no grading and a trail, simply made by the pack trains, goes in every-which direction. We passed over paddy-plains and then entered beautiful forest – tall trees, much under-brush, many *Cibotium* ferns, and also the *Alsophila* tree fern. The trail led over a steep ridge with dense rainforest – a regular tiger-jungle, dark and mysterious. We passed several natives (Lür) with cross-brows and arrows, also with guns. They were going out to hunt deer. One beautiful glen we examined, it was full of *Cibotium* and tree ferns (several terrestrial species), many climbing aroids and terrestrial Marantaceae, *Pinanga gracilis* was one of the most common palms. In the same glen, there was a tall *Castanopsis tribuloides* (2360) with old burs on the swampy ground. *Pandanus* was also not uncommon. Today we had one of the most delightful jungle-walks. We passed one small village (the tail end of Muang Pan), crossed many paddy-fields till we reached the main village of Muang Pan which had been burned down completely before the harvest some months before. Eighty-four houses were destroyed and the people are living in

provisional bamboo houses built on the ground. We bought a large pig for fourteen rupees – the pig weighed more than 100 lbs. It is for the Haw train and the Lao carriers. We are sleeping in the Wat of the place. The altar is small and only a few small wooden Buddhas are on it. Before reaching Muang Pan, I photographed a beautiful *Engelhardtia* tree (specimen no 2382 – *Engelhardtia spicata* Bl., USDA neg. 30063).

Specimen nos. 2349–2385

2382 *Engelhardtia spicata* B., neg. 30063

February 13, 1922

Left Muang Pan early. The whole village saw us off. They became curious in the morning, for the night of our arrival they left us alone. Only one or two priests came and watched us eat our supper.

We crossed the paddy-plain, leaving the pine-covered mountains to our left – the western mountains being devoid of pine. We soon entered dense jungle. The road was full of rocks and muddy in places. It was a continuous climbing up and down, the trail leading on the crests of the ridges. We followed a valley and then climbed and climbed the steep ridge ahead. There were many oaks, *Engelhardtia*, *Castanopsis*, *Bauhinia*, and a very very stout spreading bamboo like *Dendrocalamus Hamiltonii*, *Cibotium* ferns became very common – whole slopes were covered with the huge fronds. In the shady ravines, ferns were plentiful, many aroids of various types, Marantaceae, *Dracaena*, several species of araliaceous trees, Acanthaceae, Leguminosae etc. *Pinanga gracilis*, *Wallichia caryotoides*, *Calamus*, *Arenga* sp.?, *Philodendron* – several species climbing and covering the trees. There were many very tall trees, 100 feet or more in height, mostly with pinnate fronds.

The trail rose higher and higher. The vegetation changed gradually. On top of the ridge at an elevation of 4,500-5,000 feet *Quercus* became very common, also a very large *Castanopsis* with very large burs. One tree, about 130 feet to 150 feet (neg. 30064 USDA) had very large chestnuts (spec. 2405 – *Castanopsis diversifolia* King). One I photographed with Dr. Mason beneath. There were other species of *Castanopsis* but without fruit. The undergrowth was mostly Compositae – one a fine small tree with large panicles of lilac flowers (spec. 2406 – *Vernonia Volkameriaefolia* D.C.). There were other Compositae with white flowers (spec. 2414 – *Vernonia papillosa* Fr.), also a yellow *Senecio*

(spec. 2424 – *Senecio scandens* Buch.-Ham., ex D. Don). The trees were all very tall. There were magnificent oaks with large leaves, and smaller ones – the acorns being arranged in long spikes. Even as high as 4,900 feet, there were Hais or clearings made by Kaw Hill people. We saw some wild peacocks strutting about but the gun was with the caravan, which was far ahead.

Still the trail ascended and descended only to rise again till finally we saw the plain of Muang Hun. Lower down (at about 4,000 feet) we found several *Quercus* – one with very crooked trunk (spec. 2407 – *Quercus acutissima* Carr.) on which the flowers and young leaves had appeared simultaneously. On the Muang Plain, there were hundreds of trees of *Pyrus pashia* all in flower, the snow-white appearing trees being very conspicuous against the dark foliage of the other trees. The yellow Composite (spec. 2424 & 2436 – *Senecio scandens*) was very common climbing over shrubs, as well as a large flowered *Clematis* (spec. 2408 – *Clematis heracleifolia* D.C.?), *Rubus* (the yellow fruited species, *trifoliata*) being very common with other lobed species which were not in flower. We reached the plain at sunset and made straight for a small village called Ban Nâ. The village was stockaded and on inquiry about our caravan, we were told that they had not seen it at all. It was getting dark and a Haw caravan which had pitched a tent outside the village informed us that they had gone on to another village – so on we went in the dark, the Haw horse-boy once in a while striking a match to see if we were on the right trail and if there were hoof-marks. We yelled and yelled and finally reached the Wat of the village. we are now comfortably settled in the village temple. The mosquito curtains are being tied to the altar on one side, and to a spirit-flag on the other. The elevation of this village is 4,500 feet.

Took only one photo of a large *Castanopsis* (spec. 2405 – *Castanopsis diversifolia* King – neg. no. 30064), at an elevation of 4,900 feet.

February 14, 1922

We spent the whole forenoon at the Wan Ban Ta Woa Tuan at Muang Hun, the Chinese Meng-hun 猛混. I labeled the numerous plants collected the day before. The people became exceedingly curious and crowded around us. They belched and coughed right on my head as I was sitting at the table; their garlic breath scented the air. They were filthy beyond description, especially the boy-priests. We had to tell

them to go out of the temple as we sat down to lunch. After lunch we left the Wat (where, by the way, I bought a native embroidered towel – home-spun and embroidered – all for a rupee), encircled the beautiful plain of Muang Hun keeping to the left. Not far out we passed through a large grove of *Pyrus pashia* trees. They were lovely to behold in their white attire of beautiful flowers. I took three photos there. The trail led by the main village of Chieng Hun (or The Walled City, although there is no wall now). There are two distinct sections – the Tai part, with high roofs, and the Chinese part, on the other side of the brook, with low houses. In the Tai village there was a peculiar Wat with many roofs, and a *pracheedy*² on the side of the hill near by, resembling much Wat Kutau of Chieng Mai.

We passed through a large grove of chestnut trees with small fruits arranged in spikes (no. 2439 – *Castanopsis hystrix* D.C., neg. no. 30071 USDA). The trees were small but a few were rather large. I think it is the same as we collected at Hue Phi Bang in the Keng Tung State. There was much of the flowering *Clematis* and numerous trees of *Pyrus pashia* all in flower. In the distance there is a little hill in the midst of the paddy-plain with a Wat – called Wat Ban Nowng Kam – is to be our shelter for the night. On the way, just on the slopes of the hills encircling the paddy-plains, we found a large tree of *Pyrus pashia* in fruit. We reached the Wat just before the sun disappeared behind the hills over which we came the day before. Several maidens with rosy cheeks came up to the Wat, after having spied us, to sell vegetables for a few coppers. The priest of the Wat, a nice fellow, blind on one eye, told us that this part of the country is much infested by white tigers – perhaps the blue tiger hunted for by Chapman Andrews³ in Yünnan some years ago. He said that six people were carried off by tigers during the last four months. Mason tells us of having passed through here four and a half years ago, just the day after two men were killed by tigers at high noon on the road while they were smoking opium.

There are tea trees on this hill where I am staying, also peaches with large deep-pink flowers, *Sapindus saponaria*, orange trees and

² Auch *prachedi*, Rock erläutert den Begriff in NGM 41.1922, S. 243 als «votive spires».

³ Roy Chapman Andrews, 1884-1960, zoologischer Forschungsreisender. 196-1917 leitete er die Asiatische Zoologische Expedition des American Museum of Natural History (dessen Direktor er übrigens 1934 wurde) nach Yünnan und anderen chinesischen Provinzen.

Pyrus. A beautiful landscape spreads out to one's feet: the brown paddy-plain encircled by forested hills on which smoke rises as from volcanoes – fires kindled by passing caravans.

Tomorrow we must pass through tiger-infested jungles and hills. It is said that they are especially active near Muang Hai, our next stop. Specimen nos. 2428–2440.

2439 *Castanopsis hystrix* D.C., neg. no. 30071

February 15, 1922

Left Ban Nowng Kam early this morning. The road led directly into the hills. We looked out for tigers. I carried my colt-automatic, ready for use, but fortunately we did not meet any. The trees were mostly oaks and the large fruited chestnut, also several *Elaeocarpus* and the large composite with the purple flowers. The ridges were comparatively dry and Fagaceae formed the major part of the vegetation. I photographed one very large oak (no. 2453 – *Quercus acutissima* Carr., neg. no. 30069), also a beautiful *Vaccinium* with white and pink bell-shaped flowers (no. 2455 – *Vaccinium sprengelii* (G. Don) Sleumer – neg. no. 30068 (see also 30090). It grows with no. 2453 – *Quercus acutissima*). The highest elevation reached was 5,050 feet. The oak I photographed was at 4,800 feet. The native name was given as Mai dim. An *Alnus* (*Alnus nepalensis*) we also collected called Mai Wai. *Pyrus pashia* was exceedingly common along the plain (4,200 feet). The most common tree was a *Wendlandia glabrata* D.C. (no. 2269). We descended again onto a plain – the plain of Muang Hai. *Pyrus* was again common, also a tree, an alder tree whose leaves were all dry and the branches seemed to have been cut many times and used for firewood. We came on to a grove of pear trees in flower. It was an orchard and was said to be the large-fruited variety. The flowers are much larger than of the wild species but they seem not to be such prolific bloomers. I photographed the grove (elevation 4,300 feet). We passed through a large grove of enormous oak trees (no. 2407 – *Quercus acutissima* Carruth.), and presently came upon the village of Muang Hai, the Chinese Meng-hai 猛海. There are two distinct villages one Chinese on the plain, and the Tai village on the hillside. The temple (Tai) is a rather large one and is situated overlooking the plain – somewhat isolated from either village. It is by far the largest temple we saw since leaving Keng Tung. There are fifty priests in this temple but mostly boys only four real priests. We settled at the temple and then

called on the Chinese official whose residence is on the top of the hill. He is a real Tai but goes by the name of Li Fu-tin. He was with two rather nice Chinese men (officials) and a lot of children and women. We were seated to the left drinking tea and smoking cigarettes. We conversed with him for some time and then took our departure.

Arrived at the temple, we were surrounded by the whole congregation of priests who admired the gasoline lamp. Shortly afterwards they all went on their knees and the chanting commenced – rather beautiful. The abbot explained to us that the prayer offered was to the coming lord.

The Wat in which we are settled is a rather large one, surrounded by a mud-wall with Chinese gate-ways. Many banners hang from the ceiling and a large childish-looking Buddha sits enthroned on the altar.

After dinner we went to see the Chinese theater which has been erected in the middle of the street of the Chinese village. We were directed by the young Chinese official to a store where the chief was sitting with a fire burning under the table. We afterwards went out in front of the theater where we were again made comfortable by the Chinese officials. As it was rather cold, we soon made our departure thanking our hosts. The theater was very primitive and the play equally so. Tea is sent from here in large caravans in baskets. The name of the Wat here is Wat Luang.

The Chow-fa reports *Pinus khasia* or *Pinus insularis* a little west of Muang Hai – a few were planted at this place. Where we had lunch at the foot of the hill on the edge of the Muang Hai plain, there was a large grove of *Castanopsis* (no. 2439 – *Castanopsis hystrix* D.C.) with tall climbing *Mucuna* (seeds collected).

Specimen nos. 2441–2461

2407 *Quercus acutissima* Carruth.

2439 *Castanopsis hystrix* D.C.

2453 *Quercus acutissima* Carruth., neg. no 30069

2455 *Vaccinium sprengelii* (G. Don) Sleumer, neg. no. 30068 (see also 30090). It grows with 2453 *Quercus acutissima*.

2269 *Wendlandia glabrata* D.C.

February 16, 1922

Left Muang Hai 猛海 about 8:30 a.m.; before leaving I took three photos (neg. 30072) of the temple and one of the caravan in front of the temple near the big Bho tree. The priests ran after me, and the

abbot wanted to see the pictures at once, begging me to open the plate holder.

It was a very cold night and the fog was lying over the Muang Hai plain like a heavy blanket, only the gables of the Tai houses on the hill appearing above the fog. It was a wintery scene, the crows flying about in the temple ground and picking up the remnants of food left by our carriers. Dr. Mason went to say good-bye to the Chinese official while we turned again toward the hills and northeast to Chieng Rung (Keng Hung), the Chinese Ch'e-li 車里. At first we passed through thick groves of a *Castanopsis* with the small bur and gold-brown leaves – magnificent trees. There were some very tall and at least three to four in diameter. I took a photo of the large grove through which the trail led with Noi Loh standing under the big trees. The most common undershrub was the tea tree (2469 – *Thea sinensis* L., neg. no. 30074)(*Ton Miang*) the leaves of which are chewed in Siam and Laos. Very numerous was the epiphytic *Drynaria coronans* (Wall.) J. Smith which preferred tall trees. Here in Yünnan the leaves are made into tea which is drunk. At the temple where we were staying, there were a few Chinese carriers with their wooden carrying-frames for tea. The leaves are very coarse as I could observe while they were selling some to the Abbot of the temple. I photographed a wild-growing tree of *Thea* (no. 2469 – *Thea sinensis* L., neg. 30074). It grew in the jungle with *Castanopsis* and *Pyrus*. Further along the trail it seemed to be cultivated or trimmed and the underbrush cleared out. It was very common all the way to the last village which we passed about noon. At a small place called Yam Kham, I took a photo of the large-fruited *Castanopsis* – a tall tree on the edge of the village. The *Quercus* with crooked limbs and young leaves and flowers was very common. At the last (next) village, I photographed a flowering bamboo (no. 2467 – *Dendrocalamus giganteus* Munro) – Noi Keo standing at the foot of the culms. It is a large timber-bamboo with glaucous stems and large leaves. Before crossing the Nam Ha I found another species of bamboo in flower (no. 2462 – *Oxytenanthera felix* Keng, det. Keng). It is a smaller species only about 25 feet tall – or 30 feet at the most. After crossing the river at the ford, we entered a narrow valley through which the Nam Ha flows. The heat was intense. In addition to that, forest and grass fires were burning on both sides of the trail and in passing through them at a gallop, my horse's tail got singed. Oaks and *Castanopsis* as well as *Schima* form the tree vegetation. Much

Cibotium is found in shady places together with the shaggy fern we found on the Meh Len ridge. Willows grow on the banks of the Nam Ha (no. 2747 – *Salix araeostachys* Schneider), especially at a small islet where we had lunch. *Psilotum triquetrum* grew on the trunks of these willows which were overhanging the banks of the Nam Ha. The trail became very narrow and led alternately through open burning grass country (thatch grass) and again through beautiful forest of oaks with large acorns (no. 2477 – *Lithocarpus spicata* var. *brevipetiolata* (A. DC.) Rehd. & Wils.). We are stopping in such a grove with the trunks of a large *Ficus* as a wall for our tents. This is tiger jungle and we must be careful. The elevation at this particular place, about half way between Chieng Rung and Muang Hai, is 4,200 feet. A very common tree on the valley slopes is a species of *Alnus* (no. 2443 – *Alnus nepalensis* Don.). No pines are visible.

Specimen nos. 2462–2477

2443 *Alnus nepalensis* Don.

2462 *Oxytenanthera felix* Keng. Det. Keng

2467 *Dendrocalamus giganteus* Munro

2469 *Thea sinensis* L., neg. no. 30074

2474 *Salix araeostachys* Schneider

2477 *Lithocarpus spicata* var. *brevipetiolata* (A. DC.) Rehd. & Wils.

February 17, 1922

We left our camp under the large oak trees at 3,900 ft. elevation real early. At 7:30 we were on the way. There was no fog. We followed the Meh Nam Ha down its course, the drop of this treacherous river is very considerable. Its bed is full of huge boulders and the water rushes in cascades and rapids over them. The vegetation becomes quite tropical. *Garcinia* trees are very common but below the *Quercus* zone, *Bauhinia variegata*, the same as photographed in the Keng Tung State), is very plentiful. A *Eugenia* but not in flower (2479 – *Eugenia*), and numerous trees form this dense tropical jungle. The Mai lang bamboo was all dead throughout the valley with exceptional flowering clumps. The trail was absolutely awful, full of huge rocks and continuously steeply ascending and descending. The numerous landslides made traveling very difficult and detours necessary. We walked nearly the whole way. It may be stated that *Pinus insularis* was observed in the Meh Ha valley just above our camping place. *Podocarpus* (no. 2495 – *Podocarpus neriifolius* D. Don) occurred lower down at an elevation of 2,800 feet. It was more a large climber

than tree, overhanging the waters of the Meh Nam Ha. The small *Castanopsis* was also quite common. Araliaceous trees, *Pipturus*, *Boehmeria* (no. 2502 – *Boehmeria platyphylla* Don.), huge *Millettia* climbers with enormous beans trailing from tree to tree, many of the trees observed in Siam and in the Keng Tung State, with an occasional *Pyrus*, and *Erythrina suberosa* occur along the slopes of this valley. Several species of *Smilax*, leguminous vines (the yellow-flowering species – large racemes), Euphorbiaceous trees (no. 2434 – *Mallotus philippinensis* Muell.), Acanthaceae, and ferns form the plant ensemble. In the dense shade of this tropical jungle, I found a species of *Cycas*. It was trunkless and without flowers or fruit. It has a creeping thick rhizome about five inches below the surface of the soil. In a distance of about five miles the river drops about a thousand feet, until it reaches the plain of Chieng Rung (Keng Hung), the Chiu-lung-chiang 九龍江 of the Chinese where it flows placidly but winding considerably, almost making complete circles. We crossed the paddy-plain leaving to our right, a tall mountain mass inhabited by Haw people. The mountain, called Doi Nun Nang, must be about 8,000 feet in height. The paddy-fields were lined with dry jungle of *Ficus*, Euphorbiaceous trees and one tree especially common (which I found plentiful near Raheng and on the Meh Ping (no. 2511 – *Streblus asper* Laur.)), *Clematis* (no. 2512 – *Clematis kerriana* Carib.), *Jasminum* (no. 2507 – *Jasminum* sp.), etc. A *Salix* with broad leaves (no. 2514 – *Salix wilsonii* Seem. or a related species) was not uncommon lower down. In the upper part of the Nam Ha, a *Salix* (no. 2474 – *Salix araeostachys* Schneid.) formed small islands in the river, with ferns and grasses. The Meh Nam Ha flows into the Mekong not far from the Mission Compound.

We reached the Mission House at Chieng-rung about 7 p.m. having had a march of about eleven hours over a most difficult trail. Dr. & Mrs. Park welcomed us. They haven't seen a white face for over two years. They are all alone with a little boy, John, born in Chieng Rung and a little girl.

This finishes the journey with Dr. Mason. On our trip we met many caravans (both mule and ponies) carrying salt, lead, tea and camphor. Usually two caravans going together, every man carrying rifles and knives. The Yamen is situated on the plain just across the Mission compound. It is enclosed within three walls with watchtowers. The Chow Haw (Chinese magistrate) is away at present. He has been here for many years, having been called to assist the

Chou Fa (the native Tai ruler) in a rebellion. He has remained here ever since and is now absolute ruler over life and death – the Chow Fa being without power.

Specimen nos. 2478–2516

2434 *Mallotus philippinensis* Muell.

2474 *Salix araeostachys* Schneid.

2479 *Eugenia*

2494 *Podocarpus macrophyllus* Don.

2495 *Podocarpus neriifolius* D. Don

2502 *Boehmeria platyphylla* Don.

2507 *Jasminum* sp.?

2511 *Streblus asper* Laur.

2512 *Clematis kerriana* Craib.

2514 *Salix wilsonii* Seem. or near?

February 18, 1922

Keng Hung

We are stopping in the mission compound, the house is built of round stones from the Mekong River-bed, held together by mortar. It looks like a prison. Baer and I went down to the edge of the mighty Mekong, the present level of the river being about 35 feet lower from that of the rainy season. It does not look so treacherous as at Tang Oh. The sandy bed is covered with bushes of *Homonoia riparia* which for months are under 20 feet of water.

We paid off all our carriers today.

February 22, 1922

We left Chieng Rung early for the Mekong. Two canoes were to be ready but instead, of course, only one was ready. We made ourselves comfortable as best we could. The boat leaked terribly and I bailed most of the time. We had four men poling upstream with oars. I walked along the shore or rather river-bank collecting – a blue *Campanula* (no. 2541 – *Campanula mekongensis* Diels), *Rosa* sp.?, *Homonoia* (no. 2520 – *Homonoia riparia* Lour.), several Compositae, *Spiraea* (no. 2540 – *Deutzia corymbosa* R. Br.), a medium sized tree with drooping large foliage and large terminal panicles or cream-colored scented flowers. We poled among huge rocks, in swift current, turning to the left where we stopped under huge boulders (see photo). We climbed the embankment and followed

a small creek-bed to near the top of the range. Most of hillside had been cut over but I found some ferns I had not previously collected, also a few trees. We proceeded by boat across the river and lunched on a sand bar. After lunch I walked along the stream-bed collecting plants, *Phoenix* (no. 2531 – *Phoenix roebelenii* O'Brien) was quite common and I photographed a few specimens (neg. nos. 30079, 30085, 30086). They form dense clumps but some have stems several feet in height as could be seen from specimens brought down by the boatmen who cut timber for the A. P. Mission, and of whom I took pictures on the raft.

We then followed a small creek-bed to the left where the natives (Tai) had erected a small library and where they hid all their temple treasures during a Haw⁴ (Chinese) robber invasion. I found several other species of ferns and a Bignoniaceous tree in full flower (no. 2556 – *Mayodendron igneum* Turcz.), the Dak dip of the natives, I photographed a flowering branch (neg. no. 30084). The tree is deciduous in the cold season when it flowers, usually in February and March – the beginning of the hot season. We returned to the Mekong and took a swim in the icy waters.

Specimen nos. 2517–2559.

2520 *Homonoia riparia* Lour.

2531 *Phoenix roebelenii* O'Brien – neg. nos. 30079, 30085, 30086

2540 *Deutzia corymbosa* R. Br.

2541 *Campanula mekongensis* Diels

2556 *Mayodendron igneum* Turcz.

February 23, 1922

Chieng Rung

After lunch we proceeded by boat to Chieng rung village to pay a visit to the Chow Fa („the Lord of Heaven“) who was ruler over the Hsip Song-pan-na but plays now the second fiddle – the Chow Haw (Chinese magistrate) being the Chief.

⁴ Haw wird in verschiedenen Bedeutungen gebraucht. Vgl. James McCarthy: *Surveying and exploring in Siam*. London: John Murray 1900 (Nachdruck: Bangkok, Cheney: White Lotus 1994), 44: «They [the Haw] were, in a word, Chinese brigands. At one time, Chinese traders, known in Luang Prabang as Haw, came down from the north in great numbers to traffic with the inhabitants, and when the peaceful traders gave place to brigands of the same nationality, the name Haw was naturally transferred to these.»

He (the Chow Fa) is a very ignorant coolie-like individual who lives in a long barn-like structure with pigs and horses living under the house. Manure is thick everywhere. He offered us tea in dirty cups which we nearly had to empty for politeness sake. We went to the largest Wat of Chieng Rung (Wat seri Chawm muang) where we found a fine old priest who had been in the temple for over forty years. He gave me a nice bronze Buddha in a graceful and pleasing way.

The second temple is a little lower down. We also visited the priest there, who was quite cold and more or less uncivil. We rode horseback to the Mission Compound. On arrival we heard that the Chow Haw had returned to the Yamen and so we called on him immediately. He received us in a very pleasant manner and promised to send us passports and a letter to the Tao Tai of Szu-mao.

February 24, 1922

We had the Chow Haw for dinner tonight. He stayed till nearly ten o'clock p.m. talking through a very pleasant interpreter, a young northern Tai. He pleasantly said that we were friends now, having eaten rice together, and that he would send food along with us on the road. He also promised an escort, and a letter to the Tao Tai of Szu-mao 思茅.

Today I tried to send two parcels by letter mail. The postmaster, a young Chinese, said he could not take them as he had not stamps enough to cover postage.

February 25, 1922

Left Chieng Rung at 11 a.m. in the mission boat across the Mekong. Dr. Mason going with us as far as the trail separates. Before leaving Chieng Rung we received a ham and Chinese sausages from the Chow Haw which were brought over by a soldier bringing two cards with him from the Chow Haw. Our caravan (fifteen packhorses and two riding ponies) went across by the regular ferry for which we paid \$ 5.00. Our carriers are Lü people who wear large dark-blue baggy trousers which they roll up way above their knees when not walking, the crutch is near the ankles, otherwise they would remind one of French zouaves. They wear long hair which is tied like a top notch and wear a pink turban. Their blankets are spotted like a leopard's skin.

We ascended a rather steep hill covered with dry shrub-jungle

composed mostly of oaks (no. 2588 – *Lithocarpus spicata* (Sm.) R. & W.), anacardiaceous small tree or shrub, *Spondias mangifera*, *Hoya* sp.? (no. 2568 – *Toxocarpus* sp.) and (no. 2566 – *Bauhinia variegata* Kinn.), with snow-white large flowers, save one petal which is pinkish striped. This tree is the most common, the whole hillside being white with these flowering and leafless *Bauhinia* trees. Other trees are the large fruited *Gardenia*, large trees of *Albizzia* (probably *procera*), climbing *Mussaenda* (no. 2591 – *Mussaenda hossei* Craib.) and a climbing spiny Mimusoid, known as Sum Poi by the Lao people who use the pods for washing their hair. The trail led down across the ridge at about 3,900 feet elevation, and followed along the mountain slope at a slightly lower elevation, overlooking a deep valley. *Bauhinia variegata* was scattered all over the hillsides to the top of the ridge. Mai Sang bamboo was very common – many clumps just past flowering. *Nauclea polycephala* (large trees), *Erythrina* sp.?, *Ficus*, *Thunbergia*, etc., formed most of the jungle. We crossed another mountain spur which seems to cut off the deep valley. Owing to our late start from Chieng Rung, we stopped on the top of a ridge with a streamlet considerably down the hillside. This camping place is called Pang Khun. I went collecting into the jungle and down to the stream-bed, where I found quite a number of trees in flower and several species of ferns not previously collected.

Tonight it is quite warm – a considerable difference from cold, damp, foggy, Chieng Rung.

Specimen nos. 2560–2605

2566 *Bauhinia variegata* Linn.

2568 *Toxocarpus* ?

2588 *Lithocarpus spicata* (Sm.) R. & W.

2591 *Mussaenda hossei* Craib.

February 26, 1922

Pang Khun, although higher than Chieng Rung, was quite warm during the night and morning. No fog. We left the camp rather early climbing higher and higher. The small species of *Engelhardtia* grew with *Castanopsis* (no. 2615 – *Castanopsis indica* A. DC.) and a *Sterculia* (no. 2606 – *Sterculia fulgens* Wall.) with bright sienna-red flowers and leafless, *Bauhinia variegata*, *Erythrina* (no. 2633 – *Erythrina stricta* Roxb.), *Cycas siamensis*, etc. Near the top of the ridge we looked over the Chieng Rung plain although a deep valley and another mountain range lay between us and could see a blanket of

fog over the Mekong. At the top of the ridge about 4,600-5,000 feet there were the large fruited oak same as (no. 2477 – *Lithocarpus spicata* var. *brevipetiolata* (A. DC.) R. & W.), and pinnately-leaved trees but without flower or fruit. The hillside was one huge bed of *Cibotium* – same species as previously collected. The trail led over the hills rather rapidly down to the Muang yang 猛養 plain. *Andromeda* and *Castanopsis* (no. 2615 – *Castanopsis indica* A. DC.) was quite common with *Schima* (no. 2622 – *Schima Wallichii* Choisy) and here and there a *Phyllanthus emblica*. We found a large liana climbing from tree to tree of enormous size with racemes of large purplish-green flowers on the huge stems same as (no. 2389 – *Mucuna*). On the Muang Yang plain we found again *Pyrus pashia* quite common, also a huge *Ficus* tree (no. 2631 – *Ficus altissima* Bl.) which I photographed with Bun Mah standing under the tree (neg. no. 30087). We met with a procession of Shan or Tai people beating gongs and singing. They were going into the jungle to cut logs for the temple. We lunched on the plain near Muang Yang, and afterwards crossed the paddy-field to enter jungle again near a village, Ban Sai Kau – an exceedingly dreary affair. All were eager to stop but it being very early in the afternoon I went on following the new road which the Chow Haw (Chinese magistrate) is making. We entered a narrow valley after climbing over a steep hill. This valley we followed for a considerable time, trying to find a place for a camp. Finally we reached a spot where there was some grass for the horses. It is known as Pang Nam Wah, The camp on the Nam Wah stream. This place has a bad reputation for tigers and the men are out building fires and letting big bamboo joints explode and burst in the fire. It sounds like a cannonade. This is to scare off the tigers. Baer has been shooting off his revolver but the bamboo is more effective and cheaper. We hope nothing will happen.

Specimen nos. 2606–2641

2389 *Mucuna*

2477 *Lithocarpus spicata* var. *brevipetiolata* (A. DC.) R. & W.

2606 *Sterculia fulgens* Wall.

2615 *Castanopsis indica* A. DC.

2622 *Schima Wallichii* Choisy

2631 *Ficus altissima* Bl., neg. 30088

2633 *Erythrina stricta* Roxb.

February 27, 1922

Left our camp on the Nam Wah rather late. No tigers visited our camp as far as we know. The trail follows the valley above the stream-bed of the Nam Wah. Vegetation similar to yesterday; *Mayodendron*, Mai Sang, Mai Hok, but palms made their appearance on the steep valley slopes. Tall specimens were observed high up. It is a *Livistonia* (probably *speciosa*). Much of the valley slopes is burnt over but near the stream-bed can be found *Caryota* sp.?, *Melia azedarach*, *Musa*, *Wallichia caryotoides* ?, *Ficus benjamina*, Marantaceae in numbers, here and there a *Pyrus*, red flowering *Bombax*, *Randia*, and tall *Cycas* (no. 2680 – *Cycas* sp.?) with trunks 8 to 10 feet tall, I photographed one specimen (no. 30092, 30093). They are very common on the grassy slopes of the Nam H pang Koh. Also two exposures (neg. no. 30092, 30098) of a *Cycas* (no. 2680 – *Cycas* sp.) with tall trunks quite common on the grassy slopes. After following the valley for a considerable time we came to a small plain with six houses. This is Kuang-p'ing 廣坪, a Chinese village. We went on a little farther till we came to the Chinese soldiers camp where we are staying in our tent. It is very cold again, a starlit night and bedtime has come.

Tomorrow we shall follow the regular stage to Ching-tung-chai, this means getting up early. The soldiers are playing cards and are smoking opium, which is very disagreeable.

Specimen nos. 2642–2660

2453 *Quercus acutissima* Carr.

2654 *Cycas pectinata* Griff.? (perhaps)

2680 *Cycas* sp.?, neg. no. 30092, 30093

February 28, 1922

We left our camp early at 7 a.m. The soldiers who came with us from Chieng Rung bade us good-bye and two new ones from the soldiers camp came with us. The trail leads from the valley directly to the top of the left hand ridge (Szu-mao way) and follows it on the other side into another valley, winding back and forth near the top from one valley into the other, finally to stay on the very crest of the ridge (5,000 feet or more elevation). The trees on the valley slope were *Randia*, *Phyllanthus emblica*, *Bauhinia variegata*, *Gardenia*, *Mayodendron* and *Pyrus*. We passed a little hamlet – the houses of which were made of sticks of wood and plastered together with mud. The roof is of thatch grass. Higher and higher leads the trail among oaks, and chestnuts (no. 2663 – *Castanopsis tribuloides* A. DC.). I

photographed (neg. no. 30094) a specimen pinned against a trunk, flower and fruit. *Vaccinium sprengelii* (G. Don) Sleumer (no. 2671) was very common, with large *Schima* and small-fruited species, also the ubiquitous anacardiaceous tree *Buchanania latifolia* Roeb. Small bamboo lines the trail. The trail then passed through this forest on the bare hills. On the right hand side for miles the hills were bare and brown, not a vestige of green. On this plateau – like hilly range Ta-tu-kang 大渡岡 is situated while Muang Meng, the Chinese Meng-mang 猛忙, is in the deep valley to the left. The mountains in that direction are densely wooded. From Ta-tu-kang where we had lunch, we went through very dry forest, shallow valleys and dry rounded hills, bare but with an occasional oak and *Schima*, thence we passed through burnt areas; to the right there extended a ridge with *Pinus insularis* (two trees) which species I also observed at the camp near Ta-tu-kang. The forest gave way to bracken-fern in spots, but later we entered again dry jungle in pockets till we reached Ching-tung-chai which is situated on the slopes of a bowl-shaped hollow. We made our camp near the stream where there are trees and shrubs. I collected quite a number of ferns and vines, also of the trees etc. We met a man with tiger's skins on the trail. He said they poisoned one with opium. He killed two men and a horse in a village not far from Szu-mao. They bought the skins and bones to make medicine for 20 piastres.

Specimen nos. 2661–2690

2662 *Quercus helferana* DC., or 2659

2663 *Castanopsis tribuloides* A. DC., neg. no. 30094

2671 *Vaccinium sprengelii* (G. Don) Sleumer

2689 *Benettiodendron brevipes* Merrill, n.sp. (here a new species is recorded)

March 1, 1922

We left our camp near the bank of the little stream at Ching-tung-chai quite early. This path led out of the little valley to the top of the ridge. The vegetation was at first stunted and scattered – here a little clump and there a little clump of *Symplocos* (no. 2707 – *Symplocos paniculata* (Thunb.) Mig.) with white flowers, oaks (2696 – *Quercus acutissima* Carr.), chestnuts and the anacardiaceous shrub. To the right is a deep valley with a mountain of over 5,000 feet – densely wooded. High mountains are ahead. We descend to a small stream called Nam Ching-tung-chai after the Chinese village where we stopped. Near the stream there was a beautiful grove of oaks and

pinus (*Pinus khasia*). I photographed (neg. no. 30095) the oak grove (2696 – *Quercus acutissima* Carr.) with its pale green foliage in the morning mist, and another view with pine and oak. From the stream-bed on the trail led steeply to the top of the ridge. There were many *Pinus insularis* trees with a *Phoenix* with trunks of one to two feet high as underbrush. *Cycas* sp.? was also quite common, especially tall thick-stemmed and branching species were seen.

Higher and higher led the trail through beautiful forest of oak with *Schima* (2704 – *Schima wallichii* Choisy). A deep valley was to our left and a high mountain ahead – densely wooded with *Pinus insularis*. The haze and heat was intense. We stopped for lunch on the top of a ridge where there was a little shed, under the roof of which we ate our lunch of rice, chicken and cabbage.

A very strong wind sprung up and the dust and our drying-blotters were blown down the hill side. The wind increased and also the heat, the sun was burning down through haze which made the sky gray. From now on, the trail led downhill at a steep grade. At one turn we found a cane with a cross-handle such as is used by Chinese carriers to rest their heavy load on and, lo and behold at the turn of the trail – just a foot by the side of the trail – there was the last resting place of the man to whom the cane belonged. He was not buried but dirt had been heaped over him and a few branches, myriads of flies were buzzing over his built-up grave. Such are the things one encounters on the trail through Yünnan. Perhaps I also will rest somewhere in Yünnan in similar fashion. The wild beasts will soon discover him and then he will be dug out. We got a glimpse of the plain of Muang Hing and soon spied the Tai village of the same name. We are now encamped near the village temple on the banks of the Nam Tü. The temple is a miserable affair – dirty and filthy, the sides are open and the dust of the plain gathers, chickens gather and scratch in it in front of the ragged altar with its paper umbrellas. We decided to pitch our tent rather than sleep in the filthy holy of holiest. The priests have gathered around us. The head priest is dressed in yellow, pinkish-purple and orange cotton cloth. He looks perfectly silly and acts likewise. He wears a white cornucopia cap with a red border. His teeth are black as that of any ordinary Tai. The sky is now pinkish-grey from the afterglow of the sun which has set over the hills whence we came. The scenery is rather dreary and I, for once, am longing for a comfortable room and the ordinary comforts of civilized men. The mountains are a bluish-ash-gray in the thick haze. Crows are noisily

flying about. We took a walk through the filthy Tai village with its pigs and carabaos. The dust is a foot deep and in the center are blocks of stone – the path in the rainy season when the whole place shall be a pig-mire. I took two photos of this filthy place, one with our Chinese escort.

Specimen nos. 2691–2723

2696 *Quercus acutissima* Carr., neg. no. 30095

2704 *Schima wallichii* Choisy

2707 *Symplocos paniculata* (Thunb.) Mig. det. Rehder

March 2, 1922

Left our dreary camp at Muang Hing or P'u-ting 普定, or P'u-wen 普文 as it is called in Chinese. At 2 a.m. we were wakened by thunder and lightning. We expected a rain storm but luckily nothing came of it. We were real glad to leave that awful dirty and dusty spot, the filthy village the inhabitants of which keep ready coffins under their houses as it is rather far to fetch wood from the jungle. It is quite gruesome to sit beneath their houses with coffins around. The trail led along the paddy-plain due west, hills are on both sides, the vegetation is common oak, *Quercus acutissima*, *Engelhardtia spicata* Bl. (no. 2728), *Ficus*, *Schima*, *Pyrus*, etc. One of the paddy-plains seems to have been abandoned. We encountered *Castanopsis*, climbing *Mussaenda*, *Randia* (2751 – *Randia wallichii* Hook. f. ?), *Rubus* (2743 – *Rubus elongatus*), *Bauhinia*, *Alnus nepalensis* and *Syzygium rockii*. We crossed the Nam Tü over a covered bridge, rather nice for this part of the world. A little farther on we came to a hamlet of Chinese houses, it is known as Ta Ka Haw. Thence we crossed the Nam Tü again in dense forest and afterwards passed again into open jungle of bamboo, *Phoenix*, purple composite tree, etc.

Along the stream-bed in the sand I found a species of *Equisetum*. The trail led through grassland with pale green-foliaged oaks the common species. Today it was not so hot nor so hazy as yesterday. We had lunch on the edge of the jungle. In the afternoon we continued our journey along the paddy-fields, crossed the stream again where *Alnus* and *Salix* and *Pyrus* were quite common. To the left we passed the village of Ma-li-p'ing 麻栗坪 a small hamlet of a few houses on a terrace near a small valley, some 50 feet above the paddy-plain. We turned to the right towards the village of Ban Man where we are going to stop for the night. We found a newly erected Wat of bamboo – dirt floor. It was at least clean and so we decided to

occupy it. The priest sat on the ground, sewing his dirty once-yellow robe together. He is rather friendly and bade us welcome. I took a walk into the hill back of the little Wat, with its bamboo shrine and tiny little Buddha, to collect and, as I roamed about, I stumbled onto a graveyard in the dense jungle. One grave was new, covered with bamboo sticks and branches, also the ubiquitous broken pot was present. It was quite a lovely spot and I felt inclined to leave the silent company and returned to the temple. A company of natives gathered in front of the temple with drum and cymbals and made a joyful noise unto the Buddhist Lord. They were celebrating the opening of the new Wat. It was a monotonous noise of two tones. Everything is quiet save the dirty chief priest is watching me.

The *Pyrus* along the paddy-plain on the edge of the forest were beautifully contrasted with red-flowering *Erythrina*s and the reddish foliage of various trees. *Cycas* plants were also quite common.

Specimen nos. 2724–2752

2728 *Engelhardtia spicata* Bl.

2735 *Primula malacoides* Fr., det. W. W. S. (first primula on journey in Yünnan)

2742 *Syzygium rockii* sp. n. type Merr & Perry

2743 *Rubus elongatus*

2749 *Olea densiflora* H. L. Li type

2751 *Randia wallichii* Hook. f. ?

March 3, 1922

It was a lovely cool morning when we started on our last stage to Szuma. The trail from Ban Man To led around the little hill and followed the paddy-plain. We passed through groves of *Quercus* (the common species) and many flowering *Pyrus* also *Albizia* trees. The ridges on both sides of the narrow plain were covered with *Pinus khasia* along the creek-bed there grew *Salix*, *Erythrina*, *Mayodendron*, etc., *Ficus hispida* (the *Ficus* with semi-stemclasping leaves), and large Mai Yom trees (*Melia Toona*?). The trail led up the ridge and down a valley again with tropical forest, only to lead out again into a grassy spot with *Pyrus*.

We crossed the stream and saw ahead of us a high ridge covered with *Pinus insularis* with scattered *Vaccinium*s, small-leaved *Castanopsis*, etc. Down we went along a small paddy-field with pine-covered ridges on both sides – the lower slopes being taken possession of by *Quercus* (light green leaves) *Pyrus* and *Alnus*. We

came to another paddy-plain which merged into a long narrow swamp in the center of the valley with pine-ridges on both sides. Narrow plains shut in by pine covered hills seemed to be the order.

We lunched under a large araliaceous tree (no. 2757 – *Tupidanthus calyptratus* Hook. f. & Thoms.), the same species as we observed in the valley of the Nam Ha before reaching Chieng Rung. The trail now led to the top of the ridge – a deep valley is to the left and high mountains ahead. The trees are mostly the small chestnut, pines, oaks, *Schima*, *Pyrus*, species of *Smilax* and others. From the top of this ridge (which must be 5,500 feet), the trail descends. A beautiful rhododendron (no. 2762 – *Rhododendron stamineum* Franch.). Trees 15 feet tall (or shrubs) decorated the banks along the trail – this is the first one collected on this journey north. The trail descends to a broad plain surrounded by low, deforested hills but covered with young growth of some sort. They are too far distant to allow guessing as to the nature of the growth. The road is now paved with large stones which makes traveling rather difficult. *Castanopsis*, the small-leaved species, and *Pyrus* form the commonest trees. We pass a rather large Chinese temple, more an ancestral shrine, with a few figures in the courtyard. A little village come to view, mud houses, some better, others very poor. An open restaurant along the road where Ai In was sitting refreshing himself. Extensive paddy-fields spread out before us and the stone-paved trail led through the midst of the paddy-field. The white-walled houses and blackish tiled roofs of Szu-mao glistened in the distance in the evening sun. A broad stone-paved road leads into the suburb of Szu-mao. We stop as we see the sign of Fu-yin-t'ang 福音堂 – Happy Tidings Hall. Here lives the Danish Mission. We knock and a very pleasant Chinese opens and calls Miss Peterson, the only lone missionary in the whole of Szu-mao. She bade us welcome and there we are now, very comfortable and well taken care of. We arrived at Szu-mao at 4:45 p.m.

We sent our cards to the Custom House people – Mr. Cassati and Mr. Pattison, expecting to call tomorrow.

Specimen nos. 2753–2776

2757 *Tupidanthus calyptratus* Hook. f. & Thoms.

2762 *Rhododendron stamineum* Franch.

March 4, 1922

Today Miss Peterson's teacher took me to the Custom House where I met Mr. Cassati and Mr. Pattison, the former went with me to the Tao

Tai, but as he was just then at lunch, we called later. At three o'clock we went to call on the Tao Tai in the Yamen in the inner walled city. He received us very cordially at the Yamen gate, leading us into an upper room where he served tea, champagne, cigarettes and cakes. He informed me that my Yünnan passport had come from the Viceroy and as to the way to travel. After a very pleasant interview we bade him good bye, he accompanying us to the Yamen gate, bowing low.

March 5, 1922

Sunday – Had lunch with Mr. Cassati.

March 6, 1922

Today there was a large parade in which the idols of Szu-mao were taken about, the whole procession ending in a large Buddha being carried under an embroidered umbrella. The great Buddha was preceded by the musicians and singing priests who were walking under a tent (or baldachin). Took many photos. Boys danced gracefully with a long blue dragon marching in spirals and gyrating the dragon swiftly through the air. The procession was in honor of the great Buddha of Szu-mao, soldiers and officers took part in the procession, the latter keeping the soldiers in step by blowing a whistle.

March 8, 1922

Szu-mao.

Went out this afternoon with Miss Clara Peterson and the Chinese Evangelist, Mr. Leng and his little Chinese girl, into the low hills surrounding Szu-mao. We went over large graveyards – in fact the whole country side is one huge graveyard. There are several large groves of trees, mostly *Castanopsis* (the small-leaved species) and the common oak with the light green foliage. The rest of the vegetation is mostly scrub (see nos. 2777-2798 inclusive). We visited a small village (Chinese) and a little temple, the lady caretaker (an old maid – a rare thing in China) taking care of it. She was ill but received us very kindly. We went back to Szu-mao by a circuitous route entering the city through a narrow lane and finally emerged into the main street which leads to the mission. It was a glorious evening, the hills were clear, and Szu-mao sparkled in the sunlight.

Specimen nos. 2777–2798.

March 11, 1922

We left Szu-mao for a trip into the Eastern Hills – Miss Peterson, Mr. Pattison, Baer and I. We went through the main street of Szu-mao and thence through a small side-street into the open; huge graveyards, much neglected with their circular graves, here and there a stone (gray) column with a mythical animal (Liogryph) on top, denoting a rich man or official. These graveyards extend all over the lower hills surrounding the Szu-mao plain. Shrubbery of various kind, like *Smilax*, *Jasminum*, etc., is very common. Not far from Szu-mao, the pines commence – first small, stunted, then larger trees, up to 6,400 feet elevation, being one of the most common trees. I think they are not *Pinus khasia* (three needle) but *Pinus insularis*, however, the cone looks very much like that of *Pinus khasia*. *Pyrus pashia* just covers the hill-sides with a *Symplocos* (2804 – *Symplocos chinensis* (Laur.) Drude) with beautiful white flowers clustered around the branchlets. High on the ridges we found a *Docynia* (2803 – *Docynia delavayi* (Fr.) Schneid.) with large flowers, and large leaves dark green above and white beneath (*Pyrus indica*?), the branches are reddish, the trunk about a foot in diameter and sending out large spiny shoots from the base. A glorious wind blew, which made the air cool and fresh. On the top of the ridge Compositae were quite common, the one with the large panicles of purple flowers (2812 – *Vernonia volkameriaefolia* D.C.), and a smaller tree (bare) (2808 – *Leucomeris decora* Kurz) with sessile clusters of white tubular flower heads, very fragrant, a leguminous shrub 2 feet high (2806 – *Milletia pulchra* Benth.) could be found in the open gravelly places; there were several (2816 – *Symplocos paniculata* (Thunb.) Mig.) but only one was in flower. At about 6,000 feet we found a *Leontopodium* (2813 – *Leontopodium andersoni* C. B. Cl.), Edelweiss, about two feet high quite common on the dry hill sides, many stalks springing from the same root stock. Lower down on the dry slopes, an *Engelhardtia* with pubescent leaves was quite common, also the ubiquitous Anacardiaceous shrub *Buchanania* with panicles of cream-colored floweres. *Lobelia* (2825 – *Lobelia pyramidalis* Wall.) was very common on the top ridges (6,200-6,400 feet), also *Smilax* and a small tree with globose fruits arranged in drooping spikes, collected also in the Meh Len valley near Loi Mwe. *Rubus* (2226 – *Rubus ellipticum* Sm.) was very common as well as the undivided species (2791 – *Rubus alceaefolius* Poir.?), and many *Schima* and small oak trees. We returned to Szu-mao by the Mang-li trail, finding on the plain a beautiful Pink

Shower, *Cassia* sp.? (2827 – *Cassia javanica* L. var. *indo-chinensis* Gagnep.), also *Melia* (2818 – *Melia azedarach* L.) and the Mai Yom trees, the Chinese Ch'un-shu 春樹 (2964 – *Cedrela toona* Roxb.).

Specimen nos. 2799–2827

2226 *Rubus ellipticus* Sm. (ellipticum)

2791 *Rubus alceaefolius* Poir.?

2803 *Docynia delavayi* (Fr.) Schneid.

2804 *Symplocos chinensis* (Laur.) Drude

2806 *Milletia pulchra* Benth.

2808 *Leucomeris decora* Kurz

2812 *Vernonia volkameriaefolia* D. C.

2813 *Leontopodium andersoni* C. D. Cl.

2816 *Symplocos paniculata* (Thunb.)

2818 *Melia azedarach* L.

2825 *Lobelia pyramidalis* Wall.

2827 *Cassia javanica* L. var. *indo-chinensis* Gagnep.

March 13, 1922

We left Szu-mao at about 10 o'clock after saying good-bye to our dear friend Miss Clara Peterson, the Danish Missionary at Szu-mao. We went to the post-office, mailed a package of plants and films and seeds, said adieu to Mr. Cassati and Mr. Pattison of the Custom House service. Four soldiers accompany us to P'u-erh Fu 普洱府, the present Ning-erh 寧洱. Passing through the east gate (or rather by it) and the temple called Wen Miao 文廟 (which I photographed), we followed the Szu-mao plain in a northern direction over a stone-paved trail, through scrub vegetation of *Jasminum primulifolium*, *Pyrus pashia*, *Prunus puddum*, etc. On ascending into the hills, pines become very common. It is however not the pine of the south (*Pinus insularis*) but a different species. The vegetation has been much destroyed on these hills and *Pyrus pashia* and a variety of *Pyrus indica* with the ubiquitous anacardiaceous shrub are the main plants with *Smilax*, *Leontopodium*, etc. To our left is a valley and to our right a very deep one. The top of the ridge is reached and *Quercus*, *Castanopsis* (the small-fruited and small-leaved species) are found with *Vaccinium*, *Prunus* (2836 – *Prunus puddum* Roxb.) a cherry with red fruits and *Alnus* sp., the latter the most common tree. The trail descends rapidly through similar scrub vegetation. We met many men and women carrying salt in large chunks, some little girls carrying as much as 75-80 lbs. on their backs with a strap over their

forehead. The trail follows a stream (but rising and falling) passing through pine groves, *Rhododendron*, *Smilax*, *Clematis*, *Schima*, and *Castanopsis*. We reached the village of Na-k'o-li 那柯里, sixty li distant from Szu-mao after 6 p.m. We could find no place to stay, the only inn (a horse stable) was already full so we pitched our tent near the stream. Bandits are said to be about but the soldiers are watching.

Specimen nos. 2828–2845

2836 *Prunus puddum* Roxb.

March 14, 1922

We left our camp at Na-k'o-li near the river; the trail winding through the valley following closely an irrigation ditch. The vegetation was extremely poor, everything having been cleared and the hillsides burned as we could see last night by a huge fire which was raging on the mountain above us.

The trees are mostly *Pyrus pashia*, *Prunus* sp.? and the ubiquitous anacardiaceous small tree. Pines were quite common. It certainly is a different species. *Alnus* was sparingly represented but *Smilax*, *Jasminum* and leguminous climbers (2849 – *Mezoneurum sinense* Hemsl.) common.

We stopped for lunch at an inn where we met a number of other soldiers returning from an escort. We followed a valley surrounded by numerous separate hills covered with pines, and with temples nestled among the trees. The paddy-fields were full of water and ready for planting.

We climbed over a high hill only to descend again. The hillsides are barren and only such pine-trees have been left standing to which the telegraph wires have been attached. Over some places there is no support for the wires for 400 meters. We go through a pass with a high hill of black rocks to our right. From a little shrine between two large *Ficus* trees, where we stopped for a rest, we could see the P'u-erh plain. To the left a huge mountain loomed up, a mighty black mass in the blue mist and haze. At the foot of the pass some women selling sugar cane. Being thirsty, we sat down and bought a few, dividing them among the soldiers and the boys.

The trail leads along the edge of the plain and across rice fields, still paved with these awful rocks. We skirt around a hill, and follow the edge of the paddy-plain to our right. The Chinese were already planting their fields. The telegraph wire hanging so low almost touching the water. Palm trunks of *Trachycarpus fortunei* are used as

telegraph poles on this plain. After passing through small villages, we reached the south gate of P'u-erh with an open veranda on the top. The streets are better paved and not steep. The soldiers wanted us to go to an inn, but we went to the Fu-yin T'ang where we met the Chinese evangelist who escorted us to a Buddhist temple but in every room were coffins, some packed in straw, the bodies ready for shipment. We decided not to sleep in a morgue and went to the Mission where we are occupying a small room on the ground floor. We paid off the soldiers and tried to get comfortable but in vain. Three Chinese called on us, one a teacher in the Normal School, the other the chief of police and the third, the chief of the telegraph service. We chatted till late at night, the teacher agreeing to take us to the Magistrate next morning.

Specimen nos. 2846-2850

2849 *Mezoneurum sinense* Hemsl.

March 15, 1922

The soldier came today for medicine for his sores. I painted him with iodine and some itch salve. The teacher then came and we went to the Normal School.

Mr. Sha called in the morning and we went to the Normal School where we were greeted by the various teachers and the headmaster. It is certainly a credit to P'u-erh Fu to have such a school. It is supported by the Government of Yün-nan Fu, and furnishes books, clothing and food to the students, free of charge. They are taught even English grammar and conversation. They are erecting a science building for chemistry and natural history. We had tea after listening to the singing-music classes, a Chinese teacher playing the organ. The song was a poem about Spring and Cherry trees. They wanted to have their picture taken and we agreed to come after having called on the magistrate.

After the lunch the magistrate sent for us and we were escorted to the Yamen. The old gentleman was exceedingly cordial, shaking his own hand and bowing. He wanted to send us to Ta-lang which would be out of our way. We produced a map and he seemed to be ignorant of the lay of the land, so he called in a young official who was very keen and pleasant and knew the condition of the road and all the stage. So he agreed to give us an escort to Hsin-fu which is on our way. He wished to have his picture taken and the vainglorious old magistrate began to make toilet for the occasion like a prima donna.

He stood there like a statue but, having had much liquor, he swayed a bit and I am afraid the picture will be blurred. He suggested to have his picture taken with his staff and ourselves. So we went into the courtyard and there arranged the sitting, he, yelling for chairs at the top of his voice. After shaking hands, each one with himself – Chinese fashion, we were bowed out of the house. From the magistrate we went to the new General Liu 劉. At the gate there was a soldier on guard. A courtyard where they drilled, then a door, then another door and we were in the inner courtyard. We were cordially received by the general who also had his picture taken (neg. no. 30128, USDA) with the old General and then again with ourselves. He enquired about our trip and said he had much to do with America where he was stationed previously. He promised to give us a large escort, saying four soldiers not to be enough.

After having received an invitation to dinner for the next evening we went to the Normal School where we took photos of the graduating class and also of the student body (over 300 boys) on the drill ground.

The headmaster was dressed in European clothes which he obtained in Japan and which he had outgrown – his hat was about three sizes too small and his collar had evidently never been laundered. His hair was cut like that of a Japanese doll. He invited us in the name of all the teachers to a Chinese dinner for the 17th of March.

March 16, 1922

We left in company with Mr. Shao [!] of the Normal School and the evangelist for the top of Mt. Hsi-men ngai-tzu 西門崖子 or T'ien-pi-shan 天壁山. We passed through the west gate across paddy-fields to the foot of the mountain. There are large black limestone boulders scattered over the lower slopes for Hsi-men ngai-tzu is an extinct volcano with superimposed limestone in the middle of the P'u-erh plain. It is about 7,400 feet in height. A zigzag trail leads to the small plateau planted with pine trees which is about two thirds the height of the mountain. All the vegetation is burnt and only black rocks and burnt grass stumps remained. *Dracaena* sp.? trees are quite common growing among the rocks, on steep cliffs, for the mountain rises nearly abruptly from the plain. On the little plateau, there is a small rest house and a cave which leads into the mountain but only a short ways. There is a very narrow entrance with two figures carved in the rock, while to the right (in the main cave) there sits a Buddha also

carved from the same rock and a part of the cave-wall, although gilded and covered with a shrine of wood. A stunted specimen of *Ficus* grows among the rocks. On ascending the steep slope a few hundred feet higher, we reached a shallow crater with steep walls on the northwest side. This wall was covered with sharp limestone rocks among which grew a *Lithocarpus carnea*? (2558) and orchids (2859 – undetermined) as well as ferns. *Dracaena* (2869) was very common, especially on the very steep walls of the north side. Southwest there is a very steep wall (limestone rock) and covered with vegetation. It forms the wall of another crater-like depression, the western wall of which does now not exist but the northwestern is still standing. Near the main crater, there is a big riff in the rocks and a hole (limestone sink-holes) extending to the depths below. The caves in the mountain are evidently limestone caves. On enquiry I found out that hot springs are found in the neighborhood, which should prove that volcanic activity is not altogether extinct. I took several photos of the crater and of P'u-erh as well as *Dracaenas* growing on cliffs.

We returned to P'u-erh and got ready for General Liu's dinner. He is a native of P'u-erh and has recently returned from Szu-ch'uan where he was wounded, they wishing to take his life. He however escaped, coming to his native place where he reigns supreme and taking the place of the old Mohammedan General Ma 馬. Mr. Sha came for us and we went to dinner to the General's house. The soldiers saluted and called out a welcome, opening the dragon doors wide and we marched into the large courtyard. We were escorted to a sitting room, the floor of which was covered with fresh pine needles. Tea was served, water chestnuts, small cakes, melon seeds and pine seeds. We exchanged compliments and talked about the political conditions, Washington conference, etc. Soup was served and, after some five minutes, we were escorted into the dining room, the floor of which was also covered with pine branches. He served liquor first to myself (the guest of honor) and then to everyone according to his rank. He motioned to each while pouring the wine thereby indicating his seat. The dinner was excellent consisting of sixteen courses. Four dishes were placed first on the table. They were cold. Then dish by dish was brought each helping himself from the large dish. There were whole stewed chickens, frogs legs, and many other things which tasted very good but I could not make out what they were. A white sweet liquor was served in small glasses and an orange colored one in small silver cups. Sweet litchi stew finished the main dinner, but rice

and some delicious soup was served in the end. After dinner we returned again to the sitting room where tea was served, cigarettes and fruits. The host, general Liu is a very quiet delightful gentleman who speaks very quietly, in contrast to the very nervous and hysterical district magistrate, Mr. Li 李. We were escorted again to the outer door where everybody bowed, the soldiers saluting, two of them escorting us to our place of residence at the poor mission. He was very anxious to have a doctor come to stay and he would furnish land free if he could get a hospital built, and assist in the construction of the same by furnishing workers.

Specimen nos. 2856-2871

March 17, 1922

Early this morning I was called by servants of the Normal School and so I went to teach an English class. This was the first time in the history of the school that an American conducted a class in it. The boys were very interested, and we also had visitors of other schools. I told them about America, Hawaii, Java, India, Burma and our trip to Yünnan from Siam.

From the Normal School, I was escorted to the Higher Primary School by the principal of that institution. Mr T'ang was a very pleasant gentleman in fact the nicest I have met. I made an address in English to the student body which was translated into Chinese. Everybody expressed his sincere friendship to America, the Boxer indemnity being mentioned very freely.

Tea and cigarettes were served. I took a photo of the student body, they were quite a patriotic group of men, flags were arranged and the school banner, there was a fine spirit exhibited in that school which was started in the 31st year of Kuang-hsü 光緒, 1905. There were 149 boys although 160 are enrolled. The school was built by the magistrate Hu Pi 胡璧. It has six teachers who give their services for very little money, \$ 17.00 Mex. Yünnan a month.

The motto of the school is truth and labor. Food and shelter is furnished to boys of outlying villages but P'u-erh children go home. I was indeed surprised to find such an alive institution and such progressive and delightful people. The teachers were a fine set of men. After lunch I went out to take a few pictures, with the usual mob behind me. I photographed the South gate also the West gate.

In the evening we went to dine with the teachers in a temple without coffins. Much meat was served and a pink or purple, very

strong liquor. Flies were present galore and sat on the cut sugar cane and water chestnuts. The dinner was of many courses but far behind that of the General's. However they meant very well and we appreciated their kind of hospitality. About 20 teachers being present, we talked much about China and I asked questions about P'u-erh. It was founded 200 years ago by Chinese who found only tribespeople living in the hills. Szu-mao was also founded about the same time Yung-cheng 壘正. The tribes to be found now are the O-ni, Lolo, Ma-hei or Pu-kong, Tai, Yao and P'u-man. P'u-erh contains about 1,100 families, average 5 in a family. The old name of P'u-erh is Chali.

There are two pears found in this part, the T'ang li 棠梨, a large pear and the common small pear which is known as K'o-i chieh-pen 可以接本 the pear used for grafting on.

The wild persimmon is called Mao-shih 毛柿 or hairy persimmon.

March 18, 1922

Left P'u-erh at 8:30 a.m., Mr. Liu, the evangelist, accompanying us to the city gate. The trail followed the valley northwards by terraced rice-fields, the hills being covered with pines. We ascended a steep hill covered with pines, *Pyrus* (the two species being very common), also several species of *Prunus*, some bamboo, the ubiquitous anacardiaceous shrub (same as at Ban Saa, Keng Tung State), also *Vaccinium*. We saw *Keteleeria* (2888 – *Keteleeria davidiana* Beiss.) trees for the first time, *Rhododendron* several species, a *Myrica* (2889 – *Myrica esculenta* Buch.-Ham.), a *Symplocos* (2876 – *Symplocos crataegoides* Ham.) etc. We lunched at a small Chinese rest-house half way up the hill – the six soldiers spitting everywhere and smoking their bamboo water pipes, producing an ugly gargling sound. The soldiers were otherwise clean and pleasant boys, full of fun. By the way, before we left P'u-erh the Magistrate, Mr. Li, called on us. He is a very congenial soul and very kind and pleasant. He sent us canned fruits, Muang Hai tea and two tins of Magnum cigarettes.

After lunch we climbed up to the top of the ridge over 6,000 feet. Pines almost ceased but *Keteleeria* (2888 – *Keteleeria davidiana* Beiss.) trees were found and *Gordonia* (2885 – *Gordonia chrysandra*?), the Chinese Shan-ch'a-hua 山茶花. On the top there was only shrub-vegetation. On both sides, was a deep valley with high hills on the other side (some 7,500-8,000 feet in height) but all sparingly covered with bushy growth. Many landslides were noticed; only on the right hand valley there were trees along a streambed.

Melastoma plants were common, the ordinary *Osbeckia*?, *Rubus* (three species – one with entire ovoid-leaves, the other one 3-foliate and one lobed-leaf species).

The trail, still paved with large slippery rocks of all sizes, led steeply down into the deep valley in which Mo-hei is situated. The slopes were barren, and in places terraced for rice-planting. Mo-hei is in the bottom of the valley along the Mo-hei stream. The soldiers led us through the dirty filthy town swarming with flies and loitering pigs which revel in the gutter with small kids in the quagmire. The smell and filth and buzzing of myriads of flies in the horse-manure (all over the street from passing salt caravans) does not give a pleasant picture of Mo-hei 磨黑河 to remember. We were first led to a Ma-tien 馬店 or horse inn, but I refused to go there asking for the Salt office where we found Mr. K'e who is the accountant and who with two other young men spoke English quite well. He asked us to stay at the Salt office quarters and showed us a room with a small courtyard. The former was occupied by chickens also a chicken coop. He had it cleaned out and we moved in. Mr. K'e had dinner with us.

Specimen nos. 2875–2891

2876 *Symplocos crataegoides* Buch.-Ham.

2877 *Rhododendron mackenzianum* Forr., this is a synonym of *Rhod. stenaulum*

2885 *Gordonia chrysandra*?

2888 *Keteleeria Davidiana* Beiss.

2889 *Myrica esculenta* Buch.-Ham.

March 19, 1922

Today Mr. Keh guided us to the Saltmine which is a new shaft about 400 feet deep (that is Chinese feet – 8 inches Chinese to 1 English foot). This shaft is right in the city a little west of the main street. 26 boilers are scattered throughout the district. We were taken into a small room above the entrance to the mine where we divested ourselves of some clothing as it was said to be very hot down there. The entrance is rather small, a steep trail leads into the depth of the earth, the roof and sides are supported by timber. Steps lead down to about 100 feet depth then the trail turns, corkscrew fashion water standing in pools and the air is exceedingly foul as no sanitary arrangements are made for the miners who work absolutely naked in the mines. We met some of these naked creatures loaded with salt-ore carrying two bags, one in front and one behind. One strong man is

said to be able to carry 200 catties in one day of 6 hour work, one cattie being four English pounds. Their wages is on the average of 8 dollars Yünnan per month and those of the miners who dig from 7 a.m. to 1 p.m., 15 dollars per month. They wear no clothing not even a gee string. The working hours in the wet season are only 4 hours. There are employed 100-200 miners, but the majority of them work only half a year and tend to their fields and rice crops the other half. Their pay is also increased according to the output of ore. The ore we saw was purplish-red or brownish with glittering salt, it was rather poor ore. At the end of the trail there was what looked like a huge cave in which men were working; we could hear the muffling sounds of picks. The ore is weighed and taken by women to the boilers. Brine is pumped from the shafts into vats after 1 p.m. when other work ceases. The ore is placed in these flat vats – just depressions in the earth, and there it is dissolved. It is left for two days and then drained and pumped into cast-iron, shallow basins which are arranged in pairs in a terraced fashion, 24 in number. It takes 2 days and one night to make one cake of salt which weighs about 180 lbs. Each cake represents a value of 10 dollars. The boiling of the salt is farmed out to private capitalists under Government supervision. For each cake of salt the Government taxes \$ 3.50 and 25 cents extra which goes to the boilers. There are several shafts but some have been abandoned as they are too dangerous to work. We took several photos of the miners in front of the entrance of the mine, also of the boilers, ore store room, brine pumpers and a general view of Mo-hei.

Tonight we had Chinese dinner with Mr. K'e at his home.

March 20, 1922

Left Mo-hei at about 8 a.m., Mr. K'e accompanying us. We looked at the ridge northeast of the Mo-hei Ho 磨黑河, known as the Dragon, it winds through the valley of Mo-hei and is densely wooded, the reason why the beautiful forest has not been destroyed is superstition; the dragon would squirm. We had considerable trouble with our caravan and carriers this morning who were all late. We followed the stone-paved road till we came to the streambed from there we walked along the irrigation ditch which feeds the terraced rice fields in the Mo-hei valley; the trail led through a small hamlet and there we were attacked by a bunch of ferocious dogs. Baer shot one, it was the only way to keep them off. Seven soldiers accompanied us but they were behind still in the streambed having started late. We met many Lolo women

carrying fire wood on their backs supported by a strap which is passed over the forehead. This wood is carried for several li (Chinese miles, 3 English to about 10 Chinese) to the salt boilers. The hills around Mo-hei are quite barren having been denuded for fire wood to keep the boilers going. Not a single tree is left all are cut down, so natural reforestation is impossible. We followed the Mo-hei River through a beautiful valley the ridges covered with pine trees and other foliage trees; *Pyrus pashia* is still very common, one *Pyrus* with velvety leaves and large flowers we saw only three trees. *Schima* is still common, and so are *Prunus* but more of the red fruited variety (2884 – *Prunus puddum* Roxb.), *Ligustrum*, *Osbeckia*, *Castanopsis* and *Quercus* make up about the rest of the vegetation. Terraced rice-fields on the steep slopes are the mode in this part of Yünnan. We passed two small villages on the way to Mo-po 磨波. The scenery became grand, the mountains on each side of the valley rise 3,000-4,000 feet or even higher, while the narrow valley bottom is in itself about 4,500-4,800 feet elevation. The mountains are covered with dense forest and it is quite pleasant to behold these forested hills in comparison to the naked hills around Szu-mao, P'u-erh, Mo-hei. The forest takes on a tropical nature, *Cibotium* occurs several other ferns, *Engelhardtia*, *Castanopsis*, even *Wallichia*, aroids and lianas, the whole ensemble taking us back to the forests of Chieng Tung and Chieng Law. For lunch we stopped at a small house. The owner looked more like a Tai than Chinese but he only spoke Chinese but could not read it. We found a little girl with severe fever and I administered quinine and to an old man iodine for some sores.

We arrived at Mo-po at about 6 p.m. after skirting or rather passing some rice fields. Mo-po is on a small slope in the Mo-po valley. I looked into one inn but had enough with one look, so the soldiers went into a home where an old lady with bound feet – she looked for the world like old pictures of the devil with goats-feet – objected to the soldiers requisitioning an empty room. She agreed finally and I sat down. Alone with me in the room sat a funny looking young man quite as a mummy and all at once he said, „From where did you come from Sir“, in perfectly good English. I was much astonished to find, in such a place, an English speaking Chinese. He told me he was the teacher of the primary school of Mo-po and had studied English in Yünnan Fu with an American teacher. He made us welcome in the school house, where we are staying. He wrote a verse of one of Byron's poems on the blackboard, much to my

astonishment. Mo-po is still very small consisting only of a few houses. There are 30 pupils in his school, but some of them do not belong to Mo-po.

I am tired and it is late.

Specimen nos. 2892-2921

2884 *Prunus puddum* Roxb.

March 21, 1922

We left Mo-po 磨波 early at 7:10 a.m., with five soldiers vested in various garbs, only one was able to read and write Chinese. The trail led along the Mo-po Ho; there was little forest at first. The tall mountains, over 10,000 feet in height, still loomed up majestically below Mo-po, on the west side of the valley. As far as I could see it was densely wooded. There were two sharp ridges, the southern one was very steep and abrupt, while the northern one was sharp but of a more gradual slope. Pines were quite common. Red cherries, *Schima*, two species of *Pyrus*, the yellow *Rubus*, and *Alnus* trees grow on the slopes. Mai yom trees, *Ficus*, *Engelhardtia* trees, roses, *Ligustrum* and the stiff reddish *Jasminum* were quite common. We passed a small village called Fen-shui-ling 分水嶺 and followed the Man-pa-ho 蠻巴河 to Ma-li-shu 麻梨樹, thence to the village of Lan-ka ts'un 蘭嘎村 where we had lunch. near here the Lan-ka Ho (river) flows into the Man-pa Ho. The hills are rather steep and forested, with the exception of a chain of hills running east-west, the tops of which were bare. We saw several valleys leading off the main valley. In these deep valley branches fire was raging. The wind started again, as usual at about 11 a.m., and lasted till about 2:30-3 o'clock p.m. We lunched under a bamboo clump at Lan-ka ts'un. The heat was intense although the wind made it bearable. To the left, in the valley, looking north, there is a small mountain, the top of which is wooded with pine trees. It was before reaching Lan-ka ts'un that we found many *Abies* trees in fruit - quite a grove of them. The valley near Lan-ka ts'un leads northward but is a blind valley, a trail leading at the foot of the hills along the terraced paddy fields. The Lan-ka ts'un stream divides and flows through a gorge at right angles to the Lan-ka ts'un valley towards Man-pieh and from that point it is called Man-pieh Ho 蠻別河.

We left our horse caravan behind at Lan-ka ts'un and went down the trail to the streambed, three soldiers preceding me. As we came to the Man-pieh Ho over which there is a single log for a bridge, I saw them

kneel down and put cartridges into their guns and aiming at a small mountain which controls the two trails, one leading up to the Lan-ka ts'un stream, and the other the Man-pieh Ho stream, they yelled at the same time, and I saw several men disappearing behind a wall on the mountain top. The soldiers recognized them as robbers. I went back to Baer and the carriers informing them of the presence of robbers who controlled the two trails from a very strategic position. They looked down quite unconcerned but made for cover when the soldiers aimed at them. We got our caravan to join us, two merchants, a little boy and his father, being very frightened, joined us, too. Between us we had six rifles and two revolvers. The bandits watched us for a long time but did not attack us, we were too many for them. It was quite an exciting time, the soldiers said there were 15 men up there. They would have charged their nest had we gone with them, but I thought best to let them alone as they did not attack us. They played a hide and seek game. We had to skirt the hill on which the bandits had the vantage point. A steep rock wall with a narrow trail leading in its face with the Man-pieh Ho roaring at the bottom of the valley. We looked back watching their every move, we saw several heads over a wall watching us. We went on and nothing happened. This part between Lan-ka ts'un and Man-pieh is very wild and dangerous, the hills rise steeply for several thousand feet and are covered with pines and foliage trees. There is one very narrow gap with steep rocky bluffs. One soldier told me that a short time ago there was a fight between soldiers and robbers at this particular place and one man was killed. We scanned the rocky hillsides for robbers but saw no more. *Engelhardtia* trees both the large and small species are quite common also pines, *Schima* and the other theaceous trees with drooping fruits and large persistent calycine lobes. The trail which is very rocky leads down to the streambed and to Man-pieh which is situated on the Man-pieh Ho. We were glad to reach this small hamlet at 4,500 feet elevation. The soldiers took us to the schoolhouse where we are now located for the night. Many boys came to see me and brought their English primer asking me to teach them to read. They are all eager to learn although they are far removed from any railway and English speaking people. They were all very friendly and kind.

Tomorrow we are going to Man-lien 蠻連.

Specimen nos. 2922–2929

March 22, 1922

We left Man-pieh at 7:45 a.m. saying good bye to the school boys who were coming into the schoolroom to prepare for their lesson. We had a miserable night – at first we were awakened by some people quarreling and yelling calling each other awful names, they kept it up till midnight to the top of their voices. After midnight the dogs gave a concert barking continuously. It was a restless night after a long day's march. The only pleasant thing at Man-pieh was the cold bath in the river. We followed the rice fields and climbed a ridge and then descended into a deep lonely valley flanked by high steep mountains, at the bottom a wild stream flowed in a circuitous way around a pine covered bluff; deep gorges and steep rocky mountain slopes clad with *Pinus insularis*, a 3-needled species, could be seen dimly in the mist.

We kept to the left side of the mountain slope also clad with *Pinus*, *Schima*, the Rubiaceae *Wendlandia* shrub, *Quercus* (2930 – *Quercus Mongolica* Fish., neg. no. 30150), with the light colored foliage and oblong acorns in a very long scaly cup; we descended to the streambed, the trail was still paved but there were other trails less awkward to the bottom of the valley. We had to cross the stream and ascend again to the top of the ridge opposite about 5,500 feet elevation, where there was a gap. Two high, cone-like mountains appeared in full view, they must be over 7,000 feet in height; we saw them from Man-pieh. The hills are covered with pines and *Quercus*, *Schima*, *Ixora* white-flowered, *Clematis* (2937 – *Clematis armandii* Fr.), with Smilax-like leaves, the yellow *Jasminum* (2934 – *Jasminum lanceolaria* Roxb.), and a yellow spiny *Caesalpinia* (2933 – *Caesalpinia sepiaria* Roxb.). We descended into a narrow valley with steep slopes the top of which were covered with pines. The large oak with light green leaves was *Quercus acutissima*, again very common. The heat was intense although a little breeze blew. We lunched near a streambed where some stark naked boys repaired a ditch. We descended again dropping down to about 3,000 feet in a valley where we passed the village of Chien-law where we should have stopped for the night but we depended on Major Davies' map which marked Man-lien as a big place, but we found out that the latter is now deserted and only one family lives in it. We climbed the steep hillsides north of Chien-law and reached the top of the ridge where we found a gate near a large fig tree with large (cherry-size) yellow fruits (2939 – *Ficus altissima* Bl.). It is a queer and lonely looking scenery, the hill-slopes are broad and covered with scattered pines but

no underbrush only the dry brown needles which gave the whole landscape a very sombre aspect; not a breath of air was stirring, the tops of the peaks hidden in haze and mist which gave them the color of the sky. Not a bird not an animal of any kind, quiet reigned among those mighty pine clad mountains. We descended on a gradual slope, where we found *Schima*, oaks, *Albizzia stipulata* and bamboo clumps, *Ficus* sp.?, and even Guava which showed human habitation. We crossed the Ah-chien Ho (stream) climbed a ridge again and looked down at what was once Man-lien. The hills were bare, only pines on the very top and a lonely grave on the brown hillside; if anything looked like a graveyard it was Man-lien. Only one house inhabited, the others fallen down and empty. There was nothing to do but to stay and occupy a ramshackle house which served once for soldiers. Fleas are plenty. We put up our baggage under the leaky roof and made ourselves as comfortable as possible.

This is a very lonely place, the one family living here said that 10 days ago there was a band of robbers on the hills here but since then they have not seen any. Four new soldiers have come but only one has a gun; so we decided to keep the other four who, however, are simply villagers armed with old style rifles, old flint lock, they carry their powder in a gourd on their belt. In case of trouble they would not be of much use, but from the distance any gun looks alike. A bluff goes a long way here. We barricaded our door which we found on the floor, placed stones and bamboo behind it as a prop. So we will go to bed and sleep lightly.

I could not believe that this place was Man-lien, so I went on ahead alone to the top of the hill to see if there was not a larger place ahead – only lonely hills – and the Black River 黑河 or Pa-pien Ho 把邊河 winding in the bottom of the valley, flowing into a gorge at right angles to this valley.

Elevation of Man-lien 3,350 feet.

Specimen nos. 2930–2937.

2930 *Quercus mongolica* Fish., neg. no. 30150

2933 *Caesalpinia sepiaria* Roxb.

2934 *Jasminum lanceolaria* Roxb.

2937 *Clematis armandii* Fr.

2939 *Ficus altissima* Bl.

2943 *Wendlandia paniculata* Roxb.

March 23, 1922

We left Man-lien at 8 a.m. glad to leave the ruined and forsaken place behind. The scenery was weird and wild. We followed the direction of the wild Black River or Pa-pien Ho for some distance, then climbed a ridge following the hill side skirting the mountain. A deep valley lay at our feet, pine trees only are to be seen with here and there a lonely grave, the only remnants of the former inhabitants of Man-lien. On the higher slopes we saw some lonely houses, people that had fled from the poisonous air that rises from the ground and hovers over and in the valley. We came to the crest of a ridge again after having passed through a shallow depression. Ahead of us is a long narrow valley, to the right extends a narrow deep gorge through which a stream has cut its tortuous way; rock filled the streambed and the sombre atmosphere, cloudy sky and mist, the graveyard stillness of the air, the dark green scattered pines over a brown hillside made the scenery rather awesome and weird. The picture was a little brightened by terraced paddy fields over which water trickled from terrace to terrace. The people who tend these rice fields have taken to the hills and only come down to plough, plant and harvest. We found the same species of *Ficus* with its semi-sagittate semi amplexicaul-leaves, which we met first in the Meh Len valley of the Keng Tung State. The yellow, double-flowered *Jasminum* is also common but the most common plant is the red flowered *Woodwardia* [!] (2945 – *Woodfordia floribunda* Salisb.) which I saw last year also in the Chin hills and upper Burma. The Mai Yom trees called ch'un-shu 春樹 in Chinese are also met with as are *Ligustrum*, *Clematis*, tall grasses etc. The hillsides on the right are burnt-over and only pines have survived the fires. At the head of the valley, which is closed in by a ridge, there is a depression, a sort of pass guarded by two sentinel trees (*Schima* sp.?) through which the road passes. By the way we have now left the awful paved road and once more it is comfortable going over a smooth dirt road. Clouds gathered blacker and blacker and thunder began to roll. We descended to the level of the river called Ma-pa Ho, it comes from the west through a side branch of the long narrow blind valley, makes a big curve, and disappears through the narrow gorge already mentioned to join the Black River, which in this region has another name: Ching-lai Ho 景來河. There is a little village at this streambed Chiu-tu-ching 舊毒菁. As the weather looked threatening we decided to stop and lunch here. The air was terribly depressive and everyone suffered from headache. I myself being badly affected by

nervousness and palpitation. We entered a poor widow's house built of mud, the two sides half open to let in wind and rain. She was brewing a liquor made of corn and paddy in a huge shallow, circular iron pan. She was alone with her little girl whose father had died when she was three years old. While we had lunch it rained and the thunder rolled. The air was still bad, but we left shortly after the rain had stopped, the first since we left Chiengmai December 30, 1921. With ears aching and a depressive feeling in the temples, we started on our way climbing the hillside on the east bank of a small stream which joined the Ma-pa Ho, we reached the top of the hill and there the air was fine, the scenery was still wild it must have been over 5,000 feet. The oppressive feeling we all experienced in the valley was due to poisonous gases rising from the ground. We descended again into a narrow valley which leads down to Hsin-fu 新拊 or 新撫. The trail becomes paved again near houses and there it is generally steep and for horses almost impassable. By the vegetation we could see that we have descended to the level of the tropics, as we found Mango trees, guava, *Oroxylum indicum* and a number of plants found in Siam. After crossing another ridge we passed down the Ta-pu-tzu Ho 大舖子河 which we followed for some distance walking over the rocks in the streambed. As our soldier escort looked the most miserable we have had, being simple, dirty villagers without uniform and carrying muzzle-loader rifles with the powder in a gourd on their belts, they were mistaken for robbers and many of the people we met made haste to get out of our way. Some, after seeing them running back whence they had come, and that was within a few hundred yards of the gate of Hsin-fu. We entered Hsin-fu by the south gate a whitewashed miserable affair. Inside there was a lamp post of bamboo which was set in a pile of rocks and bricks held together by earth and surrounded by bamboo. An oil lamp is hoisted to the top of the bamboo by means of a rope like on a ship's mast. It was market day and the one street of Hsin-fu was crowded; a large caravan of Tibetans was on its way to P'u-erh to buy tea. The tea comes from Muang Hai where I photographed the wild tea trees. The dried leaves are brought to Szu-mao in large bamboo bales. There the leaves are sorted by hand (picked out) and packed in circular packages about 8 inches across and five inches high. Once a year these Tibetans, some 300-400 come to P'u-erh and Szu-mao to buy tea. We looked for a place to stop and after taking a glance at a dirty temple decided to try the schoolhouse. We found a spacious courtyard surrounded by a wall

within which were four buildings. The rear wall of three of the houses formed the surrounding wall of the whole compound. The building on the west side was the largest and was a temple erected to Confucius, his soul tablet rested in the center, pine branches were on the floor and everything looked quite cosy. We decided to occupy the Confucius temple, while the rest took possession of the other buildings. Facing the shrine on the East side was the classroom, but no school was held and it was by far the quietest and most peaceful place we yet occupied. We decided to stay one day but as it rained all afternoon of the following day and night and all forenoon of the next day we stopped another day. We called on the official a Mr. Wang, a very pleasant man whom we had met on the road to Man-lien. He called on us the next day. We took some photos the whole of Hsin-fu from our place on the hill, one of the north gate, and one of the street (neg. 141050 Nat. Geogr. Soc.), also one down the Black River from the other side of the stream (neg. 30150) which we crossed on a bamboo raft.

The afternoon of the 24th was clear and pleasant.

Specimen nos. 2938–2947

2945 *Woodfordia floribunda* Salisb.

March 26, 1922

We left Hsin-fu about 8 a.m. There are two roads one over the hills on the left bank of the river and one narrow trail on the other side following the river. We decided to take the one following the streambed as we had enough of mountain climbing. The hills enclosing the valley of the Black River are not high, although further on we met with black rocky cliffs covered with pine trees. The vegetation in the river bottom is very scarce; *Engelhardtia* trees the small species, *Bauhinia variegata*, a Cactus-like *Euphorbia*, Mango trees in flower, fruiting bananas, *Smilax*, *Jasminum* the stiff white variety, no *Pyrus* nor *Prunus*, nor *Schima*, the elevation being too low. Bamboo was common, also *Caesalpinia*, etc. We followed the right side for some time but in the afternoon it became unbearably hot, so we crossed over to the left, fording the stream, and travelled through lovely pine forest till we reached Kuan-ni a tiny village on the slopes of the hillside. We are camping in the tent on the bank of the Black River.

Specimen nos. 2948–2959. Along black River.

2949 *Trevesia palmata* Vis.

2950 *Ehretia dicksoni* Hance

2952 *Diospyros yunnanensis* Rehd. & Wils.

2953 *Ficus ischnopoda* Miq.?

March 27, 1922. Monday

Left Kuan-ni after seven a.m. The mosquitos were very bad in the tent, hundreds of them, so I moved out and put the mosquito curtain over the bed trusting that it would not rain. The east bank of the Black River here called the Ching-lai Ho 景來河 where we camped is flat and sandy. The village, just a couple of houses, is a little higher up above the terraced paddy fields on the hill side. The other half of the village is on the other side of the river but has been abandoned. The trail leads along the riverbed then climbs the steep slopes. I passed a newly placed coffin among the trees, with a large stone on top, evidently the method of burying people in this part of the world. There was a slight odor but I was soon on top of the ridge. The trail was very narrow and very winding along the steep gorge it entered. No human beings could be seen for miles. The small velvety *Engelhardtia* was quite common, also *Quercus* (2959 – *Quercus mespilifolia* Wall.); the light green foliaged *Quercus acutissima* and another species without fruit or flower. Pines covered the upper slopes to the very tops of the ridges. *Phyllanthus emblica* is very common all along from Siam up. A few *Pyrus pashia* trees were observed but only near the stream. Bamboo clumps were quite common. We came on to a few terraced paddy fields but no houses. The mountains are not very high but covered with pines. Along the trail we found *Mayodendron igneum*, the common purple tree composite, *Woodwardia* [!] and along the streambed *Homonoia riparia* as well as *Ficus* sp. (2957 – *Ficus nitida* Thunb.). The leguminous vines like *Mezoneurum* (collected at Chieng Rung) was very common. An occasional bamboo, an occasional *Bombax malabarica* tree with red flowers, also the papilionaceous shrub-like vine found on the hills of Szu-mao was also common. Yellow *Jasminum* grew along the trail with spiny yellow flowered *Caesalpinia* (2933 – *Caesalpinia sepiaria* Roxb.), tall grasses etc. (2962 – *Neyraudia madagascariensis* Hook. f.). The country here looked very wild and weird. *Bauhinia variegata* made its appearance on the opposite bank of the stream and *Albizzia* sp.? (2960 – *Albizzia julibrissin* Durazz.) is a common tree along the Black River. We lunched at the small village of Hui-po, and then followed the broad valley of the Black River which is here cultivated. Sweet peas being

the principal crop, also opium poppies, mustard and a coarse bean. Further on we saw large plantings of sugar cane and a most primitive sugar mill, the grinder consisting of two upright posts between which stick by stick of cane is shoved in by hand, the posts being turned by a carabao. A wooden vat is beneath the upright grinders which catches the juice. In the rear are five shallow circular pans like those used in boiling salt, five in a row here, with a brown dirty mass boiling in it. This is stirred or rather the sides of the pan are brushed with a bunch of dirty straw. The latter is handled by semi-naked men whose skin is so encrusted with filth that it is black. With a large braided bamboo dipper they skim the foam off the boiling mass, and with a wooden dipper it is poured into earthen pots behind the boilers to dry. The little brown cakes resulting from this process are about five inches across and one inch thick and of a deep chocolate color. They are then packed in large bamboo stipules tied with bamboo, and sent to Szu-mao and elsewhere. I took several photos of the whole outfit. The cane itself is rather juicy, long jointed, and of a yellowish brown color.

Shortly after leaving the sugar mill which is an open shed consisting only of a straw roof on posts, we reached En-lo 恩樂 where we are located in a newly built Chinese house, mud floor and walls. The valley is very broad and a high mountain is visible in the distance, part of the village, about thirty houses, is on the other side of the river.

Specimen nos. 2955–2983

2957 *Ficus nitida* Thunb.

2959 *Quercus mespilifolia* Wall.

2960 *Albizzia julibrissin* Durazz.

2962 *Neyraudia madagascariensis* Hook. f.

2933 *Caesalpinia sepiaria* Roxb.

March 28, 1922

We left En-lo rather late, 8 a.m. The soldiers had not appeared and soon we found out that we are to have the same men who accompanied us from Hsin-fu. Those of the village of En-lo having gone out chasing away robbers who infested the neighborhood of En-lo. The trail follows the Black River for a short distance through a rather narrow valley; a large broad valley back of the real village of En-lo on the other (west) side of the Black River is to our left. We enter dreary country with pines, the trail winding around the hill

sides. We had not gone very far till we met a large caravan of 500 horses and mules coming from Tibet. The men were all dirty Tibetans wearing queues and turquoise earrings, most of them had rifles, the muzzles covered with red cloth. The men wore woollen clothing, others yak jackets with the long fur inside. Their animals carried their own rice, also provision for the Tibetans, half smoked pigs the hairy tail sticking up into the air. We had to wait a long time till they had all passed, as the trail was too narrow to permit the passing of two caravans. The trail leaves the river and leads over a high hill; high mountains are to the right in the distance. Pines form the only vegetation. We crossed the top of a ridge onto a spur around which the Black River flows placidly. The water of the Black River is dark and muddy hence the name. The sky is overcast and haze enshrouds the whole country. We cross a dry gulch, the hills are bare and brown. We follow again the Black River at the banks of which cultivation is carried on, sweet peas are grown, sugar cane and beans. Mai Yom trees (2964 – *Cedrela Toona* Roxb., the Chinese ch'un-shu) are very common in the valley especially near the banks of the river and about the villages. We lunched on the river bank under Mai Yom trees at a semi-forsaken village called Hsin-kai 新街. The sky looked threatening, black clouds gathered but it did not rain. We followed again the river, crossed over the Lo-ma Ho near cultivated rice fields (terraced), here tall bamboo is very common also the light green foliage *Quercus acutissima* of which there are nice groves on the banks of the Lo-ma Ho. We climbed a pine-covered ridge with *Schima* trees, the small village we had left behind was Tang-fa, while below us winds the now dry streambed of the Chin-chi Ho which finds its source in the broad valley to our right with high mountains in the distance. From here we climbed over a ridge leaving the Black River to our left and considerably below us. We are passing lonely groves of pine trees, the ground being covered with the dry brown needles. High blue hazy mountains are beyond the distant west bank of the Black River are visible between the sombre pines. Parrots called ying-ko 鸚哥 screeched and flittered about, while down below along the streambed, brownish gray birds kept close to the ground jumping from grass culm to grass culm like toads.

We followed again along the Black river, the banks being low, the valley broader and the mountains becoming lower. We stopped and took a swim in the stream where big fish (cat fish) swam lazily looking on in horror of a decent bath. On the lower hills to the left is

the village of Che-hou. From this side it appears as quite a good-sized place with rather decent looking buildings.

Only a short distance from here and we are in Che-hou 者后 on the east of the Black River. It is composed of one very short street, with a number of tumbled-down empty houses. An old temple is on a hill with large *Ficus benjamina* trees, and a few houses inhabited by a few families. We are stopping in a newly built house rather larger and more comfortable than the one we occupied at En-lo. A shower of rain fell from a black sky and the high hills to our right almost touch the black clouds. Today we heard the cuckoo call among the pines. Vegetation, *Sapium sebiferum*, bamboo, *Erythrina* and large Mango trees.

March 29, 1922

We left our comfortable dwelling at about 8 a.m. The sky was cloudy and stormy looking. The trail passed between some deserted houses and soon we crossed a broad dry streambed which found its source in a broad valley to our right. We followed along paddy plains, we crossed another stream, and followed again some paddy fields. It would be considerate of the Yünnanese farmers if they would not convert part of the rottenly paved road into an irrigation ditch which makes travelling over such stretches almost impossible. *Bauhinia* trees are still flowering here and there. To the left is a deep valley whence an affluent of the Black River, the Chuan Ho issues. The trail follows in the straight valley ahead leaving the Black River for some time until we reach Nan-Ma-kai 南馬街. The trail leads into the streambed of the Man-kang Ho 蠻綱河 which it follows amidst numerous rocks. There is no water in it at this time of the year. The valley through which this river flows is rather shallow being bordered by low pine-covered hills, some oaks can be seen among the pines and an occasional *Ficus benjamina*. To our right, a little further on, there is a valley with high mountains all pine-covered. The Man-kang Ho comes from this valley, a long spur juts out into the main valley, at the point of which there is a small tea house for travellers. Huts can be seen on the other side of the valley. From the valley ahead there enters a small stream called Ssu-ko-shu into the larger Man-kang Ho. This little stream we followed in its bed to a bend caused by a low spur to the top of which we ascend. It is clad rather thickly with sombre pine trees. To our right are higher mountains, the crests of which are clothed with pine, while most of the steep red slopes are

bare or harboring an occasional pine or oak. The scenery is weird and at the same time it has a pacifying influence on one. The sky was black, not a breath of air was stirring, only the dark pines, their brown needle-covered ground with here and there a tomb or even a row of them, all gave the scene a rather picturesque appearance. The scenery was a little brightened by a few narrow terraced paddy fields with usually one or two seed beds of rice, sparkling like an emerald in even this sombre atmosphere. We still climb somewhat and soon find ourselves in front of a nine-storied pagoda, white with nine little roofs. Just a little lower down to the right are a few deserted houses, one of which looked as if it had been struck by lightning, it was burnt down. The pagoda like all others is called *wen-pi* 文筆. To the right of this picturesque pagoda is a little shrine built of stone and bricks, it contains some slabs of rocks giving the names of those who constructed the pagoda. Both, on the top of the pagoda, and on the flat roof of the shrine, there are *Ficus* trees. The latter looks as if it were a pedestal especially erected for the tree. On the ground in front of the pagoda there is a stone slab with an inscription but no year is given the heading reads K'ai hung ti chia 開宏弟甲. The trail leads past the pagoda which is surrounded by numerous graves, into a little valley and a streambed called Ch'uan ho 川河, which we follow for a short distance. Soon we crossed another stream coming from a broad valley to the right, it is known as Ch'u-shan-men 出山門 or Mountain exit. We now followed the broad plain with its paddy fields and tall thatch grass; we cross another stream called Ch'ien-shao Ho 錢少河. On its bank, to the right, is a small village called Hsiao-wan-p'u 小碗舖. A little ahead we pass through a stone gate in bad repair, it is the entrance to Nan-ma-kai. An inscription reads as follows, to the left K'uei-wen 魁文, in the center Yüan-chieh 元解, and to the right K'uei-erh 魁二. Another inscription says that it was erected during the Ta Ch'ing dynasty under the reign of the Emperor Chia-ch'ing 嘉慶 in the twelfth year and 3rd month of the spring, April 1807 A.D. A miserable stone-paved trail leads to the top of the little hill on which the dirty village of Nan-ma-kai or Man-ma-kai 蠻馬街 is situated. We looked for a place to lunch and found an old temple in a very bad state of repair near some large *Ficus* trees on the outside of this rotten town. It consists of a tumbled down wall and two buildings, one contains three gods or rather genii and eight coffins, the other a body probably the Kuan-yin sitting on a lotus flower and adored by devas, all carved out of wood. It is all very dreary, the sky

is black and a cold wind is blowing. The country is bleak and dry and covered with brown grass. There is no food for the horses. Rain drops are falling and the whole outlook is far from cheerful. We are sitting outside the temple with the goddess, in which by the way there are six coffins, and eat our lunch, while a few people peep through the tumbled down gate in the wall to watch us eat. The trail leads down again through a large graveyard. We are bound for Man-wo 蠻窩 with our new escort, the other four soldiers returning to Hsin-fu. *Sapium sebiferum* is one of the most common shrubs here, also Mai Yom or Ch'un-shu (2964 – *Cedrela toona* Roxb.) trees are met with, with an occasional *Schima*, oak and pine. We follow paddy fields, the people are now transplanting their rice. The Black River is quite a distance west of us but we are following it up in the same valley. Suddenly at a sharp turn of the trail we found ourselves in Man-wo, Den of the Savages. There is a large house belonging to a Tai woman from Lampang who had married a Chinese and who had lived here for 13 years. We are occupying the tower of the school building, it is a ramshackle affair but at least it is airy and away from the curious eyes of the people. The school is in a state of utter decay, the walls are crumbling, the steps have fallen, the floors are sagging and the courtyard, although small, is filled with rubbish. A few hibiscus bushes (*H. rosa-sinensis*) Ta-hung-hua 大紅花 are in the courtyard also one Oleander tree and two crape myrtle trees. A stone slab is lying on the ground partly buried in rubbish, and stating that it was erected in the 57th year of the reign of Ch'ien-lung 乾隆 of the Ch'ing dynasty, in the third month and 13th day (April 15, 1792).

The teachers are very nice and civil and everybody is most kind. From the tower we have a beautiful view of the Black River valley and of the village of Ma-ching-kai.

During the night a fierce thunderstorm arose, the lightning playing on the high hills of this valley and lighting up our ramshackle wooden tower, the wind is blowing and the air penetrates through the large cracks and windows. If ever this tower is struck by lightning it will collapse as flat as a pancake. The walls on which it rests are literally split and lean in every direction. Above our tower-room is a smaller one in which there is an altar, but the god that once sat enthroned is now lying on the floor. The head is gone and the rats have pulled out the straw stuffing.

It is morning. It rained heavily but apparently it is clearing up and we are getting ready to leave for Ching-tung 景東.

March 30, 1922

We left our tower at Man-Wo rather late as it still rained in the morning; in fact, at first we had not intended to go at all but stay for the day. We followed the Black River in the rather broad valley, the hills being fairly low on both sides. The village of Man-ching-kai is diagonally across from the place we stayed. We crossed a streambed and then walked between sparingly pine-clad hills, to the right there were large landslides and deep washouts, one place was particularly interesting as a beautiful canyon was forming with towers and cathedrals and chasms, but all was very precipitous. We came to a very dirty village with a peculiar tower-like structure in the center, built of wood. A lake of mud on the other side, numerous flies, pigs, ducks and dirty children. The soldiers wanted me to stop there for lunch but I refused and so we walked on across paddy fields to the Black River which we crossed just a little ways from the village mentioned. We followed on the other side of the river over a very narrow miserable road between paddy fields; there was a ruined temple, the roof fallen in and as in some, the idols were buried in debris from the falling crumbling mud walls. Along the trail I noticed a meteorite about 1 foot in diameter placed between ordinary rocks, before it incense burners and incense was placed; it had evidently been deified. The Black River makes a big bend, the bed being rather wide and sandy. To the left there was a hillside absolutely bare only a single *Ficus* tree grew on the upper edge. On the sides there were numerous graves but not another tree. It was late after one o'clock and I decided to stop for lunch. We only gathered enough fire wood to boil our cocoa and our lunch we ate cold. From there we left for a village called Chi-liang Kai where we changed soldiers. From this dirty village the trail led up a hill much eroded but covered with scrub *Schima*, young pine trees and the anacardiaceous shrub. On the top of the hill was a small plateau with pine trees, graveyards and *Schima* trees. To the right there stood a seven-storied pagoda, another wen-pi, small trees growing on the top of it. To the left, a large stone slab overgrown by a large *Ficus* tree stated it was erected in the 45th year of Ch'ien-lung – 1780 A.D. From there we went down hill again passing the village of Wang-kung-tung. Many *Schima* and theaceous trees were in evidence also oaks. Near the pagoda I collected a large leaved cherry with light red fruits. We met several people on horseback and many people on foot carrying strings of brass cash on their shoulders and some vegetables or chickens. They had come from

the market of Ching-tung. Many carried earthen pots which are manufactured in Ching-tung. We passed along paddy fields, after making a turn to the left we came on to the city of Ching-tung on the foot of the hills which are bare. Before entering the city we pass over a bridge and after a little climb reach the suburb of Ching-tung. To the left, on a small hill, is a formidable gateway which leads to the Yamen. We went on and after a short distance came to where the lone American missionary lady Mrs. Marston lived. She gave us a rather cold reception. A crowd immediately gathered and thronged the poor little courtyard where a parrot screeched. Mrs. Marston was dressed in Chinese clothes. After a few very pointed questions one of the first if we were Christians, asked us to come in. The police official came, he was rather uncivil but finally after hearing that I was not a missionary escorted us to the Szechuan temple at the head of the street, where we are now located. Unfortunately I had not my calling cards with me nor my credentials and the horse caravan had not yet come. Our kung-ssu or letters from the official of Hsin-fu had also not arrived so they thought we were ordinary travellers and wanted us to go to a miserable inn. The whole reception both on the side of Mrs. Marston and the officials was all but a friendly one. If I could have gotten an aeroplane I would have flown immediately into a more hospitable country.

March 31, 1922

This morning I called on Mrs. Marston who is all alone. She is rather queer being a Pentecostal Christian refusing medicine and trusting in divine healing. She said that the whole of Ching-tung is very unfriendly to foreigners and they had tried to get her out. She has been here for three years but so far has no converts. We called on the official who was very civil to me but cold and indifferent to Mrs. Marston who came along to interpret for me. He said that via Ta-li 大理 was the best way to reach T'eng-yüeh and he suggested that we go that way; he would furnish 20 soldiers. We are said to be the third European party in three years that passed through Ching-tung. The official seems very anxious to know when the foreign post offices are to go, the wireless, etc. and as a whole would be very pleased to see every foreigner out of China. This place seems especially hostile to Europeans or Americans or white people in general. It has been my experience that officials are usually discourteous in towns where there are missionaries.

April 1, 1922

The chief official called on me today at the temple; he said it was impracticable to go to the top of Wu-liang-shan 無量山 as it is the hiding place of many robbers and he said we could not go there. Wu-liang-shan is a high mountain (11500 ft.) west of Ching-tung which is 3850 ft. above sea level. The word liang, the second syllable in the name of the mountain is here pronounced liao and it appears so on major Davies' map. The official was very civil and said the best way for us to proceed would be to go to Ta-li. I questioned him regarding the production of sugar cane. He said that more than 70,000 acres (were) are under cane cultivation and that more than 30,000 people were living in the Ching-tung valley, all cultivators, and that the whole district comprised 200,000 men and women.

In the afternoon we climbed to half way of the mountain back of our temple, where we had a lovely view of the town and from which vantage point I took a photo of the surrounding rice fields and the town.

April 3, 1922

All morning a terrible wind blew and the dust in the temple was unbearable. We packed our plants ready to mail but the post office had no customs declarations so they would not take them.

In the afternoon at 3 p.m. we had Chinese dinner at Mrs. Marston's to which the official was invited. It was a poor dinner but rather boring as the Chinese will not eat unless they are continuously urged. It was also liquorless and no Chinese will eat without drinking. As usual soup to begin with, then all kinds of dishes, followed by dessert and after that soup and meats again etc., rice at last. As soon as the official had gone we had some coffee and cake and made up for the deficiency of the dinner. In the evening we packed our trunks etc.

April 4, 1922

The soldiers, 10 in number were ready At 7:30 a.m. We left our Szechuan temple dedicated to Wan t'ien ch'uan chu tsung 萬天川主宗 etc. and went to say good bye to Mrs. Marston. We had our picture taken with her in front of her sitting room and then we said good bye (neg. 30160). The caravan had already come down and started ahead of us through the street. The horses' bells were jingling, all the trunks and boxes followed in procession, our carriers, horseboy, assistants, the Lao cook and myself and Baer on horseback.

All the people came out of their shops and everybody looked. Four soldiers were walking behind me and two in front. I wished Washington could have seen this triumphant exit from Ching-tung through the old city gate. We followed the hillsides above the paddy fields over the old rocky road, an officer walking ahead of the whole procession. We passed the stream near Ching-tung, which issues from a deep valley at the head of which Wu-liao shan is visible. It was very dark and hazy, the sky dark gray and gloomy. We passed a few villages and single houses on the hillsides. We saw a beautiful pink *Cassia* in flower near a village, there was also a *Ficus* tree covered with large white herons which flew about in great numbers. At ten a.m., we arrived at a village Tung-pao and there the soldiers informed us that they will return and others will take their place. The new soldiers were already waiting and we marched on without delay. We crossed a ridge and left the Black River to our right, thence crossed other well forested ridges. The country looks very wild, pine trees are the predominating trees. Ahead is a peculiar mountain, the south slopes giving it the appearance of a perfect cone; it is quite separate from the surrounding mountain ranges, and as we approached closer I recognized it as being limestone. This is an ancient volcano with super-imposed limestone; it is known as Hua Shan 花山 or Flower Mountain. At the base of this limestone mountain winds the Black River practically encircling the mountain and flowing S-shaped to the right. The slopes of the limestone mountain are very steep and on its southern face a trail leads zigzag to the rocky top. The black rocks, huge boulders jut out prominently from the red soil which otherwise covers the slopes. We stopped for lunch on the southeast side of the Black River opposite the mountain, we crossed the foot of the mountain which must be about 5,000 feet elevation or perhaps 5,500 feet. In the crevices of the huge limestone rocks near the base of the mountain, I could see where the lava had squeezed through. From the overhanging cliffs the jutted out huge boulders having the appearance of stalagmites which formed in the process of dropping and remained there, quite free from the wall, only attached at the upper part. The trees around here are mostly *Cedrela toona*. I took two photos, one of the cone and one showing the canvas. Other trees found plentifully are *Alnus*, *Vaccinium*, *Schima*, *Pyrus pashia*, *Rubus flavus*, a candelabra-like *Euphorbia*, pines, etc. On the eastern side of the limestone mountain its whole appearance changed. There is no cone visible but the whole mountain extends into a range with three distinct

divisions, through the last the Black River issues. The rocks are huge black boulders deeply fissured. The village of Hui-yao is on the opposite side. We cross a stream coming from a valley to the left and ascend a ridge. High mountains are to the left. We found *Pyrus pashia*, several species of oaks, the wooly one and the one with the light green leaves and oblong acorns; pines are of course very common. To the right is a deep valley with the Black River flowing at the bottom some 1,500 feet below. The trees are mostly *Phyllanthus emblica*, *Schima*, *Bauhinia variegata*, etc. From the top of the ridge about 5,000 feet, we descend into a valley and village called Panch'iao 板橋. The soldiers intended to stop there for the night but as it was still very early I decided to go on. We crossed the stream and climbed to the top of another ridge amongst pines, *Abies*, *Schima*, *Prunus*, *Pyrus* and oaks. The famous Wu-liao shan, 11,500 feet high looms up high above us to the west; it is a continuous mountain range of which one point projects like a cone into the sky, the other peaks are less high.

Dark haze and mist hangs over the high mountains and the deep mysterious valley to the left. Range upon range tower into the air overtopped by Wu-liao shan, all the hills are pine clad. A deep gorge is to our right, with the Black River some 1,500 feet below.

We are camping among these high mountains on the top of a beautiful ridge with pines, *Keteleeria*, oaks, *Prunus*, etc. Near a small village called Cheng-yen-shao 正言少. The air is lovely, no mosquitos. We went to the top of a hill just ahead of our camping place, it overlooks the deep valley ahead. On the top then hill is surrounded by an earth-wall with a trench within and without. It looks like a stronghold against the invasion of robbers. The road passes below the hill.

It is getting late and I must quit, tomorrow we must reach Chu-kai 豬街.

April 6, 1922

We rose early this morning; although we were at about 5,500 feet elevation, mosquitos visited our tent during the night. Two horses came late and one had to have its load carried, it could walk no more. A very stony trail led to a gap and then down a narrow valley. The hill to left (west side) was one mass of large limestone rocks or boulders full of large smooth holes. Huge black crags, overgrown with *Ficus*, jutted out into the sky line. Enormous boulders covered

the lower hillsides near the trail. We descended into this narrow valley along wheat fields with here and there a few houses. At the end of the limestone ridge there is a circular hill of volcanic origin. The ridge is geologically different from the other surrounding hills and country. All the way however, here and there to Chu-kai or Pig Market, are outcroppings of volcanic and limestone ranges on the east and west side of the Black River. We cross the stream at the bottom of the narrow valley, turn to the right and follow the creek bed of another valley for a short distance and ascend the ridge among *Keteleeria*, *Pinus*, etc. It leads through a gap, back into the same valley which makes a large bend. From the top we can see the Black River below. The ridges are high and steep and wooded as are the surrounding mountains. We find *Keteleeria*, *Pinus* in preponderance, two species of *Quercus*, *Castanopsis*, *Engelhardtia* the small pubescent species, *Schima*, *Ficus* large trees, Mai Yom trees, *Vaccinium* and the fragrant *Rhododendron*. Ahead, a few li distant, is the village of Lung-kai 龍街, pronounced Lung-gai or Dragon Market.

There is a two span bridge across the Black River. The soldiers stopped for breakfast there and while they were eating, I attended to my plants. We sat down at a small house and were soon surrounded by the usual crowd. One man, very civil, asked if we were missionaries and produced a calling card of a Rev. Mr. Hanna. He said he was a Christian; he brought us tea and was very polite and gave me the Chinese name of many of the plants collected. We left Lung-kai following the Black River in the rather narrow valley with its very high mountains. The trail is not so bad but occasionally becomes paved near villages or houses and then is almost impassable, especially for pack animals.

We stopped for lunch under some trees near the banks of the river whose waters are very clear now, in contrast to the water in its lower course near Hsin-fu where it is blackish muddy. We cross several streambeds and then follow again the lower slopes of the eastern range; the river makes a sharp bend flowing through a defile. Black crags, steep and fissured, extend into the sky line, huge blocks of fissured rocks are all over the hillside extending to the water's edge. High mountains are to the left covered with pines, one range beyond the other; here the valley becomes so narrow that the trail leads to the top of the eastern ridge, a steep ascent at first through pinewoods, we climb higher and higher, then follow the western slope of this ridge

separating us from the Black River to the very top where we cross it through the gap. To the left are high mountains but their peaks are enshrouded in haze. We pass by poor wheat fields, the plants not higher than a foot and a half at the most and the culms about a foot apart. The trail leads us to a pine covered peak where we intended pitching our camp, but as there was no food for the horses we moved on to a small plateau on another hill, farther on, overlooking the deep gorge through which the Black River flows. The gorge is so narrow and deep that the river remains hidden. On Davies's map the valley appears broad. The surrounding mountains are about 7,000 feet in height. The trail continues on the right hand eastern mountain range. We can see Chu-kai 豬街 or Pig market deep down in the valley ahead. Later, after the sun had set, part of our horse caravan appeared after we had feared that we would have to sleep out in the open. Everybody seems to be played out, the horses cannot keep up, they are incapacitated; the men have either boils on their backs or feet, one has a tooth ache, the other sore eyes and so on. We are a travelling hospital. The soldiers came tonight each with a different ailment and wanted to be treated, some asking medicines for their family at home.

The moon (first quarter) shines placidly over our camp with the pine trees, with the deep gorge below us. A fire rages on the steep slopes of a mountain in the southwest.

We are camping at about 5,800 feet; the mountain opposite us is much higher and is cultivated in the upper third to the top, the lower slopes being densely wooded with evergreen forest; narrow trails lead to the very steep hillsides.

April 6, 1922

We left our camp on the top of the hill over 6,000 feet high, early. The night was cold and a strong cold wind blew up from the deep gorge below us through which the Black River winds its way. We descended for a short distance, skirting the hillside through forest of *Engelhardtia* good sized trees with gnarled trunks, *Pyrus pashia*, plum trees, the red cherry but small fruited and the white flowered *Memecylon* which turns yellow on drying. *Jasminum*, *Smilax*, the stipuled variety with large leaves, and a number of other climbers, *Pinus* and the *Keteleeria* make up the vegetation; there are narrow deep ravines with a tropical vegetation of *Musa* and *Zingiberaceae* as well as ferns. The trail leads higher skirting the mountain, it is very rocky and narrow, cut into the nearly vertical cliffs at the foot of

which the Black River surges some 1,500 feet below. Ahead of us the valley broadens a little and to the left a broad and cultivated, more or less gently sloping hillside extends to the Black River. We turn in the direction of the Black River (now) and at our feet lies the villages of Chu-kai 鼠街 here called the Rat Town or Rat Market, while on Chinese maps it is called Pig Market. The word chu can mean either. The village is divided one part is below the Black River, the other on the slope some 200 feet higher up on the east range. We stopped at the lower village where we fed our poor horses with peas. It was here that I discharged the opium sodden Lao Wang the horse boy.

The caravan was long time in coming, three horses never came at all and the baggage was being carried up by the men. We did not want to get separated too much from our caravan and so we decided to stop at Chu-kai and buy or rent horses to enable us to proceed. We had already started on our way with a new lot of soldiers with a very nice leader who presented his calling card, when we returned and took possession of a temple with a school, in the former is a tablet to the great teacher Confucius. The people here are exceedingly kind and helped us in every way.

This afternoon came a letter from Nan-chien, brought by four soldiers, welcoming us to Nan-chien 南澗 territory. They presented it and saluted. We are being shown more attention now than was the case at our arrival in Ching-tung.

Tomorrow we leave early for Mao-kai with two new mules rented for for one dollar per day for each animal.

April 7, 1922

Left Chu-kai early this morning. The elevation of lower Chu-kai which a month or so ago was visited by a fire destroying 50 houses, is 4,800 feet. At the school house where we stopped the elevation was 5,000 feet. The Black River winds snake-like through the narrow valley; high mountains tower to the left, a continuation of the Wu-liang shan (range). The trail winds along the mountain side. The vegetation is about the same as met with the day before. We found several cherry trees some loaded with fruits of which we collected much seed. I also photographed a branch pinned to the trunk of a tree.

About 10 o'clock we reached a village called Chi-ma-kai. The trail was very good and on a level, except for a few ups and downs and few rocks, except near the village. From here the trail leads gently down and then ascends rather steeply at least 1,200 feet. The

vegetation is scrub pine, *Schima*, *Pyrus pashia* and *Prunus*; wheat and the poppy are mainly cultivated. The hill we ascend is all slate and the slabs are lying about and project from anywhere. At the top I found for the first time the 5-needled *Pinus armandi*, it is of a bluish green color, the needles are thinner and the bark is smooth, the cones are much larger than those of the common pine found everywhere in southern Yünnan (2994 – *Pinus armandi*, the first collected in this region). The trail ascends to about 7,000 feet. From here on, the blue pine as I shall call it, is very common and forms groves covering the upper hillsides to 8,000 feet together with *Keteleeria*, a beautiful large white-flowered *Rhododendron* (3007 – *Rhododendron dendricola* Hutch.) with *Spyraea* grew on the edge of a gulch. *Alnus* forms extensive groves here; a *Lobelia* (white flowered same as collected in Keng-tung and Szu-mao) reaches here a height of over 8 feet. The young plants reminding very much of *Trematolobelia macrostachys* of Hawaii. *Vaccinium sprengelii* is common with another white-flowered Ericaceous shrub (3006 – *Pieris ovalifolia* Don.) also *Rubus flavus* with very stout branches, *Osteomeles* (2995 – *Osteomeles schwerinae* Schneid.) a shrub with white flowers is common, also *Oxyspora paniculata* DC, no. 2997, *Pyrus pashia*, the white flowered *Memecylon* which turns yellow on drying and *Ligustrum* shrubs with fragrant flowers and *Docynia* (3004 – *Docynia delavayi* (Fr.) Schneid.) trees. Near houses walnut trees are planted and also persimmons (3000 – *Diospyros lotus* Linn.). No oaks nor chestnuts are to be seen. Higher up we find *Lycopodium*, a *Rhododendron* with small pink flowers (3008 – *Rhododendron microphyton* Fr.), and a tree *Rhododendron* with deep red flowers (3012a – *Rhododendron delavayi* Fr.) and *Rhododendron pachypodum* Balf. f. S., no. 3012. This is said to have yellow flowers while the white one is also common among the rocks and pines. Large areas are here cultivated with the opium poppy, the women being busy in the fields making longitudinal incisions in the green fruit. Wheat is also cultivated but the poppy occupies larger areas much to the detriment of the population. It was a glorious morning, a cool breeze blowing through the pines and my feet felt light, it was easy to walk even over steep places. The trail descended slightly and a little lower we came across large beautiful trees with a dense round crown, by far the finest trees we have seen. I took a photo of the 5-needled pine with the head soldier at the foot of the tree. *Trachycarpus fortunei*, the Chinese fan palm was planted everywhere along the fields and near houses, the

fibrous bast around the leaf-bases being used in the manufacture of raincoats. Lower down a large white-flowered single rose (3015 – *Rosa odorata* var. *gigantea* (Call.) Rehd. & W.) formed rambling shrubs flowering profusely. The hills are high on both sides of the valley, the main ridge, a continuation of the Wu-liang shan (range) appears to be about 10,000 feet in height judging from the other nearer mountains. The trail descends again to the Black River, follows in its streambed to a point where the Shih-tung-ssu Ho or Rock-cave Temple River flows into it. The Black River makes a bend to the left, the Shih-tung-ssu Ho 石洞寺河 coming from the right. The hill in the center is a sheer cliff of peculiar limestone rocks with caves. Two of these caves have a façade the entrance to the temple. The trail leads to the village of Shih-tung-ssu 石洞寺, the Rock cave temple over a bridge across the river of the same name. On the left side there are two temples built over the entrance of two caves, one being a more elaborate one with a second story. There are three divisions in this temple, the central part, a dirty black hole, where the caretaker sleeps, in the left one sits a fierce looking god with a black beard, an inscription says: Ts'ai shen tien 財神殿 – The god of wealth hall; the one on the right harbors several female gods but male ones are along the side walls. There are several small caves in the rock wall opposite, but do not amount to much. The houses of the village are built immediately under the cliff. The trail winds along the bluff under the temples and leads to the top of the ridge to the village of Mao-kai 貓街 or Cat market where we are located in the school-house. We were beseeched for medicines of all kinds, heart trouble, itch, rheumatism, swollen faces, boils, eye trouble, etc. It is bed time and I got rid of all the patients.

For lunch we stopped at Niu-kai 牛街 or Cattle Market, a filthy hovel full of flies so that I had to go outside and drink my cocoa in the gale that was blowing.

April 8, 1922

We left Mao-kai (Cat Market) at 7 a.m. The mules and their drivers had run away the night before, that is those we hired at Chu-kai, evidently they had enough of high mountain travel. Animals were not obtainable in Mao-kai so we had to hire carriers, who were Lolos. There are quite a number of Lolos in Chu-kai by the way.

From the school house where we stopped the trail leads through the village – everybody being out to gaze at us and see us off – and

then steeply over a very rocky road to near the top of the hill behind the dirty town. It is quite cool, a lovely breeze is blowing. The rocky hill is covered sparingly with scrub pine which grows prostrate here, also *Keteleeria*, *Rhododendron*, the blue-green 5-needled pine of which there are large groves on the top; *Pyrus pashia*, *Docynia*, etc. are common. At about 6,800 feet elevation we found Magnolias, oaks, one a tall tree with a straight trunk, round crown, and brownish leaves. It began to rain, and a cold wind blew which made an overcoat quite necessary. We crossed a bridge to the right leaving the Black River way in the left valley below. Here the Black River turns to the left and makes a big bend to the right. We descend again to the Black River but do not cross until we reach Hsin-kai 新街, New Market. On the hillsides *Rhododendrons* were all in bloom also pink and white ones, quite fragrant, among the pines. In the cold breeze they looked so fresh and pure as the air itself. *Rubus flavus* was very common, many pears, *Populus* a small species and scrub oaks; and among all this lovely vegetation were lonely graves. We descend and to the left we see a village called Hsin-kai. Here we cross the river for the last time; it is here a small little creek the very head waters of the river; a short log, a few feet long, is laid across it. The banks are so densely lined with a narrow-leaved willow that it gives a fine outline of the windings of this river which we are glad to see no more.

We are soon to pass into dry scrub jungle, no more 5-needled pines, only the common 3-needle species. The trail leads among wheat fields to the village A-k'o-t'ang 阿克塘, only a few li distant. The atmosphere is here quite different, the air is clear and the dry jungle mentioned above commences. Small pines, cover the many small hills for the country is very undulated, no high hills in the immediate vicinity. The soil is very gravelly and the whole country is weird and wild, no more houses or villages till we come to our noon stop.

We enter hills with a little denser vegetation but only scrub pines, *Rhododendron*, a Theaceous shrub (3045 – *Thea pitardii* (C. Stuart) Rehd.) with whitish pink flowers the size of a dollar, called Yu-kuo hua. Also a white *Rhododendron* with pubescent pedicels (3043 – *Rhododendron decorum* Fr.) it is called Niu-chin-hua. We arrived at our noon stop called Mie-h-pa-shao 篾芭哨 named for a bamboo which grows here. This is a very poor village, nothing could be had only large beans for horse feed, which my yellow horse refused to eat. From here, where wheat is so poor that one can easily count the

individual culms and leaving the myriads of flies behind, we cross over rocky slopes; nothing but rock, rock, rock. Among them grew, beautiful *Andromeda*, two species of oaks one a very wooly one, *Schima*, 3-needle pines, *Hypericum* (3030 – *Hypericum patulum* Thunb.), etc. We are winding through gulches and over rocky hills, oaks predominating. A yellow *Jasminum* (3026 – *Jasminum diversifolium* var. *glabricosum* (W. W. Sm.) Kobuski) with tubular flowers became very common. We cut through a gap across a ridge. Ahead is a very dry valley with bare hills and scattered pines. Way ahead, at the foot of a dry range lies Nan-chien. We follow this dry valley the lower slopes of which are deeply eroded due to deforestation. Scrub pines, an occasional *Ficus* is all that there is. The hills are bare and cut up into weird canyons, exposing red soil everywhere. We descend to the river bed, stony and without a drop of water in it, it is the Wu-chieh Ho. We follow in the bed of this stream for a distance, then turn to the right and up over an eroded hill. The trail is dangerous. We follow another streambed higher than the surrounding fields, the river being dammed in artificially on both sides. The Nan-chien 南澗 valley is here very broad and in the rainy season the whole valley must be one lake. We cross the bluish waters of the Nan-chien Ho, which is here about a quarter of a mile wide, but with very little water at this time of the year. It flows northeastwards at the foot of Nan-chien nestled on the hillside, and then enters a dry gorge ahead. The town of Nan-chien is on the north bank. We enter the town and at once are accompanied by all the youth of the place, a soldier leads us to the top of the town to a large and commodious Confucius temple, which, before our arrival, was as quiet as a graveyard, but is now teeming with curious people. We found the common coarse bean cultivated in the plain drying in the temple ground. The soldiers went out to buy chickens, eggs, have water carried up the hill and firewood. I sent my card to the official who called at the temple about an hour later, he is a very friendly and civil person quite young and pleasant. We decided to stop for a day to rest our horses. We made 80 li today and 70 the day before, quite long stages considering the high hills we crossed.

April 9, 1922

The morning we called on the official (magistrate) in the Yamen. He received us courteously, served the usual tea, etc. Today was market and crowds were on the open spaces outside of the town, peas, beans,

corn, and sugar cane were the only articles of which there were quantities, pigs wallowed in the large stinking pools surrounding the town, myriads of flies hovered and hummed about quagmires, Chinese dishes with food and sugar cane. Pigs and the dirty-faced children encrusted with filth and skin diseases cavorted about.

There is no fruit cultivated and for the last three years there has been very little crop. Drought and floods cause a great deal of damage in this bare poor country.

I climbed the hill back of the Confucius temple and took two views of the town of Nan-chien, and two into or across the Meng-hua 蒙化 valley where the Meng-hua Ho flows into the Nan-chien Ho. Both forming the Red River which flows by Hanoi in Indo-China.

Near our temple there is another smaller one with funny gods in them, at the gate way on both sides are two identical figures holding a horse, which I photographed. In another one there were large stone tablets some 8-10 feet high, others smaller, the largest dated back to the first moon of the first year of K'ang-hsi 康熙 1662 A.D. admonishing people as to learning and religious culture. A smaller one dated back to Tao-kuang 1821 A.D. and gave a description of the districts. This stone would be of great interest. Another dates back to the 30th year of Ch'ien-lung 乾隆 1766 A.D.

April 10, 1922

We left our temple early, but before leaving the town of Nan-chien, I called on the school as promised the night before. They served tea and after a short written conversation I left, going by our temple down into the valley of the Red River or Meng-hua Ho as the Chinese call it. We passed a small village in the bottom of the valley and then climbed to the top of the hill near by. The road was exceedingly bad and rocky, passing many eroded places. We are skirting the hillsides and climbing to an elevation of about 6,000 feet. Vegetation mostly pines, three species of oaks (3076 – *Castanopsis delavayi* Fr., and 3093 – *Quercus delavayi* Fr.), *Engelhardtia*, a little lower we found a pistache tree (3072 – *Pistacia chinensis* Bunge) with fine leaves. This tree is very common all around Nan-chien 南澗. Among the hills and forests there are some terraced fields where beans, the poppy and wheat are cultivated. There are numerous trees, of *Malus*, *Pyrus pashia*, white Rhododendron (3081a – *Rhododendron decorum* Fr.), *Vaccinium* (3075 – *Vaccinium fragile* Fr.), small and large species, yellow *Jasminum*, with long tubular flowers (3026 – *Jasminum*

diversifolium var. *glabricymosum* (W. W. Sm.) Kobuski) and *Hypericum* (3077 – *Hypericum patulum* Thunb.), the trail continues at a high elevation skirting the hillside till we reached a small hamlet called P'ing-an-shao 平安哨 or The Outpost of Peace. The trail follows a small side valley leaving the Red River to the right. Red Rhododendrons (3081 – *Rhododendron delavayi* Fr.), *Abelia*-like bushes (3085 – *Leycesteria formosa* Wall. var. *stenosepala* Rehd.) with green fleshy stems and a *Pteris* fern of the *Pteris cretica* type was quite common. Here and there an *Alnus* tree was met with. We passed through a small gap over a spur and found ourselves again in the main Red River valley. We passed the little village of Ta-p'ing-ti 大平地 where we should have stopped for lunch, but went on to a temple at the suggestion of the soldiers. A side trail led up hill to a beautiful grove of *Cupressus* trees under which the little temple of Pai-yin-ssu 白銀寺 or White Silver Temple was hidden. We sat down under these lovely trees and there, on the hillside, with a cool breeze blowing, enjoyed a rest after a strenuous hill climbing. We can oversee the valley of the Meng-hua Ho, with a village spread out over the hillsides on the opposite side of the valley visible from between the tree trunks, it is the village of Ko-chiu-mo 各舊麼. After lunch we descended from the lovely temple grounds to the dirty village of Hsiao-li-tse 小李澤 or Small Plum Marsh. We had hardly arrived when it began to rain. They opened the school house and wanted us to stop there for the night but as we had only gone 45 li, I insisted to continue as otherwise we would have to go 80 li tomorrow to Meng-hua. The trail ascends again to over 7,000 feet, pines and oaks form the only vegetation here with rhododendrons. We follow the Red River valley, skirting the hillside again, about 1,000 feet above the river bed. The trail descends again, crosses a stream, then ascends steeply for a short distance and we find ourselves at the village of Mei-hai-ti 梅海底. We have pitched our tent and I am about to go to bed after having treated most of the soldiers. It is quite cold and the full moon is looking down on this peaceful hamlet and our camp.

April 11, 1922

Left our camp on the paddy fields at about 7:30 a.m. The night and morning was cold and several blankets were necessary. We followed nearly all day along the Red River or Meng-hua Ho as the Chinese call it here. It has two other names one is Li-she Chiang 禮社江 and the lower end is Hung Ho or Red River. There are two trails from

Nan-chien one the Ta-lu 大路 which follows over the mountains, the other the river in the bottom of the valley.

Bare hills encircle the river, here and there scrub pines are visible and scrub oaks, *Osteomeles*, roses (3094 - *Rosa multiflora* Thunb. var. *legitima* Regel) and the beautiful dainty pink-lilac leguminous shrub (3084 - *Campylotropis polyantha* (Fr.) Schindl.), the latter being very common. The river is clear but full of green algae. The trail is rather bad only rocks and rocks, the lower trail is much better, but too narrow for horses and is used only by pedestrians. On the top of one of the hills is a pagoda, the sign of a larger town in the neighborhood. The trail crosses a bridge at one end of which is the temple, a nice place for a lunch stop. On the other side not far distant is the village of Hsi-tsao-t'ang 洗藻塘. The village consists of only one street and after passing through it we enter the plain of Meng-hua with its beautiful green fields; beans, wheat and opium poppy being the principal crop. To the left, nestled against the bare hills, is the village of San-ku-p'ang 三古旁. Ahead in the middle of the plain there is another village called Tien-wei-ch'ang 殿尾廠, and beyond another nine-storeyed pagoda is visible.

We are stopping on a little knoll in the shade of some pistache tree for lunch. After a quick repast, we follow the trail which leads on the eastern mountain slope along the river bed. We pass the big pagoda with large *Opuntia* cactus growing on the top of it; this pagoda is about 3 li from the town of Meng-hua which is situated in the center of the valley or rather plain, surrounded by a big wall, we can see the roof of some high building projecting.

We cross an absolutely dry but very rocky streambed. An iron chain bridge spans it but we did not use it. Outside the wall there are a few buildings and past them the main gate about 25 feet thick of solid stone; the streets are broader, the houses appear lower. In the center there is a tower-like structure. We turn to the left and pass the military quarters where we are given a military salute and are then escorted to the Wu Miao 武廟. Crowds are again gathering and making themselves a nuisance. It is supper time and I am going to get rid of them.

Most of the carriers we met on the way were Lolos, all have huge goiters and many are idiots. They carry a board over their shoulders, a sort of yoke part which the neck fits, a strap goes over the forehead and thus they carry their load over the head as well as on their backs. They are as filthy and dirty as our Li-su carriers.

All is quiet in the temple courtyard, the full moon is just behind the cypress tree to the left. Our soldiers, a nice lot especially one of strong build and joyful manner, are gone, so has the troublesome crowd and I hope to leave tomorrow. Robbers are said to be on the road but the soldiers are to protect us. Elevation of Meng-hua 5950 ft.

April 12, 1922

Left Meng-hua t'ing 蒙化廳 early. We passed through several gates in the inner city and then through a small gate out into the open. The north gate is the small one while the south gate is about 25 feet thick. The plain broadens out, to the left are beautiful terraced wheat fields, also beans and poppy fields. One li from the city is another village through which we pass, while to our left is a huge graveyard the population of Meng-hua of bygone days. The morning air is lovely and cool, it is a real pleasure to be out in the open again away from the dirty towns with their myriads of vermin and flies. The name of the village we passed near Meng-hua t'ing is Chiao-ch'ang 教場, here we met with a beautiful tree with clusters of pink flowers, it is *Catalpa duclouxii* Dode, 3097, called in Chinese *ch'iu-mu-shu* 秋木樹. It reaches quite a large size some 75 to 80 feet in height and 3 feet in diameter. We pass through many beautiful fields mostly poppy, the large white and purple flowers gave the landscape a beautiful mantle of color. About 3 li distant we pass another village called Chi-ma chuang 紀馬庄. The hills on both sides are bare and the broad plain is cultivated to the very foot of the hills. The road is lined with white flowering rose bushes and here and there large pistache trees (3072 – *Pistacia chinensis* Bunge) called Huang-lien-t'ou 黃練頭; another tree quite common (2998 – *Celtis* cf. *sinensis* Pers.) is called *Sha-t'ang-kuo* 沙糖果. To our right is a large village set in a field of white poppies called Ku-ch'i-ch'ang. The whole plain is one large field of poppy; to the left, opposite from Ku-ch'i-ch'ang 顧旗廠 is another village called Tsung-ch'i-ch'ang 宗旗廠. The villages are too numerous to record; in all there are 557 villages on the whole plain. The scenery is rather monotonous nothing to collect. A rose grows along the trail from village to village. The next village we passed is called Miao-kai 廟街, the next Meng-shih 盟石 is on Davies's map. We lunched on the road near a little ditch flowing by poppy fields. After a quick repast we left again following the trail through a sea of poppies to the village of Tien-chung-kai 甸中街, thence to Ta-ts'ang 大倉 which seems to be quite a village. Market is

on and many hill people, mostly Lolos have brought fire wood, and other hill products to the market; flies are numerous. We stopped at a school in the center of the town. The reception was a cool one so I left and the head soldier, who in the meantime had come up with Baer, sent my card to the village magistrate who opened the girls school for us which was unoccupied and so we had a very quiet place to rest.

April 13, 1922

We left our girls school at Ta-ts'ang early following the rocky streets into the open; nearby is another small village and ahead loom up the Tali mountains called Tien-ts'ang Shan 點蒼山⁵ Before us is a ridge partly bare and partly terraced which we are about to ascend. We cross the Hsün-chien Ho 巡檢河 and follow between poppy fields into Hsün-chien 巡檢. This village is rather small and is situated at the foot of the hills which separate the Meng-hua plain from Hsia-kuan, its elevation is 6250 ft. Near the foot of the hills on the other side of Hsün-chien we cross the Wen-yao Ho, a now dry streambed, but evidently a wild torrent in the rainy season. From here we ascend the foothills past the village of Ta-p'ing-ti 大坪地 into open fields of poppy and wheat. To the right are terraced hills with more poppy. We cross now another small rocky streambed issuing from a gorge. The inner slopes of the latter are covered with Rhododendron. To my left is a bleached skeleton of a man, a robber shot and left to rot. On the slopes to the right is the village of Wen-yao. The hills are bare and sparingly covered with small Rhododendrons and *Thea* (3105 – *Thea pitardii* (C. Stuart) Rehd.), scrub pines, *Malus*, *Pyrus*, etc. We ascend gradually over the otherwise bare hills. To the right a small gorge much eroded and exposing limestone formation. The range of which encloses the Meng-hua plain to the west is called Lung-yü-t'u Shan 龍于圖山. The mountains are very rocky and dreary, we met many salt caravans carrying grey dirty cylindrical blocks flat on one side, rounded at the other. We continue to climb the bare hills, the soldiers being constantly on the watch, keeping a sharp eye out for robbers for this is a favorite hunting ground of theirs. On the other side of the pass lies the commercial city of Hsia-kuan 下關 where most of the business in the west of Yünnan is transacted. A band of 100 robbers are roving over these bare rocky mountains doing much mischief. We

⁵ For description see *The ancient Na-khi kingdom of S. W. China*, p. 27, note 25.

reach a flat space near a creek, where the wind howls in gusts. There are some tea sheds, dirty and filthy; a short distance away is a military camp or fort surrounded by a wall which can almost be jumped; the place is called Wa-fang-shao 瓦房哨. Here we stopped for lunch under a shed built of brush wood. After a quick repast I visited the military camp. After passing the wall one enters another gate leading into the central building. To the left is a dingy room full of smoke. Soldiers are lying about smoking opium, others (ours) are cooking their noon meal in an iron cauldron. To the right is a small room where the sargent lives. Here also soldiers are lying about smoking opium, it is a dingy dirty place. The entire fort is badly situated in a hollow, from a small hill about 20 feet away it can be covered with rifle fire.

By the way, half way up to the fort, we found a few soldiers near a fireplace among the bushes on the lookout for bandits.

A better class of Chinese riding nice fat sleek ponies, dressed in gay colors arrived at the tea sheds where they tied up their horses. While they were at lunch their horses were fed beans placed on the ground of which a courageous stray pig took advantage, kicking the horse with its snout and squealing finished the lunch intended for the horse.

We left for the high pass which leads over the divide called Chung-ho Shan 中和山. Higher and higher we climbed. Vegetation was found only in spots. From Wa-fang-shao the trail skirts the hillside with scattered *Pinus armandi* the five-needled pine, of which a few tall ones were left standing near the military camp. We ascend higher till we come to a very narrow gap circular in outline. In the center of this pass soldiers were guarding this strategic spot. Here the wind blows like at the Honolulu Pali. The hillsides are covered with gorgeous lilac *Rhododendron* (3131 – *Rhododendron rubiginosum* Fr., see neg. no. 30192) 5-6 feet in height. From the top of the gap 8,700 feet elevation a beautiful view is obtainable over the mountains and the Ta-li lake. Unfortunately it is hazy and photographing is out of the question. The trail leads zigzag down the east side of the Hsin-kuan range. There are many Ericaceae, one a shrub, a species of *Pieris* with dark foliage and greyish white flowers (3100 – *Pieris formosa* (Wall.) D. Don.) in erect terminal racemes, abounds, also *Rhododendron*, roses (3112 – *Rosa omeiensis* Rolfe. and 3113 – *Rosa sericea* subsp. *eusericea* var. *Mairei* (Leid.) Herr.) and many other species of plants. The descent is very steep and rocky; we follow a

dry streambed full of rocks past a small village called Chi-wu-ts'un and shortly afterwards enter the city of Hsia-kuan 下關 or the Lower Pass. After crossing the stream of the same name by a stone bridge. This stream is the outlet of the Ta-li lake called Erh-hai 洱海 and flows between the Ta-li Ts'ang Shan (mountain range) and that separating Hsia-kuan from the Meng-hua plain. Hsia-kuan is situated on the lower gentle slopes of the big range, overtopped by a temple, a Wen-miao 文廟 with two large *Ficus* trees in front. While entering Hsia-kuan it began to rain. We ascended the steep slippery stone road passing a filthy market with millions of flies, to the other end of the town where there is a school. The soldiers thought it would be best to stay here. I went in but received such a hostile reception, that I left at once, sending in my card on which I had written that they were absolutely ignorant of the rules of propriety as taught by Confucius. We left in pouring rain up to the temple mentioned first where we found a peaceful and happy spot to rest after a long and hard journey over high mountains.

The wind blew furiously all night thunder and lightning played and rain descended in torrents. We stopped one day at Hsia-kuan in our temple fortress, visiting only once the filthy town.

The spur between Hsia-kuan and Wa-fang-shao is called Chung-ho-shan 中和山, the highest point of which is 10,000 ft. elevation.

April 15, 1922

We left our Wen-miao on the top of the hills situated among innumerable graves rather late as we expected to get to Ta-li 大理 about noon; the distance is about 8 miles or about 25 li. The road is broad, paved and passes through fields of wheat and poppy, with graves beyond up the hillside. The poppy fields adjoining the graves a fit setting – one step from the opium to the grave. Many are resting there who, had they not been slaves to that awful habit, might today enjoy God's sunshine, the beautiful air, the singing of the birds, the mountains and all that is grand in nature. We meet many people, the traffic is indeed heavy on this road; it might have been on account of the Ta-li fair which is held once a year in April. We passed a 13-stories pagoda on the left, the apex was in ruin. The hills were bare and brown, their lower slopes being covered with graves. Towards the lake the scenery is more friendly, sails are visible and boats are crossing over the placid waters. We met many troops, the 18th regiment on the march, with soldiers looking as if they had been

hatched from a Japanese cannon ball. A perfect image of a Japanese even to the loops projecting from the Japanese boots (foreign pattern) with rubber sides. Hundreds of people were on the road wearing (the men only) large hats covered with blue, yes sky blue oiled cloth and long blue ribbons which are tied in front over the chest, some letting them float down to their knees. Straw hat sellers were found all along the road side, offering plain straw hats for sale, but some were ornamented with gaudy colors of pink, blue and yellow. We pass a village called Ya-ma-t'ang and not far distant is the famous temple of the goddess of mercy Kuan-yin ssu 觀音寺. The entrance to the temple ground is crowded with worshippers. Mules are tied in front, restaurants or food kitchens – a better term, are doing a good business. We enter into the courtyard where there is a marble shrine in the midst of a pond, full of gold fish. Here I took a picture of our three soldiers. In the rear is a large temple with large Buddhas, and to the left of it is, the same courtyard, a small room in which sits enthroned the famous general Yang 楊, the greatest benefactor of Ta-li, of bygone days. I took a photo of this well-carved image, said to be a perfect likeness of him. Not far from the temple we spied the gates of Ta-li, for there are several massive gateways, some 25 feet thick. We pass through them and arrive before an enclosure, where soldiers stand guard – this is the general's yamen. It was the old palace of the Tai rulers, of ancient days. We pass the famous bell tower, Wu-hua-lou 五華樓 and follow the long narrow main street. The soldier who met us at the gate guiding us to the west gate to the temple of Mi-t'o ssu 彌陀寺 where we made halt.

There was little collecting on the way; dry streambeds full of rocks we passed, with *Oxyria* growing among the rocks, the same (*Oxyria sinensis*) that covers the walls of the city.

I had my bed made under the very eyes of Dharma, the mosquito net being tied to his staff while Baer's bed was made under the vigilance of some hideous devil of indigo blue color which recalled Mahākala (it actually is Mahākala) of the Tibetans.

We called on Mr. Fergusson of the Salt Gabelle with whom we had lunch and later returned to our temple; there were many Buddhist monks praying; women came with offerings and the place was always full of smoke from the constant incense offerings. In the morning they placed tea in front of the gods for a minute, only to be taken away and to be drunk by the temple guards.

The fair is on in earnest and in the afternoon I went out with two

soldiers through the west gate. There were 1,000sands of people, many Tibetans with medicines and old rubbish perfectly useless which they hoped to sell. Many temporary teashops and kitchens had been erected where hundreds of people were fed with fly-bespeckled food, while pigs and dogs caught the drippings from the bowls out of which people sucked their food. There was nothing sold of any interest only cheap goods and junk.

I took several photos, one from the Wu-miao where soldiers were quartered in case of trouble. After the fair which lasted one more day, Sunday the 16th, rain set in and it rained pretty constantly.

April 20, 1922

After lunch we started from Ta-li for the Tsang Shan Range, Mr. Fergusson, Gregory, Cook, Baer and myself and 20 coolies carrying tents, provision and botanical outfit. We left by the west gate over the grassy plain between graves and memorial tablets to the foot of the mountain range. Our objective for today being the temple at 9,000 feet elevation on Chung-ho Ssu 中和寺. The trail at first is not steep, although we followed a shortcut by which we shall reach the temple in an hour and a half.

The first plants observed were a pink flowered bushy *Rhododendron* (3118 – *Rhododendron serotinum* Hutch.), 3121 – *Elaeagnus umbellata* Thunb. with yellow flowers, near the temple, little blue-flowered 3164 – *Polygala sibirica* L., the common yellow-flowered deep-rooted perennial growing in clumps, 3162 – *Stellera Chamaejasme* Linn. *Pinus armandi* forms here small trees. A few *Rhododendrons* (3123 – *Rhododendron oleifolium* Fr.), willows (3122 – *Salix tenella* Schneid. var. *luctuosa* Lév.), 3166 – *Rhododendron triflorum* series with pale lilac flowers, *Leptodermis* (3161 – *Leptodermis carissa* shrubs and various herbs, as a fleshy *Euphorbia* (3125 – *Euphorbia chrysocoma glaucophylla* Lév.?) are about the most striking plants. The trail is a very rocky one until we reach the temple from where a wonderful view is obtained over the lake, the plain and city of Ta-li, the latter a perfect square situated in the center of the plain halfway between the mountain and the Erh-hai 洱海. We made ourselves comfortable in the upstairs room of the temple at the western wall of which was an altar with a wonderful painting of a Dragon, a veritable masterpiece of the old school. Incense and offerings were reposing before it.

Next morning we started early for the top of the mountain or rather

for a place suitable to pitch our tents from which the summit could be reached. The trail leads along a ditch lined with flowers, while the hillsides were covered with the common *Rhododendron decorum*; *Clematis montana* climbed over the common yellow-flowered *Rhododendron trichocladum* Fr. (3137), a deciduous shrub which occupied the open hillsides among rocks; with it grew the rose-colored shrubby *Rhododendron cyanocarpum* Fr. (3129), while the gorgeous lilac colored *Rhododendron rubiginosum* Fr. (3131, neg. USDA 30192) was less common being found only as scattered individuals at the foot of boulders. *Vaccinium delavayi* Fr. (3156) a lovely compact shrub occurred only among rocks while on rocks grew with the delicate purple orchid *Pleione yunnanense* Rolfe (3119). The orange-flowered *Pleione forrestii* was rather rare. *Abies delavayi* occurred here and there on ledges and cliffs along the main gorge which I photographed. Cane-brake *Bambusa arundinacea* made climbing very difficult. It grew so densely to the exclusion of nearly everything else that one was absolutely buried in it. The trail became rather steep and very rocky. An occasional *Primula* grew under rock ledges with the rubiaceous purple-flowered *Morina betonicoides* Benth (3132). One of the most gorgeous flowered *Rhododendron* was here very common and was at its best at about 10,000 feet elevation, *Rhododendron neriiflorum* Fr. (3146) with dark red brilliant fleshy flowers. Spiny *Berberis* were common, and on rocky cliffs the bright yellow-flowered *Rhododendron sulphureum* Fr. (3142) testified to being a distinct rock plant. At about 11,000 feet cane-brake gave way to the somber forest of *Abies delavayi* Fr. (3148; neg. 30181) with its dark blackish green needles. The underbrush was here formed by *Rhododendron haematodes* Fr. (3149). In little depressions in this *Abies* forest we found our first snow on the Ta-li range. Occasionally we met with *Juniperus squamata* Buch, & Hamil. (3147, neg. 30178) prostrate at the foot of giant *Abies delavayi*. The trail skirted a deep ravine, its slopes were covered with the gorgeous pink-flowered *Rhododendron cyanocarpum* Fr. (3129) which forms here trees 20 feet in height. Above it *Abies delavayi* Fr. reigns supreme with a dense carpet of moss at its feet and its trunks clothed in lichens and moss. In this mossy damp carpet just recently released from a blanket of snow and ice, there flowered the beautiful *Primula sonchifolia* Franch. (3133) of which I took a photo (neg. no. 30180, USDA). Here in a lovely grove of *Abies* near a running brook, somewhat sheltered by a steep rockwall, we pitched our tents. The summit of the range

seemed not far away and we hoped to reach it the following day. Our camp was at 12,000 feet elevation. To the south on the other side of the rocky streambed there were low hills taken possession of by species of *Rhododendron* which was however not in flower. A very small leaved bronze-colored *Rhododendron* formed regular cushion plants in the ice and snow.

We had hardly settled down when it began to snow, and snow it did all night. I looked out of my tent and saw the snow flakes dancing from a grey sky, the *Abies* (fir) trees were soon covered and so was the ground, with a blanket of white. As we feared that the snow would not abate and obliterate our trail, we decided to break camp, but four of us and two coolies decided to make for the top. We followed the creek bed in the snow among the small leaved prostrate *Rhododendron fastigiatum* Fr. (3152), the last *Rhododendron* in the snow. *Juniperus squamata* Buch & Hamil. (3150) continued till we reached a bowl-shaped depression filled with water slightly frozen on the surface. This lake is called Hei-lung-t'ang 黑龍塘 or Black Dragon Pool. The slopes were still covered with *Rhododendron fastigiatum* Fr. but blanketed with snow. Low prostrate *Rhododendrons* led steeply to the summit of the ridge, but as it was foggy, no view could be obtained of the western plain and slope of Ts'ang Shan.

As it continued to snow heavily we decided to return to Ta-li the same day. After taking some photos of the snow peaks and vegetation, we returned the same way we came, collecting on the way a few more *Rhododendrons*, *Piptanthus concolor* Craib (3139), *Indigofera mairei* Pamp. (3127), *Corylopsis yunnanensis* Diels (3128) and others. We reached Ta-li about 6 p.m. on April 22, 1922.

May 4, 1922

Mr. Chu 朱 of the Salt Gabelle, I and Boomah went out to see the San-t'a ssu 三塔寺, or three pagodas. It was a beautiful summer day rather warm for Ta-li. We left by the north gate following the main road which leads to Li-chiang. The distance to the pagodas is only 3 li or about 1 mile. According to the Chinese calendar the 4th of May is a very lucky one this year and especially so for tailors. Numerous people were gathered together in the various temples with musical instruments, singing and bowing and burning incense. Men in one temple, women in another, each trying to outsing the other. We visited the Kuan-yin shrine with the large image of the Goddess of

Mercy, cast of metal in a most crude fashion.

There were many temples in nearly all of which worship was going on.

May 6, 1922

We left Ta-li at 8 a.m., Mr. Cooke of the C. I. Mission accompanying us. We followed the middle road which is not paved, but is very comfortable, sandy and smooth. We selected the lake road but always some distance from the shore. There is nothing to record in the plant line, except alder trees, *Alnus ferdinandi-coburgi* Schneid. (3184) different from those found in the south which is *Alnus nepalensis*, a willow, *Salix variegata* Franch. (3180), and cultivated apricots, pears, plums and peaches were everywhere as were a good many *Albizzia* trees. We passed Shang-kuan or the Upper Pass 75 li from Ta-li. We did not stop in Shang-kuan 上關 which is a dirty place with only one long road, but went on to Sha-p'ing 沙坪 to the north of the lake. There we went to one of the temples near the lake shore but finding it full of beggars we went to a hsioh-t'ang 學堂 or school, a former temple, and spent the night.

The hills are mostly bare but in the deep ravines there seems to be plenty of growth.

May 7, 1922

We left Sha-p'ing very early as today's stage is to be 90 li. The trail follows round the last bend of the lake which is crescent or ear-shaped, hence the name Erh-hai. It still extends a little further north in the form of a lagoon around which the trail skirts and then climbs over a rocky slope covered with graves. The hills are bare and all eroded exposing red soil containing oxidized iron. There are a few pine trees scattered over the hillside. The trail leads through an orchard of pears and peaches as well as plums. *Berberis pruinosa* Fr. (3178) is much in evidence, as are Ericaceae, the white flowered *Rosa banksiae* Art. var. *normalis* Regel (3197), the small flowered *Bauhinia densiflora* Fr. (3189). I found in Nan-chien, *Sophora flavescens* Ait. (3207), a purple flowered legume *Campylotropis polyantha* (Fr.) Schindl. (3191), and a small fruited wild pear *Pyrus calleryana* Decne (3206). We are now on a high plain surrounded by bare eroded hills some of them over 12,000 feet in height. Ahead is a very fertile plain encircled by absolutely bare hills. Opium is cultivated everywhere; the heads are beginning to ripen and the

farmers are gathering the exudation from the longitudinally-incised capsules with a sickle-shaped knife.

Ahead is the village of Teng-ch'uan 鄧川. We enter the town through a very imposing gate, follow the main street and find at the other end an agricultural school and garden. The plain is wonderfully fertile, the wheat fields are the finest I have seen in Yünnan. Buckwheat is also grown but not so frequently. The crop being opium. To the left of us is the famous canal, the outlet of the Lang-k'ung 浪空 River which passes through a narrow gorge from the Lang-k'ung plain. The canal is lined with large trees, mostly *Albizzia*, *Pistacia chinensis* Bunge (3203) and *Paliurus orientalis* (Fr.) Hemsley (3194), etc. The hills are bare and the pass ahead particularly so, with the exception *Opuntia indica* common everywhere. *Alnus* and *Pistacia* are the most common trees. The trail passes over a sort of causeway between two lagoons in which a species of rush is cultivated. It is said to be used in the making of the famous Ta-li hats. Willow trees, *Salix cavaleriei* Leid. (3193) are lining the road which is here paved. Ahead is the village of Yu-so 右所. We pass more villages and follow along the canal. There is a regular sea of poppies which extend to a village at the foot of the hills buried in trees. The trail now turns to the right (east) and ascends the canal embankment following under the shade of the lovely trees mentioned above. We cross a bridge near a village called Chung-so which is situated on both sides of the canal. Here I took two photos one up the canal, north, and one down south. The trail follows on the top of the eastern embankment. We met many salt caravans with the dirty grey cylindrical salt blocks; also many tribespeople carrying loads of firewood on their backs supported by straps over their forehead. Further on as we near the actual gorge into which the canal merges, the stream is hemmed in by one embankment only, the left one being formed by the mountain.

The trees are again *Albizzia*, *Pistacia*, *Paliurus*, and *Capparis indica* which form here trees 20 feet in height. The gorge is indeed narrow and the river rushes through in torrents. The drop in the short distance through this wild and rocky gorge is considerable. The rockwalls are black and overgrown with the yellow-flowered *Opuntia indica*. The name of the river is Lang-k'ung Ho. After a few ascents and descents in the gorge we pass out into an undulating plain. The mountains to the right are bare, but those to the left in the distance are covered with scrub forest, the black growth on the summits being

masses of *Rhododendron*. It is the Lang-k'ung Range. Mr. Chu tells me that the Lang-k'ung River is now known as Erh-yüan Ho 洱源河, the source of the Ta-li or Erh-hai 洱海 lake. We are camping along a streambed under some willow trees. *Photinia prionophylla* (Fr.) Schneid. (3205) shrubs are not uncommon as is a *Castanopsis* or *Quercus*, and a shrubby species with large, white bell-shaped flowers, *Styrax langkongensis* W. W. Sm. (3198). There are wild pears, *Osteomeles schwerinae* Schneid., the same pinkish-purple delicate *Campylotropis polyantha* (Fr.) Schindl. (3191) so common north of Nan-chien and also south of it in the Black River valley. It is hot but a strong wind makes the heat bearable.

We cross a hill much eroded; on the top is a pond or reservoir, the ground is boggy and a yellow *Caltha* is common as is the blue flowered *Antiotrema dunnianum* (Diels) H.-M. (3199) and other herbaceous flowering plants. The mountains to the right are black and steep, but wooded only at the very top. They must be 12,000 feet high. The village opposite where we camped was Ying-shan-p'u 應山舖. High up on the very steep slopes of the high mountain known as Fo-kuang-chai shan 佛光寨山 there is a temple or several monasteries called Ling-kuang-ssu 靈光寺. We now follow the well cultivated plain, wheat being the most abundant crop, while opium is very scarce. Roses line the path on both sides. We pass the villages of Ch'ang-ying 長營, Wen-pi-ts'un 文筆村, and finally the village of San-ying 三營, where we will stop for the night. We are comfortably housed in a military temple. It is bed time.

May 8, 1922

We left our temple in which police were also camping, at 7 o'clock a.m. San-ying is situated at the foot of a hill which is entirely limestone. On the hill there is a small pagoda visible from quite a distance. The hill is full of limestone boulders, and honeycombed with caves. Hot springs are bubbling up everywhere and near to the boiling waters flowing across the road. The hills around here seem to be volcanic with superimposed limestone. The trail or road skirts the other side of the hill and about 5 li beyond reach the village of Niu-kai 牛街 or Cattle Market. In Niu-kai there is a large hot spring. Poppy is very plentiful and is interspersed with wheat. The volcanic hill is called Huo-yen Shan 火焰山 or Flaming Mountain. On the road we met many Min-chia women, marching in single file, each one carrying thick, heavy coffin lids, each two planks, they are made of a

species of Juniper, *Juniperus saltuaria* which comes from about two days of Niu-kai. We follow the valley and skirt the hillside. At the head of the valley there is another volcanic hill white with huge blocks of limestone in which large tablets have been chiseled. It is the Kuan-yin Shan 觀音山. There are many climbing *Rosa sericea* subsp. *bisericea* var. *mairiei* (Lév.) Herr. (3222) and *Trachelospermum donieri* (Leid.) Woods. (3186). The small leaved *Bauhinia densiflora* Fr. (3189), the beautiful purple-flowered *Campylotropis polyantha* (3224), *Broussonetia papyrifera*, a narrow leaved *Salix* etc. The trail skirts the hillside, then passes through the small village of Hsia-chai 下寨 about 20 li from Niu-kai. Here there are two roads, one leading straight to Chien-ch'uan 劍川, the other at right angle to Ho-ch'ing 鶴慶 over a high mountain range 11,000 ft. high. I decided to follow the Chen-ch'uan road as it leads through the valley, although the high mountain road would have been much more interesting, but as Boomah had malaria and the horses were tired I thought it wise to follow the valley. The country from now on became very hilly, the trail leading over undulating land up to about 8,000 feet elevation. These hills were covered with scrub oaks and here and there a tall oak tree with golden yellow entire leaves *Quercus semicarpifolia* (3227), *Pinus armandi* and *Pinus yunnanensis* were quite common also *Rhododendron delavayi* Fr. (3241) with scarlet flowers; *Rhododendron decorum* (3257) the common white flowered species, then *Ligustrum sempervirens* (Fr.) Mansf. (3258) were found on the hillside but not in flower. Roses were quite common especially *Rosa Banksiae* with small white flowers, a prolific bloomer. *Osteomeles schwerinae* with small white flowers, and *Pteris ovalifolia* with long horizontal racemes formed the scrub vegetation. We lunched near a small village called Ch'ou-shui-ching 臭水井 where I found a large rose (*Rosa odorata*) with large pink flowers with a touch of yellow.

The country becomes very hilly and is covered with pines, both *P. armandi* and *P. yunnanensis*. I came across a large tree of *Docynia delavayi* (Fr.) Schneid. (3215) which I photographed. *Rhododendron chartophyllum praecox* (3269) of the *Rhododendron triflorum* series, a beautiful shrub with pink, lilac, or mauve colored flowers and with the lower petal beautifully marked, wild plums, roses and scrub oaks associated on the rocky hillside. The soil is red in color and full of iron. There are a number of oak trees with ilex-like foliage (*Quercus semicarpifolia*). Among the shrubs of which *Pyracantha crenulata* (D. Don) Roem. (3202) with stiff branches and white flowers is the

most common, grew *Clematis chrysocoma* Fr. (3248) with magenta-colored flower, also *Berberis pruinosa*. *Jasminum beesianum* Forrest & Diels (3216) with wine-colored flowers was also found entwined with scandent roses. We descend into a plain called Sha-pa or Sand Plain, and follow a rocky watercourse lined with willows. We pass the village of Yeh-ya-t'ang 野鴨塘 or Wild Duck Plain, and another small village called Yeh-chi-p'ing 野雞坪 or Pheasant Plateau. We had intended to stop there but as there was no decent place we went on to Tien-wei 甸尾. The Sha-pa Ho 沙埧河 empties into this sand plain which appears to be a regular sink hole and must have been formerly a lake. Yeh-chi-p'ing is situated in this plain. Crossing over some hills and passing through a small gorge we pass into another plain with a lake to the right, it is the Chien-ch'uan Hai 劍川海 or Chien Hu 劍湖. High mountains are straight across this valley or plain. The surrounding hills are covered with pines. We pass irrigated fields, follow a ditch on the banks of which grow Forgetmenots, *Myosotis sylvatica* (Elrh.) Hoffm. (3220) and the dark blue *Cynoglossum amabile* Stapf & Drumm. (3221). The village of Tien-wei is situated on this plain but on the slopes of a hill. I stopped in a small temple overlooking the plain and the lake, all alone, having a very quiet rest.

May 9, 1922

Left my temple passing through the village of Tien-wei and descending to the plain and over a fine bridge across the Tien-wei Ho to Shang-teng 上登, a small village. At the entrance to the village opposite the bridge is a temple with two consumptive-looking guardian gods showing every bone and vein in their body. They are of huge proportion and each is brandishing a sword. The temple is 3 li from Tien-wei. The plain is intensely cultivated. On the hillsides grow *Catalpa duclouxii* Dode (3217). The air was fine, cool and brazing, a lovely spring morning. As we turn right I got my first glimpse of the Li-chiang Snow Range. As seen from here, there are two distinct mountain masses, one a lower composed of sharp peaks, and one higher about 21,000 feet covered with snow for about 5,000 feet. In the distance there is another lonely snow mountain, the Yangtze flowing between it and the Li-chiang Range. The trail follows the edge of the plain skirting lower hills between fields of wheat, beans and peas. We pass the villages of Han-teng 漢登 and Hsi-chuang 西庄 a distance of 10 1/2 li from Tien-wei, then Chu-

ch'üan-ch'ang 豬圈場 or Pig-Pen Floor and from there to Shui-chai 水寨. From this last village it is not far to Chien-ch'uan a large village. We pass through an imposing gateway and before us lies the walled city of Chien-ch'uan, elevation 7750 feet. Entering through a massive gate Main Street displays a dirty road with pigs, dirty children and myriads of flies. This town is known for its carpenters. We met hundreds of women carrying large primitive furniture, resembling wardrobe cases with drawers. These can be bought for one or two dollars. We followed the plain between irrigated rice fields and wheat fields to Pan-teng ho 板凳河, then to Yung-p'an ts'un 永盤村, to T'ai-p'ing-ts'un 太平村, to Liu-chia-teng 劉家登, to Tien-hsin-ch'iao 甸心橋, to Mei-tzu-shao 梅子哨, to Chiang-tung 江東. We had lunch among graves in a pine grove with *Rhododendron decorum*. The trail was lined with roses especially *Rosa Banksiae* and *Rosa moschata* subsp. *brunonii* (Lindl.) Herr. (3238) with viscous calyces and tomentose leaves. From Chiang-tung we went to Wen-mu-ho 文木河, then to Chiu-ho-kai 九河街 (elev. 8150 ft.) still following a plain. Straight ahead was the wonderful mountain mass of Li-chiang covered with snow and the top enshrouded in clouds. To our right is a limestone hill with huge black boulders. After passing Chiu-ho-kai, we keep on following the plain. To our left is a large village Nan-su-mei 南蘇梅. On the hill on the right grow *Salvia digitaliodes* Diels (3235) and *Androsace spinulifera* Knuth. (3232) with small pink flowers in terminal capitate inflorescences.

We did not stop at Chiu-ho-kai 九河街, as there was no decent place and having been told that 5 li further was a fine temple, we went to Pei-su-mei 北蘇梅. On arrival there we found an unswept smoky school full of dirt, and so we decided to stop at the theatrical stage. A ladder was procured and we climbed up to the stage where we are now comfortably located, the caravan below. I attended to the Ma-fu (horseboy) who had very sore eyes.

May 10, 1922

We left our theatrical stage early enough so that there was no audience at rising time. We followed the rather narrow plain from our last village Pei-su-mei to Tu-wo 杜娥, which is 5 li distant, both villages are situated on the east side of the valley. The hills are covered with pines and numerous walnut trees both wild and cultivated can be found along the road; young fruits are now forming although male inflorescences droop from every branch. There were

also numerous pear trees, plums, peaches, etc. We passed another hamlet of a few houses called Wu-li-p'ai 五里牌. Along the road *Cotoneaster linifolia* and *Lonicera* were predominant, the former with pubescent linear leaves and stiff spiny branches. The rosaceous shrub *Prinsepia utilis* Royle (3281) with purple drupes, long spines and dark green foliage was exceedingly common and formed regular hedges. It is said that it is very pretty when in flower (December) when the long arched drooping branches are one mass of small white flowers. The seeds were collected by the village women all along the road, they express an oil from the rather large drupe which they use for cooking purposes hence the specific name *utilis*.

There are a few more villages like Kuan-shang 關上, five li from Wu-li-p'ai, then P'o-chio where we had lunch up a creek bed among pines and oaks. There I found *Primula begoniiformis* Petetitm. (3299), a microform of *P. obconica* Hance and a shrub belonging to the genus *Decaisnea*, *Decaisnea fargesii* Fr. (3301). From here we climbed up to about 8,500 feet elevation or nearly 9,000 feet, over a steep slope and a very rocky trail or rather paved road. *Pinus yunnanensis* was exceedingly common also *Rhododendron chartophyllum* var. *praecox* of which I photographed (neg. no. 30244) a lovely shrub. Below at the end of the valley we had a view of a beautiful green little lake, like an emerald gem surrounded by dark mountains, the Na-khi call it Bbu-t'u-nder. Along our trail were many plants as the beautiful white *Clematis montana* Buch.-Ham. (3284), the lovely *Buddleia heliophila* W. W. Sm. (3298), a purple leguminous shrub, a fine cherry *Prunus conadenia* Koehne (3286) and lovely *Rhododendron delavayi* and *Rhododendron decorum*. On the road below we found *Jasminum humile* L. (3293) and *Chionanthus retusa* Lindl. & Paxt. (3294) with white flowers. Scrub oaks covered the hillside, mainly *Quercus semecarpifolia* Sm. var. *glabra* (Fr.) H.-H. (3291), one of its numerous forms. On the top of the hill there is a broad plateau somewhat undulating, the soil is a yellow clay but the whole plateau is of limestone origin, there are numerous sink holes called Lo-shui-tung 落水洞 (dropping water hole). The plain is cultivated down to the margin of the deep holes (sunken basins). Limestone outcroppings are numerous and the fields extend to their rocky margins, these limestone areas are taken possession of by scrub oaks and *Pinus yunnanensis*. *Rhododendron racemosum* Fr. (3274) a small shrub with deep pink flowers forms regular carpets with a prostrate form of *Quercus semecarpifolia*. On

this plain we met a miserable specimen of humanity dressed in rags, a Chinese beggar – not Na-khi and looked so wild that I photographed him as a curiosity. Further on we found *Populus tibeticus* with pines, and more Rhododendrons. We descended from this high plateau to La-shih-pa plain. The whole plain of La-shih-pa 刺是堪 is one great limestone basin with sharp limestone outcroppings, hills and innumerable sink holes, the inner slopes of which are densely covered with trees. This plain is also under cultivation, but the sharp grey basaltic limestone rocks are covered with scrub oaks, *Pieris* and pines. At the head of this valley there looms up the enormous mountain mass called Yü-lung Shan 玉龍山, Jade Dragon Mountain, it is the Li-chiang Snow Mountain. The scenery was wonderful and the air cool and bracing.

Lower down on the plain is a small resting place called Shan-shen-miao 山神廟 or Shrine to the Mountain God. Here a robbery took place just before our arrival, an hour earlier. From here we descend to another more level plain densely cultivated and in which at the extreme north end, is situated a lake called Lung-hai 龍海 or Dragon Lake. The rather scattered village is situated on the very foot of the undulating southern end of the plain.

I am staying in a small temple on a hillside among roses and oaks, apricots and plums. It is very quiet and much more restful than the noisy inns which I detest.

Journey from Ta-li to T'eng-yüeh, September 23, 1922 to October 9, 1922

由大里至騰越

September 23, 1922

We left Ta-li on September 23, 1922 at 7 a.m. The sun was shining brightly and the lake sparkled in the early morning light. The road abominable as ever leads almost in a straight line to Hsia-kuan 下關, 28 li distant, through beautiful green rice fields, water is running everywhere rushing hither and yon. Our escort is way behind so we wait at the temple of the goddess of mercy where General Yang Yü-k'ō 楊玉科 has also found quarters in a small room in the rear to the extreme left. I paid another visit to his shrine, this time deserted, no one in the whole temple as ourselves, for this is not fair time. Rice everywhere now where in the spring the fields were one mass of

poppies with white pink, purple and red flowers; these opium fields joined the thousands of graves beyond to the actual foot of the hills. Edelweiss is everywhere among the graves, pink *Anaphalis margaritacea* B. & H. f. as well as the silvery-white *Leontopodium sinense* Hemsl., the yellow flowered *Campylotropis trigonoclada* shrub and a pink flowered *Desmodium*. In the ditches and pools a purple *Pedicularis* holds forth, also tall grasses similar to those (or identical) we find around Chien-ch'uan, north of Ta-li. We reach Hsia-kuan at about noon, called at the B. A. T. and were informed that many robbers were on the road 50 li beyond Yang-pi, and that 250 soldiers had been dispatched from Ta-li and Yung-ch'ang 永昌 to drive them away. Traffic between Yang-pi 樣鼻 and Yung-ch'ang had stopped for about a week owing to their hold ups and making the road unsafe. As we had only four soldiers as escort from Ta-li, we asked the military authorities at Hsia-kuan what they knew about the robbers. They confirmed what we were told at the B. A. T. and to our requesting a larger escort they replied that they would give us four more soldiers. We went to the Fu-lien Bank and exchanged 1800.00 dollars for a draft on T'eng-yüeh in order not to risk having all our money taken away by robbers. After a hasty farewell to dirty Hsia-kuan we followed the river which outside of Hsia-kuan flows rather rapidly towards the famous narrows with a fort on the right side. The outlet, I would say, is only about four feet wide and is arched by a stone, a natural stone bridge known as the T'ien-sheng-ch'iao 天生橋, which I should think no one would care to cross. The waters rushing madly forward find the narrow outlet too small and a back-eddy is formed. The water is mostly foam and as it finally forces itself through the narrow stony gate falls in a mad rush over boulders some 10 or 20 feet to the riverbed below, in its whole length it is one mad torrent. The banks are willow-lined, and how the trees can stand the terrific onslaught of the angry waters is more than I can understand. On the very edge, and jutting out into the riverbed, is a small stone house, its base is constantly washed by the roaring, dashing stream which some day will carry it with it on its mad rush.

The fort is old and the wall facing towards the lake fallen in. There are a few houses and a small tower within the enclosure, but no human life seems to inhabit it. On the left side is a stone gateway and beyond an arched thoroughfare, the steep rock wall having been broken through and arched over. The gateway is about 20 feet thick and a rocky path leads steeply down into the main road. Some stone

tablets are in front of the entrance to the right.

The river here is not called the Hsia-kuan Ho but the Ch'ing-shui Ho 清水河 or Clear Water River which later becomes the Ho-chiang ho 合江河. The walls on either side rise steeply. The mountain being almost bare of trees but covered with shrubs and grasses and on the upper part some trees can be seen. The vegetation along the road is mainly shrubs of a pink *Desmodium* very common, a climbing *Aconitum volubile* Pall. (6598), *Delphinium* here and there a *Senecio*, with yellow flowered spikes; our old friend *Primula poissonii* is still to be found in flower; one or two leguminous shrubs, the common purple flowered one with velvety leaves *Uraria clarkii* found at Nv-lv-k'ö among the scrub oaks; the yellow flowered species, *Campylotropis trigonoclada*, and a white small-flowered climber found in the south is very common. A shrubby *Hydrangea* with purple lilac flowers and creamy bracts, a lilac-flowered Composite shrub, some 8 feet in height; the new *Quercus augustinii* var. *rockiana* Camus, *Castanopsis armata*? and *Castanopsis delavayi* Fr. (6584) can also be found. The yellow shrubby Composite, the *Inula cappa* (Hom.) DC. usually found on laterite with *Pinus khasia* in Siam, is here also present. A profusely climbing leguminous plant *Lespedeza bonatiana*, with long racemes of pinkish purple flowers we also collected, it occurs north of Ta-li beyond Chien-ch'uan. A purple flowered leguminous vine resembling *Dolichos*, a purple flowered *Strobilanthes* and the pink flowered *Begonia labordei* Lévl. (6605) are always found among damp boulders. One of the commonest shrubs is a scarlet-flowered *Colquhounia coccinia* Wall. var. *mollis* Prain (6566) shrub 5-6 feet along ditches with tall grasses, which we first observed around Chien-ch'uan. Walnuts grow wild down the steep valley slopes, also a wild persimmon (a small tree), nettles, *Debregeasia*, and one with long spikes, the same as I found along the Mekong in the south. One of the handsomest shrubs is 10 feet high, the one with pinkish white long tubular flowers, forming large terminal corymbs, *Luculia intermedia* Hutch., while a magenta mauve-colored *Paederia* is a common climber among small cane-brake, grasses and shrubs. Two yellow-flowered *Hibiscus*, *Hibiscus forrestii* Diels (6594) grow along the trail, also *Hibiscus venustus* Bl. (6587) not uncommon along Ho-chiang Ho. As we descend into the valley, leaving a well wooded narrow valley to our left, we cross a small affluent and soon reach the Ssu-shih-li ch'iao 四十里橋 or the 40 Li Bridge so called on account its being forty li from Hsiang-kuan.

From here it is 10 li to Ho-chiang.

The river is nothing but foam dashing against huge boulders. Here and there is a patch of rice, brown and ready for harvest. In some places it is being already harvested while on the Ta-li plain it is still green. Tall bamboos grow on the banks and we meet several caravans carrying large quantities of the large bamboo stipules used for wrapping tea and sugar. Also mules with coffin boards we encountered. We pass one or two villages till we come to the iron chainbridge, a rickety affair, the boards old and broken, and one can see the river roaring beneath. The village at the bridge is also called Ssu-shih-li ch'iao 四十里橋. The entrance gate from Hsia-kuan into the gorge is known as T'ien-sheng-ch'iao or Natural Bridge. I took two photos one showing the west the other the east side, including the fort. We passed the village beyond T'ien-sheng-ch'iao called Ta-po-chin, and the village before reaching Ho-chiang is called Hsiao-ho-chiang 小合江 or the small Ho-chiang. We are stopping in a delapidated old temple back of Ho-chiang, there are many lady and gentlemen gods one of them a small one with a bright red dress, called Tsu-shuai 祖帥, ancestral leader; this image is taken in procession around the village once a year to drive all devils away. The mosquito net is tied to the leg of a lady-goddess and I hope she will not be offended. It is getting late and tomorrow is a long journey.

September 24, 1922

Left our tumbled down temple at Ho-chiang at 7 a.m. The village street is straight, lined by dirty houses, pigs everywhere. There are rather large inns but they look so uninviting, filthy and dirty, that I always give them a wide berth. We follow the Ho-chiang River roaring madly on its onward course to the Yang-pi Ho 樣鼻河. We climb a ridge and leave the Ho-chiang Ho to the left. It finds its way through a valley or rather gulch which opens out in a southern direction. Leguminous plants are common, tall grasses, wild pears, *Impatiens*, *Gordonia axillaris* (Don) Diels (6618) shrubs with large white flowers. Corn and rice fields are being prepared for harvest. The candelabra Euphorbias resembling *Euphorbia antiquorum* but with spatulate fleshy leaves, grow along the roadside. A flat hill which separated or rather diverts the Ho-chiang Ho juts out southward and westward, on its flat top is the filthy village of P'ing-p'o 平坡 named after the hill „flat hill“, it is about 5 li from Ho-chiang. Pigs are everywhere, the people are so accustomed to living

with pigs that they have acquired piggy habits, there is not much difference in the habit of the two. After crossing the flat hill we turn to the right and see for the first time the Yang-pi Ho, it is brown and muddy; there is quite a contrast between the Ho-chiang and Yang-pi River, the former being one mass of white foam, its current is also more rapid than that of the brown Yang-pi River.

The road is absolutely abominable and is more a rock pile than a road; first mud and boulders, then it becomes a brook again used as a ditch for rice fields, then a pond or lake of mud with boulders protruding, others hidden. It is worse than some of the roads in the Black River. On the right hand side is the village of Li-tzu-yüan 栗子園 – Chestnut Garden. There are many chestnut groves – *Castanea mollissima* Bl. (6645) whence the name; as the fruits are gathered before they ripen there are now no fruits to be seen. The trail follows the muddy, but still rushing torrent of the Yang-pi to the small village of Chi-yi-p'u 雞一舖 – One Chicken Shop, and it certainly is worthy the name. There are many walnut trees, chestnuts, peach trees, wild pears with larger fruits than found north of Ta-li but the remainder of the wild vegetation reminds one more of the southern part of Yünnan and Burmah.

We had lunch under some old chestnut trees with few nuts still on the trees. I took a photo of a branch with open and closed fruits pinned against the trunk. The chestnut grove is near the village of Chin-niu-t'un 金牛屯 or Golden Ox Village. After lunch we were just about to proceed to Yang-pi, when we spied a deep and narrow gorge to the right, a steep rocky mountain side covered with trees in its upper part and a temple on the top, near the edge of the precipitous cliff. Lau-loo told me that it was here he found a wild chestnut; this decided me to stop at once and proceed to the temple. As it is however impossible to bring the loads up we enquired further and found that there is a large temple at the foot of the hill and east of the gorge, and hither we went. The temple is called Fu-kuo Ssu 福國寺 or Happy Country Temple; it is situated on a knoll covered with cypresses. As its name implies it is a Buddhist temple and in the room, the last one, third terrace, there are three huge images of lady-like Buddhas; a big drum if back of my bed, with a gong beneath, on the altar table with a fine bronze bowl giving forth a beautiful sound reminding me of the temple bells of Nikko in Japan.

We made ourselves comfortable and settled down, as the next day we are to climb to the top of the hill, where the wild chestnuts are –

Castanopsis concolor Rehd. & Wils. (6646).

In the late afternoon Ma Ting-an, Lau-loo and Li Ssu-ch'en and I went out behind the temple to find a trail into the gorge with its narrow entrance, but instead climbed the sides of the hill through scrub. At the foot of the hill we found *Corylus yunnanensis* (Fr.) A. Camus (6635), a shrub, 8 feet or so in height with tomentose leaves, and loaded with fruit of which we collected quite a large quantity. With it grew *Rhus cotinus*, *Leptodermis* (6640) melastomaceous plant *Osbeckia chinensis* L. (6631), a herb with purple flowers; tall grasses, one a lemon scented one and the yellow composite *Inula cappa* DC. (6639). Of several wild pear trees we collected seeds (6636-6637 - *Pyrus pashia* Buch.-Ham.). Two species of oaks are common, *Quercus griffithii* and *Quercus glauca*. *Keteleeria davidiana* and *Pinus sinensis* are also common. We got a thorough soaking notwithstanding our trying to hide under a *Keteleeria* tree during a heavy downpour.

September 25, 1922

Left our temple for a trip into the mountains beyond. The trail lead down to the river bank, crossed the rocky streambed and ascended steeply on the other side. The lower slopes are mostly covered with weeds, but soon we enter pine woods the trees growing scattered, *Leontopodium andersoni* C. B. Clarke (6662) and *Anaphalis margaritacea* Benth & Hook. f. *cinnamomea* (Wall.) H.-M. (6648) are common, also scrub oaks, *Quercus griffithii* Hook. f. & Th. (6658) at 6,000 feet, trees 25-30 feet in height, *Quercus glauca* Thunb. (6659), at 5,000 ft elevation, tree 15-20 feet, and alder trees, *Alnus nepalensis* D. Don (6657) are not uncommon. The following plants were also collected: Of leguminous vines *Dumasia villosa* DC (6653), flowers yellow, elev. 7,000 feet, *Pueraria peduncularis* Graham (6663), lavender purple flowers in long racemes, 5,800 feet; *Apios carnea* (Wall.) Benth. (6669), fl. in lax racemes pinkish, 6,800 feet, and *Dollinera cinerascens* (6674), a bush 6-10 feet, fl. purplish-pink, 5,800 feet, also *Indigofera scabrida* Dunn. (6617), fl. reddish-purple. A white daisy-like composite *Inula nervosa* Wall. (6660) grows along the trail and the whole aspect is somewhat subtropical, large banana groves nestle in the ravines, Zingiberaceae like *Hedychium*, etc., *Keteleeria* trees are common, also *Diospyros lotus* L. (6670) of which I collected seeds. Water is rushing everywhere. Ferns grow on the banks, some Polypodia with creeping rhizomes

cover mossy boulders. Oak trees become very common also here and there *Castanopsis concolor* Rehd. & Wils. (6647). *Rhododendron delavayi* being here the most common species. Li Ssu-ch'en climbed a tall wild chestnut tree and the seed collecting began, we filled several bags and proceeded to the temple above. The whole mountain side is one mass of enormous boulders; all the rocks are mica and glitter like silver. The fog which had filled the valley had now lifted and the sun shone brightly. We finally, after a very steep and slippery climb, reached the temple called Yu-hua-ko, where a wonderful view can be had over the whole of the Yang-pi valley, with the town of that name to the west, across a small ridge, on the banks of the muddy river. We climbed higher to the left and entered oak and rhododendron forest, all trees here 20 feet or so or more in height; one tree still bore a few large pale pink flowers which we collected — *Rhododendron decorum* Fr. (6681). The trail is very steep and from the edge, under large Rhododendron trees, we could gaze down the precipitous rock wall into the deep gorge below, several thousand feet down. Here were many trees of *Rhododendron delavayi*, and other species all with immature fruits, fine oaks and *Castanopsis concolor* Rehd. & Wils. (6647) with straight trunks, dark clean bark and horizontal branches.

The boys went ahead to gather more chestnut seeds, while we waited under large trees on mighty boulders covered with various ferns (6676, 6677, 6678). A heavy shower surprised us and so we hurried down to the temple where we awaited the boys. We had some roasted corn for lunch, which the temple keeper grows up there; being very hungry it tasted mighty good. The sun came forth again the atmosphere was clear and the whole valley below was bathed in sunlight. The descent was quite rapid, but still difficult owing to the slipperiness of the wet trail. The heat was intense especially in some of the corners of the trail, which seemed more of the temperature of a heated furnace. It must have been at least 100 degrees. A heavy thunder storm closed the day which began so brightly, accompanied with a tropical downpour. Tomorrow we shall go as far as Yang-pi, 20 li from here.

September 26, 1922

Left the Fu-kuo ssu temple at 8 a.m. in pouring rain, the trail down hill was a regular brook, the rocks slippery and the deep holes filled with mud and water. There was unfortunately a little quarrel before

starting, two women came and complained that the caravan had eaten about 10 *sheng* of beans from her field so I gave her \$ 1.50 as compensation but she was still unsatisfied. The main road was next to impassable, piles of rocks of all sizes, with holes filled with mud and water; every now and then these rock piles were inundated and made traveling for horses a terrible task and it was small wonder that no legs were broken. We followed the winding muddy Yang-pi Ho and finally reached the first part of Yang-pi, a dirty hovel, the gate of thick masonry was cracked in several places at the top and leaned inward, ready to fall any moment on passing caravans. There was one prop back of it but it certainly did not support the tons of rock leaning in every direction; such a gate would not be allowed to remain in any other country but China. Along the road to Yang-pi, which is rather a narrow one, we met many caravans, of 40-50 mules each, carrying cotton and cotton yarn to Ta-li, out of which the cotton garments are woven. All this comes from Burmah.

It was very difficult to pass and we were delayed considerably in the pouring rain. The valley was filled with mist and clouds, all the mountains being hidden in black vapor. After passing through the first part of Yang-pi we came to a river which joined the Yang-pi Ho on the right bank (coming from Ta-li) the river is crossed by a wooden bridge, and is known as Hsüeh-shan Ho 雪山河, or Snow Mountain River. This small stream separates the two Yang-pi's; the streets of the other half of the town are very narrow and dirty, it is one of the dirtiest places I saw. There were many mule loads of coffin boards lined up, a caravan was ahead of us, and headway was difficult. We passed through the town, crossed the iron suspension bridge which swayed considerably and climbed the hill on the other side to a temple which had just recently been vacated by soldiers who are now chasing robbers near T'ai-p'ing-p'u 太平舖. There was a man and a woman caretaker; the place was filthy beyond description, so we went to another one a little higher up and were met by a lousy beggar in rags who, with four other companions, had taken possession of the place. The walls were tumbled down and all in rot and decay, a fit habitat for the beggars, so we went back across the bridge and were led to a school and temple in the town. It turned out to be a Mohammedan Mosque, although its exterior did not suggest a mosque at all, only on closer inspection could one notice that the decorations were a bit different. The interior however was that of a mosque. An old man with distinct semitic features, although a

Chinese, waved his hand as greeting and made us welcome. This is the first time I ever am to sleep in a mosque. The old man a very congenial soul, a hadji, speaks Arabic with a peculiar Chinese accent, but we could converse quite well together and when a word failed he wrote it down in Arabic, although the Chinese characters would have done as well. My Mohammedan Chinese interpreter Ma Ting-an felt quite ashamed. We would talk about the Koran in Arabic, and he would be absolutely speechless, knew none of the terms as Imam or Mueddin which had to be explained to him. I think most of the Chinese Mohammedans are like him, the only thing by which they differ from other Chinese is in their refraining from eating pork or using pork fat. The old priest looked on while I had lunch, and I offered him a piece of raisin bread made with pork fat, he ate it greedily and said it was very good. I did not give it to him intentionally, but he looked longingly at it so without thinking I handed him the plate; all my men are cooking with pork fat in the mosque compound, and my food cooked with the same fat is served me in the mosque itself; there seems to be no objection and they seem to take their religion not so seriously. My bed is in one corner of the mosque and at the other end is a coffin, the bier etc., is exactly like those I have seen in Tunis and Algeria. We talked much of Mohammedanism and there was much which even the Imam did not know, I told him of Mohammed Sidi Okba, the barber of the prophet who lies buried in the sacred city of Kairouan as the French call it or Qaruan قريوان in Arabic. We talked of the Kaba of Mekka, and many other things until he asked me in earnest if I was a Mohammedan; I answered him saying that I take the good of all religions, until he insisted that I was a Nusrani (Christian).

All the soldiers of this place are chasing robbers but 25 have just returned and so we will have an escort of ten tomorrow for T'ai-p'ing-p'u. We have to cross a range 8,300 feet in height and as there was heavy rain and a thunderstorm lasting all evening, the steep trail will be very slippery.

We found a pear here on the market which they call shui-pien-li 水遍梨; it is not much eaten raw, but as a cooking pear it is delicious and quite the best I have eaten. It has a delicious flavor, and is quite as good as canned bartlet pear. In shape it resembles a large apple is of a rich dark green with dark red cheeks, it appears to be very hard, but is very watery and sweet and slightly acid. We packed the seeds and cooked some of the pears. There were also a few wild pears along

the road with rich yellowish brown fruits and we collected them. Tomorrow we start early for T'ai-p'ing-p'u, the Hsien-ch'ang 縣長 (magistrate) having promised an escort of 10 men.

The old man came and prayed in regular Mohammedan fashion looking towards Mekka, while I had my supper served in the mosque. I told him *leltak saide* (good night) and he smiled and tried to correct me by saying *rer-tak saide*, he talking Mandarin in Yünnan Chinese, found it difficult to say „I“.

September 27, 1922

We left Yang-pi the filthiest hole I know of, at an early hour just to be rid of that rotten place. The dog at the mosque barked every now and then at the slightest noise so sleep was much interrupted. The friendly old man gave me a real handshake and with a salaam we parted.

The trail led up steeply on the other side of the Yang-pi River and town. The heavy rain of the day before had made the road exceedingly slippery. It certainly cannot be called a road, a continuation of mud-ridges with troughs of mud and water about a foot wide, but the depth varied from one to two feet. Riding was absolutely impossible.

The vegetation at first consisted of herbaceous plants, and low shrubby climbing rose-bushes as *Rosa moschata* subsp. *longicuspis* (Bertol.) Herr. (6668), full of fruit of a fiery red, the flowers are said to be large and white; other bushes were *Rubus cotinus*, *Rubus flavus* very common, a few *Pyrus* shrubs with *Pinus sinensis* and quite a distance up the hill, at about 6,500 feet elevation, *Zizyphus yünnanensis* Schneid. (6695), a tree about 20 feet tall with a round spreading crown, and loaded with seeds, of which we collected one large bag full. Further up the hills are clothed with *Pinus sinensis* only. On the left is a big gorge well-wooded and in parts cultivated, the hillsides being terraced and planted to rice. Among the *Pinus sinensis* trees there were small trees of *Pieris*, *Phyllanthus emblica* with small fruits, a species of *Docynia* which formed quite large trees, loaded with apple-like fruits larger than a crab-apple, with the fragrance of a quince, the color of the skin is greenish yellow and red on one side, others uniformly yellowish-green. The ground beneath them was literally covered with the fallen fruits. I took a photo of one tree with Li Ssu-ch'en standing beneath, also one of a branch pinned against the trunk, we collected fruits of that particular tree. *Alnus*

nepalensis D. Don (6657) with very large leaves appeared to be very common in fact further on it formed pure stands, large trees of it, forming dense forests. The male catkins are yellow and drooping, in masses. It is quite different from the species found on the Ta-li plain (3184 – *Alnus ferdinandi-coburgi* Schneid.), also different from the species found south of Szu-mao.

The road became worse and worse and almost impassable. A splendid view could be had over the Yang-pi valley to the Tsang Shan range 14,000 feet, but the peaks were covered with clouds. We had a splendid view of the deep gorge with the temple high up on the cliffs where we collected *Castanopsis concolor* Rehd. & Wils. (6683) two days before. As we climbed higher, pines became scarce and *Alnus* trees formed pure stands with here and there *Malus* (6687, 6688, 6690) trees scattered between them, and loaded with fruits. Here I also met the Shan-li-kuo 山梨果, a species of *Meliosma pungens* Wall. (6836), a tree 30 feet high with the fruits forming clusters at the ends of the branches. The elevation here was about 8,200 feet. The trail climbs to the top of the ridge with magnificent alder trees, some bamboos (not in flower), and finally emerges into an open flat swampy place called Lan-pa. There we stopped for lunch. The swampy part was one mass of fruiting *Primula poissonii* with a species of *Pedicularis* and the labiate *Plectranthus striatus* Benth. with lilac flowers. On the margins grew the pink flowered *Impatiens forrestii* while in the drier places grew *Dipsacus chinensis*, a thistle, a sage, *Anaphalis busua* (Ham.) H.-M. and a species of *Leontopodium*, as well as a *Potentilla* with large leaves, white beneath, also found on the Li-chiang plain. On the hillsides grew, masses of *Rhododendron delavayi*, *Keteleeria davidiana*; a shrub belonging to the Theaceae (*Ternstroemia japonica* Thunb. var. *wightii* Dger) with leathery leaves, cream-colored flowers and red fruits; with it grew a small *Vaccinium* and a *Pieris*, here and there occurred a small *Populus tibeticus*.

The trail led through a narrow pass between two hillsides along the left bank of a brook on the right hand bank of the trail grew *Lobelia erecta* Hook. f. & Thoms. (6839) with blue and purple flowers, a tall branching *Anaphalis busua* (Ham.) H. & M. with quadrangular stems bright green, and white flowers.

To the left there was a fine jungle composed of *Alnus*, roses, theaceous trees with large brown fruits *Thea pitardii* (C. Stuart) Rehd. (6846), and a new species of *Malus* (*Malus rockii* Rehd.) with long

drooping branches bare of leaves at least the lower ones, and loaded with oblong-obovoid, apples about 1/2 inch long yellowish-green and dark red on one side; we collected large quantities of these. It was quite common along this brook. The large fruited apple trees were also common, an araliaceous tree with straight ascending branches, and digitate leaves but without flower or fruit was also observed. The trail descended somewhat, following the brook, in the bed of which we found a species of *Prunus* with yellow globose plums, of which seed was collected. Walnut trees *Juglans regia* L. (6694) became very numerous and covered whole hillsides together with large fruited wild pears all at an elevation of 8,300 feet. We secured about 500 of the wild walnuts; the nuts are very thick-shelled and consequently heavy and of all shapes, some long and pointed others globose, and again others ovoid and small. Small *Quercus* trees occur and with them also a large leaved species forming quite a tree, allied, if not identical with *Quercus delavayi*. *Rhododendron delavayi* and *Rhododendron decorum* are quite common but the former more so. Yellow flowered *Impatiens* cling to a grassy bank in the shade of *Malus* trees. *Pinus armandi* occurs with *Pinus sinensis* and walnuts become more and more common till we emerge into *Pinus sinensis* forest with here and there an *Alnus* tree. the trail now winds along the steep hillside; to the left is a deep gorge, with a small stream the headwaters of which is the aforementioned brook. Two villages come into sight the first is T'ai-p'ing-p'u 太平舖; here we stop for the night in a small school house above the village. While I write this the thunder rolls and lightning flashes on the other side of the valley.

September 28, 1922

Left the old school house after a rather sleepless night owing to continuous lightning and thunder which shook the hillside and the poor mud foundation of the tumbled down building. The storm was of the merry-go-round kind and reminded on a similar experience in Colorado Springs one summer night in 1914. The hillsides of this valley are rather steep and the vegetation is mostly *Pinus sinensis*, *Juglans regia* and *Castanopsis delavayi*; of the latter there seemed to have been a great many trees which had been cut down by the inhabitants of T'ai-p'ing-p'u, they used the logs for fire wood. Fortunately, the trees ratoon and a crop of young strong saplings grow from the old stout trunks. A few had seed and we had them collected. *Pyrus* trees with small yellow fruits are scattered here and there over

the otherwise bare hillsides. Further on we met *Pinus armandi* trees, *Quercus delavayi* and *Rhododendron delavayi*, this latter tree seems to be much desired for firewood as most of the trees had been cut down within a foot or so of the ground, they also ratooned. At a bend of the road we found a hastily-made grave covered with pine branches it is that of a T'eng-yüeh merchant who was shot by robbers a few weeks ago. It certainly is a lonely country, I saw a lot of men in the distance and not knowing who they were I looked around for my escort but found none so I shot off all seven bullets in quick succession from my colt and soon saw them come running; they thought I had met with robbers. I gave them a good lecture and told them that they had no business to stay behind. I scared the people ahead of me as they also thought robbers had descended from the hillside and they waited till I approached. The trail follows close to the top of the ridge and we could overlook the valley of the Shun-pi Ho otherwise also called the Sheng-pei Chiang 勝備江 on the right, filled with clouds only one peak protruding. The trail finally descends rapidly, passing through pine forest with *Rubus flavus* and *Alnus* trees, with an occasional *Malus* of the large fruited type. We continue to descend passing through oak forest to the village of Ta-shan-hou 大山後 – „Behind the large mountain“. There are three species of *Quercus*, the small-leaved shrubby species, and that with large leaves of the *Quercus delavayi* type and the most common of which we collected seeds and specimens. Wild persimmons are to be found with wooly leaves, and large cultivated species with very large fruits but not yet ripe. We now follow on the left hand side slopes of the Shun-pi Ho valley, densely wooded and very narrow. The forest changes and pines give way to pure stands of *Quercus variabilis* Bl. with oblong acorn half enclosed in a spiny-scaly cup, the acorns literally covering the ground. The trail goes down the streambed of the Shun-pi Ho a more or less sluggish red-brown muddy stream flowing along like thick soup. We cross a suspension bridge called Ch'ing-lien-ch'iao 清蓮橋 built in the 18th year of Kuang-hsü (1892) by merchants of T'eng-yüeh, Yung-ch'ang and other places, their names being engraved on the marble tablet. We now climbed up the other side of the narrow valley over a more abominable road as we came down; riding absolutely out of the question, mud holes, rock-piles with water rushing over them, narrow, hardly passable, landslides over the steep hillsides in places real precipices. The heat was intense, no wind, not the slightest breeze, only when we had climbed a

considerable distance did it become cooler. The oaks gave way to pure stands of *Pinus sinensis* with *Phyllanthus emblica*, and an anacardiaceous tree resembling a sumach; the undergrowth being grasses. At about noon we arrived at the hamlet of Huang-lien-p'u 黃連舖 nestled against the steep hillside. Here the soldiers who were sent to chase robbers had their headquarters. We spied a temple and intended to have lunch in it but found it so full of coffins that there was absolutely no room in it to sit down; so we passed through the dirty place on to the banks of an affluent of the Shun-pi Ho and had lunch. Here we met a soldier who was a friend of Boon Mah, and who had lived 3 years in Chieng Rai. Being acquainted with most of the American missionaries of northern Siam. After lunch the trail led us up the steep hillside, through pine forest with which the surrounding hills are covered to the exclusion of everything else. We still can see the Ts'ang-shan 蒼山 range of Ta-li in the distance, the peaks being covered with clouds. We follow a ridge with valleys on both sides, another ridge to the right had a square temple at the very tip top of a hill. I took a photo of the mountain ranges over which we had come, and climbed on through wonderful hilly country at an elevation of 8,000 feet, till we reached the hamlet of Pai-t'ou-p'u 白頭舖. On a small knoll overlooking the few houses forming this village stands a little temple in the innermost sanctuary of which (mud walls) I made my headquarters. There are 8 images all new and hideous, in one corner is Mahākala blue as ever, and in the center Kuan-yin riding a fish with one foot on a frog, next to her a Lung Wang 龍王, and next to him a devilish brown figure with black round eyes he represents Shen-nung 神農, I think an insult to the famous emperor. One god, naked, only covered with a few leaves, hideous beyond description, deformed and evidently modeled after a choice specimen of their own human kind. Next to him a goddess with a baby with its legs spread out showing the genitalia, it is for barren women to be prayed to. Such are my companions for the night.

September 29, 1922

Left the small temple at a very early hour. The mountains surrounding us peeped above the clouds which filled the numerous valleys. The trail ascended to the top of a pine covered hill with *Alnus* and *Keteleeria* trees and *Cornus capitata* Wall. with strawberry-like red edible fruits. The common oak *Quercus variabilis* was plentiful. *Castanopsis delavayi* made its appearance, we found several trees

loaded with burs. I photographed this species (trunk with small branches) and stopped to collect them. I took a photo of one branch pinned against the trunk of the tree of which we collected seeds. *Alnus* trees were common and so was another species *Lithocarpus viridis* Rehd. & Wils. Large *Pieris* trees became abundant with pines, and trees with stout trunks and branches of *Rhododendron delavayi*. The further we went the commoner became the *Castanopsis*, a small fruited species, and *Castanopsis concolor* (negative 30307) the same as collected back of the temple of Fu-kuo Ssu 福國寺.

We had hardly made 25 li when I decided to stop at 11 a.m. at a small village of only 4 houses, called Hsiao-shui-ching 小水井. We found an old tumbled down empty house and made our headquarters there, I pitching my tent outside. In the afternoon we went chestnut collecting and found one large tree about 80 feet tall loaded with fruits. Ma Ting-an, Li Ssu-ch'en and Lao Lee and I gathered, cut, and filled two huge baskets. In the evening we sat and cleaned them until our fingers were sore and black. There are many different plants found here, the beautiful purple *Impatiens delavayi* Fr. (6890), *I. clavicuspis* and *I. arguta*, and of trees *Ilex polyneura* (H.-M.) S. Y. Ha (6888), 25-30 feet high with very attractive bright red fruits. Also the red fruited *Anisadenia pubescens* (6689) very handsome and attractive. A large leaved *Rubus* covers the open spaces of the hillside. Oaks are common and tall *Alnus* trees; *Smilax*, etc. make up the rest of the vegetation with leguminous climbers of the Papilionatae group.

September 30, 1922

Today we went *Castanopsis concolor* collecting; we found one large tree loaded with fruit and filled two large baskets with the large spiny fruits. In the afternoon we went out again but did not meet with great success although we gathered two half baskets full, from several trees. A severe thunder storm broke and we hastened to our camp black and delapidated. Our soldiers are filthy with itch and I gave one medicine for his sores. Tomorrow we shall be off for Ch'ü-tung 曲洞.

October 1, 1922

It rained all morning, in fact a thunderstorm broke early at about 7 a.m. We left camp at 11 a.m., the rain had just stopped. We had packed all our chestnuts both species in charcoal and ready for mailing. The trail led downward through beautiful groves of chestnuts

and I photographed 3 trunks with one of my assistants standing in the middle. It was the small fruited species *Castanopsis delavayi* Fr., although *Castanopsis concolor* Rehd. & Wils. grew near it and its branches intermingled with the other. There was *Alnus nepalensis* D. Don. quite common, araliaceous trees with entire but deeply and acute, sinuate-lobed leaves, (*Lobelia pyramidalis* Wall., 6901) grew on the banks, wild pear and apple trees were also common. We finally entered pine forest and after a ride of another hour over the most miserable trail imaginable full of mudholes, rock piles, many wash outs etc., we entered a valley and followed a creek bed on the banks of which many pear trees, the wild species *Pyrus pashia* Buch.-Ham. here growing in abundance. The fruits were larger than any previously observed. There were also two trees of a very small fruited variety with stiff ascending branches while the large fruited species had long drooping branches. I photographed a tree of which I collected seeds also a branch pinned against the trunk. From there we continued following the stream which is known here as the Ch'a Ho 叉河 climbing and descending over a muddy slippery trail. We soon entered the bare hills mentioned by Davies in his book. Erosion everywhere only grass and landslides, not a tree visible. We soon had a view of the Yung-p'ing 永平 plain with little cone-shaped volcano-like hills on the margins of the larger bare hills, Ch'ü-tung 曲洞 (or 洞) is situated at the foot of one of the conical hills partly wooded. The Ch'a Ho crosses the Yung-p'ing plain diagonally and is then known as the Yung-p'ing Ho 永平河. Yung-p'ing is to the right of the valley and Ch'ü-tung on the left hand coming from Huang-lien-p'u, and at the extreme north (west) end. There seem to be several small townships on this plain. We had to ford the Yung-p'ing River, the bridge having been washed away. Yung-p'ing, like every other Chinese town is very uninviting; many Mohammedans reside here, and as there was no decent inn and no temple, we went two li further to a place called T'ao-yüan-p'u 桃源舖 composed of few houses, but the whole village is Mohammedan. We were guided to the Mosque of the place, a clean looking place and were made welcome by a nice old man, the headman of the village, his name is Ma Chang-hsing 馬長興. To his credit it may be said that he is one of the kindest men I ever met in Yünnan. He presented us with vegetables, firewood etc. and opened the mosque wide. I was astonished by the severe Semitic features of the people, they had nearly all large round eyes not the small slanting pig eyes of the ordinary Chinese. Many of the

boys were of typical Arab appearance and I would never have taken them for Chinese. They all speak Chinese, of course, and it seems so queer to hear people of that type speak Chinese, Persian or Arabic would be less astonishing; there were three boys typical Arabs in features and bearing, bright, keen eyed and full of fire, quite different from the slow and lazy-looking opium smoking Yünnanese one generally meets. The plain of Yung-p'ing had a most sleepy and drowsy looking appearance, as if completely lifeless. The clouds were hanging heavy over the ridges only the peaks of the Mekong range protruding black and uninviting. It was steaming hot, the atmosphere heavy, and certainly quite different from the cool hills we had left where a sweater was quite welcome. There is not much to be recorded of plant life. *Delphinium tatsienense* with Prussian blue flowers grows on the grassy hillsides with *Leontopodium sinense* and *Anaphalis adornata*, rose bushes were common, the purplish-red melastomaceous herb, and a ground orchid *Arundina chinensis* Bl. with lovely flowers, but not common.

October 2, 1922

We left the little village of T'ao-yüan-p'u rather late, the good old man of the village, kindness personified persuading us to remain at the mosque owing to the nasty rain weather. However we decided to go at least as far as Hua-ch'iao 花橋 should the weather not improve. We said farewell to all these kind people and bright children who gathered around us. The trail led between steep low hills perhaps only 400 feet high. At first the road is paved and only here and there bad; the hills are covered with shrub vegetation; they seemed to have been cut over and are just recovering; low shrubs form a dense cover. There were shrub oaks *Quercus griffithii* Hook. f. & Th. (6931), tea bushes *Thea yunnanensis* Pitardi (6936) with large white flowers; *Callicarpa rubella* forma *angustata* P'ei (6932) bushes with purple berries, *Pieris* shrubs, *Rhododendron delavayi* bushes and *Cotoneaster*. Especially common was the lavender-flowered composite shrub *Vernonia clivorum* found so common near Yang-pi and Ho-chiang, also the yellow flowered shrubby one common in pine forest. The trail leads up some few hundred feet, probably 600 or so, through pine trees with many wild *Pyrus* trees, *Cotoneasters*, *Keteleeria davidiana* and through a gap wooded on both sides, put into more or less open country with here and there a pine tree, pear and *Alnus*. The trail now descends to the valley or small plain on which Hua-ch'iao is

situated. To the left a road leads into a valley called Pa-chiao-ching, Banana-bamboo, while we follow the main paved road into the well cultivated plain called T'ieh-chang 鐵廠 or Iron Mine. The hill sides are cultivated to corn (maize) while the plain which gradually rises towards the mountain in the northwest is one mass of rice fields to the foot of the hills, one beautiful sea of green. We pass a stream flowing through the plain, called Hsiao-ch'a Ho 小叉河 or Small Cross River, which flows into the Yung-p'ing Ho. At the Yung-p'ing Ho we descend to the foot of the hills and just before entering the plain we pass a small village called T'ieh-chang from which the plain derives its name. An iron mine existed here formerly but is now closed. There are peculiar *Salix* sp.? trees (6929) lining the streambed, and bushes (*Viburnum*) with long drooping branches loaded with red flat fruits borne in large terminal corymbs. We pass through the center of the plain which on the higher end divides into two branches, one ridge densely covered with pine trees separating it. The second village we pass, a rather dreary affair, is called Hsiao-hua-ch'iao 小花橋. We ascend gradually to the left head branch of the valley at the end of which is situated Hua-ch'iao or Flower Bridge village. We stopped for lunch at a temple converted partly into a school where a lot of boys made awful noises repeating pages of their study books. We were undecided as to going beyond, but the rain did not increase, at least while we were there, so we decided to go on after lunch. The temple was a so-called Buddhist one, but full of female gods in wire cages, dressed in gaudy colored costumes and white painted faces. To the right was the now commonly observed goddess for barren women with a little boy in her hand whose penis had gone, either by accident or done by some willful boy as a joke, for this generation is not very religious. From this place the trail, well paved in spots, leads steeply up the hillside, between pines and oaks *Lithocarpus spicatus* (6939) and *Castanopsis concolor* Rehd. & Wils. trees being the commonest one. Steeper and steeper we ascend the air is cold, rain descends in torrents, clouds hang heavy over the mountain tops, and we march enshrouded in mist and rain. We ascend to over 8,000 feet again; the scenery must be grand on a cloudless day; the vegetation is dense, *Castanopsis*, several species of oaks, several *rhododendron*, stout trees of *Rhododendron delavayi*, *Thea* sp.?, several of them with large leaves some fruiting others with large fruits and shrubby but with large white flowers, *Elsholtzia rugulosa* Hemsl. (6935), leguminous climbers, *Dalbergia mimosoides* Fr. (6913) with spiny rambling

branches, all these and a willow tree with stiff grey foliage hairy beneath, are very common near the top of the range. *Desmodium griffithianum* Benth. (6911), *Indigofera gerardiana* Wall. (6917), *Indigofera scabrida* Dunn. (6918) with other leguminous shrubs formed the main vegetation. *Pinus armandi* trees quite large ones occur with *Malus* (apples) with large fruits, oaks of various kinds some small shrubby ones, other large forming trees were also collected. The large flowered golden *Senecio clivorum* Maxim. (6915), a blue flowered Campanulaceae herb and the small flowered common blue-to purplish *Codonopsis* trailing and twining over *Gnaphalium*, *Leontopodium* and leguminous herbs were to be found among other plants already enumerated. There are many shrubs and trees which it was not feasible to collect owing to the muddy slippery road and heavy rain, but the collection of plants is quite a large one and many are in the press not here enumerated. Near the top of the range it is very cold, a strong wind blows in addition and drip drip goes the rain, and the splashing mud from slipping and sliding horses over an impassable road. On clear days it must be a joy to pass over this forested mountain range. Finally we descend through *Castanopsis concolor* Rehd. & Wils. forest, the trees being here rather small, the above mentioned willow is still common, and pines occur both *Pinus sinensis* and *Pinus armandi*. The rain still continued and as we unexpectedly came on to a rather large temple at about 7,500 feet elevation I decided to investigate it and if suitable to stop for the night, it being still 18 li to Sha-yang and the weather miserable. The temple called Yung-kuo Ssu 永國寺 is situated in a large grove of *Castanopsis* both species, the small fruited one and *Castanopsis concolor* with *Pinus armandi* of unusual size and a beautiful flowering tree near by – *Michelia lanceolata* Wils. (6919).

The temple, a very old one, over 400 years, is quite roomy, built in three terraces, in the last one I decided to make my headquarters. A huge golden Buddha said to be an Indian one sits enthroned, while 2 others one on each side, but hidden from view by screens. A black coffin is in the right hand corner, I hope empty, also a large drum, while outside is an old bronze bell cast during the Ming dynasty. On the left are two large stone tablets inscribed in Chinese. On the walls and wooden doors are maps of Mt. Omei in Ssu-ch'uan and Sanscrit prayers. Below on the second terrace are also images. To the left being Da-mu or Darma or Daruma as he is called in Japanese, the famous Hindu Buddhist who sat for six years in continuous

meditation till his legs rotted off. On the right side a devilish-looking image the identity of which is unknown to me. In the courtyard between the second and third terrace are two large trees 50 feet tall of the genus *Michelia*, they are loaded with large brown fruits the size of a pear, and we collected all the seeds possible. The keeper of the temple says that the flowers are nearly 4 inches in diameter and white. The first terrace is occupied by a large gilded figure in a sitting position with two attending standing figures, one with whiskers which could well be employed as a broom. All my loads are stored there and the boys built a fire to dry the plants and blotters collected since we left Nv-lv-k'ö of blessed memory. Everywhere I look are shrines, tablets, gods small and large, and peace reigns, the golden image with half closed eyes sitting in peaceful meditation, since four centuries.

The mountain on which this temple is situated is called Po-nan Shan 博南山 and is famous in Chinese history. In the Han dynasty, during the rule of Ming-ti 明帝 A.D. 58-75 a road was opened over this mountain which led to a ford across the Lan-ts'ang Chiang 瀾倉江 or Mekong.

October 3, 1922

Rain, rain, rain, and a sleepless night. The tiny oil lamp before the great golden Buddha went out about 2 a.m., but the moon, although hidden from view by mist and rain, made everything quite visible in the temple, even the black coffin opposite me. The noise from the dripping water off the large *Michelia* trees in the small courtyard into the pools of water kept me from sleeping although dead tired. We left this peaceful spot descending the mountain range to Sha-yang 沙陽 but not so quickly as it is written. The road is paved and passable near the temple leading through *Castanopsis* groves and pine forest, but all at once it descends very steeply over a road which beggars description. The continuous rain made the clay-road, here not paved, so slippery that it was impossible to walk, we just slid down the hill, pine trees were scattered here and there. Finally we passed out into open grassy country, still hilly, the tops of the range hidden in clouds. Part of the trail was a ditch 4 feet deep, one foot wide, with water rushing down, on the edge boulders sticking out of the mud. And down such trails people are forced to travel. We soon spied the terraced fields of Sha-yang, passing first a stream and climbing a small hill on the other side and we soon are in Sha-yang. A delapidated gate stands alone in open country and leads into a small

suburb with a few houses, we pass another gate and enter Sha-yang proper, one long narrow street dirty and filthy as usual. Many inns full of mud and standing water, pigs wallowed in the courtyards, thank goodness the flies have nearly all gone owing to the rains and cold weather. The rock of this region is a dark greyish black slate and all the smaller bridges over ditches and brooks are made of long flat slabs of this rock; many water troughs are about and big square tanks made of the same rock. The road through Sha-yang descends slightly, to the left, just before ascending a steep but rather well paved road to the upper gate, a trail leads to the top of a hill with tall trees surrounding a large temple. On arriving at the gate at the top of the hill the trail descends as steeply as it ascends and leads down into a small plain called Hsiao-wan-tzu 小灣子. The trail runs to the right following the narrow plain, and across a rapidly flowing greyish stream called Sha Ho, Sand River, over a bridge well built of stone called Feng-ming-ch'iao, Call of the Phoenix Bridge. We now enter the larger end of the plain called Ta-wan-tzu 大灣子, the river turning to the right through a gorge and flowing into the Mekong. The hills surrounding this well cultivated plain (rice being now the crop) are bare not a tree in sight.

There are two roads, the Ta-lu 大路 or main road, climbing the hill, the sensible or lower or inferior road leading on a level to the end of the plain (left branch) only to ascend over the most bare clay mud slopes at an angle of 75°.

To ride was impossible, not a rock or a pebble, just yellow hard clay as slippery as ice; the rain descending in a drizzle, every little furrow a rushing brook. To ascend such a hill with a well loaded caravan in such weather is really a feat and I thanked my lucky stars that no legs were broken or boxes smashed. Up and up we climb till finally we reach the crest of the ridge on which there is a temple, the road passing right through it. To the left is the real temple, to the right a sort of resting place with a small kitchen of mud bricks and a fire with an old kettle, an old woman selling a few eatables to passing coolies. This temple is called Chiang-yin Ssu 江音寺 or The Sound of the River Temple, it surely was as the road through the center of it was one mad rushing stream of yellow mud. But of course the name had no reference to that but to the Mekong flowing some 2,000 feet below in the gorge beyond. We stopped here for lunch building a fire with wood brought from the temple and sat down on some logs which were lying outside and partook of a meagre repast amidst mud, rain,

beggars etc. Not at all inviting as a place to dine, although in pleasant weather it may be all right and the place for a lunch stop just before descending the steep and rocky road to the Mekong called here Lants'ang Chiang. We waited for our caravan which was behind. On they came drenched to the skin, the mules paddling along in mud like ducks and splashing the trunks, boxes, bedding etc. until they appeared as if painted red. We told them we would go 15 li beyond to a place called P'ing-p'o 平坡 and would there spend the night. They seemed pleased as the prospect of going the regular stage to Shui-chai 水寨 in such weather was not a pleasant one especially after passing over such roads. The road, leading down the steep mountain sides obstructed by many landslides to the Mekong River 2,000 feet below, was one rushing stream. The road is paved but rocks have been washed out everywhere, and none were visible the water rushing over them like a waterfall, the grade being exceedingly steep. Over such slippery road of smooth stones, with rushing water transforming the whole into a veritable streambed, we descended to the Mekong. The tops of the mountain were heavy with mist, and the Mekong could be seen winding its way through this narrow much eroded gorge, like a brown snake. In all my travels this day October 3, 1922 was the worst of all experienced and I was sincerely grateful for arriving whole and sound at the iron bridge spanning the Mekong just as it emerges from a narrow gorge with steep precipices on both sides. I took a picture of this famous bridge with my mules and baggage crossing it. The road first enters through a gate and one arrives in a sort of courtyard, a small rest house for coolies is to the right, and to the left, opposite the entrance to the bridge, is a well built masonry or rather stone building. The bridge is called Hsien-hung-ch'iao 霰虹橋. The river must be exceedingly deep here as it flows between steep mountains forming a narrow gorge, many whirlpools can be seen everywhere and its current is rather swift. The height of the bridge is now about 20 feet above the water, although at the height of the rainy season it is said to come within very few feet (2 feet) of the bridge. On the other side is a very smooth steep rock wall, covered in its lower part with many Chinese characters. We ascend again over a paved road and land in the village half way up the hill on the edge of the gorge; P'ing-p'o, Flat Hill, where we are quartered in a temple with images of Confucius and a lady on his right, on the left 3 ladies, one the famous Sung-tzu-niang-niang 送子娘娘 or the Lucina Giver of Sons, with a baby in her arms this time decently clothed.

October 4th, 1922

Still cloudy but no rain; fleazy clouds drift through the valley of the Mekong, while heavy black ones enshroud the tops of the ridge. We leave our small temple at P'ing-p'o with the intention of reaching Yung-ch'ang tonight. From this small village, the stony road leads up and up the hillside which is only scrub covered. All we saw of interest was a *Wendlandia*, some *Thalictrum*, composites, *Desmodium* etc.; steeper and steeper the mountain side rose, and zigzag went the rocky road. We could hear the thunder of rushing, falling water in the distance. Riding was impossible so we climbed and climbed, meeting many loaded mules coming from T'eng-yüeh carrying cotton thread well packed in the fiber of the common fan palm *Trachycarpus fortunei*. After an hour and a half or nearly two we reached the top, crossing twice a torrent of a small stream tumbling at full speed into the Mekong. The gap is a narrow one and as we looked back into the prison of the Mekong all we could see was a sea of clouds and mist. A little beyond the actual gap there is a gate way and temple as in the gap before descending from the Sha-yang side. The defile is smaller and perhaps a trifle dirtier; at least the left side looked absolutely black and filthy, the abode of beggars. The trail is a sea of mud and covered with landslides from the bare slopes. All this made traveling over it an absolute torture for man and beast. We continued to climbing until we reached the small hamlet of Shui-chai 水寨. To the right somewhat ahead jutting out on a rounded hill is a little larger village called Ma-chia-ts'un 馬家村, a Mohammedan village. Shui-chai is, like every other Chinese village, no more than a filthy piggery; pig stables in America are beautiful parlors in comparison to a Chinese place of abode. Instead of cleaning their roads they throw all the rubbish on it, hold the behinds of babies out by the door over the roadside to relieve themselves and let the attentive dogs lick them clean, this instead of toilet paper. In the middle of the road a pig is cleaned out and all the dirt and hair and filth remains in front of the house or shop, people stepping over it or into it. We still climb from Shui-chai to another small village Cha-wan 茶碗.

A beautiful view could be had looking back; the black clouds had lifted and the black mountain range of the Mekong Valley could be followed till it was lost in a mass of ranges equally high. The hillsides were quite bare, here and there was a leguminous bush, and tea bushes were common. Corn was planted on the hillside while in the small valley below rice fields abounded. Further south the hills were

terraced, the terraces being very narrow owing to the steepness of the hills. We follow along the side of a ridge leaving the valley to our left, climbing it soon afterwards; the trail here was sandy and rocky and with the exception of washouts was quite passable but only for a short distance. Here the hills are covered with the glaucous *Pinus armandi* which formed pure stands, taller trees than I had observed elsewhere with the exception perhaps of those found in the Lama temple near Pai-sha-kai on the Li-chiang plain. *Alnus* trees, the same as observed beyond Yang-pi were common again, *Rubus flavus*, *Hypericum patulum*, *Desmodium*, *Thea* sp.? and a few other shrubs and climbers.

The trail, terrifically muddy, winds along a hill side, the upper and lower part of it, although very steep, had been cleared for cultivation and in consequence landslides covered the trail in many places. Regular streams had cut beds into the soft earth, and made the road a sea of mud and consequently impassable.

We found many wild pears, trees with pears of all sizes and shapes, also a Shan-li-kuo 山梨果 tree with bright red fruits and a shrubby *Crataegus* with corymbs of bright red drupes. Walnuts were common and the small-fruited *Castanopsis delavayi* had again made its appearance, but only cut-over trees could be observed. We collected three varieties of pears and then followed the miserable trail up and up, partly paved; one would ride for 3 minutes and then dismount again owing to the road being left in mid air. A sea of mud 3-4 feet below the end of the pavement which in itself was composed of uneven boulders with mud holes between. One often had to turn back to find a place to descend into the ditch on the side of the pavement in order to pass over that stretch where it had been washed away. When a bit of straight road could be overlooked for some distance, one could see pieces of pavement left high and dry some feet above the mud road. Everybody avoided the paved part of the road and consequently the dirt road became a deep channel. We finally descended over mud, mud, mud to a small hamlet of three houses where we stopped for lunch. On the edge of the road grew a peculiar wild apple tree, with small oblong dark reddish black apples about 1/3 of an inch or less long; the tree was absolutely loaded with fruits. Here it began to rain again; the caravan appeared and put all our loads in the mud; after a miserable repast, my Tibetan cook buying nothing on the way, and giving me only boiled potatoes, we passed on again. The trail led between bare round hills, 400 feet or

less high reminding me very much of the volcanic cones of the Waimea plain of Hawaii when the clouds swept their rounded tops. A strong wind blew and it was really cold. The road again was one vast morass. There I found *Delphinium*, *Aconitum venatorium*, *Anemone japonica* growing quite tall, an araliaceous shrub, *Nothopanax delavayi* with deeply divided leaves and another with Rhicinus-like leaves but sterile. Roses abounded, also *Dioscorea*, and further on *Senecio clivorum* Max. made its appearance with large golden yellow flowers, several Leguminosae, Elscholtzias, thistles, *Anaphalis*, the greenish large-headed *Leontopodium*, pink *Pedicularis* and others. From here on the road became worse and worse till it reached a small village the like I have never seen. From this village on the road was the most awful I have ever traveled over, there is no vocabulary in any known language adequate to describe the condition of that road. One may fancy a hillside perhaps 30 feet wide at one end narrowing down to 5 feet, a grade of 75° with furrows in it 6-10 feet deep leaving narrow ridges between; on the top of these ridges one had to balance oneself. Here and there a slippery boulder of 3-4 cubic feet would stick out the remnant of a pavement. Water rushing down, everywhere; this continued for about 150 yards or so, followed again by a sea of mud, a bit of pavement ending in mid air, then entering a chasm with a road or trail 3/4 of a foot wide, with water 2 feet deep running down from the enclosing banks. Rose branches which were hanging down on both sides from the banks with spiny raspberries did not ameliorate the condition of the road. All this at a grade of 59 to 60°, one long slide; with one word it was the worst road I have ever experienced in all Yünnan. This continued till we finally had our first glimps of the beautiful plain of Yung-ch'ang. As we left the narrow gap, the trail now more or less paved, slippery to a degree, led down a spur to the plain of Yung-ch'ang 永昌 but not without first passing a filthy village called Kuan-p'o 官坡. Graves made their appearance in the usual pine groves; many circular ones were noticed quite different from those so common in Yünnan. In one place, the banks had been washed out and 3 or 4 coffins were completely exposed. We followed the broad spur to a small village on the right, to the left was a huge temple the largest I have ever seen in Yünnan. As it looked so inviting we decided to stop here instead of going to Pan-ch'iao 板橋, 1 li beyond. An old caretaker bade us welcome; there are so many rooms, shrines, courtyards, and buildings that it would take many pages to describe this temple which is several hundred years old. It

was repaired during the reign of Tao-kuang about 1821.

Tomorrow is a festive day for the Chinese it being the 15th of the 8th month; big fruit at Pan-ch'iao.

October 5, 1922

Before leaving the large temple where we spent a very quiet and restful night, we went to Pan-ch'iao to visit the market and to buy some pears. We were disappointed, only few of the Tung-li 東梨 or East Pear were seen. This decided us to go on to Yung-ch'ang. Ere we started we visited a pear garden where three varieties were in cultivation; we secured bud wood of the two of them and the P'ang-li 胖梨 or Fat Pear and then made ready for Yung-ch'ang. The well paved road with large flat slabs of rock in the center lead through rice fields lined with willow trees to the village of Pan-ch'iao, Wooden Plank Bridge, one long narrow village. En route we saw large vats buried or built into the ground. These vats are used for storing or mixing a dye produced from the leaves of the acanthaceous plant *Strobilanthes cusia* (Ham.) O. Ktze; it has whitish flowers; the leaves and twigs are thrown into water and left there, a rich dark blue dye is obtained. The lower part of Pan-ch'iao, 20 li from Yung-ch'ang, that is the center street was lined with cloth hanging down 50-60 feet from poles, to dry, it having been just taken from the dyeing vats where they are left to soak. The odor is a peculiar and nauseating one. After passing Pan-ch'iao, and its little village 1 li behind it, called Pan-ch'iao-ho-kai 板橋河街, we entered the broad plain of Yung-ch'ang with its vast rice fields. The people were just harvesting their crops. They had large wooden troughs carried into the fields where the rice had been cut and stacked up in bunches tied together, these bunches they took and with all their might struck against the walls of the trough, four men performing this threshing operation at one trough. This is the only place where I observed this method, but doubtless it is employed elsewhere in Yünnan. We passed several villages, I think three, ere we reached the north gate of the rather low city wall. The gate is also low and leads into the usual fore-court and to the main gate, which is about 35 feet thick. This part of the town is full of vegetables and fruit gardens and there is one continuation of houses as in other Chinese (Yünnanese) towns. We soon came to the main street with its unappetizing restaurants, stalls of all sorts, and the lively market; the streets were crowded thousands of men (and women) moving to and fro. Passing caravans shoved people into the

vendors and their ware. In search of quarters we went to the west gate of Yung-ch'ang and there found a large temple at the foot of the hill called Pao Shan, on which by the way, there are many temples. We are located in a practically new one, not on the slopes but at the very foot of the hill. The temple were astonished when they saw us come with such huge quantities of pears, and more so when we invited everybody to eat, as we only wanted the seeds. They thought we were crazy, when we began picking out the seeds and giving away the expensive pears, 6 ¢ a piece of the large ones, or 3 ¢ gold, few people can afford to buy more than one or two pears which cost 120 cash a piece or 3 ¢ gold, and here I was giving away over a hundred. Of course we ate what we wanted cooked others and the rest we gave to whoever wanted them. Everybody looked on in wonder and munching pears.

Yung-ch'ang is surrounded by a low wall which encloses the hill at the foot of which it is situated. The walls form a triangle on the top of the hill, part of which is densely wooded with *Pinus sinensis*, it is on this hill called Pao Shan 保山 which is also the present name of the town, that all the numerous temples are situated. It is a quiet place, away from the noise and filth of the town. The whole place appears very prosperous, and certainly the Yung-ch'ang plain, about 18 miles long is one of the largest and richest of Yünnan. The hills surrounding it are bare not a tree anywhere, grassy slopes, and eroded hillsides. Fire wood is very expensive and scarce, it has to be brought from quite a distance. Vegetables of all kinds are sold, among the many, one new to me, apparently the basal part of a liliaceous plant which is white, and of the consistency of bamboo shoots, it is sliced thin and cut lengthwise and fried in butter. Spinach, enormous squashes, turnips and the tubers of a leguminous vine *Pueraria* are sold, it is especially plentiful.

October 7, 1922

We left our comfortable temple called Pai-ho-kuan 白鶴觀, View of the White Crane, at the foot of the hills very early. Passing through the dirty, filthy streets to the main street on the corner of which is a nauseating open public latrine, everything accumulating under the rocks of the street, this for decades if not centuries. Filthy mangy dogs were roaming the rather empty street picking up odds and ends from the market sweepings of the day before. My horse is lame so I have to walk or ride a baby horse bought by Ma Ting-an at Li-chiang.

As we passed near the south gate the odor became absolutely nauseating and this continued for some time. I nearly lost my breakfast and had to run. In such places people sat and talked as if it were the purest air imaginable, some lousing each other; the stench was abominable, open latrines neither limed nor cleaned and swarming with myriads of maggots. How people can live under such conditions is a riddle to me. We followed the filthy road for some distance and I gave a sigh of relief when we struck the rice fields. The road, partly paved, partly muddy, follows the plain southwest skirting the hillsides till we strike the village of A-shih-wo 阿石窩. Everybody gazes with mouth wide open. Soon the place is left behind as we turn to the right, through pear groves and wild persimmons and ascend the limestone mountain range bare to a degree. One third up on the right side there is a cave called Shih-hua-tung 石花洞 or Stone Flower Cave. The cave is pure limestone, and full of huge stalagmites, the walls forming broad sheets of stalagmites. At the entrance sit three gods the one in the center being Lung-wang or Dragon king. There are inscriptions cut into the limestone above the altar; every Chinese First moon thousands of people come to this place to worship. It is said that the exit of this cave, which is about 20 feet high and inhabited by hundreds of bats, giving a monotonous concert of *chi, chi, chi*, is near Pan-ch'iao about 30 li away. This of course may be a story. We ascend higher over a very rocky and muddy road till we reach the top of this lower range. The trail leads to the left, leaving a valley and the right hillside is covered with pines. We also enter pine scrub, many cut-over *Alnus* trees, *Hypericum patulum*, *Prunus* trees without flower or fruit, many wild pears, *Desmodium* with rich purple flowers, *Malus* trees with large apples and a handsome *Osbeckia crinita*, a melastomaceous shrub. Wild *Diospyros*, the shrubby *Crataegus*, here about 10 feet tall, loaded with the transparent crimson fruits, a shrubby *Corylus*, yellow composites and others. We climb the slopes diagonally of the limestone hills, yellowish walls being exposed, many blocks of limestone jutting out and many covering the ground below having tumbled from the heights above. To the left there is a pretty valley or rather deep undulated hilly depression. In the distance blue mountain ranges, quite low, and looking back one can still see the Yung-ch'ang plain but only a small part of it. The mountains become partly bare again till we reach the village of Leng-shui-ts'un 冷水村 or Cold Water Village, where the hillsides are covered with scrub, bamboo and small

trees as the Shan-li-kuo 山梨果 a species of wild pear. We stopped for lunch in a miserable shed in which an old woman sold tea to passing coolies and the cook. After a quick repast and paying the woman 20 ¢ for letting us use her fire and place, we moved on.

The trail ascends steeply for awhile till we reach a gap, and lo and behold, there is a descent before us of about 4,000 feet. The paved road is in parts broken off as if cut with a knife leaving the traveler stranded in mid air. It leads down the steep grade in a tortuosity of a huge corkscrew, resembling a spiral circus chute. In addition to the miserableness of the road it began to pour, making the smooth worn stones so slippery that it was next to impossible to descend. Ma Ting-an fell several times; how the caravan managed to negotiate that trail I don't know, for they were behind. The hills here are absolutely bare, only grass, huge eroded areas, the roads washed out, and mud everywhere; the soil is a stiff yellowish-red clay. Here and there were outcroppings of slate and then traveling became a bit better. There is nothing whatsoever of botanical interest on today's journey. It began to rain so hard that we took shelter in a grass-covered shed where a man sold hot tea to travelers. We sat down and waited. The whole narrow valley of P'u-p'iao 蒲缥 was filled with black mist and rain. When we reached the gap above we had a magnificent view of the valley which is dotted with many villages. Rice and corn being the crops.

We finally descended over the most miserable road possible – washouts everywhere – to the plain and the first village reached is P'u-p'iao. The sun shone again but the road was still a quagmire. To the right, in the distance, seems to be a deep valley and a high mountain range, I suspect it to be the Salwin valley and river which we shall cross tomorrow. We followed the main road through the village, passed a large inn to the right with a new loft but were told that it was full of grass or hay, so we moved on to an old temple on the banks of the Hua-ch'iao Ho 花橋河 close to the bridge where we found shelter. There are two courtyards and in the last building, in the second yard, a small square where we made our beds. In the room I am occupying there are three shrines one large, center one, and two lesser ones, filled with a peculiar mud-clay or limestone mass which the keeper says has grown up around the image of which only the head protrudes, it is a curious mass passing from the base over the frame of the shrine and completely covering the image save the head. The people removed it once but it grew again and so they left it

thinking the god wanted to be hidden from view. I examined the formidable mass some 6 feet high and four feet broad and found it full of chambers and channels, which makes me think that it is the work of some insect or termite. But I could detect no life whatever. Having a bad cold and tomorrow being a long stage I shall stop for tonight.

October 9, 1922

We left the dirty village of Hung-mu-shu 紅木樹 shortly after the sun had risen over the hills of the Salwin valley; yet the valley itself was still dark and misty. The trail leads steeply through the filthy village out into cut-over forest and hillsides covered with young growth of *Castanopsis delavayi*? and *Erythrina arborescens*. The vegetation up here is quite different from that of the Salwin valley below, which is purely tropical. Up here the temperature is much cooler, although it was quite warm climbing the steep hillsides. Zig zag leads the trail up a steep spur covered with *Castanopsis*, *Quercus*, several species, one with dense foliage and a beautiful round crown (*Lithocarpus spicata* var. *chittagonga*, 6998) the acorns being born in spikes densely packed. The soil is a loamy clay and the road was one big morass. Near the top of the spur we found the beautiful pink-flowered shrub *Luculia intermedia* Hutch. (neg. 30313) with delicious jasmin-like color. It was not common and we only saw it near the top of the spur. There are many *Quercus*, but only the small fruited *Castanopsis delavayi* and pine trees. Here the forest had been cut down and grasses have come in. We had a wonderful view of the valley to our left with a higher mountain spur on the other side, densely covered with virgin forest. Straight below us lay the Salwin Valley with the winding river, while to our right was a deep narrow valley partly filled with clouds. We climbed to the very top of this spur only to descend into a sort of depression in which there was situated a small village called *Elephant's neck* – Hsiang-po-tzu 象脖子; just before reaching that village we found again the large shrub with beautiful corymbs of large pink fragrant flowers *Luculia intermedia* Hutch. (7032) which I photographed with Lau-loo standing beneath. The trail rises again and climbs the adjoining spur, densely covered with virgin forest. *Castanopsis concolor* becomes very common, large pines, trees 70-80 feet tall cover the very steep slopes; large *Andromeda* trees are common. Rhododendrons make their appearance, several species of *Lithocarpus*, *L. dealbata* (7038), *L. fenestrata* (7039), *L. cleistocarpa* (7040), and large theaceous trees

(*Schima argentea*, 7041), the trunks moss-covered. After a climb of over two hours we reached the summit of that range along the top of which the trail continues. There is no more mud, for the whole summit of this magnificently forested range is mica rock and pure mica sand. The whole vegetation had the aspect of a rain forest, ferns abound in great numbers, especially epiphytic species covering the mossy trunks. There are almost pure stands of *Castanopsis* thickly covered with moss, ferns and orchids. Large trees of *Rhododendron delavayi* and *Rh. bullatum* occur and also what appears to be *Rhododendron decorum* but large specimens. Theaceous trees (*Schima*) are also common and a great many others without flower or fruit. *Lithocarpus* was most numerous. *Polypodium* ferns were especially abundant climbing the trees; a large shrubby spineless *Rubus* with digitate leaves, silvery beneath, was also common with melastomaceous shrubs, Spiraeas, and many others. We reached what is known as the *Wind Pass*, Feng-k'ou 風口, also written Feng-k'ou 峰 or Peak Pass. On both sides of the pass there still stand the remains of a wall which once was arched over, forming the boundary between the Yung-ch'ang and T'eng-yüeh districts. A stone tablet lies about inscribed on both sides in Chinese. To the left, a little beyond, is a small meadow, a camping place and to the left of it a small knoll on the top of which there is a telegraph pole, this is evidently the knoll mentioned by Davies, which he climbed to take sights.

The trail now descends through dense jungle, araliaceous trees occur, a semi-climbing *Eodia*-like spiny shrub with red fruits, a shrubby *Rhododendron* with very wooly leaves and many other plants. We continue to descend somewhat to the village of Hsiao-p'ing-ho 小平河 where we had lunch. From here on the trail climbs up a hillside only to descend again into dense forest with tall trees festooned with vines; *Gleichenia* ferns with huge fronds are common, three species of *Hedychium*, ferns and many other plants. The road from here on is exceptionally good, it was laid out by an English engineer; we descend to a dirty village with a clearing only to climb again to a densely forested knoll, and finally descend over cut-over hillsides into the Shweli valley to the Lu-chiang or Shweli River. The hills are now bare again with here and there a pine, *Alnus* tree, *Rhycinus* bushes with smooth capsules instead of the ordinary spiny ones. A melastomaceous shrub occurs and lower down a tree with dark red, small, ovoid drupes called Hsiang-kuo-shu 香果樹 by the Chinese. Of the fruit pulp or rather thick skin an oil is expressed used

for burning in lamps, and for keeping leather soft, as well as for many other purposes. We now descend rapidly through terraced rice fields to the Shweli River which we cross by an iron chain suspension bridge. We now climb again slightly over a badly paved stoney road, through paddy fields to the miserable village of Kan-lan-chai 橄欖寨 or Olive Village with a long street absolutely filthy. I decided to spend the last night of this journey elsewhere than in this miserable hole so I climbed 2 li beyond to the top of a hill where there is a not altogether clean temple and here we decided to stop. It was long after sunset ere our coolies and caravan arrived. The next day we entered T'eng-yüeh 騰越 now called T'eng-ch'ung 騰衝. For information about T'eng-yüeh see the small diary.

Journey from T'eng-yüeh to Lung-ling, October 19, 1922 to October 25, 1922

October 19, 1922

It was a cloudy day when I awakened ready to start on the trip towards Lung-ling. En route I hope to find the desired chestnuts. We left rather late the mulemen who had promised that they would come early to tie on the loads were as usually late, their early means about half past eight. Of the seven mules hired I hoped at least to have three without loads reserving them for the chestnuts, but as usual there is so much to take along that there was even luggage left over.

The road led us through the same gate by which we entered T'eng-yüeh, through the same villages outside, but instead of crossing the plain diagonally to the hills, we turn to the right following a narrow stone path through paddy fields to the south western end of the plain up its narrowest part, to the village of Ta-tung 大董 crossed the Ta-tung Ho, and gradually ascended the low range encircling the plain at this end. The ridges here are pure sand, the trail being white and visible for long distances ahead. The hills are bare only here and there covered with scrub vegetation. We collected a few ferns growing along the roadside. The trail at this time of the year one would expect to be extremely muddy but for the fact that it follows the crest of the sandy ridge. Water was standing in places and some parts of the road were a rushing streambed. The road at the top of the ridge is about 1,000 feet higher than the T'eng-yüeh plain; in places the gradient is considerable. As we ascend higher there is more vegetation than near

the T'eng-yüeh plain where every tree has been cut for firewood. We encountered the pink flowered shrub *Luculia intermedia*, the same species I photographed on the Salwin-Shweli divide, several oaks, I saw three or four species, a few leguminous shrubs, such as *Desmodium*, a lovely *Rhododendron* still in flower, bearing small pink flowers, the lower petal spotted purplish red. Here and there we saw a pine tree. The descent is rather gradual and less pleasant as an intervening small ridge which leads down to the Meng-lien 猛連 plain is not sand but yellowish red clay. In consequence the trail was extremely muddy, in places almost impassable. The roads in this part of Yünnan are much frequented by bullock caravans; the short steps that bullocks make and all stepping in the same place has made deep furrows across the road at intervals of a foot with a ridge between; these furrows are filled with water and mud in the rainy season. If one has to travel over a long stretch of these corrugated muddy and slippery roads it becomes exceedingly trying, walking for a horse is as difficult as for a man walking on railroad ties, with the additional discomfort for the horse of having to step into pools of mud, and for pedestrians on the muddy slippery ridges which often cause one to slide down into the deep muddy trench between them. We halted for lunch, it is really a joke to call it such, as my so-called cook a half Tibetan, had again prepared nothing and said all he had was some pears and greasy cake. So our stop was a very short one. In fact had I known that Meng-lien was so close, only 8 li distant, I would have continued the journey. We reached Meng-lien in about half an hour after leaving the river or rather small stream which is crossed at the foot of the ridge. Our eyes met bright colored paraphernalia on the one street in the village near the school house-temple. White-clad children and grown ups indicated a funeral. There were almost life-sized paper horses, the frame of bamboo, covered with paper and painted, paper ho-gans or mountain chairs with pictures of females, a paper tomb stone, carefully made with long inscriptions, towers of paper, paper banners and leaned against the wall of the house there was an army of paper men and women 3 1/2 feet tall, representing servants. All these things were made for the comfort of the departed in the spirit world. His relatives saw that he had horses to ride, chairs to be carried in with chair coolies and servants, all of paper. In addition they burn imitation money to bribe the devils and make life comfortable in the world beyond. The Chinese are extremely materialistic and their religion does not go beyond material comfort in

the next world. They would be extremely stingy while their relatives are alive, and weigh every cash before expending it for his benefit while ill, although when dead, a coffin is purchased costing about 200 dollars, plus all the above described paraphernalia for his comforts in the spirit world. Feasting of relatives etc., goes on for weeks afterwards; much noise is made in the evening to drive the spirits away, while probably a little attention as to food and cleanliness and some treatment at a hundredth part of the cost of the funeral, would in all probability saved his or her life.

We left them with all their foolishness and passed on to the Kai-tzu or Market of Meng-lien 3 li beyond, and took up quarters in a temple to the right on a small hill; the temple was in the process of repair. There are several chestnut trees around the temple, all diseased, in all probability with the chestnut fungus. I took specimens which I hope to send home for identification.

October 20, 1922

We left our temple at Meng-lien Market, about 7 a.m. expecting to reach Man-ch'i the same day. The road was abominable although the white sandy ridges are everywhere in evidence. We followed the plain for some distance and near two small villages on the narrow plain below, turned to the right in an easterly direction, crossing the hills. We found many tall straight pine trees, which looked more like *Pinus insularis* than *Pinus sinensis*. The needles are much longer, the trunks straight and tall, the branching habit is exactly that of *Pinus insularis* which I really think it is. Associated with it is what looks like *Pyrus pashia*, the leaves being broad and cordate. The trail ascends a ridge, winding about, with a deep valley to the left and right. Here we found *Castanopsis concolor* or a variety of it, the leaves differing considerably from it, while the fruits are identical. There were large *Schima Wallichii* trees, many flowering *Quercus* or *Lithocarpus*, the large shrubby *Hydrangea strigosa* Rehd. var. *macrophylla* (Hemsl.) Rehd. with cream colored bracts, the pink flowered shrub with smaller flowers is much in evidence, also huge *Betula luminifera* H. Winkl. trees, 80-90 feet tall, with a brown flaky bark, many *Prunus* but neither in flower or fruit. The trail descends rather steeply; on the slopes of this ridge which is well wooded in its upper part, nearly every tree was festooned with orchids as *Dendrobium heterocarpum* (7115), *Dendrob. strongilanthum* (7116), *Oberonia latipetala* which proved to be new, a *Bulbophyllum* etc.

There are many lovely spots for a camp but the slopes of the ridges are extremely steep and it would be a considerable job to bring water from the deep narrow valleys below. Oaks as *Quercus griffithii* (7123), with *Castanopsis tribuloides* A.DC. (7108) abound in great numbers, but strange to say are here all flowering; in that respect the whole flora resembles that of Keng-tung State and northern Laos. There are many tall bamboos here and there a *Schefflera delavayi* tree with digitate leaves. Ferns abound especially epiphytic *Polypodium*, together with orchids on the moss covered trees. We crossed the paddy plain and ascended another sandy ridge, the banks of the trail are lined with tall white-plumed grasses and a tall blue-flowered *Lobelia* and a smaller purple flowered one; *Hedychium* is common as are *Musa* and *Ficus congesta* (7049) but of the latter smaller trees only; the one occurring in Keng-tung with asymmetrical leaves is found together with oaks and pines. In fact the whole vegetation is that of the Meh Len valley of Keng-tung. The large-leaved tree-like *Vaccinium sprengelii* with the commonly found tree in Keng-tung with globose fruits on pendant spikes occurs here also.

We passed a village called Huang-ni-kou 黃泥垢, Yellow Dirt, filthy beyond description and so we went on, the caravan stopping a little beyond in an open grassy spot. We collected some of the large yellow-flowered orchids *Bulbophyllum* with large angular pendant fruits, a pink fragrant *Pedicularis* (7126) which turned out to be new and was called *Pedicularis lunglingensis* by Bonati. We then climbed higher over a gentle sloping ridge and there found large chestnut trees loaded with fruits. I looked about for water and a camping place and finding both, decided to stop. We pitched both tents near some graves on a lovely grassy spot surrounded by large trees.

October 21, 1922

Rain all night and this morning. The place was soaked, breakfast was cooked under an umbrella to keep the fires going. After the rain stopped, unfortunately only for a short time, we went about looking for and examining the large chestnut trees we spotted yesterday. There is one species here with small fruits. The trees are huge some 80-90 feet in height, with a mighty crown and huge straight trunks, 50-60 feet boles 2-3 feet in diameter. The trees were loaded with fruit but after climbing them and examining the fruits we found them all empty, there were a few ripe brown ones but they were all worm eaten. We examined tree after tree which proved to be *Castanopsis*

hystrix A.DC. (6716) but all had empty fruits. It was exceedingly disappointing. Some villagers came with antiquated fire arms out for deer shooting. I employed two picking the chestnuts gathered from a tree near the camp which resembled much *Castanopsis concolor* but the fruits were much smaller, the seeds black and shining (6714) –it turned out to be *Castanopsis Wattii* (King) A. Camus. The leaves were lanceolate and fawn-colored beneath; this tree was not so large as the one with the empty fruits. We went out on the opposite ridge in torrential rain, but found no more chestnuts. One of the boys told us there was a large fruited species at the foot of the mountain. This decided us to climb down part ways; the slopes are nearly vertical and at least 1,000 feet deep, and there we found tall huge trees with spreading crowns filling the narrow valley to the right. Here were two *Castanopsis* – one *Castanopsis tribuloides* A.DC. (2360), the other *Castanopsis diversifolia* King (2405; neg. 30064), huge trees 90 feet tall, 3 feet in diameter, with burs 2 inches in diameter, such as we found in the extreme south of Yünnan near the British border. The boys said that last year there was a great abundance of fruit but now we could find none, save old ones on the ground from last year. As there are no more to be collected in this neighborhood we are going on tomorrow to Man-ch'i 蠻岐, hoping to find others on the way. It is a cold night the stars are out and we hope no rain will come.

The scenery from this camp is lovely, large trees everywhere. From north to south stretches for quite a distance a long regularly formed mountain chain, while numerous spurs like the one we are on drop abruptly and steeply into the narrow valleys below. A deep valley is to the back of us extending in a westerly direction.

October 22, 1922

We left our camp at about 8 a.m., with less chestnuts than I hoped to get. There were many tall trees but all had empty burs, and many were worm eaten. The trees were magnificent with straight boles and a huge wonderful crown. There are so many mountain trails and as the main road is not any broader than the trails it is very difficult to find one's way. This caused us to get off the right track; we had gone for a considerable distance ere we found out that the trail to Man-ch'i led due south. We had to retrace our steps and go on to another ridge following the deep valley to our right. We climbed another mountain spur, densely wooded with *Schima wallichiana* and *Betula luminifera* majestic tall trees, but deciduous at this time of the year. Wild

persimmons (*Diospyros kaki* L. var. *silvestris* Mak. (6717)) with pubescent fruits velvety outside, 2 inches in diameter, gradation 7,000 feet. Of this we collected seed. The trail descended rather steeply into the valley and here we found *Castanopsis Wattii* (King) A. Camus (6714) such as we collected near our camp, the one with small black shiny fruits. From now on the trail winding about, led through uninteresting country mostly open grassland actually in the valley of the Shweli river which was plainly visible below. This river the Chinese call the Lung-ch'uan 龍川. We descended on to the right hand slope of the Shweli valley till we reached the dirty filthy piggery called Man-ch'i. I stopped for lunch under a huge *Ficus* tree, on a hill overlooking the Shweli valley. We soon were on the road again, the trail leading down on the side of the ridge through rice fields, and grass land with scattered pine groves. Following a narrow valley within the Shweli valley, the grassland gave way to pine forest and *Schima* trees with open spots of lovely meadows. The opposite mountain range forming the Shweli valley is naturally terraced, sloping towards the river. The last terrace is broad and ends abruptly, falling straight into the river bed. Waterfalls descend the steep sides. By the way, Man-ch'i is situated in the Shweli valley on the upper slopes of the western ridge and not on the other side of the ridge, also not in the valley, as is indicated on Davies's map. We followed now through lovely groves of pine trees, with scattered *Schima* trees and shrubs, till we reached cultivated (rice) land on the hillside; and below, on a narrow spur, we saw a conglomeration of huts, this was Man-lo. Market was on; we rode through the narrow main street everybody sitting on the dirty ground. There were pears, corn, and other delicacies only relished by Chinese. We retreated from this nauseating place to a small promontory overlooking the village and near some graves I decided to camp. Graves and temples are always located in the choicest spots.

I sent the interpreter down to the market to inquire about wild chestnuts and he returned with a small boy who said there were several trees 2 li distant and we decided to see them at once. Two were in a deep gulch, huge trees, their enormous trunks disappearing in the shrubs below. We went further on and came to a beautiful flat meadow not large, but sufficiently so to camp. Tall pine trees were plentiful. Here we found three large chestnut trees, the same species I found south of Szemao – *Castanopsis tribuloides* A. DC. (2663), neg. 30094) and which I photographed at that time. I decided to camp right

here and sent men back to fetch the others. Our caravan came just along on the road above us and we hailed them to come down. There was a lovely brook quite near, plenty of firewood and below the hill a small village hidden by bamboo groves and tall trees. The village near our camp, consisting of only a few houses is called Lien-chien 連肩. Hardly had we pitched the tents, when the sky became full of dense thunderclouds, lightning flashed, the thunder rolled and it rained in earnest. Soon however all was over and the stars peeped here and there through quickly vanishing clouds. The night was cold.

October 23, 1922

Today we cleaned up all the three trees near here the result being two big loads of chestnut. The nuts are very small but all good, the trees are 80 feet tall with trunks 3 feet in diameter; perfectly sound and most prolific bearers. One of the boys climbed to the tops of these mighty trees and their huge limbs crashed to the ground. Everybody picked and basket after basket was taken to the camp. This is really a lovely spot. A mountain range stretches from north to south wooded with here and there a terraced rice field sandwiched in between ridges. Due south extends a gently-sloping broad range densely wooded.

The people while all speaking Chinese and not admitting any knowledge of Tai or Shan, all chew betelnut. Undoubtedly they are of Shan origin. An old woman of 80 years, came to see us and watch the collecting of the chestnuts. She was kind and gentle, I gave her a small amount of money with which she was delighted; she soon returned with a present of forty Tofu (bean curd) large fat bugs like locusts called feng in Chinese, 3 eggs, and another delicacy which nearly turned my stomach, we accepted all in good grace. She afterwards came and helped us picking chestnuts through the whole afternoon. I washed her eyes with Boric acid, as they were much inflamed and infected; she was very thankful and left smiling.

It is a glorious evening, all the stars are out and also the new moon which is about to disappear behind the western hills.

October 24, 1922

We stopped all day at our camp cleaning chestnuts. A glorious day of sunshine and cool breezes under the pines.

October 25, 1922

Dense fog settled over our camp and the valley of Shweli. Drip drip came the dew on to my tent from the branches of the large pine tree. We left late about 8 a.m., the fog still enshrouding everything. The trail led through the now deserted place of Man-lo 蠻邏 down to the banks of the Shweli. The trail was abominable ploughed in places by care-for-nothing peasants. The bank on the east side of the Shweli is very steep and wooded, a nice, well constructed suspension bridge called Kuang-chi t'eng-lung t'ieh so-ch'iao 廣濟騰龍鐵索橋, The rising dragon of Kuang-chi iron chain bridge. It was built in the 28th year of Kuang-hsü (1902 A.D.) spans the deep green waters of the Lung-ch'uan Chiang 龍川江 as the river is called in Chinese. The trail ascends steeply through forests of *Schima wallichiana*, a tall tree, *Quercus*, *Castanopsis hystrix* (7136, neg. 22977) which is here quite common. There is also to be found the birch *Betula luminifera* and the tall and stately *Altingia excelsa* Noronha (7174). Ferns abound on the banks in the shade of bushes. Deep ravines are to our right filled with tall trees, mostly *Castanopsis hystrix*, tall *Ficus* trees with epiphytic ferns, and orchids. When we reached the divide the trail lead down hill winding about through the hills, with terraced rice fields, bananas are plentiful, even *Pandanus* occurs and the whole has a very tropical aspect. We met a carpenter on the road, at least we surmised that he followed that profession as he carried all the implements of that trade on his back. We asked him if he considered the wood of this *Castanopsis hystrix* any good, whereupon he replied that it was better than that of any chestnut found in this region. We stopped and cut down a few more branches of two trees gathering the ripe nuts.

We passed a hamlet called Pang-la-chang 邦蜡掌, rather clean with substantially built houses and broad well paved road. From here we climbed again through rather open country then down again a deep ravine, crossed a rushing stream over an arched bridge and followed it for a short distance; a smaller stream joined it here, and it was at that spot where we found numerous ferns, a climbing one, intermixed with *Trichomanes*, *Polypodium* and orchids with large yellowish flowers, the *Liparis bootanensis* Griffith (7157) originally found in Bhutan, which festooned the boulders. There were various shrubs, *Smilax*, the tea shrub *Thea sinensis* L. (7175), perhaps identical with the one found in the south at Muang-hai. From now on the country was more or less grassy and finally we found ourselves among bare hills through which the tortuous trail led up and down,

real Chinese fashion, till we descended to the plain of Lung-ling 龍陵 or Dragon Mound; it is a rather small plain. We followed a narrow path through rice fields and through two gates about 100 yards apart, the latter the real entrance to the town. As usual the front of this old stone gate was pasted over with advertisements of the B.A.T. Tobacco Company, ugly, and absolutely out of place. Lung-ling is as filthy as all the other Chinese towns, but there are some large fine dwellings, at least they appear substantial and decent from the outside, if their owners dwell like pigs and with pigs in the interior recesses of these mansions I am unable to say, but very likely they do.

We went to an old temple on the hill outside the town, not the Kuan-yin temple but further east from it. It is a Buddhist temple of the Tibetan-like Mahâyâna corrupted faith. The priest a jolly good fellow was a native of Li-chiang; there also are two boys here, novices who are also Li-chiang boys one of them still speaking Nakh. The name of this temple is Wen-ch'ang Kung 文昌宮, or The Palace of the God of Learning.

We left with the intention of going to Hsiang-ta determined to find the large fruited *Castanopsis*. The trail leads through the long and narrow village of Lung-ling between bare hills. On the right there are a few low hills in the center of the plain; on the top of one being a temple. The trail turns to the left by a small village, climbing around a ridge with *Alnus* and a few pine trees, and descends steeply into a narrow ravine following a very rocky streambed. The trail itself is very rocky and in places resembles a narrow ditch. Much granite is in evidence. The trees are mostly *Alnus*, the same as occurs beyond Yang-pi. The common asymmetrically-leaved *Ficus* found also in Keng-tung State and another species resembling *Ficus hispida* are much in evidence. The beautiful melastomaceous shrub *Lasianthus henryi* Hutch. (7187) with *Bauhinia variegata* are also common, and so are the small fruited *Ficus*, *Mussaenda frondosa* with large white bracts and yellow flowers, the shrubby species *Polygala congesta* with yellow flowers and reddish brown fruits. Leguminous vines several species belonging to the Papilionatae, *Phyllanthus emblica*, *Callicarpa arborea* Roxb. (7197) tree 25-30 feet are to be found in the rain forest with here and there *Saurauja napaulensis* DC. shrubs with pink flowers. This streambed is enclosed by bare hills, the vegetation being mostly along the actual bed. The stream is known as Pa-chiu Ho; the trail follows it to the bottom of the valley through rice fields, where it enters the Pan Ho 半河, coming from the left hand

valley. The soil is almost pure granite sand, mixed with quartz. We cross the Pan Ho over an arched bridge and soon came to another stream without a bridge. The trail now leads steeply zigzag up a hillside. On this lower central ridge we find the common *Alnus* and *Albizia* with a flat spreading crown and small leaflets, *Schima wallichii*, very large trees become very common, also the *Betula luminifera* trees with fawn colored flaky bark, several species of *Ficus* and tall trees of *Altingia excelsa* collected previously is also found together with a species of *Castanopsis*. From this ridge we descend in to a very sandy ravine of exceedingly tropical aspect, but not rich in species. There are quite a number of ferns, begonias, aroids and urticaceous shrubs, etc. We climb another ridge with large trees very tropical in appearance covered with huge leguminous lianas (Papilionatae). *Alnus* trees are still common as are *Ficus roxburghii*, *Engelhardtia spicata*, araliaceous trees, *Macaranga*, blue-flowered *Hydrangea* shrubs, *Debregeasia* trees with yellow fruits, *Albizzias*, *Glochidion*, *Phyllanthus emblica*, an occasional *Castanopsis hystrix*. The *Lobelia* with bluish purple flowers adorns the banks of the trail, reaching a height of 10 feet.

We now are in the central part of the valley where we cross a stream known as Pa-chiu Ho; there is a small village of the same name, the houses are of Shan type. Not far from this village we found a large tree of the large fruited *Castanopsis concolor* but without fruits, old ones littered the ground beneath, and we collected specimens of fruits and leaves. The trail ascends again higher and higher following the side of a ridge. The valley is very narrow, terraced in places and planted to rice.

Trees are numerous, especially *Alnus* and *Ficus*. There are no pines until we come to the top of the ridge beyond, overlooking the small plain to the left and the semi-bare hills around Hsiang-ta. There is a tiliaceous tree, a similar to one found in Siam, *Erythrina arborescens*, *Quercus*, *Pieris*, 15 feet tall, a sapindaceous tree with huge leaves resembling those of *Melia acedarach* but of the genus *Radermachera* (7230) with long narrow curved pods. *Polygonum* is common on the banks, also *Rubus flavus* and a large coarse-leaved *Rubus*, *Indigofera*, numerous weeds, a pink flowered melastomaceous shrub with narrow leaves, *Dioscorea*, small singly-stemmed aralioids but none in flower, *Hedychium* sp.? and numerous ferns.

We decided to pitch camp on one of the grassy side spurs of the ridge we were following. Unfortunately the cook and coolie carrying

victuals passed by unnoticed and not seeing us went to Hsiang-ta 象達. Boon Mah fetched them, all arriving in camp at midnight after I had gone to bed with a cheerless supper of rice given me by the boys and improvised bamboo spoon as the only utensil.

The night for this region was bitterly cold.

The following day we went exploring the ridge beyond and I decided to climb a ridge way in the distance and south-west from Hsiang-ta, over which the road leads to Mang-shih 忙市 – Busy Market. The vegetation from the camp on, about 6,000 feet elevation, is the same as previously mentioned, with additional trees and shrubs such as the bright red-berried tree found also at Hsiao-shui chi, the blue-fruited *Gaultheria pyroloides* Hook. f. & Th. (7238), the very spiny (but only on trunks) spreading *Dalbergia mimosoides* Fr. (7236), *Pinus sinensis*, and *Alnus* trees which are here extremely common. The trail to Hsiang-ta leads on the left, down hills, but we continued straight ahead to the end of a narrow valley, crossed it and followed the ridge up the big knoll which was densely forested. There we found *Castanopsis hystrix* (7136) very common on the steep slopes. At the foot of the slope there was a small village called Hsiao-shih-fang 小石房. We found the *Castanopsis* tree with fruits resembling *Castanopsis concolor* but with small black shining nuts as previously collected. *Anaphalis* were common as was a species of *Gentiana rigescens* Fr. We found a very large tree with huge spreading crown of the large fruited *Castanopsis* (7229) (later described as a new species as *Castanopsis Rockii* A. Camus), with a trunk 8 feet in diameter, but no fresh fruits, only fallen ones on the ground. There were large fruited, huge *Schima wallichii* trees, *Glochidion*, a few graves, *Phyllanthus* shrubs, Euphorbiaceae like Crotons, a *Diospyros* with large fruits (seeds collected), a large fruited *Elaeocarpus* (7226) (tree 30-40 feet), a *Pyrus* of which we collected seeds, the leaves being oblong and bronze-colored, the bignoniaceous *Thunbergia salweenensis* W. W. Sm. (7217), a vine with white flowers in pinkish sack-like inflated calices. Two species of *Smilax*, both large, *Smilax macrophylla* Roxb. (7231) and small leaved species *Smilax ferox* Wall. (7223). Near the top, on huge limestone boulders we found, creeping *Ficus* and long huge bunches of *Vittaria* fern. Not finding any ripe fruits of *Castanopsis* we retraced our steps to the camp. A splendid view could be had from here. Way in the distance to the right, but almost straight ahead, there was a high mountain in blue haze; the height is given on the map as

10,000 feet beyond which the Salwin winds its way southward. On the top or near it meanders a road which leads to Mang-shih in the plains. There are many trails; we followed up the path leading straight to the knoll but encountered too many spiny bushes of *Berberis sublevis* W. W. Sm. (7244). Returned to camp at 4 p.m.

Journey from T'eng-yüeh to Sadon in Burma
November 7, 1922 to November 22, 1922

November 7, 1922

Left T'eng-yüeh 騰越 about 9 a.m. From my house we follow the road back of the highschool due west towards the pagoda on the hill which like all the hills around T'eng-yüeh are bare. We cross the stone bridge over the Tieh-shui Ho 疊水河, which a hundred yards further on, drops into a deep gorge, forming the T'eng-yüeh waterfall, all this tremendous water power goes to waste. We turn to the left, pass the waterfall the spray of which rises to the top of the gorge and spreads like a veil over the road. In front there is a picturesque little hill with a couple of trees on it, between these trees they are building a temple, the front facing the waterfall. We go through a narrow gap or cut made into the quartz-sandy hillside and descend to a small plain. We follow the stream bed for a short distance in the paddy plain. This stream flows into the Ta-ping Ho near Kan-ai. To the left, at the foot and slopes of the hills is the largest village in the T'eng-yüeh district called Ho-shun-hsiang 河順鄉. We keep to the right till we reach the village of Ta-chuang 大莊, here I saw a fruit sold by a woman, resembling a small persimmon, it is ovoid-oblong in outline, greenish-yellow outside, skin chartaceous, the fruitflesh is white slimy and sour, of the flavor of a pickle. This surrounds a rather large stone. The Chinese call it Nien-tsao 年草, and eat it with salt and chilies; it is said to grow on a large tree.

At the end of this village we leave the paved road and follow across the slopes of a grassy hill otherwise bare; the soil is red clay, but lava rocks crop out everywhere. Here are numerous graves built of lava rock but the roofs of these tombs are covered with weeds and look like the head of the „shock-headed Peter“ of the days of my youth. To the right and left are tall, bare (grass-covered) volcanic cones, with huge lava beds of the black vesicular type (aa) surrounding their bases. The trail leads now due west again between

two ancient flows. These lava beds harbor some vegetation; next to grasses a shrubby *Elsholtzia* is exceedingly common, also a prostrate *Potentilla*. The lava bed to the left is older than that on the right which is covered with red clay. Due west stretches a mountain range from north to south at the foot of this range, semi-bare, is the valley of Mien-ching, in the center of which lies the village of Mien-ching proper. All told there are about 1,000 houses on this plain forming Mien-ching. The trail descends now into the valley and we cross the paddy fields where they are threshing rice with a wooden flail the size and exact shape of a clothes-hanger, only the handle is longer. To the left is a quarry near the top of a hill. Rock is taken out of the interior of the mountain as a sort of tunnel leads into the hill. We passed through the village where they had market; they were selling small cultivated chestnuts which they said came from along the Bhamo road. For lunch we stopped at a school-temple which was unoccupied. From here we cross the paddy fields again due north, follow a stream which makes a bend where another stream joins it and flows south; this latter stream we follow up into the hills. We now enter a narrow gorge filled with vegetation. At first only weeds, *Leontopodium Andersonii* C. B. Clarke (7273), *Anaphalis*, *Melastoma* and *Artemisia*; as we enter further a large grove of *Alnus* trees, *Schima wallichii*, *Quercus augustinii* var. *rockiana* A. Camus, *Castanopsis delavayi* the common species with brownish silver leaves, and small fruits, many tall araliaceous trees, *Schefflera minutistellata* Merr., a branching tree and others with single stems and a crown of leaves on the top, *Ternstroemia japonica* Thunb. (7289), *Lithocarpus spicata* (Sm.) var. *chittagonga* (King) Rehd. (7302), etc. The trail first leads down to the streambed, crosses it, and then climbs and climbs through jungle. There are many ferns, begonias, several orchids, a small terrestrial one with large white flowers, *Pleione grandiflora* (7281) also an epiphytic one *Coelogyne gardneriae* (7280) with drooping racemes of white flowers; *Smilax* and leguminous vines being common. Many trees of *Castanopsis* are to be found; there was one large tree of the large fruited species but without fruits and many of the species of which I collected seed near Man-lo, *Castanopsis hystrix* (6716). Another one was observed resembling *Castanopsis concolor* as found back of Fu-kuo Ssu near Yang-pi. There were many other trees especially common being *Alnus* the same as found beyond Yang-pi, and the *Betula luminifera* tree with cherry like bark, it is just now coming into flower and the young leaves are also just appearing.

Compositae are common but were not collected. *Engelhardtia spicata* is also met with but is not common. There are a species of *Litsea*, *Litsea cubeba* (Laur.) Pers. (7262), and a *Lindera* with very fragrant leaves, also the small-leaved, pink-flowered *Rhododendron* (7272). As we ascend higher we find *Rhododendron delavayi*, *Rhododendron decorum* Fr., an *Acer*, quite a large tree but without fruit, also the lovely *Prunus majestica* Koehne (7265) with rich pink flowers. *Polypodium* adorn the trunks of trees, canebrake grows near the streambed. The other side of the streambed is very steep and densely covered with forest while the one on which the trail is, is mostly cut over in places, but not a level spot can be found. If such there is, it is cultivated by some one. We are camping along the streambed in a mass of bracken fern and *Artemisia* weeds evidently an abandoned field. The banks of the stream are full of *Rubus*, both *Rubus flavus* and a broad-leaved sinuately lobed species. *Mahonia lomariifolia* (7260) is here very common and an araliaceous tree with very spiny trunk and huge much divided leaves resembling those of *Leea*; this species, if I do not err, I found also in the south, south of Chieng-rung. It is however not in flower and so I cannot say definitely if it is the same species. It is quite cold and I am forced to go to bed to keep warm.

November 8, 1922

Left our camp along the Shih-t'ou Ho 石頭河 at 7 a.m. The trail still ascends following the slopes of the bare hills; the other side is wooded, but seems to be secondary growth; two or three li more and we shall be in Hsin-ch'i. We descend slightly and at a turn of the trail we come to a circular temple on the top of a small hill. To the right there is a small paddy plain and on it, and on the western slopes of the hills, is situated the funniest conglomeration of a village called Hsin-ch'i 新齊. Palms, *Trachycarpus fortunei*, bamboo, and *Pinus armandi* are on the hillsides. Most of the trees in the neighborhood are in their autumn foliage, yellow, red, carmin, brown, etc. There are *Castanopsis*, *Quercus augustini* Skan. var. *Rockiana* A. Cam. (7296), *Lithocarpus spicata* (Sm.) var. *chittagonga* (King) Rehd. (7302), *Rhus*, a rose climbing over shrubs, *Hypericum* bushes, a monkshood, *Aconitum venatorium* var. *ecalcaratum* Airy-Shaw (7288), tall erect plants, etc. The village itself is awful, there are houses of wood or mud, covered with grass, walls made of bamboo, built on posts like Shan houses; they are leaning in all directions and it is really

dangerous to pass through there as some of these walls may collapse any time for they lean half across the stony trail. Pools of water are everywhere; water standing, water running and along the brooks there is one rice pounder after another worked by water which fills a trough and empties it, and the wooden pounder falls into the rice in a hole in the ground. This performance repeats itself every two minutes or so. We climb up through this funny village, situated at the foot of the hills which are wooded with *Pinus armandi*, trees 80 feet or more in height. In the pools of standing water logs are soaking, this is to make them white ant proof. The hills beyond the pine-covered knolls are bare, save in the ravines and on their margins which are wooded, we find a theaceous tree *Gordonia axillaris* (7299) with large white flowers about 4 inches across, and having woody capsules with winged seeds, also a *Dalbergia* with scandent branches; lilies abound (*Lilium giganteum*) some, 12-15 feet tall, with long white tubular flowers, we collected the bulbs. There are several epiphytic orchids and ferns on the trees, also bignoniaceous vines. We climb higher over the otherwise bare hills to the summit of the ridge. Along the trail we find two species of *Diplycosia*, *Diplycosia muscicola* (W. W. Sm.) Merr. (7293), with large glaucous capsules, the other unidentified, also *Gaultheria pyroloides* Hook. f. & Th. (7238) with blue berries as we found on the Lung-ling Hsiang-ta trail. *Cornus* trees were common, also *Rhododendron delavayi*, *Rubus pentagona*, *Rosa*, *Buddleia* sp.? with long racemes of orange-pinkish flowers; otherwise the hills are bare. We descend now rapidly following a water course, lined with *Alnus* here called Ch'i-mu-shu 期木樹, *Quercus*, willows, bamboo, *Polygonum*, *Elsholtzia* shrubs, *Anaphalis* and composite weeds. The trail winds among hills still following the streamlet on the banks of which we now find a species of *Malus* with carmin fruits, very small, the tree being deciduous. We now cross a few paddy fields and find ourselves on the edge of the village of Hsiao-ti-fang 小地方, consisting of a few houses built in Shan style. Many tall fan palms protrude beyond the houses. From here the trail ascends again through narrow gaps, in part it is a brook, lined with oak trees with very large acorns. Ferns abound. We climb higher till we reach a narrow gap and lo and behold a wonderful view, a panorama of mountains is opened out before our eyes. Deep to our left is a wooded gorge, also to our right but not wooded; ahead in the distance we see a broad band of water winding through the brown paddy fields, it is the Ta-p'ing Ho 大平河. We descend zigzag a spur

which leads to the bottom of the valley. This spur is grass-covered with the exception of a few trees which clothe the precipitous parts of it. There are many *Anneslea fragrans* Wall. (7314) trees in flower, *Alnus* trees, *Macropanax undulatus* (7364), and *Litsea eusoma* W. W. Sm. (7361) while the grass is 6-7 feet high. We intended to camp but could find no water save deep below in the gorge. It began to rain in earnest and so we moved on trying to find a place to pitch a tent. We are now camping near some paddy fields in the narrow valley along a streamlet which flows into the Ta-p'ing Ho. Mosquitos are very busy, so I must close.

November 9, 1922

Left our camp on the paddy fields called Sung-p'o-chio 松坡腳 rather late. The trail descended more or less steeply down to the streambed. The vegetation was composed of tall bamboo, *Ficus* with semi-sagitate leaves, a shrubby species of wild lemon, about 4-5 feet high, branching from the base; the fruit is spherical, compressed, but with a distinct knob at the apex. None of the seeds were good and the fruits were full of maggots, evidently attached by a fruit fly. This shrub was very common, also plentiful along the Ta-p'ing Ho. There were silk cotton trees, *Aleurites fordii*, guava bushes, leguminous shrubs and plenty of *Euphorbia antiquorum*, planted as a hedge. We shortly reached a small village inhabited by Shans, it is called Muang-lung 猛龍 and is situated at the bottom of the narrow gorge. A little beyond to the right is a very narrow gorge from which the Ta-p'ing Ho issues. The stream is quite swift, full of boulders at least in this stretch. We follow the streambed near paddy fields. The banks on the left are flat, that on the right steep; tall bamboo grow on the right bank. The whole stream from this village on is full of fishing weirs and naked men are seen in the swift waters arranging their fishing traps. We follow along the left bank, which is now steep and covered with shrubs of various kind as *Callicarpa*, various ferns, even tree ferns. We now climb the hillside which is covered with *Lindera* oil trees full of red berries. We turn to the left. The plain stretches from south to north, and is one large paddy plain. There are several villages on this plain, inhabited mostly by Shan. A large village on the right bank of the river is called Chiu-ch'eng 舊城 or Old City. On the left we pass through the small village of Man-leh. Next to Chiu-ch'eng is another small village Kuan-shang which extends to the bank of the river where a ferry plies from that village. We now turn to the right to

the river bank and cross the stream in a dugout canoe, the horses being taken across a little further up. From here we cross the paddy fields in a northerly direction to the main village of the Chan-hsi plain called Tuan-po, the residence of the sawbwa⁶ or t'ou-mu 頭目 – Eyes in the Head, whose name is Mong-tzu-tsai. The heat on the plain, only 3,200 feet elevation, is stifling and causes throbbing in the ears. The air is laden with humidity and not a breath of wind is stirring. We now approach the village, a three storey roof is prominent, to the right on a low hill the sawbwa has his house surrounded by a wall. We decided to call on him so I sent my card in and he promptly appeared in the courtyard ushering us into his reception room, a poor affair open to the roof, the walls covered with red paper inscribed in Chinese, old dusty paper flowers standing in vases on a shelf. He sat down on a campstool and meekly answered all our questions, always rising a bit after having answered. He is quite civil. He owns about half of the rice fields on his side of the plain, and has a household of about 30 people. His son, a spry fellow well dressed and somewhat sporty, appeared and he ordered him to get two men to escort us to the Kachin village of Hpun Kaw. We took leave of him to lunch under a big *Ficus* tree near by. The trail from here on winds through the paddy plain in a northerly direction crossing the stream continuously. We follow to the extreme end of the plain, over a most miserable trail full of boulders of immense size which are strewn about everywhere. The hills are bare, undoubtedly due to the Shan and Kachins; we saw the latter bringing in bundles of fire wood to the village; they look dirty, unkempt and well deserve the name Yeh-jen 野人 or Yi-jen 夷人 both meaning wild men which the Chinese give them. We cross streams, boulders, mud holes, in fact the trail is abominable, finally we ascend, the trail leading steeply up a ridge. There are many *Schima wallichii* trees, tree ferns of which we collected specimens, the trunks about 12 feet tall and nearly one foot thick, the frond having 14 pair of pinnae. There are many large trees of *Castanopsis*, also tall trees, 100 feet in height, with trunks of 5-6 feet in diameter of the nien-ts'ao, apparently a meliaceous tree. We met a number of spirit trees on the way, four bamboo poles tied together about 1 foot

⁶ Vgl. H. R. Davies: *Yun-nan. The link between India and the Yangtze*. Cambridge: Univ. Pr. 1909, 20: Sawbwa, the Burmese corruption of the Shan word Sow-hpa, Lord of the Sky, which is the usual title of a Shan chief.» (Chinesisch: auch t'u-szu 土司).

apart with a small seat on top for the spirit. This is erected by the Kachins. A steep trail leads to the edge of the ridge on which is situated Hpun Kaw, the Kachin village where we are going to stop for the night. Hpun Kaw is called P'eng-chio 朋角 in Chinese. The Kachins are really a very curious people. They wear the Chinese blue cotton pants and coats but the women wear home spun stuff of many colors, around the neck they wear silver rings, beads and necklaces, while below the knees they have numerous rings made of cane; these thin rings are dark brown to black in color. Their houses are often 150 feet long, and pitch dark inside even in the daytime. The roof (a big gable) is made of bamboo and thatched with grass, the edges of the roof reaching the ground. In front of their house they keep their caraboas in pools of stinking mud. The floor of the house is only about 1 1/2 feet above ground and pigs and chickens live beneath it. The room itself is not divided except where the fire is kept. There is also a square affair with sticks and offerings where the spirits dwell. In front of their long barn-like houses they have thick posts in the ground, close together, where they kill their cattle with spears. They are certainly a primitive people and remind me much on the Miao I found on Doi Chang in Siam. Their women are however not at all shy as are those of the Miao. They seem to have no conception of the value of money as they ask prohibitive prices for things as chicken, fire wood or their services. One asked 5 Rupees a day as a guide to the next village. They are dirty and filthy, but seem to have a keen wit about them, quite independent and indifferent. From here to Meng-ka 猛嘎 is half day's stage. Our escort sent by the sawbwa, armed with knives, spears and match-lock guns, will return tomorrow and two Kachins will go with us as far as the old boundary gates.

November 10, 1922

We spent a most miserable day at this village, rain all day, mud everywhere. Notwithstanding the rain the Kachins came to my tent to stare and ask for medicines. Nearly all are afflicted with huge goiters which hang in big lumps on to their chests, the men as well as the women are afflicted with them; besides they have all sore eyes and their teeth are black from betel chewing and encrusted with lime. The dirt of as many years as they are old adheres to them. The hair of the women is never kempt or cleaned but swarms with vermin; they tie a small knot right above their forehead with a piece of grass. For a skirt they wear a thick cloth reaching to the knees, it is fastened on the

right side, but only begins below the navel. they do wear a jacket but that is all. The men all have their knives about 3 feet long, 2 inches broad, and placed in a sheath of one wall only, it is held in place by 3-4 bamboo cords at the point.

November 11, 1922

Early in the morning I learned that a mule belonging to our caravan had been stolen during the night. I went to see the Kachin Chief who pleaded ignorance. I gave him 15 minutes for the mule to be returned and in the meantime took possession of his horse, had it saddled and ready to start for Meng-ka. On requesting him to accompany us to Meng-ka he disappeared in the jungle. I left a soldier behind in the village who would stay till they brought the mule, and so we left for Meng Ka. From Hpun Kaw the ridge became narrow and densely wooded with huge trees, of *Castanopsis*, several species of *Quercus*, a species of *Malus* with large fruits (seeds collected). The araliaceous *Macropanax undulatus* (Wall.) Seem. trees (7364) (specimens collected) were also to be found, but the most common were *Quercus* and *Castanopsis*, with *Schima* trees.

A little higher up the forest became thinner, and consisted of small trees of *Quercus* mixed with a slender bamboo. We passed abandoned clearings full of tall grasses which hang over the trail, and, being wet from the rain, made walking very disagreeable. We now entered magnificent forests huge trees, moss-covered and one mass of lianas. There were many ferns and orchids but only two species were in flower, both of which we had collected previously. The most conspicuous was the large yellow-flowered one so common on the Lung-ling road. The trees were mostly a narrow-leaved *Quercus*, lauraceous trees not in fruit, *Engelhardtia spicata* and a tree with an *Engelhardtia*-like inflorescence but simple leaves. There was the lovely *Prunus majestica* with deep pink drooping flowers, araliaceous and theaceous trees, and a huge fruited *Castanopsis* with the nut completely enclosed. Bamboo was common, a tall slender species; ferns abounded mainly Polypodiaceae and numerous others (see collection), the whole was a typical virgin rain forest. We passed an occasional clearing full of weeds, secondary scrub and vines, and after some more climbing reached the top of the ridge. Here there is a double gate called Lao-kuan-ch'eng 老關城 or Old Pass Town, now all tumbled down, the roots of a huge *Ficus* (banyan) penetrating the masonry, this gate which forms now the boundary between Chan-hsi

盡西 and Meng-ka was formerly the Burmese-Chinese border. From here on the trail descends steeply; tall slender timber bamboo formed the main vegetation, huge *Ficus* trees towering above it here and there. The large fruited *Castanopsis* was still common; many lianas, one with pandanus-like fruit, the phalanges were fleshy and born on naked trunks. Many *Pyrus* were in evidence, and a few orchids grew epiphytically on the moss-covered trunks. We passed a few clearings, entering forest again with smaller trees, one a member of the rose family, *Photinia serrulata* Lindl. (7373) with orange red fruits. We followed a stream which we had to cross many times it is called Ku-lien-p'i Ho 苦連皮河 and flows into Meng-ka Ho on the Meng-ka plain. From now on the vegetation changes, huge trees of a *Quercus* with small fruits like *Quercus delavayi*, also resembling it in the leaves, grew scattered on the otherwise grassy slopes. The trunks are almost black, the branches very tortuous. We descend only to ascend some small hills, turn to the right and finally descend to the Meng-ka plain.

On the left on reaching the plain proper there is a temple on the left hill but hidden among the trees. We now follow the Meng-ka Ho for a distance and then follow in the bed of a brook which joins the Meng-ka Ho further down. This brook the trail follows till we reach the village of Meng-ka, which consists of about 200 houses, 150 of which are Chinese, the remainder Li-su. We went to the so-called school-house, but it was such an abominable place full of carabaos, filth etc., that I decided to see the headman of the village, a Chinese by the name of Yang, 33 years old. He told us that he remembered Major Davies staying with his father, he was then 5 years old, also said that Davies gave his father 10 Rupees, as much as to say, I hope you will give me the same. The weather is still bad, raining again. We are now fairly comfortably housed in a loft of the headman's house in Meng-ka.

November 12, 1922

We stopped all day at Meng-ka. In the afternoon I went out to gather seeds of two varieties of wild pear and also seeds of *Photinia serrulata* Lindl. We climbed up the hills back of Meng-ka following a small brook, where I collected numerous ferns and a few flowering plants. There were several scrub oaks and a species of *Malus* with small red fruits.

November 13, 1922

The night was cold and perfectly clear. We started quite early with two Li-su guides. The trail follows the Meng-ka paddy plain in a northwesterly direction among scrub composed of *Rhus* with its red leaves and waxy fruiting panicles, roses, *Rosa moschata* subsp. *longicuspis* (Bertol. Herr.) (7374), all in fruit, the flowers are said to be white, we collected seeds of it. We now turned to the right climbing the hillside to the left where there were a number of graves among huge oak trees such as we found on the slopes coming from Hpun Kaw to Meng-ka. This region has been much cut over. The only interesting tree left is the ubiquitous *Alnus*. There were several *Quercus*, but *Alnus* held sway. At the head of the valley there is a Li-su village which we visited. We also met quite a number of Li-su women fully dressed and covered with numerous ornaments, rings around their necks, heads, and bells tied in bunches to the margins of their jackets and sleeves. They wore short narrow trousers reaching to the knees. Also a long narrow apron decorated with heads and what appeared to be cowrie shells. The trail leads to the left leaving the Li-su village to the right. A steep trail ascends to what appears to be the summit range which enclosed the valley. Vegetation becomes scarce only a few *Alnus* trees remained till we reach the grassy slopes of the hilltop. From here a picture of desolation meets our eyes. As far as I can see bare hills, with dead trees and grasses. We descend steeply on the other side of the range into a valley between canebrake and weeds. On the banks of the trail we see an occasional *Rhododendron decorum* Fr. and *Rhododendron delavayi* Fr. The earth bank itself is covered with the prostrate *Gaultheria nummularioides* D. Don (7384). From here on we climb over absolutely bare hills, only grasses, one very tall species *Eulalia quadrinervis* (Hack.) Kuntze (7385) taking possession of the hillsides. There is an *Anaphalis* and other composite weeds as *Lactuca hastata* (Wall.) D.C. (7383), this is the only vegetation covering these hills up to 8,500 feet. The soil is sandy, the trail miserable, regular ditches 10-15 feet deep filled with blocks of quartz. Every now and then we pass through thickets of a slender canebrake with a occasional *Rhododendron sidereum* Balf. f. (7376) and a short shrubby one with rusty wooly leaves, *Rhododendron bullatum* Fr. (7377) similar to the one found on the Hung-mu-shu ridge. To the left and right are deep valleys both bare except the upper slopes of the main watershed which forms the boundary between China and Burma. We pass through a narrow gap and through a bit of mossy forest, but soon we are out on the bare

hillside. Here the slopes are completely covered with a short bamboo 1-2 feet high (1790). All were sterile and afflicted with galls. It grew at 9,000 feet elevation on both the Burmah and China side.

The upper slopes are covered with moss forest, the trees are tinted with all the autumn colors, red, yellow, brown, and the rich green of the evergreen. We pass another narrow gap; to the left is a pile of rocks at first almost appearing like a grave. Back of it is a square block of stone or cement. On the west face of it is engraved the figure 33 both in English and Chinese. This is the actual boundary. We now enter a sort of basin with pools of water, and streamlets running into this basin from all directions. The round hillsides are covered with lovely forest of *Quercus* and many species of *Rhododendron*, one a tree 35-40 feet with a trunk of nearly 2 feet in diameter, *Rhododendron sino-grande* Balf. f. & Sem. (7381) is especially conspicuous on account of its huge leaves which are silvery beneath. Every tree is literally clothed with moss and hepaticae, lichens are scarce. Ferns abound on the moss covered tree trunks, especially Polypodia, *Trichomanes* and *Hymenophyllum*, also *Vittaria* (two species) one with extremely narrow fronds. There are many peculiar trees here which were new to me as an araliaceous plant *Macropanax undulatus* (Wall.) Seem. (7433), 30-40 feet, the trees were in fruit. There are lauraceous and rutaceous plants and one species of oak, *Lithocarpus variolosa* (Fr.) Chin (7447) is especially common, also one or two other species occur but without fruit. A *Primula* lines the path also an *Aconitum* but passed the fruiting stage. There are several species of raspberries, *Rubus calycinus* Wall. (7391) is prostrate in *Rhododendron* forest. We found a huge stout lily (*Lilium giganteum* var. *yünnanense*) in ripe fruit with deltoid large leaves but dead. The stem was about 5-7 feet tall and 2 inches thick. Fruits collected. The undergrowth in this interesting *Rhododendron* forest is mainly one species of fern, fronds simply pinnate, the fertile frond with very narrow pinnae. This fern is terrestrial only and covers the ground to the exclusion of everything else. One other tree must be mentioned a species of *Camellia wardii* Kob. (7446) but apparently not common. The trail leads from this basin up a small valley densely wooded with forest as described above only to descend into another basin with sufficient flat space for a camp. Here we decided to pitch our tents. The whole basin is covered with the short bamboo previously mentioned while the hillsides are densely wooded with *Rhododendron* forest. The coloring of the autumn foliage in the glow

of a setting sun was perfectly glorious, brilliant tints of yellow, the red of the maples, the rich green of the *Rhododendron*, and the whitish silvery leaves of another species of tree unknown to me, made a wonderful color scheme. All these trees have beautiful dense round crowns, and thus the hillsides have an appearance of a billowy sea of magnificent color. The interior of these forests are weird, moss hangs from the trees several feet long, the trunks are enclosed in moss and the ground covered with ferns; brooks are everywhere. When we first arrived we found 5 wolves of a reddish yellow color; they sat down and looked at us, I fired a shot and they all disappeared. One of our Li-su men said that tigers frequented this place also. I however think that it is much too high 9,000 feet and too cold for tigers.

The sky is clear and it is bitterly cold, my fingers are numb from the cold and I can't write any more. The place where we camp is called Ch'ang-ti-fang 長地方.

November 14, 1922

The night was bitterly cold and during the early part of the morning it rained heavily. At about sunrise the wind changed to the east and the sky was clear again. We left at about 8 a.m. The trail leads through the small bamboo 1-2 feet high. Pools of water everywhere and brooks are descending from the hillsides from all directions. We soon entered the mossy *Rhododendron* forest. There were large theaceous trees, *Camellia wardii* Kobuski (7446) with white flowers, *Eurya cerasifolia* (D. Don) Kobuski (7448), many *Rhododendrons*, but neither in flower nor in fruit. The large heavy silvery *Rhododendron sino-grande* was the predominating one. The *Quercus* with dark green, stiff leaves was common, the acorns are born in spikes and could be found on the ground beneath. Maple trees were very common. Tall araliaceous shrubs were a species of the *Daphne papyracea* Wall. var. *crassiuscula* Rehd. (7412), an *Osmanthus* (7394) in fruit, peculiar pink flowered small trees, *Smilax lebrunii* with small red berries, an *Arisaema* (7429) with dark green divided leaves; an aconite, many ferns, etc. We descended rapidly over a stony trail following a rushing brook its downward course. We now entered dense stands of slender bamboo (*Arundinaria*) here and there a maple, and bushes which were neither in flower nor in fruit, but most of them had dark green leathery leaves. *Lindera thomsonii* Allen (7409) grew with the aralioids higher up. From the bamboo jungle we gradually entered magnificent forest of trees 100-150 feet in height

with straight boles 70-80 without a branch and 2-3 feet in diameter. It was of course impossible to ascertain what they were the immense height, the huge moss covered trunks made climbing out of the question, no fruits could be found on the ground. It was a glorious morning and as desolate as the country is on the Chinese side as magnificent is it on the Burmah side, absolutely untouched virgin forest. There were many climbers especially *Pothos* and *Philodendron*, many epiphytic ferns; *Asplenium*, *Hymenophyllum* and *Trichomanes* ferns growing on the trunks together with milky asclepiaceous creepers with thick fleshy leaves. There were spiny small-leaved shrubs with red berries, tall *Asplenium* ferns, myrsinaceous shrubs, small araliaceous trees and a tall *Arisaema* with huge (5) foliate leaves; but the tall immense trees could neither be collected nor could they be identified. One huge tree, *Litsea khasiana* Meissn. var. *hookeri* Meissn. (7439) we found of which the native from Meng-ka said that the wood is used as incense and is burned in brass bowls before their idols. Steeply we descended a zigzag trail, the forest becoming more and more tropical, tree ferns *Alsophila khasiana* (7431) appeared 40 feet tall with trunks 1 foot in diameter, the fronds 10 feet long, having 16 pairs of alternate pinnae (specimen collected). Here also we found a huge *Castanopsis* with large burs as we found in the Lung-ling Hsiang-ta road, but only old fruits could be found. There were no oaks nor other *Castanopsis* to be seen. The undergrowth became dense, a tangle of ferns, vines, buttressed trees with dense masses of *Philodendrons* climbing their trunks, no palms were seen nor Pandani. Araliaceous trees 60 to 80 feet tall were encountered as *Schefflera impressa* Harms and a much branched species which formed a tree 60 feet tall with huge terminal panicles, and 5-digitate leaves which proved to be new and was described as *Brassaiopsis Rockii* Merr. (type, 7432). There were simple stemmed species with a crown of leaves at the apex, resembling a *Carica papaya*. Steeper and steeper became the trail till we finally reached the stream called Chieh-ma Ho 齊麻河 – Nettle Stream, on account of the large stinging nettle (also found on Doi Sotop in Siam) found along the banks. There were other Urticaceae, many vines, and huge masses of a species of *Musa* with large truncate leaves, the apex being as broad as near the center. Tree ferns loomed up high out of the forest on the steep slopes on the other side of the streambed. We lunched near the clear, cold waters of the Chieh-ma Ho, at about 5,500 feet elevation, having descended nearly 4,000 feet. Here the

forest is of course evergreen, and the rich somber green contrasts exceedingly from the temperate forest above, where the leaves have taken on all the colors of an European or American temperate forest in autumn, the line of demarcation is very striking. Five li more and we shall arrive at the village of Chieh-ma-ho. The trail ascends only to descend again; the vegetation is now more or less uninteresting, consisting mainly of *Alnus* trees, with *Engelhardtia* trees, probably *Engelhardtia spicata*; the *Ficus* with semi-sagittate leaves, the *Saurauja* with brownish leaves and pink flowers; bamboo is also common. I must mention a very broad-leaved, large scandent bamboo which occurs in the large magnificent forest half way down. We arrived at the foot of a bare hill; a narrow valley leads to the left, one trail descends to a few houses, another leads us the bare hill into the small valley, in which Chieh-ma-ho-chai 芥麻河寨 is situated. We pass a fort-like house with masonry gate, and wall, and are lead to the headman's house. The entrance is a massive low gate; the whole compound is surrounded by a brick wall, with rock foundation. As the place reeked of filth from pigs etc., I decided to pitch the tents on the top of a bare hill to the left of the village. It began to rain again in earnest, and although the sky is dark and gloomy it has now stopped. From my camp I can see the fort and white house of Sadon or Hsi-tung 昔董 as the Chinese call it. From below the summit on the Burmese side we had a splendid view over the plain of northern Burmah and its distant mountain border both west and north. Range upon range was visible in the northern part, sharply outlined, as the valleys were filled with clouds.

November 15, 1922

We rose early and broke camp; the sky was clear and the day promised to be a fine one. The trail from this small place was rather bad, narrow and muddy, but soon we struck a broad road well trimmed, not like in China where one wipes the dew of the long overhanging grasses and bushes along the banks of the road. The forest was dense again in parts, mostly Araliaceae, *Eugenia* sp.?, *Callicarpa* sp.?, *Alnus nepalensis*, a *Symplocos* and many nettles or Chieh-ma, Zingiberaceae, ferns, begonias with beautifully marked leaves but not in flower, there were also *Castanopsis indica* (7451) trees but all with empty fruits; a species of *Castanea* about 50 feet tall in flower with empty burs still adhering. We passed through several Kachin villages with their typical houses and near their villages the

usual altars made of bamboo under trees for their nats⁷ or spirits. The Kachins relate that when the great Spirit called up all the people of the earth to give them presents, everybody went up with large baskets and they returned with wealth. The Kachins had however only little bags which did not hold much, hence their poverty. When God called the people up again, the Kachins thought they would bring large baskets. At that time God gave out all the nats and spirits and the Kachins having brought large baskets got most of the nats which are still with them. This is the reason why they have more than any other people. They also relate how the book of knowledge written on sheep skin was lost to them at the time God distributed it; when they left from on high they got lost and had no food and being hungry they boiled the sheepskin and ate it, and thus was lost the book of knowledge hence their ignorance. After passing Kachin villages and paddy fields we descended to a small paddy plain at the foot of the Sadon hill. There we met a caravan which was going to buy salt to take to China free of duty over the Chang-ti fang pass where there is no custom house. We arrived at the Sadon military post at about 1 p.m. There is a lovely clean Dak Bungalow near Mr. Wilson's house. The fort built of stone and surrounded by barbed wire is on the very top of the hill; in the fort is the post and telegraph office. There is a fine drill ground, and just below the fort is a small village, or rather the cook houses of the Indians. It turned out a wonderful day and we took advantage of it and dried our plants, packed seeds etc.

November 16, 1922

A glorious morning; Tabu Pum is to the left and Matu Pum on the right, sky absolutely clear, not a cloud to be seen, the air was cold but very refreshing and pleasant. To the west the broad bend of the Irrawady is visible, the banks are rather high. On the nearest ridge the heliograph station is plainly visible and beyond, on the plain, the outline of Myitkyina. The last range on the horizon extends clear into Assam and is known as the Pukun? Range, while the one between and beyond the heliograph station harbors on the west the Hukong valley. There is a good P. W. D. road to Khamti 230 miles north of Myitkyina now quite safe. Stopped all day at Sadon; had dinner with

⁷ Burmesisch nât, «a term applied to all spiritual beings, angels, elfs, demons, or what not ...» H. Yule, A. C. Burnell: *Hobson-Jobson*. London: Routledge & K. Paul 1969, 619.

Mr. Wilson, the Deputy Commissioner, the lone white man in charge of this part of Burmah.

November 17, 1922

Left Sadon at half past six a.m., Mr. Wilson came to the Bungalow and said good bye. The road leads by the fort on the left side and down the hill, passing the target shed. We descend to the little paddy plain, crossed the small stream, and followed the trail on the other side of the valley up into the hills. The vegetation consisted mainly of *Alnus* trees, here and there a *Bauhinia* probably *Bauhinia variegata* a tree 30 feet tall, *Albizia* sp.? with reddish pods and fine feathery foliage, *Ficus* sp.? the one with asymmetrical clasping leaves; we passed Kachin villages and small clearings only to enter dense forest; there were several species of *Ficus* (*Ficus roxburghii*) with large leaves and brown hairy fruits as collected in the Keng-tung State, *Castanopsis*, *Albizzias*, many araliaceous trees, *Hedychiums*, *Clerodendron nutans* Wall. (7466), a bush with long drooping racemes of white flowers, broad-leaved scandent bamboo, truncate leaved *Musas*, *Asplenium nidus*, the bird's nest fern of trees grew on the trunks as well as *Philodendron* vines. Here and there a tree fern with a 25 feet tall trunk, dark blackish-brown, the crown of fronds almost horizontal but somewhat spreading upwards, leaves 12 feet long, pinnae 19 pair, stipe prickly, of this we collected specimens. The broad leaved dark-green *Polypodium* was common also *Saurauja* trees with pink flowers and leaves brown beneath. There are many vines and ferns in this somber forest through which an excellent broad graded road winds along the hillside. To left (west) a wonderful panorama of the fantastic peaks unfolds itself. They are densely wooded and rise from the plain of Burmah. In the distance on the horizon is a long range of mountains which extend to Assam. We now descend and reach the village of Lu-chi 10 miles from Sadon; here is a weather-board rest house, very comfortable indeed; we had lunch on the verandah, Yow Bowm the Kachin caretaker bringing water and fire-wood. From here the road is not quite so good. We pass the Kachin village of La-pai of which I took several photos, the houses seem to be a bit better constructed than those of Hpun Kaw. Before reaching the village there is a new road which, instead of passing through the village, goes around the hillside down to the Hou-chiang 猴江 as the Chinese call it: Monkey River or Waw Kyang as it is spelled on the British maps. This is the newly constructed road. We were however advised to take

the old road which we did, passing over a mountain spur instead of going around it. We passed the Hou-chiang or Monkey River by a wire suspension bridge and ascended the hillside on the other side of the valley. There is mostly *Alnus nepalensis*, *Entada* vines, and the ordinary underscrub, as bracken fern etc., a short ride (horseback) of about 4 miles and we reached the stone bungalow on the left of the road, it is surrounded by a stone wall. The caretaker, a Kachin nicknamed *Punjabi*, on account of a few hair on his chin, lives in the Kachin village on the slopes of the hill below the bungalow. My horse took violently sick evidently from having eaten some poisonous weeds; its whole body was convulsed, all the nerves were twitching. It recovered however during the night after having been given it a large dose of epsom salt. The night was clear cool and pleasant.

November 18, 1922

We left our bungalow early. The broad road led through *Alnus nepalensis* forest, and passed Kachin clearings planted to *Coix lachrima jobii*, or Job's tears, the grass being about 6 feet tall; small *Phyllanthus* bushes bordered the road side, *Alnus* forest extended way up into the valley. We crossed a stream by another wire suspension bridge and followed the road through the same type of forest while here and there an araliaceous tree occurred; grasses were common. Higher up the valley we crossed the same stream over a log bridge, a narrow cane bridge to the left of it having been abandoned as being too frail. From here we enter moss forest. There are many orchids, a lovely pink one, *Pleione grandiflora* (7512) very fragrant occurs on rocks with many ferns and other orchids. There are several Rubi, *Rubus rufus* Focke (7479), *Rubus ampelinus* Focke (7482) a tall slender bamboo, *Quercus* trees, and all through the forest are huge round boulders covered with moss and ferns, the type of trees now changes, there many Araliaceae, *Schefflera venulosa* (Seem.) Harms (7489) different species from those found lower down, lauraceous trees, *Litsea brachypoda* Allen (7480; paratype) and a host of others as large-flowered theaceous trees *Gordonia axillaris* and *Ternstroemia japonica* which we collected back of Hsin-ch'i, the second day out of T'eng-yüeh. A short walk brought us to the small Li-su village of Kham-bai-ti below the summit range, the border of Burma and Yünnan. North of the camp is a high hill or mountain, semi-bare, but full of huge rocks and pinnacles, southeast of it is a low gap partly wooded. The trail leads however near the bare hill higher up and

nearer the big mountain to the left. We are comfortably housed in a bamboo rest-house.

November 19, 1922

We left our Li-su camp at Kham-bai-ti at dawn. A broad road leads through mossy forest; the underbrush alongside of the trail or rather road had been recently cut and there was not much to be collected. There were a number of araliaceous trees, *Quercus*, Theaceae, one a small araliaceous tree with a cauliflorous inflorescence (7530).

The forest was quite different from that found on the Ch'ang-ti-fang Range to Chieh-ma-ho. *Mahonia lomariifolia* Takeda was not uncommon, a small pink flowered melastomaceous shrub grew as underbrush while *Philodendron* infested the tree trunks, there were also *Schima* trees, *Polygonum*, numerous ferns, orchids, the latter not in flower. It appears that the forest on this side has been much disturbed by the Li-su tribe; the upper slopes of the ridge form the Burmah-China boundary; it is here bare on both sides. The peak to the left called Chi-chiao Shan 雞叫山 or The Call of the Chicken Mountain is also bare save in little ravines where there appears to be *Rhododendron* forest. The mountain is very rocky and ragged at the apex, in contrast to those found on the Chang-ti-fang pass which are rounded knobs covered with luxurious *Rhododendron* forest. A splendid road leads to the upper slopes out of the mossy forest into small bamboo, canebrake, with occasional *Cornus* trees, *Rubus pentagona*, the yellow *Senecio scandens* next a climber, *Anaphalis*, *Mahonia lomariifolia* Takeda, weed and grasses. To the right is a singular peak, pudding-shaped, which is called Hai-ho Shan or the Thin Shoe Hill, while Tabu-bum which is 11187 in height is called Ta-hsüeh Shan 大雪山. The ridge to the summit is bare, weeds to the left, canebrake on the right, infinitely less interesting than the Chang-ti-fang pass. The road leads zigzag over the steep slopes to the top of the ridge. A splendid road leads to the very boundary mark, a square block surrounded by a rock wall. From here the rotten Chinese road commences. The other side is just as disappointing, bare grassy slopes over which a miserable trail full of washouts and boulders leads down into the valley of the Niu-ch'üan Ho 牛圈河. It is a very narrow valley which was filled with clouds. No trees only weeds and grasses, with occasional shrubbery along a brook, till we reach the Chinese Custom house at Niu-ch'üan Ho. Here the hillsides are covered with what appears to be *Pinus insularis*. We follow a central spur down

into the valley. Pines everywhere also *Alnus nepalensis*. The hillsides are without underbrush but brown from the dead pine needles; the pine trees here are tall straight trees, with an oblong crown, and reflexed drooping branches on old trees and with ascending branches on young trees; they belong apparently to the same species as found on the Lung-ling road.

A fairly good trail now leads down to a stream bed, the Ta Ho 大河 which is really the Ta-p'ing Ho 大平河. Here grows *Aster rockianus* H.-M. We skirt a hill to the left follow up stream and reach the small poor Li-su hamlet of Ta-ho. Across the stream in front of the hamlet is a hill with an old broken fort. The Ta Ho is here a terrific torrent tumbling over huge boulders. A Li-su semicircular bridge spans it, a few feet up stream a more solid bridge of two strong logs covered cross-wise with branches and filled in with dirt makes the crossing a much safer venture. This bridge which is kept up by the China Maritime Customs, had a few days ago been washed away by a terrific flood, caused by three days of constant downpours. Here I found Mr. Houston the Customs Commissioner of T'eng-yüeh and the English Consul (both dead now). The Consul's name was Coles. They were expecting their caravan and were going to camp on the banks of the Ta-ho, inviting me to do likewise. My caravan being late I accepted the invitation and spent a pleasant Sunday afternoon in civilized company.

In the late afternoon, at about sunset, we went up stream collecting, among the boulders I found a purplish daisy, *Aster rockianus* H.-M. (7533), several shrubs, ferns, while the pink *Pleione grandiflora* grew on boulders. Little Li-su boys came with their crossbows and arrows and exhibited their splendid markmanship by hitting a copper piece stuck in the sand. There is quite a lot of vegetation on the west bank of the river, there are *Thea* shrubs, *Mahonia lomariifolia* Takeda, *Quercus*, small shrubby small-leaved *Rhododendron*, also larger leaved species and a holly-like tree but without flower or fruit. On the east bank are small terraced paddy fields. Ferns festoon the tree trunks.

November 20, 1922

Left our camp at 6:30 a.m. We ascend the hill by the Li-su village, then follow up a broad stream the Ku-yung Ho 古勇河 which flows into the Ta Ho near the village. The pines, described previously, cover the hillsides. Along the bank which is densely wooded are

Quercus, *Thea*, and many other shrubs and trees but mainly *Castanopsis concolor*, *Cornus capitata* Wall. (7551), small *Schima* trees with small fruits, the trunks are moss-covered and festooned with ferns of various kinds mostly *Polypodium*. This little forest along the Ku-yung Ho was a pleasant surprise; there are many cascades in this stream which drops very suddenly in places forming many rapids and almost waterfalls. We follow along the stream through jungle till we reach a paddy plain where we cross the stream over a miserable shaky one plank bridge, but some of the men prefer to ford the stream. The plain of Ku-yung is quite broad, surrounded by hills, partly wooded, partly bare, and is almost 10 miles long. We cross the paddy fields keeping to the right and pass through an old stone tower-like gate into the dirty village of Ku-yung. Turning to the left we cross again over paddy fields to Ku-yung kai-tzu 古勇街子. The place was practically empty, there being no market. From here we again cross paddy fields to another village called Shang-ma-ch'iao 上馬橋.

Here along the trail we found an old shed and I decided to stop for lunch. On the whole Ku-yung plain there are about 1,200 houses and about 50 villages, 25 of which are Li-su villages; there also some Shan and on the hills Kachin villages. The town of Ku-yung has no Chinese official but only a headman. The trail now follows the left side of the paddy plain skirting the hillside going west. The trail which we missed at first due to its being a streambed and not a trail, passes by other villages just as filthy and smelly as any other of millions found in China. On the hillsides we now see *Pinus armandi*, some *Catalpa Douclouxii*, the latter apparently planted, some wild small fruited *Diospyros* trees, *Trachycarpus fortunei* the bast of which is used for raincoats and as a sleeve for straining honey, etc. *Schima* trees are also met with. The whole stretch over this plain is most uninteresting and unprofitable from a botanical standpoint. The trail leads through the center of the paddy plain then again skirting the hillside. When passing through the paddy plain it is always a streambed as the farmers when not requiring water to flood the paddy fields divert the water into the Ta-lu or main road. This at a time when they dry their rice in the fields after having been harvested. This so-called highway is at best a miserable trail paved several hundred years ago and not repaired since. Hence the proverb *a road is good for ten years and bad for ten thousand*. As Pan-ch'iao is still some 15 li distant I decided to stop in an old forsaken school house called Chao-chung-tz'u 昭忠祠, on the lonely road near a village called Ma-

li-chai 麻力寨. The doors being barricaded from the inside we climbed through an open space in the wall after throwing down a log meant for an obstruction. The whole structure is about to collapse. White ants have eaten the wooden post, the masonry is cracked and the walls leaning in different directions but we hope that it will keep together for the night. Opposite this school house is a hill on the top of which are the remains of an old temple, now without roofs. The school house really an old ancestral temple with the name of hundreds of deads on its walls, is soon going to follow suit. Over the school benches and on the few tables cut paddy was drying.

November 21, 1922

We left this miserable place, continued down another small paddy plain, really a continuation of the Ku-yung plain – to the small hamlet on the other side, called Ching-k'ou 箐口. The trail leads through an old tumbled down gate with the posts supporting the mud bricks, all rotten and ready to fall someday. In no other but a Chinese community would such a menace to traffic be allowed to remain. From this little filthy village we pass to another paddy plain; the air is bitterly cold, the sky grey, the sun without strength and my fingers too blue to take notes. After this the trail winds between bare hills with here and there a *Pinus armandi* tree, the elevation being about 7,600 feet or whereabouts. An occasional *Rhododendron delavayi*, scrubby oaks, araliaceous vines, *Acanthopanax trifoliatum* (L.) Merr. (7570), *Craibiodendron henryi* W.W. Sm., *Bucklandia populnea* R. Br. ferns etc. are met with. We pass thence out on the small paddy plain of Pan-ch'iao; the village is situated on the right side the trail passes through it and up the hillside. Here we find *Castanopsis concolor* trees, *Lithocarpus spicata* trees about 30-40 feet tall with spreading crown, *Populus tibetica* shrubs, a species of *Pyrus*, a tree 50 feet tall with rather large pears, two inches in diameter, and long large shiny leaves turning red. We collected the fruits. The trail now winds around these small hills, through dark narrow gaps where I found two interesting ferns, and out into more open country but between a confusion of small hills, the little spaces intervening between these closely set hills, are cultivated by the Li-su. The Ku-yung Ho flows to the left about 1,000 feet below. The trail now descends steeply a narrow ravine filled with trees of *Castanopsis concolor*, *Ficus roxburghii* with large leaves and large figs as found on the Hsiang-ta – Lung-ling road, *Alnus* trees, *Prunus majestica* now

in flower, a rich dark pink. Zigzag we wind down to the narrow valley with terraced paddy fields to Ch'üan-ma-ching 荃麻箐. There, under a *Zizyphus* tree I had lunch. A miserable trail, part quagmire and streambed full of rocks leads down hill over paddy fields cultivated by Li-su; we enter scrub vegetation again, *Schima* trees, a species of *Pyrus* with small fruits and a tree probably an *Osmanthus* make their appearance. We are now on a central ridge, well wooded with tall trees, such as huge *Schima* trees, the *Betula luminifera* tree with the cherry bark, *Rhododendron stamineum* Fr., rosaceous trees with red berries, and a large peculiar dioecious tree with broad leaves and yellow globular male flowers. There are several species of oak, the nien-ts'ao trees, and an *Osmanthus* tree 40 feet tall or more loaded with fruits which we collected. We decided to camp on a hill surrounded by large old *Schima wallichii* trees, back of us, and a valley below us.

November 22, 1922

From our camp at the Kao-t'ien 高田 village on the small hill with the large *Schima* trees we descend to the paddy plain. At the very foot of the hill the trail leads to a wooden, covered bridge called Kao-ch'iao 高橋, over the Lu-k'ou Ho 路口河. A small village is to the right; the trail is a regular streambed and leads from the paddy plain up a small spur or ridge partly wooded, the Lu-k'ou Ho flowing in a valley to the right, below; we reach the village of Hsiao-chai 小寨. Hsiao-chai is partly divided consisting of two villages; to the left of the road is a paddy plain, much higher than the plain through which the Lu-k'ou Ho flows, but both are in the same valley. The paddy plain near Hsiao-chai is terraced; the trees around the place are mostly *Catalpa*, *Erythrina arborescens*, a *Ficus* etc. We pass through paddy fields over a miserably paved road to a rather large temple called Ya-tung Ssu; this temple is surrounded by a wall and is situated on a low flat hill, in the enclosure is a regular forest of *Catalpa* trees; the entrance is over a small stone bridge which spans a lotus pond. The place is, however, much neglected like all temples in Yünnan at this age of atheism even in China. About half a li ahead to the left is a small village called Fan-chia-ying 范家營 if anyone would wish to halt for the night the temple mentioned above can be recommended. Near the village of Fan-chia-ying the road divides, one trail to the right leads to Mien-chin, the other to the left to Wo-lung 窩龍 and T'eng-yüeh. The trail leads through scrub and then through dense stands of young

Alnus nepalensis trees called Chi-mu-shu by the Chinese, it looks as if it were planted. Mien-chin lies to the right in the plain below.

We pass now close to the quarry I mentioned the first day out of T'eng-yüeh to Mien-chin. There is no tunnel but the rock is just dug out from the side of the mountain. The only trees are *Alnus*, the soil is red clay smooth and very slippery after a heavy dew. We skirt at the foot of a spur to the left is Hsiao-wo-lung and a little further on Ta-wo-lung 大窩龍 or the Large Wo-lung. There are many pine trees and the place is surrounded by a lava-rock wall. The trees found here are *Lindera* sp.?, *Pinus armandi*, *Pinus sinensis*, etc. The road ascends the hill ahead to a flat small plateau, between bare hills which form the walls of an ancient crater. It leads directly through the center of the crater floor. Ahead is a little narrow gap, (artificial) through which the trail passes, it descends rapidly or rather steeply, the soil being whitish coarse sand. At the foot of the hills the road joins the road leading from T'eng-yüeh to Mien-chin. We now follow this road to T'eng-yüeh.

